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FOREWORD

This monograph studies American air close support operations by all three services in the Pacific during World War II. This subject is related to other histories prepared by the USAF Historical Division: AHS-88, Employment of Strategic Bombers in a Tactical Role, 1941-1951, and a draft air historical study, Air-Ground Cooperation Operations and the Changing Tactical Air Doctrine, 1917-1945. The present study was written by Dr. Joe G. Taylor, of the USAF Historical Division.

Like other Historical Division studies, this history is subject to revision, and additional information or suggested corrections will be welcomed.

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CLOSE AIR SUPPORT IN THE WAR AGAINST JAPAN

USAF Historical Division
Research Studies Institute
Air University
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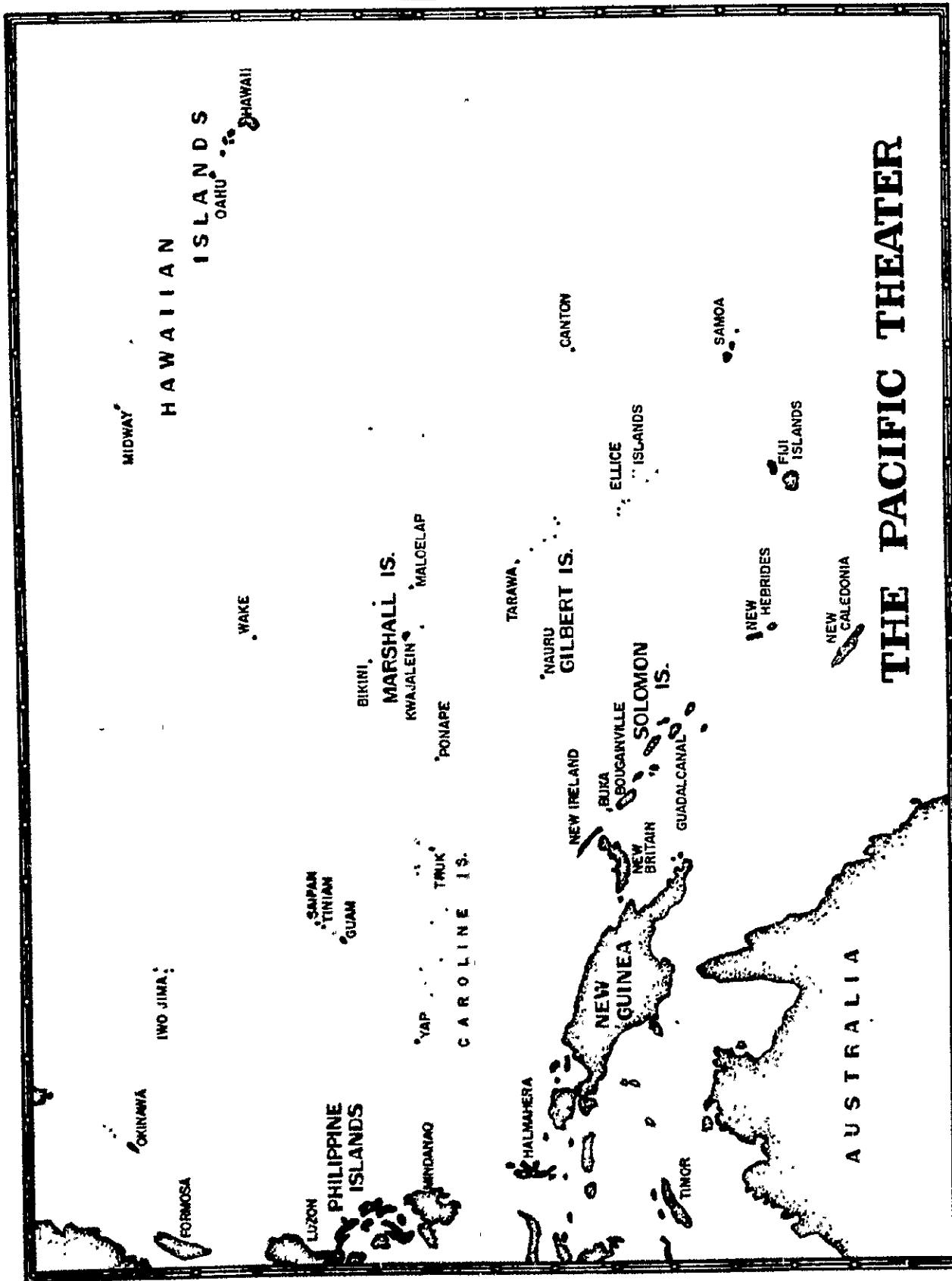
Chapter I
INTRODUCTION

Tactical airpower in the Pacific during World War II, as elsewhere, had three functions. It was expected to achieve air superiority over the battlefield to prevent interference with friendly forces, air or surface, by enemy airpower. It had the duty of interdicting communications in the area of surface combat--that is, cutting off or at least seriously hampering the movement of supplies and reinforcements to the enemy units engaged in combat. Finally, tactical airpower was expected to give air support to friendly surface forces, and thus aid them in defending or taking ground.

All tactical air functions, including the winning of air superiority and the interdiction of enemy communications, aided friendly ground forces, but certain operations were devoted primarily to the support of ground units. Such operations, when directed against supply dumps, troop concentrations, bivouacs, and other targets far enough from the front lines that coordination with friendly ground forces was not necessary, were usually referred to in the Pacific war as direct support. When air attacks were made against enemy targets so near friendly positions that close coordination was necessary, they were said to be in close support.

The term close air support, then, referred to air attacks against targets in close proximity to friendly ground troops, designed to aid





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those ground troops in taking or holding ground. Such attacks were made with demolition, fragmentation, or incendiary bombs, machine guns, rockets, or combinations of these weapons. While close air support could be defensive, intended to weaken, confuse, or turn back an enemy attack, in the war against Japan it was usually used offensively. In the Pacific, close support reached its highest point in amphibious landings and the island fighting which followed such landings.

The problem of close support of ground troops had faced the Army Air Corps for years before the beginning of hostilities in 1941. It was widely appreciated that such operations were among the most difficult of all to execute, since the speed of aircraft made identification of front-line targets almost impossible without the use of artificial marking. Furthermore, the frequent mobility of close support targets--both friendly and enemy ground units might have changed position between the ordering of a mission and the appearance of aircraft over the front lines--made coordination an essential element in successful close support. Satisfactory means of communication to achieve the necessary coordination did not exist during the years between wars, nor were they available by Pearl Harbor.

Close support was often called a "third phase" tactical air operation. It normally would take place after the enemy's air force in the battle area had been neutralized and his communications interdicted or at least seriously hampered. There was no hard and fast rule that this should always be the case; it was anticipated that situations might arise in which support of ground forces might have priority over other tasks, but it was also expected that in most

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instances air superiority and interdiction would take precedence over close support. The evident difficulties to be encountered in carrying out close support operations and the low priority accorded such use of tactical airpower, compounded with the predominance of Air Corps concern with strategic air operations, led to a lack of emphasis on close support during the prewar years.

A system for close support air operations was, however, provided in War Department Field Manual 31-35, Aviation in Support of Ground Forces, issued 9 April 1942. FM 31-35 was significant both because it prescribed a system for close air support of ground troops and because, despite its widespread disfavor in the Army Air Forces (AAF) after the North African campaign, it was the only guide to close support operations to be issued until April 1945. One feature of the system outlined in FM 31-35, the air support command, designed to render tactical support to an army, never appeared in the Pacific. However, the manual also mentioned air support controls, which presumably would be attached to corps, and air support parties, the latter ordinarily to be attached to a division but possibly assigned to any ground force unit needing air support. If it were necessary to control supporting aircraft in the air, they normally would be directed by an air support control, but under certain circumstances might be directed by an air support party. These two units, under various names, did appear in the Pacific, though not until the necessary communications equipment became available. The actual operating system for close support, as it finally

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evolved in the Fifth and Thirteenth Air Forces, was at least not in conflict with the system suggested by FM 31-35.

Most close support operations in the Central Pacific Area, and many in the South Pacific, were performed by Navy and Marine Corps aircraft. The Marine Corps, alone among the services, had had actual experience in such operations before the war began, having bombed and strafed in aid of ground troops in Nicaragua during the intervention in 1927 and 1928. While the naval air arm lacked combat experience, naval doctrine envisaged the use of airpower for close support in amphibious operations. The Navy and Marine Corps at Guadalcanal, and the AAF both there and in Papua, were to begin a development of close support tactics and communications which was to lead to ever more effective close support as the war against Japan progressed.¹

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Chapter II

THE BEGINNING: BUNA AND GUADALCANAL

First Stages of the Papuan Campaign

On 21 July 1942 Japanese forces landed at Buna Mission on the north coast of Papua and, in an attempt to take Port Moresby by land, began a march across the Owen Stanley Range. Australian troops (most of them inexperienced militia) were driven from one position to another until finally, on 17 September, the Australian 25 Brigade halted the foremost Japanese patrols at Imita Ridge, less than 25 miles from Port Moresby. This was the high tide of Japanese fortunes in New Guinea. In late September the Australians, having held at Imita, moved northward and drove the enemy from Ioribaiwa Ridge. Thereafter the Japanese fought a delaying action as they retreated toward Buna.¹

Earlier in 1942, Australian forces had occupied Milne Bay, at the eastern tip of New Guinea. On the night of 25/26 September, a Japanese force was landed in an attempt to seize this important position. Here the Australian infantry held, and after several days of fighting the surviving members of the Japanese landing force were evacuated.²

Both on the Kokoda Trail from Buna to Port Moresby and at Milne Bay, attempts were made to give close support to Allied ground troops. Missions from Port Moresby against the Kokoda Trail used P-400's,*

* An early and inferior export model of the P-39.

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P-40's, and A-20's for attacks on Japanese supply lines and personnel. That perennial problem of support aviation, target identification, precluded close support such as became common later in the war. It proved impossible, from above the concealing canopy of the jungle along the Kokoda Trail, to identify friendly or enemy positions, so supporting planes made their attacks far enough forward to be sure of avoiding casualties to friendly troops. Some attempts at visual communication were made, one of which involved white markings on the helmets worn by Australian troops, but none of these experiments made successful close support strikes possible. It is noteworthy, however, that supply-drop zones along the trail were indicated by smoke signals, a method of marking which was to be used again later.³

At Milne Bay, Allied aircraft gave more successful close support to ground units than had been possible along the Kokoda Trail. The ground action took place almost on the edge of the airfield, in terrain with which the Royal Australian Air Force (RAAF) pilots based on the field were thoroughly familiar, and the Japanese were forced to operate in a comparatively open area of coconut plantations. The two tanks which spearheaded the Japanese attack on the airfield soon bogged down in deep mud, and RAAF P-40's and American P-400's, the latter from Port Moresby, strafed the Japanese infantry unmercifully. Strafing of the coconut groves was reported to have been especially effective against snipers. Apparently fighters did all the ground support work at Milne Bay; 12 B-26's were sent there on 27 August, but were driven off by Japanese planes, and 8 B-17's which set out from Port Moresby on 30 August found no targets.⁴

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Air commanders used what planes and ordnance were available during this stage of the Papuan campaign. Strafing was the chief tactic of the P-40's and P-400's; A-20's were held out of action until 31 August because they were being modified to give heavier strafing power. Fragmentation and 500-pound demolition bombs were, however, used to some extent, the former being carried by A-20's, demolition bombs by the fighters. P-400's were dropping bombs along the Kokoda Trail as early as 7 August. There were some instances of fighters dropping belly tanks full of gasoline and then igniting the fuel with incendiary bullets. Almost all attacks were made at minimum altitude, though this procedure seems to have resulted as much from a desire to see something to shoot at as from any belief that such attacks were more effective.⁵

The need for better coordination between air and ground activities was realized. There is no record of any attempt at ground-air communication on the front line at this stage, other than by visual signals, but there was an awareness that such communication was needed. It was already planned to set up small communications groups known as XYZ teams, and some of these were probably in existence before 1 January 1943, though inactive. These teams, made up of communications personnel from either AAF or Signal Corps organizations, were to accompany the ground forces into combat. Each team was to maintain three radio circuits: one air-ground for communication with planes overhead, one back to higher headquarters, and a third for liaison with the ground forces. Lack of equipment and personnel prevented such teams from taking part in close support until much later (when

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they were known as air liaison parties), but they were first organized during the Papuan campaign. Later, also, the arrival of tactical air communications squadrons (first called air support communications squadron), permitted these parties to be made up exclusively of AAF personnel.⁶

Liaison between ground and air was also being developed. An Australian ground officer was assigned to the advanced echelon of Allied Air Forces at Port Moresby; he kept up with the ground situation along the Kokoda Trail as best he could and briefed crews before they went on support missions. The RAAF P-40 squadrons at Milne Bay also had infantry or artillery officers assigned to them for liaison purposes.

Both American and Australian air units demonstrated their willingness to aid ground troops whenever possible. Between 2 August and 31 October 1942, approximately 485 sorties were flown in support of the infantry at Milne Bay and along the Kokoda Trail. Every type of plane available except the A-24--Beaufighters, P-400's, P-40's, B-26's, B-25's, B-17's, and A-20's--took part. Even better evidence of the desire of the air arm to be of service was the fact that medium and light bombers were sometimes held on ground alert awaiting a call from the ground forces.⁷

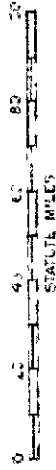
The Siege of Buna

By November 1942 American and Australian troops were in position to attack Buna in an attempt to wrest Papua from the Japanese. The first attack failed, as did subsequent ones, and before the end of the

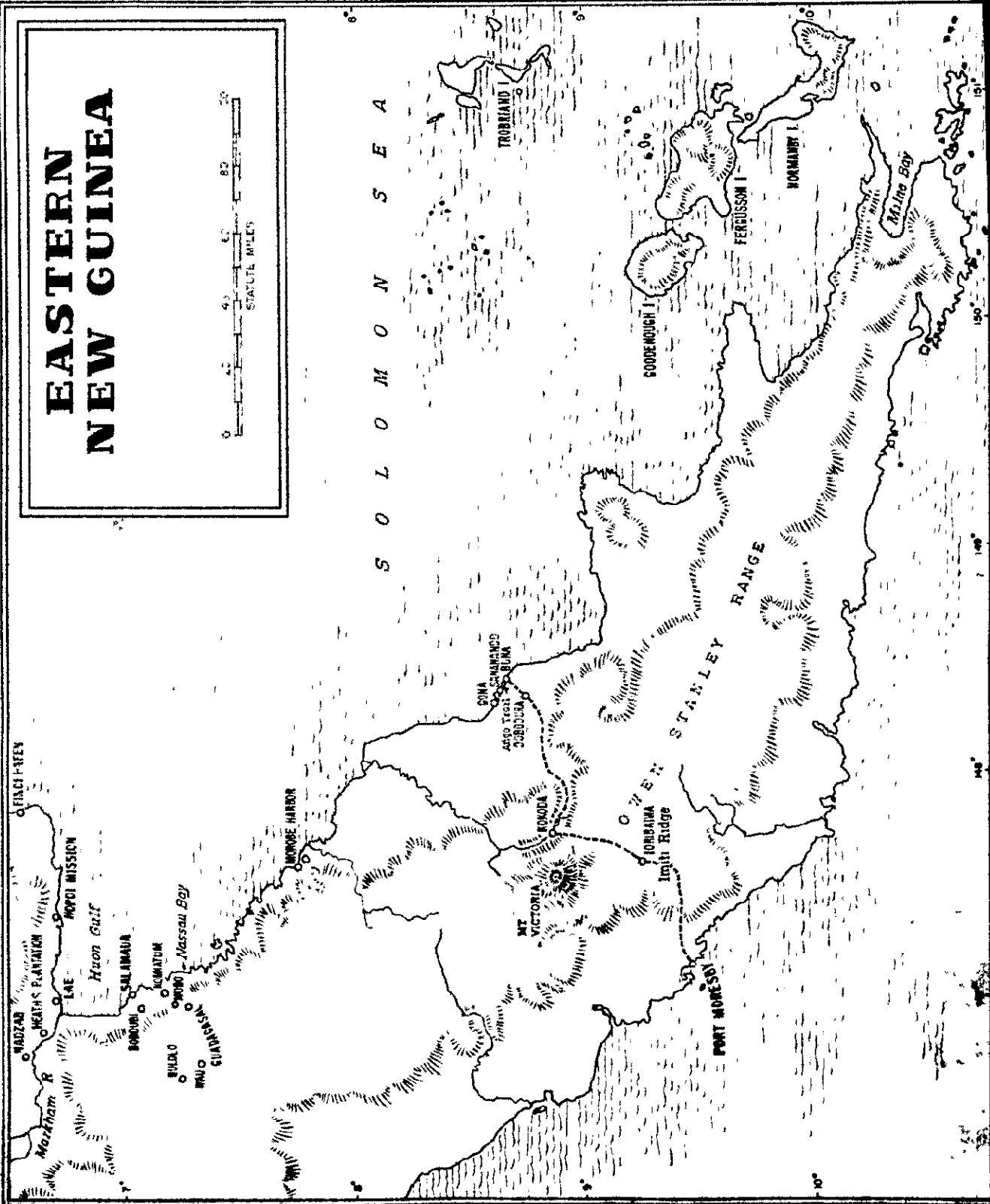
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month the battle resolved into a siege in which advances were measured by yards. Japanese bullets, malaria, and dysentery took a heavy toll; a change in command and an infusion of new troops was necessary. Even so, Buna Mission was not captured until 2 January 1943, and the campaign was not fully concluded until 22 January.

The Battle of Buna, in which the front lines remained unchanged for days at a time, would seem to have afforded an opportunity for effective close support. Fifth Air Force and the RAAF were eager to cooperate; between 1 November 1942 and the end of the campaign more than 800 sorties were sent against ground targets in the Buna area. But only a small proportion of the sorties were devoted to close support; the failure of these few did away with any pressure for a more extensive close support effort.⁸

The first mission in close support of the ground forces was flown on 21 November, with A-20's and B-25's of the 3d Bombardment Group dropping bombs from medium and low altitude, then following up with minimum-altitude strafing. The strike was poorly executed, some bombs falling in the water and others among friendly troops. The air effort was a hindrance rather than a help, but the responsibility for the failure of the subsequent attack must in part be borne by the ground forces--the regiment which was expected to make the attack did not receive its orders from division headquarters until well after the bombing had ended. Air attacks on 24 November had better results on the Australian front near Sanananda, but in the Buna area the strike was described by the 32d Infantry Division as a "fizzle." Strafing



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and bombing on 26 November again failed to weaken the Japanese defenses, and the infantry was stopped in its tracks. Coordinated air and artillery support, plus help from Bren carriers, achieved no better results on 5 December. A brighter note was struck four days later when Gona fell to the Australians after a strike by A-20's, P-40's, and B-26's, but on 18 December, when two companies attacked the Triangle, a strong point commanding the Ango Trail, the Allies were again repulsed. Although 13 A-20's had strafed and hit the area with fragmentation bombs, the two companies were driven back after suffering almost half their number killed or wounded. Close support aviation can claim little credit for the final victory at Buna though, if it be any comfort, ground operations were also poorly conducted. Both air and ground had much to learn, and Buna was a hard school.⁹

The failure of close support at Buna was not due to poor flying ability. Probably the flying skill of the pilots of 1942 was as a rule greater than that of their successors, because most of these early fliers had had leisurely peacetime training, and many of them long hours of flying time in military aircraft. Nor can the failure be attributed to the planes. With the exception of the B-26, P-400, and B-17, the planes used--A-20's, P-39's, P-40's and B-25's--were all to be successfully employed in the Pacific well into 1945. While the weight of close support attack at Buna was small in comparison with some operations later in the war, there were many subsequent instances when attacks by half a dozen or a dozen planes were highly effective in aiding ground forces; lack of numbers therefore cannot be held responsible. Fault

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can be found with the ordnance--demolition bombs would have been more destructive of roofed bunkers than the fragmentation bombs most often dropped--but some demolition bombs were used, and close support attacks seldom killed well-protected enemy personnel at any stage of the war, so ordnance cannot be considered an important factor in the failure.

The same can be said of the inaccurate maps used by both ground and air forces. Inaccurate maps were a constant feature of the war in the Southwest Pacific, and effective support was later rendered despite this handicap. Moreover, even accurate maps were of little value for close support operations because the largest scale suitable for other aerial use was still too small for identification of close support targets. Vertical aerial photographs were little better, because a few days of fighting might change the appearance of terrain. Also, in the jungle the aerial camera could see no more than the human eye, and one acre of jungle-covered terrain on a photograph looked exactly like another--just as it did to the pilot flying above it.

The main cause of poor close support in Papua was the inability of pilots and bombardiers to identify targets. Human eyes were simply not keen enough to pick out a target which was not outstandingly different from the surrounding terrain on a battlefield, whether in New Guinea jungles or among the volcanic sands of Iwo Jima. Attacking aircraft were therefore dependent for target identification on the help provided by what proved to be an inadequate system of liaison and communication, and it was this inadequacy which provides the key to the failure of close support in Papua.

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Liaison existed in the form of ground liaison officers, usually Australians, attached to air headquarters and to operational air units. But there were as yet no support air parties with the ground forces. It must be pointed out, however, that liaison was in the main confined to the highest echelon of command. As prescribed by New Guinea Force--the name given to Allied ground forces in New Guinea--the senior ground officer at Fifth Air Force Advanced Echelon (Advon) headquarters at Port Moresby was Army liaison officer to air, and was to be notified when air support had been arranged through his opposite number, the Fifth Air Force air support officer at New Guinea Force headquarters. This air support officer received requests from the ground forces and channeled them to Advon Fifth Air Force; he was also air advisor to Gen. Sir Thomas Blamey, New Guinea Force commander. Ground force headquarters provided an air operations section, which kept situation maps, cooperated with the air support officer, kept a file of incoming messages pertaining to air matters, and, most important of all, issued to the ground liaison officers serving with tactical air units material to be used in briefing crews.¹⁰

It was evident to at least one ground commander at Buna that air liaison officers with subordinate ground units were needed to complete the liaison system. Lt. Gen. Robert L. Eichelberger, who had taken over command of American troops after the failure of the first assaults on Buna, felt that an air officer on the ground could, if nothing else, do much to prevent bombing and strafing of friendly troops. At one time, according to his memoirs, he offered to house a Fifth Air Force

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staff officer in his own tent if Lt. Gen. George C. Kenney, Fifth Air Force commander, would send one over. But nothing was done until the siege of Buna had ended.¹¹

A ground officer at Buna who desired air support (normally a battalion commander) sent his request in code through ground force channels. Division headquarters decided which requests would be forwarded and what priorities to assign them. From division the request went to New Guinea Force's air operations section, from whence the Fifth Air Force air support officer transmitted the request and the information needed to carry it out to Advon Fifth Air Force at Port Moresby. At the same time the air operations section provided its liaison officers assigned to tactical air units with the information they would need for briefing crews. Presumably a request could be rejected at any headquarters in the chain of command, but in practice apparently only the division concerned, New Guinea Force, and Advon Fifth Air Force ever exercised this prerogative.

Once a target was chosen, the only problem was to get planes over the area and insure that the pilots knew the nature and location of the target. The system of requesting strikes was slow and cumbersome, but by fixing a time limit (1700 on the day preceding the attack) for requests, the planes were present over the Buna area at the time desired. The next step, enabling planes to identify front-line targets so as to inflict maximum damage on the enemy without endangering friendly troops, proved an insoluble problem during the course of the fighting at Buna.

It was originally planned that in requests the target would be designated by map coordinates. It was hoped that panels and/or radio communication would then enable the pilots to identify the area to be bombed or strafed. But the panels proved invisible to men flying overhead at high speed; also, the ground troops found the panels inconvenient to carry about and frequently "lost" them. There was a belief among the infantrymen, possibly justified, that the panels drew enemy fire; certainly any soldier who climbed a tree to spread the panel where it was likely to be seen by friendly aircrews was recklessly exposing himself to any near-by sniper.

When panels went unseen, attempts were made to use reflecting surfaces, such as mess kits, tobacco tins, and mirrors, to mark the front lines, but these also proved futile. Some experiments were made in marking targets with mortar smoke shells, a tactic which was proving successful on Guadalcanal at the same time. For some reason, perhaps because the Japanese at Buna were better supplied with smoke shells than those on Guadalcanal, this did not work. "We'd throw over a few rounds of smoke, and then all around in that vicinity the Japs would put up smoke."¹²

Radio communications were little better. Only one air-ground frequency was available, and under the procedure set up for the campaign messages could be sent in the clear only in extreme emergencies. Time therefore had to be taken for encoding and decoding during the precious few minutes over the front lines. The codes used were simple ones, but later experience was to prove that, except for accepted

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substitutes for stereotyped words and phrases, use of code was more of a hindrance to close support vocal communications than the risk to security justified. On the infrequent occasions when the enemy jammed the frequency in use, a switch to another frequency was possible for the ground station, though when this was done the planes could no longer transmit.¹³

This system of air-ground communication, clumsy as it was, could probably have been successful in directing pilots to their targets had trained air support observers been available for this job on the ground. As it was, the on-the-spot knowledge of the men on the ground and the eagerness to help of the men in the planes were to no avail so long as the operators of the ground radio station lacked the familiarity with flying and the experience which would enable them to talk the planes in to their targets. As one group commander stated after the conclusion of the campaign, "Yes, we had . . . communications from the front lines . . . but . . . there was no information they could give us that was usable."¹⁴

It should be emphasized that Fifth Air Force showed itself eager to give ground support. Between 26 August 1942 and the capture of Buna on 2 January 1943, Fifth Air Force (Advon) received 110 requests. Not all of these were for close support, but all were for attacks against targets selected by the ground forces. Seventy-two of these requests were honored. Of those rejected, only 15 were turned down because the target was considered unsuitable, the remainder being refused either because of weather or lack of planes. Aircraft were kept on ground alert on call for ground support missions during the Battle of Buna just as had been the case earlier in the Papuan campaign.¹⁵

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The failure of close support at Buna had unfortunate consequences. The ground troops began to doubt whether air could be of help once they were joined in combat with the enemy. Some infantry commanders hastily concluded that close support was impractical-- "Tactical bombing and strafing of forward enemy areas played a relatively small part for such operations early proved almost as dangerous to our own troops as to the enemy."¹⁶ Others, according to General Eichelberger, "began to wonder whether it was not . . . the obligation of the Air officers to become 'ground minded'." Everyone of course recognized that the too-frequent bombings and strafings of friendly troops had an adverse effect on morale. Not until Luzon was the damage done to ground force confidence in close support repaired.¹⁷

Air commanders also began to doubt that close support targets were worth the effort and the risks involved. A returned group commander stated in the spring of 1943: "Any such [close support] target would never have been as profitable as striking at their lines of communications, supply dumps, and even the bridges which they had to cross to bring up their supplies."¹⁸ Even General Kenney began to doubt the feasibility of close support:¹⁹

As in this Papuan campaign we will keep on - first gaining local air control . . . /then/ bombing and strafing to kill . . . /the enemy/ off and prevent his getting supplies and reinforcements. This part goes through quite rapidly. Eventually, however, the troops get in close contact in an area so restricted that if we bomb we kill both our troops and the Japs.

Perhaps the most galling commentary on close support at Buna came from the dead Japanese. Captured diaries showed that enemy soldiers

feared mortar fire most, artillery next, and bombing and strafing least of all.²⁰

Guadalcanal, Amphibious Phase

Guadalcanal and the adjacent islands of Tulagi and Gavutu-Tanambogo, in the Solomon Islands, afforded the Navy and Marine Corps their first experience in amphibious operations in World War II. It had long been accepted doctrine that an amphibious assault out of easy range of land-based planes should be supported by carrier-based aircraft. Doctrine assumed that in such operations naval air would have attained local air superiority and, where the attack was to be against an island, would have, in conjunction with surface units, cut the enemy's sea lines of communication before the landing took place. Then air could devote itself to close support of the assault forces.²¹

The assaults in the lower Solomon Islands violated much of this doctrine. The amphibious attack on Guadalcanal was a defensive measure, designed to check the threat to American supply lines through the South Pacific to Australia and New Zealand. Local air superiority could not be assured, and if attained, could be held only shortly. Neither air nor sea power was strong enough to cut off supplies and reinforcements. Because of surprise and Japanese ineptness, however, naval aircraft were able to give effective support to the marines on D-day and D plus 1.

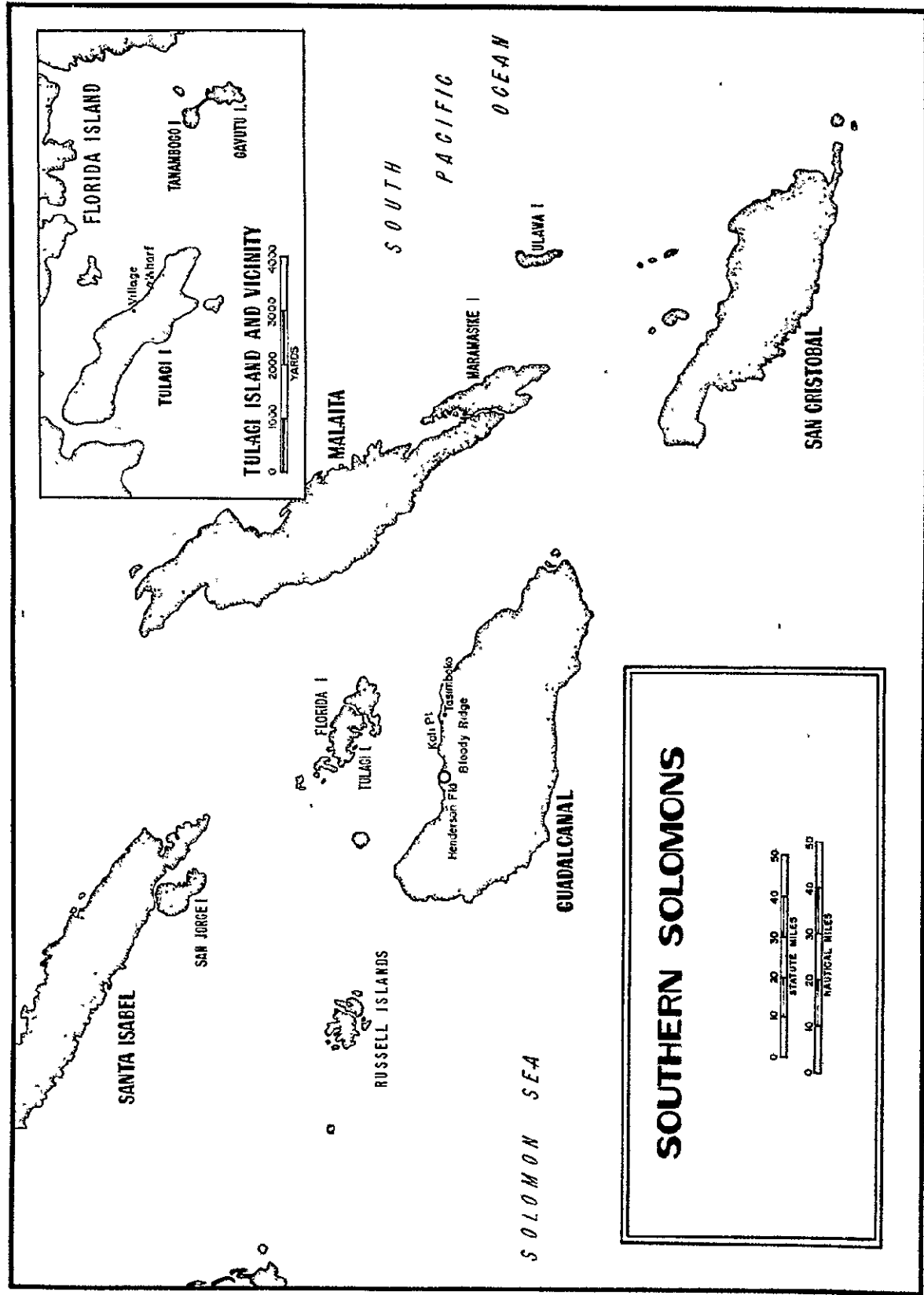
The command and communications systems in effect for air support on the day of the landing were simple and adequate. As in Papua,



however, no provision was made for communication between the marines and planes in the air. The marines were in fact worse served in this respect than the Army troops at Buna; except through portable radios intended for command communications only, they had no radio contact with the supporting planes from the carriers.

The support planes when over the target were under the direction of a group commander who served as air coordinator. This airborne commander was in radio contact with the carrier and with an "air support direction center" aboard the flagship, which coordinated air support and landing force activities. It was the air coordinator's duty to receive target assignments from the air support center, direct strike groups to these targets, and pass on observations to the air support center. This center was in communication with the air coordinator, the carriers, and the ground forces.

Strike groups were kept on air alert overhead insofar as their numbers permitted, and when called upon were usually able to render support promptly. In one outstanding instance, a battalion commander who had requested a strike saw the bombs explode on the target designated less than four minutes later, a record which was seldom bettered during the entire war in the Pacific. Not all requests could be answered so promptly, of course, and there were even occasions when planes jettisoned their bombs and returned to the carriers while ground commanders were still trying to get a strike delivered. It was generally felt that direct communications between the air coordinator and the ground forces would have improved the quality of close support.²²



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Contrary to intelligence predictions, the heavy fighting on D-day, 7 August 1942, took place on the smaller islands; troops on Guadalcanal itself met no organized resistance. Florida Island was found to be unoccupied, but the Japanese on Tulagi fought almost to the last man, despite naval gunfire on forward slopes and dive bombing on the reverse slopes of the island's rugged terrain. The preliminary bombardment kept the enemy down while the troops disembarked, and the actual landing was made without casualties, but, as was so often to be the case, the Japanese came to life soon after the bombardment ended and, despite several subsequent strikes, inflicted severe casualties on the marines.

In relation to their size, Gavutu and Tanambogo, two small islands connected by a causeway, proved even harder to capture than Tulagi. The defenders of Gavutu, who killed or wounded 1 out of every 10 of the attacking marines, were bombed more heavily than had been planned, because planes diverted from Guadalcanal when no resistance developed there deposited their bombs on Gavutu. Despite the fanatical resistance, however, all three of the small islands were cleared of enemy troops before midnight of D plus 1.²³

Air support for the landing on Guadalcanal proper consisted only of preliminary dive bombing and strafing of the beaches. Thereafter, planes reporting in were sent to Gavutu to aid the hard-pressed marines on that islet. An interesting feature of the Guadalcanal landing, to appear again two years later at Tinian, was the use of aircraft to mark the extremities of the beaches as a guide for the landing craft.²⁴

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After direction of the campaign on Guadalcanal had been turned over to the Army, Maj. Gen. Alexander A. Vandegrift, who had commanded the Marine troops who made the assault stated:²⁵

I don't believe that any landing against opposition is anyway feasible unless you have an umbrella of air over you. . . . There has got to be the closest coordination and the closest timing between the bombardment of the ships' gunfire and the picking it up by the air. Because there is a little space in there where you cannot have ships' gunfire support due to the flat trajectory, and where your assault waves are approaching the beach - and unless somebody keeps that beach defense down it will be rather costly.

Although the landings on the smaller islands would have been made at very heavy cost without air support, and might have been repulsed, the strikes on 7-8 August were poorly executed, and the results disappointing. On Gavutu, marines were killed by bombs dropped from friendly planes. This should perhaps have been anticipated; more disappointing was the lack of effect on the enemy; the bombardment of Tulagi was heavy for that stage of the war, but the Japanese, protected in caves and dugouts, soon recovered and offered bitter resistance. Gavutu was bombed even more heavily, yet, if a Japanese prisoner was to be believed, only three men were killed there by the combined naval gunfire and aerial bombardment. These landings demonstrated to commanders on the scene that close support was essential for amphibious operations, but also that airplanes could not do the work of the infantry. To quote General Vandegrift again, "It goes to show that if they have enough head protection you cannot shoot them out with naval gunfire, nor can you bomb them out with aerial bombs."²⁶


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Guadalcanal, the Defensive Phase

The amphibious operations of 7-8 August succeeded in placing the marines ashore on Guadalcanal, but the fact that Allied forces were too weak to maintain control of air and sea in the Solomons limited offensive activity. The Japanese, initially weak on the ground, were able to reinforce almost at will during the next few weeks. The marines, short of supplies and uncertain when more would arrive, took up defensive positions about Henderson Field, preparing for the Japanese offensive which was sure to come.

Henderson Field was made ready to receive planes by 20 August, when Marine Fighter Squadron (VMF) 223 and Marine Dive-Bomber Squadron (VMDB) 232 arrived. Four days later, 11 SED's from the carrier Enterprise arrived on Guadalcanal, where they were to remain for three months. Five P-400's of the 67th Fighter Squadron, 347th Fighter Group, flew in from Espiritu Santo, in the New Hebrides, on 22 August, and nine more P-400's arrived on 27 August. Japanese command of the air over Guadalcanal was no longer to be unchallenged, and ground support was now available to the marines.²⁷

Early operations at Henderson Field demonstrated conclusively that the P-400 was simply not suited to air combat. Neither this plane nor the similar P-39 which replaced it was able to outfight or outrun Japanese fighters above 15,000 feet, and the P-400, which lacked oxygen equipment, could not long remain even at that altitude. Of the 14 original P-400's at Henderson, only 3 remained operational after 4 days of combat. As a result of this evidence of the P-400's



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impotence as a fighter, General Vandegrift shifted the 67th Squadron to fighter-bomber duties. This was to be the role of the P-400's and P-39's of the 347th Fighter Group throughout most of the campaign. Aided occasionally by SED's, however, they were to prove capable of effective ground support.²⁸

The P-400's had their first taste of attack work on 2 September, when in conjunction with F4F's they harried a small boat-landing attempt during daylight several miles east of Henderson Field. Pilots believed they had inflicted heavy casualties on the newly-landed Japanese. On 8 September, when a Marine raiding party at Tasimboko ran into unexpectedly heavy opposition, the three P-400's in flying condition were called upon to cover the Marine withdrawal. One of the three cracked up on take-off because of a muddy runway, but the other two flew four missions, inflicting severe casualties and destroying material. "The marines were loud in their praise of this supporting action and stated that the mission could not have been successfully completed without the fighter support."²⁹

The most important contribution of the 67th Squadron during the Guadalcanal campaign came on the morning of 14 September. All through the preceding night the Japanese had attacked Marine and Army troops on Edson's (or Bloody) Ridge. The attacks had been repulsed, but the defenders were seriously weakened, and there was a chance that one more onslaught might crack the defense perimeter and give the enemy access to the airfield. Three P-400's were sent over the ridge at

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dawn, and "dipped below the top of the ridge time after time," sending "streams of machine gun and cannon fire into the massed Japanese."³⁰ A Japanese officer wrote in his diary: "Intensive bombing and strafing followed our unsuccessful attack at dawn and our efforts to take the field are doomed to failure."³¹

During October and November ground forces on Guadalcanal launched two limited offensives. Neither of these was intended to drive the Japanese from the island, but it was hoped that an expansion of the perimeter would give needed depth to the defense of Henderson Field. The 67th Squadron and Navy and Marine Corps dive bombers played a part in these offensives, bombing and strafing enemy strongpoints ahead of the infantry. Air battles on 23 and 25 October left the air units with only 30 planes of all types available, but mechanics quickly restored damaged aircraft, and the P-400's, P-39's, and SBD's hammered away at the retreating Japanese. Supporting the drive against Kokumbona on 1 November, P-39's and SBD's struck at enemy artillery and (a new note) 19 B-17's from Espiritu Santo bombed the Japanese base. On 2 November fighter planes supported the marines who were countering an enemy landing near Koli Point, but pilots, who had been unable to see anything in the jungle, doubted that they had accomplished anything worth while. By the middle of November the forward echelon alone of the 347th Group was mounting 16 ground support sorties a day, a heavy effort if one considers the number of planes, crews, and facilities available. The P-39's were exceptionally

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effective in helping a battalion of the Americal Division repulse
a counterattack east of Kokumbona.³²

Ground and air forces on Guadalcanal had no liaison system at the time of the invasion, nor was one developed immediately thereafter. The need had been realized before the movement to Guadalcanal began, but there had been no time to train liaison parties for the battalions and regiments. Once planes arrived and close support became possible, a liaison system had to be improvised.³³

The system adopted could not have been successful if Henderson Field, the base of the supporting planes, had not been within a very short distance of the front lines, so near, in fact, that it was frequently under artillery fire.

The battalion or regimental commander who desired air support communicated with ground headquarters, located on or near the airfield, by radio, runner, or, normally, telephone. Thereafter the channel of communications became oral, the ground forces commander issuing an order directly to the squadron commander whose unit was to perform the mission. "On a map, or by description of familiar terrain, the squadron commanding officer had the target pointed out and the mission was started immediately." If the request came from a ground unit located some distance from the field, as was possible after 1 November, the Marine air wing operations officer "would assign the mission, but always directly to the squadron commanding officer."³⁴

Improvised air liaison "parties," usually consisting of one pilot with a day off from flying, sometimes accompanied ground units. On

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occasion this officer attempted to communicate with planes overhead by radio, but the equipment available, TEX and SCR-284 portable radios, lacked sufficient range, and neither ground nor air personnel were trained in radio communications. Therefore it was recommended that personnel be more thoroughly trained and that liaison parties be provided with more powerful radios mounted on trucks. General Vandergrift believed that liaison personnel so trained and equipped could play an important role in close support.³⁵

Panels were sometimes used to mark front lines, but they proved as hard for pilots to see on Guadalcanal as in Papua. No record appears of the use of smoke to mark targets during the defensive phase, although a few instances may well have occurred. Pilots often felt that they were wasting their bombs on empty jungle, but patrol reports of finding dead Japanese in target areas served to keep spirits up.³⁶

As indicated previously, during the defensive stage on Guadalcanal the P-400, SED, and P-39 were used for close support almost to the exclusion of other aircraft types. Armament, in addition to machine guns on all three, 20-mm. cannon on the P-400's, and 37-mm. cannon on the P-39's, were demolition and fragmentation bombs and instantaneously fuzed depth charges. The depth charges were reputed to be highly effective against troops concealed in ravines, which confined the force of the explosion and increased the already powerful concussion effect. Ordinarily bombs and depth charges were dropped from a shallow dive, though 80° dives were flown on occasion, and strafing was done from the treetops. As in Papua, experiments were made in dropping fuel

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tanks as incendiaries, but the "Rube Goldbergs" used on Guadalcanal were more advanced; they contained a mixture of gasoline and motor oil and were fitted with a stick-type incendiary bomb as an igniter.³⁷

Guadalcanal, the Offensive Phase

In December 1942 General Vandegrift's battle weary 1st Marine Division was withdrawn from Guadalcanal; an Army officer, Maj. Gen. Alexander M. Patch, was appointed to direct ground operations on the island. General Patch took command of the newly activated XIV Corps in January 1943. Air Support proved to be as effective in aiding XIV Corps as it had the 1st Marines.

During December, while the infantry prepared to push the Japanese off the island, P-39's bombed and strafed enemy positions pointed out by the ground forces. One such attack, in the course of which depth charges were dropped into a ravine position marked with smoke, resulted in 50 counted enemy dead.³⁸

Air cooperation in the attack on Hill 52, south of Point Cruz, during the first stage of the January offensive, will serve as an example of air support during the remainder of the Guadalcanal campaign. By way of preparation, 12 P-39's and 12 SBD's dropped 500-lb. demolition bombs and 325-lb. depth charges, respectively, on a strongpoint in a ravine. Advancing infantry found 40 dead Japanese in this area, many of whom had no apparent wounds and were thus assumed to have been victims of concussion. Despite such air preparation, the 25th Infantry Division found Hill 52 strongly held and suffered 40 to 50 casualties in attempts



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to pass over the crest. By noon on 10 January the attack had bogged down. At this point an air officer came forward from regimental headquarters and arranged for an air strike on the reverse slope at 1,500, the target to be marked by smoke shells. The company under the crest was withdrawn, and SBD's carefully dropped six depth charges just beyond the crest. Following the air strike, an artillery concentration was placed on the hill, and when the field pieces ceased fire, mortars and 37-mm. guns took it up. Under cover of this last bombardment, the infantry crawled close to the crest and, as fire was halted, rushed and captured the Japanese position with fixed bayonets.³⁹

Air attacks in support of advancing ground units continued until the Japanese at the end of January decided to withdraw from the island. Close cooperation between ground and air had frequently resulted in highly successful support, but not all such missions were effective. "There have been other missions which were complete failures and in each case there was a . . . lack of planning. Sometimes they were ordered hastily, and pilots were not thoroughly briefed before taking off."⁴⁰

The liaison system set up during the offensive phase on Guadalcanal was more elaborate than that used earlier. A liaison officer from the fighter command was assigned to each of the three divisions of XIV Corps, and the battalion or regiment desiring air support made its request to division headquarters through ground forces channels. Whenever possible, the liaison officer went forward to look over the target from the front lines, then drove back to Henderson Field in a jeep in order to brief the pilots assigned to the mission. Lt. Thomas G.

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Lamphier, liaison officer to the 25th Infantry Division, which bore the major share of the fighting around Mount Austen, led most of the support missions in that sector in person. When only one division was in action, the liaison officer coordinated requests from regiments and battalions; when two or more divisions were active, coordination was effected by an officer of XIV Corps G-3 section. Bombs were in one or two instances dropped within 100 yards of friendly troops when a crest intervened between front line and target; no casualties resulted.⁴¹

Ground-air radio communications were still not used extensively during the January offensive, although the SCR-193, bulky as it was, proved to be satisfactory equipment for such communications. The ground forces did resort to radio more frequently in requesting close support, and the need for more radio contact between planes and liaison personnel in the front lines was again brought to notice.⁴²

Target identification had by this time considerably improved. Before the end of December XIV Corps G-2 had provided air units with gridded photomosaics, which were a definite help to pilots in locating targets, the grids making the mosaics far superior to unmarked photographs.* The first record during the campaign of the use of mortar smoke shells for marking targets also appears at this time, and this system proved much more successful on Guadalcanal than in Papua. The extensive use of smoke shells to mark the front lines and to point out and even in some instances to outline targets suggests that, despite the lack of record, mortar smoke must have been used to some extent during the defensive phase. Such use of smoke was almost a standing operation procedure on Guadalcanal during January.⁴³

* See pp. 64-65 for a fuller discussion of the gridded photographs.

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One tactic emerged on Guadalcanal during the January offensive which was to reappear time and again during the course of the war. On some close support missions the supporting planes, after completing their bombing and strafing, made dummy runs, thus keeping the Japanese soldiers under cover while friendly troops advanced. Careful planning was necessary to make sure that American troops did not advance prematurely, thus exposing themselves to bombs and bullets from the supporting aircraft. Sometimes the planes signalled the completion of the live runs by rocking their wings. This ruse, effective on Guadalcanal, was also to succeed on other battlefields.⁴⁴

Summary of Close Support Lessons Learned on Guadalcanal

The Guadalcanal battle taught the necessity for close liaison between ground and air elements. This need was satisfied, on an informal basis, by assigning air officers to infantry units. The problem of air-ground radio communications was not satisfactorily solved, though enough progress was made to show that the SCR-193 could be used for this purpose, and to make it clear--at least to the commander of the 1st Marine Division--that the use of elaborate codes defeated the ends of such communications. It should be added that the fact that most of the Battle of Guadalcanal was fought with the supporting air base only a few miles from the fighting prevented the lack of air-ground radio from being too great a handicap. The use of map coordinates for designating targets was found impractical, but gridded photomosaics were of considerable help in target identification, and the use of mortar smoke to point out targets was highly

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successful. Maj. Gen. Oscar W. Griswold, Patch's successor as commander of XIV Corps, suggested that smokes of different colors be provided.

Guadalcanal also confirmed that air, properly used, could be of great help to ground troops in their grapplings with the enemy. Demolition bombs and depth charges, and the strafing power of the P-400's and P-39's, proved that they could contribute much to the infantry's ability to hold or take ground. Fragmentation bombs were not so successful in the jungle, but no one doubted that they would be effective in more open terrain.

Lastly, the planes available, the P-400; P-39, and SBD, were found capable of efficient close support flying. It was clearly demonstrated that fighter-bombers could render ground support when attack bombers were unavailable. Perhaps it was just as well for the success of close support operations that the P-400 and P-39 could not contend with Japanese fighters in air combat. Had they been capable of such duty, there is little doubt that they would have been so used, because the defense of Henderson Field from air attack was just as crucial as the ground fighting.

One point bears repetition. The liaison and communications system in use on Guadalcanal was satisfactory under the special battle conditions existing on that island. When battle was joined on New Georgia, where pilots could not be so familiar with the terrain, equally good close support results could not be expected unless a better system of liaison and control were devised.⁴⁵

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Chapter III

THE DRIVE UP THE SOLOMONS CHAIN

Preliminaries to the New Georgia Campaign

The capture of Guadalcanal was the first step in a march up the Solomon Islands which lead toward Rabaul, on New Britain. The second step was but a short one, to the Russell Islands, just 30 miles north of Guadalcanal. The original plans for the landings provided for an air support director group aboard the flagship and for an air alert of 12 SBD's on D-day (21 February 1943). A qualified naval aviator was to be assigned to the 43d Infantry Division for duty with an air support director group ashore. Since the Russells proved to be free of enemy troops, only fighter planes actually covered the landings, but the plans were evidence of an appreciation of the role which close support aviation could play in amphibious operations.¹

Munda, on New Georgia, where the Japanese had constructed an airfield which posed a threat to Guadalcanal, was to be the next objective of South Pacific forces. The need for better liaison and communications systems for this operation was apparent; accordingly study was made of New Zealand air support control doctrine, and the Thirteenth Air Force sought a tactical air communications squadron from the United States. The Marine Corps was at this time training air liaison parties in California, but no trained personnel were to be available in time for the invasion, and again an improvised liaison system was to function.

Eventually eight air liaison parties were established, each composed of one officer and one enlisted man. These eight parties were to use four command cars, each equipped with an SCR-193 radio, panels, an Aldis lamp*, and a Very pistol. The parties were to be attached to tactical ground units. Apparently the Marine Corps furnished most, if not all, the personnel (six of the officers were Marine aviators). This was not an unreasonable arrangement, because SBD's and TBF's were to provide most of the air support on New Georgia.

This meant a change in role for the AAF, which had had a large part to play in ground support on Guadalcanal. It was not an illogical shift, however, for the Thirteenth Air Force now had P-38's, which, unlike the former P-400's, P-30's, and P-40's, could be used to meet Japanese fighters on more than equal terms. The long-range heavy bombers available were needed to hit Japanese airfields farther up the Solomons chain, and skip-bombing B-25's, with their tremendous firepower, were needed for shipping strikes. Some P-39's were still on hand, but since the newer models developed a tail flutter at high speeds, Maj. General Nathan F. Twining, commander of the Thirteenth Air Force, decided to keep them out of the operation and to use P-40's in their stead.²

* A signal lamp in which dots and dashes were transmitted by rotating a mirror at whose focus the light was located (Webster's New International Dictionary)

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A preliminary landing before the main invasion of New Georgia was the occupation of Segi Point on the southern tip of the island, just across from Vangunu Island. Two companies of marines seized Segi Point on 21 June, then departed overland to take Viru Harbur when relieved by troops from the 103d Infantry. The Army troops were accompanied by one of the newly-formed air liaison parties, but the party had little to do, because the Japanese were never able to offer any effective resistance at Segi Point or on Vangunu.³

The Invasion of New Georgia

The immediate objective of the invasion of New Georgia was the troublesome airfield at Munda, but barrier reefs prevented a direct assault. Therefore the first landing, after the seizure of Segi Point, was made 30 June 1943 on the island of Rendova, across Blanche Channel from Munda. In the meantime the two companies of marines which had marched overland from Segi Point had captured Viru Harbur, aided by a well-timed though uncoordinated air strike. Next, 43d Infantry Division troops crossed over to New Georgia proper from Rendova and landed at Zarena Beach, six miles east of Munda. And, on 5 July a Marine raider battalion, reinforced by an Army battalion, landed at Rice Anchorage, captured Enogai Inlet, and marched on Bairoko, thus cutting off reinforcements which might otherwise have reached Munda from the nearby island of Kolombangara.

Munda had been expected to fall swiftly, but such was not to be the case. Bairoko held out against the raiders, and the Japanese garrison at the airfield succeeded in stopping the 43d Division. The battle

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for Munda thereupon degenerated into a siege, and the airfield was not captured until late in August.⁴

The initial assault phase of the New Georgia operation was accomplished without the use of close support aircraft, since the original landings were made at points of little or no resistance. However, 18 dive bombers were kept on ground alert in the Russells, in case support should be needed. To command support aircraft, including fighter cover, in the target area, the position of Commander, Aircraft, New Georgia (ComAir New Georgia) was created with a staff composed mainly of the headquarters of the 1st Marine Air Wing; ComAir New Georgia operated from the flagship McCawley until established ashore on Rendova. Operations ashore may have begun sooner than expected, because the McCawley was sunk on the night of 30 June.⁵

The first New Georgia air strike which could be classed as close support came the next day, when SBD's and TBF's attacked Viru Harbur just in time to aid the marines who had marched overland from Segi Point. It is interesting to note that the raiders were out of touch with headquarters and did not know that the strike was coming. Considerable support was given the mixed Army-Marine force which landed at Rice Anchorage: some 53 SBD and TBF sorties against Enogai Inlet on 6 and 9 July, and more than 180 sorties, in which B-25's and B-17's joined, against Bairoke. Despite this pounding, the raider force, which lacked artillery, was unable to capture Bairoke.

The failure of this attack has led to severe criticism of the air support afforded. During the afternoon of 19 July, Lt. Col. Harry Liversedge, commander of the attacking force, sent in a request for a

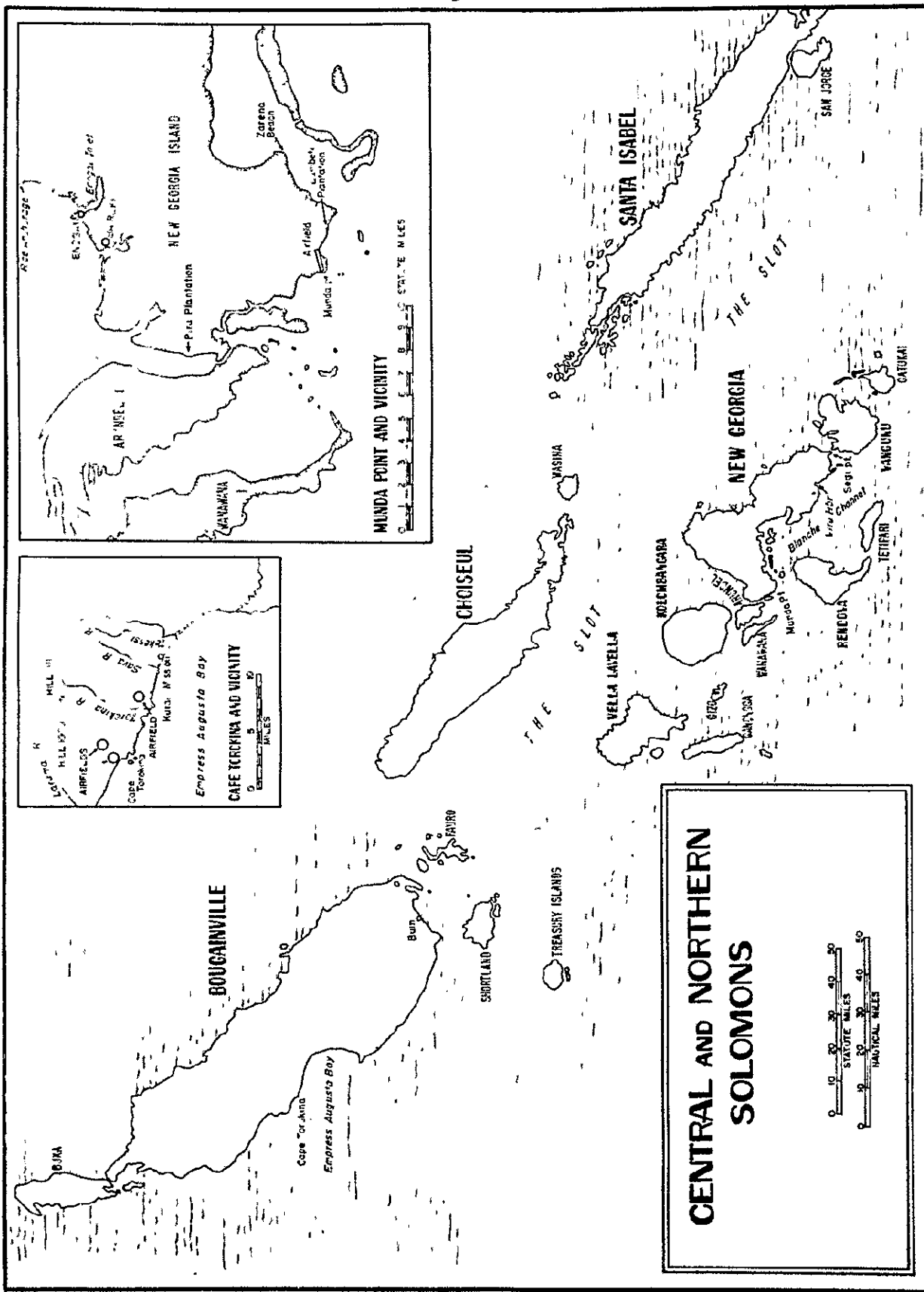
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large-scale air attack in support of the ground attack he planned for the next morning. According to Fletcher Pratt,⁶

The request produced one of those unhappy incidents which are the result of trying to apply formal principles in a type of war which is essentially a series of improvisations. The messenger had to go some distance to reach a radio. When he did reach one it was 1700 and AirSols (Now under Maj. Gen. N. S. Twining of the Army) had established an ironclad rule that such requests had to be in by 1600 in order to insure proper assignments and briefing. The request was refused; Liversedge attacked without air support.

Pratt's version of this episode, however, is not corroborated by the sources. Though it is quite true that 1600 of the preceding day was the deadline for requests for routine support strikes, there were during the New Georgia campaign examples of urgent requests being carried out on the same day they were received. No available air source, Army, Navy, or Marine Corps, states that this request was rejected by the air command, and an Army historian of the ground campaign states that it was rejected by XIV Corps as "impractical." Liversedge's failure to capture Bairoko is attributed by one authority to lack of artillery, an inherent weakness of Marine raider battalions. It may be added that General Twining did not take over Air Command, Solomons (ComAirSols) until 25 July.⁷

The troops of the 43d Infantry Division began their assault on Munda airfield on the morning of 9 July. This attack, after an initial success, was stopped short on hitting the main enemy defense line. Eventually no less than three infantry divisions were to be fed into New Georgia. Munda had been under air attack for months before the invasion, but the first strike in support of ground forces was



delivered on 12 July, when 12 SBD's bombed in front of the 169th Infantry. When it became evident that Munda was not going to be overrun quickly, aircraft were used as siege weapons, blasting Munda, Lambeti Plantation, and other known or suspected enemy positions at a safe distance from friendly troops. Between 16 and 24 July, inclusive, approximately 350 SBD and TBF sorties were flown against such targets, the usual load being 2,000-pound "daisy cutters" for the TBF's and 1,000-pounders for the SBD's. The peak in the weight of air attack was reached on 25 July, when aircraft including B-17's made 252 sorties to drop bombs in the Munda area. The total number of sorties against ground support targets during the campaign was well over 2,000.⁸

Mopping up the Central Solomons

When Munda fell on 5 August 1943, the main objective of the New Georgia campaign had been achieved, but numerous organized enemy troops at Bairoko, on Baanga and Arundel Islands, and at Vila, on Kolombangara, had still to be neutralized. Vila was the strongest remaining position, and it was predicted that its capture would incur high casualties. Consequently this village was bypassed, and a landing made on Vella Lavella, to the northeast, on 15 August. No close support was necessary since the landing force met no opposition.

Though an assault on Vila was thus avoided, Japanese in the New Georgia area had still to be mopped up, since they were a threat to Munda. In these mopping-up operations support aircraft had an important part to play.

In New Georgia proper, it was found that the bombing of Munda prior to its capture, though it had not weakened the enemy's front lines to




any great extent, had made a shambles of his rear areas. "Trees were shattered stumps, pillboxes were caved in and dead Japs were abundant. There was hardly an area of 25 square yards that was free of water-filled bomb craters."⁹ Once the main defense line had been cracked, the Japanese had been forced to retire completely from New Georgia.

On Arundel and Baanga Islands planes rendered support whenever the ground forces located a suitable target. When these islands had been cleared, artillery was set up at Piru Plantation, and Marine Corps gunners and planes began coordinated operations to neutralize Vila. When Japanese guns attempted counter-battery fire, they exposed themselves to bombs from SBD's and TBF's. When antiaircraft guns began firing on the planes, the artillery laid a barrage on antiaircraft positions. The landing at Vella Lavella had reduced Kolombangara's value to the enemy, and the combined artillery-aircraft assault on Vila gave added encouragement to evacuation. When patrols entered Vila in mid-October they found the fortifications and much equipment abandoned.¹⁰

Evaluation of Air Support on New Georgia

The New Georgia operation added no prestige to close air support. Reports contain statements such as the following from the 43d Infantry Division: "Jungle operation does not permit the effective employment of close [air] support of ground troops."¹¹ Headquarters, New Georgia Air Force reported simply that "The use of aircraft in close support of ground troops proved to be impractical."¹² A war correspondent agreed: "Dive bombing against infantry positions in the jungle was useless except as a morale breaker."¹³ Thus it seems evident that close support of troops, as distinguished from so-called direct support against



targets selected by the ground forces, was a failure. Air support in general was considered successful and was well received.

There were actually very few times in New Georgia when close support was even attempted. The American ground troops feared the bombers, as well they might, since the Japanese were only a few yards away. The infantry suffered 13 casualties, including three killed, from a misplaced bomb on 16 July. No request was made for strikes against targets less than 600 yards from the front lines, and most requests were for the bombing of targets 1,000 or more yards away. While the ground commanders were justified in their caution, it is clear that aircraft could be of little immediate aid to the infantry when they were not permitted to strike those positions which were holding up the infantry's advance.¹⁴

The liaison parties which had been improvised for the New Georgia operations made requests for the ground units to which they were attached, and if not disapproved, the requests went through ComAir New Georgia to the airfields on Guadalcanal, the Russells, or Segi Point. No complaints were made on the results of this system, which worked well enough.

The trouble lay with communications. Although four vehicle-mounted SCR-193 radios were available to the air liaison parties, they did not work effectively in New Georgia. Partly this was due to the climate and terrain, but also to the critical shortage of radio operators in the South Pacific during 1943. It seems probable that lack of radio training on the part of both liaison personnel and aircrews was an important reason for poor air-ground communications. There were a few


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cases of liaison parties attempting to direct strikes from the ground, but there was little confidence in such procedure. Two-way communication over the target area was impossible, since Thirteenth Air Force planes were under orders to maintain radio silence on most of their support missions.

Panels were again proved to be invisible from the air. It was discovered that hospital sheets were satisfactory for marking battalion positions for aerial photographs, but no record appears of a similar use of sheets to mark front lines for close support. The difficulty in identifying front lines was intensified by the poor quality of the maps available; terrain features were frequently hundreds of yards from the position indicated by the pilots' maps. White smoke from 81-mm. mortars was used for marking targets on a few occasions, but the Japanese made this hazardous by firing smoke shells into Allied lines during air strikes. Colored smoke was used to mark supply-drop zones, but not for marking targets or front lines.¹⁵

The Landings on Bougainville

With New Georgia secured, Adm. William F. Halsey, Jr., could now take another step up the Solomons ladder. Southern Bougainville was too strongly held for the available forces; the northern part of the island was too distant from Allied bases and too near the powerful Japanese base at Rabaul. It was therefore planned to establish a beachhead large enough to contain airfields but small enough to be defended against a Japanese counterattack at Cape Torokina, on the



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northern side of Empress Augusta Bay, about midway up the western coast of Bougainville. A raid on Choiseul Island was to serve as a diversion, and the New Zealand 8 Brigade Group was to seize the Treasury Islands, just south of Bougainville, and establish an airfield there.¹⁶

For tactical command of supporting aircraft (including fighters) at Bougainville, an Air Command North Solomons (ComAirNorSols) was established. This command was to be divided into two detachments, one to land with the New Zealand brigade on Treasury, the other with the 3d Marine Division on Bougainville. Each detachment was to establish air support control, air warning service, and fighter-direction facilities. The air support controls were to receive requests from ground units through air liaison parties. ComAirNorSols was to transmit these requests to ComAirSols at Munda and through its air support control direct close support aircraft in the target area.¹⁷

A study of close support operations as they had been carried out during the Guadalcanal and New Georgia operations was initiated several months before D-day. Three Marine flying officers and six enlisted communications men, under the command of Lt. Col. John T. Gabbert, were assigned to the 3d Marine Division for liaison duty. Upon reaching the division, Colonel Gabbert set up a close support school, attended by at least one officer from the operations section of each battalion and regiment; this school taught the capabilities and limitations of air support and request and communications procedures. Colonel Gabbert stressed that aircraft attacking targets 1,000 yards

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and more in advance of the front lines were unlikely to give immediate aid to the infantry. He sought to allay infantry fears of support bombers by using himself as a guinea pig for tests, and demonstrated that prone troops had nothing to fear so long as the "yard per pound" rule of distance was observed. Troops lying on the ground were supposed to be safe within 500 yards of a 500-pound bomb, or within 100 yards of a 100-pound bomb. The 3d Marine Division was thus conditioned to close support by the time it went ashore at Cape Torokina.¹⁸

The New Zealand 8 Brigade invaded the lightly-held Treasury Islands on 27 October. The weak enemy resistance was quickly beaten down, and no close support was necessary. On the same day, the Marine 2d Parachute Battalion made its diversionary landing on Choiseul, from whence it retired on the night of 4 November, leaving mines and booby traps behind. Air support contributed to this operation. The marines annihilated a small Japanese garrison near Sagigai on 30 October after the position had been bombed and strafed by 25 TEF's, F4U's, and P-40's.¹⁹

On the morning of 1 November, when the assault troops were five minutes away from the beach at Torokina, 31 TEF's and 7 SED's were overhead to support them. The TEF's bombed and strafed the beach, while the SED's dropped smoke-bombs to blind the Japanese defenders. This attack was well executed, but ground commanders believed that it lacked sufficient weight; a 75-mm. gun, the position of which was known, survived both air and naval bombardment and inflicted casualties on the assaulting marines.²⁰


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The Battle for the Beachhead

The object of the invading forces at Bougainville was to secure a defensible perimeter large enough to contain the airfields needed for the neutralization of Rabaul, not to conquer the whole island. The task occupied the ground forces at Cape Torokina during November and part of December 1943, and aircraft of Strike Command, ComAirSols, rendered support when called upon.

Two SED's maintained a continuous daylight air alert over the beachhead area, ready to strike any target pointed out by the ground forces. These dive bombers attacked barges, suspected troop concentrations, and Japanese artillery which revealed its position by opening fire. Fighter cover also swept down to strafe ground targets when relieved over the beachhead.

A successful close support mission on a larger scale was carried out on 10 November, in response to a request made on the 9th. In preparation for an assault on the village of Piva, 17 SED's and 12 TEF's reported in to ComAirNorSols and received directions from an air liaison party. The front lines were marked with colored smoke, the target with white phosphorous; the planes were thus enabled to bomb within 120 yards of friendly troops. The village was captured soon after this strike. Piva No. 2 was captured on 14 November after 20 TEF's had cleared the way, bombing on this occasion within 100 yards of friendly troops. On 28 November, an urgent request for air support by a combat patrol in the Saua-Tokessi area led to the dispatching of three groups of SED's, 17 of which got



through the prevailing bad weather to make a successful attack.

The last Japanese stand in the beachhead was made by about 300 men who took up positions on "Hellzapoppin' Ridge," a height from which artillery dominated the airfield sites. It became evident during the early days of December that this height would have to be taken before the beachhead could be considered secure. The ridge, which could be easily identified from the air, was an unusually good target for close support aircraft, but even so, on 13 December a bomb dropped by one of the three SBD's and three TBF's which had just taken off from Torokina Airfield fell on friendly territory 600 yards from the target, causing eight casualties. The attacks were continued, however, and in the next two days 34 dive and torpedo bombers attacked the ridge. These strikes, though they were highly accurate, did not significantly reduce the enemy's ability to resist; so it was concluded that the instantaneous fuzes must be exploding the bombs in the trees, leaving the well dug-in Japanese relatively undisturbed.

Therefore, on the 18th, 11 TBF's using bombs with delay fuzes attacked the ridge from low altitude. The first strike drove the Japanese from the forward slopes of the ridge. Five of the torpedo bombers then landed at Cape Torokina, rearmed, and struck the reverse slope. After the 100-pound bombs had been released--some of them hitting within 75 yards of the marines who had moved up the forward slope--the bombers made a dummy run while the ground troops stabbed their way into the Japanese positions with the bayonet. Hellzapoppin' Ridge fell and the battle for the beachhead was over.²¹

Evaluation of Close Support During the Beachhead Battles

Close support at Bougainville during the establishment of the perimeter was undoubtedly a great improvement over any previous action in the South Pacific. The two SBD's maintained on air alert during most of the period were available for almost instant, though small-scale, support when needed. There is little doubt that their presence overhead had an inhibiting effect on enemy artillery. ComAirSols seems to have responded quickly and cheerfully to requests for major close support strikes, though it was usually necessary to arrange such attacks on the day before they were to be delivered. This worked no hardship on Bougainville, since the SBD's on air alert were available for quick strikes against fleeting targets. The close support strikes were usually accurate and effective; the infantry was normally able to take its objective after sufficient air preparation.

The early provision of air liaison parties was probably the most important single factor in this success. These parties had time to indoctrinate ground commanders of the Marine 3rd Division in the capabilities and limitations of the air arm. Colonel Gabbert's demonstrations of the safety enjoyed by ground troops during an air strike on near-by enemy positions certainly had a good effect. The ground troops were not afraid to call for close support, and ComAirSols, whose airmen had behind them the experience gained at Guadalcanal and New Georgia, was not afraid to render it. On only a few occasions during the remainder of the war were air attacks knowingly made at such short distances from friendly troops as at Bougainville. But it must be added

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that 100-pound bombs were the usual TBF load at Torokina, in contrast to the bombs dropped in later operations.

The Bougainville campaign was the first South Pacific action where no complaints were recorded on the quality of radio communications. Close support planes were apparently always able to report in to ComAir-NorSols and to make contact with the air liaison parties. The liaison parties on occasion directed support planes to strike targets on which they had not been briefed, but visibility from ground observation posts was usually not good enough to make it possible for the liaison officer to talk planes in to a target.

For target identification and for marking front lines, visual equipment was used, though on Bougainville as elsewhere panels proved to be useless baggage. The use of smoke was considerably extended and was successful for both these purposes. The normal procedure was to explode colored smoke grenades along the front lines, then mark the target with white phosphorous fired from an 81-mm. mortar. This system was so effective that bombs from friendly planes inflicted casualties on the marines only once during the battle.

A Strike Command operations officer in an interview summed up the findings at Bougainville: "You actually can provide good air-ground support; we have done it repeatedly. It is practicable, but it does require training."²²

The Japanese Counterattack

On 15 December 1943, before the fight for Hellzapoppin' Ridge was over, XIV Corps, under General Griswold, took command of the perimeter at Cape Torokina. Eventually two Army divisions, the Americal and the

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37th Infantry, took position in the line and awaited the expected Japanese counterattack. The enemy was on his way, though he was long in arriving. The Japanese commander at first regarded the Torokina landings as a feint intended to draw him out of his strong positions at each end of the island, and did not disabuse himself of this idea and begin to march on the perimeter until late in December. Time was required to move troops, supplies, and artillery--a great deal of artillery--along jungle trails, and it was not until early March 1944 that the Japanese were in position for their assault on the airfields.²³

A new close support unit was present in the battle of the perimeter at Torokina. The 7th Air Support Communications Squadron (later the 7th Tactical Air Communications Squadron) had arrived in the South Pacific and was ready for combat duty. A support aircraft party was established to provide air support communications for XIV Corps, and was equipped with an SCR-193 radio mounted in a jeep, a sight which was to become familiar in later operations. This unit lacked the experience of its Marine predecessors, and appears to have operated from divisional command posts and fire direction centers rather than the front lines. Forward observer teams from the party on occasion did go into the lines to direct strikes, however, and a Capt. Patrick O'Reilly was wounded by a sniper "while directing aircraft from a front line observation post." Officers of the unit also flew as observer-gunners on 41 sorties during the battle.²⁴

From December until March ComAirSols planes had little support work to do. While convoys were unloading at Torokina, an air alert of two SBD's was kept over the perimeter to prevent enemy artillery, already

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named "Pistol Pete," from firing on the shipping. These patrols usually dropped bombs on targets previously selected by the ground forces. The largest support mission sent out during the first two months of 1944 was made up of 47 SBD's and TBF's in support of landing on the Green Islands on 14 February. Since no Japanese resistance was encountered, these planes returned their bombs to base. On 23 February, 20 SBD's effectively supported a company which had run into mortar fire when making a reconnaissance landing at Kuraio Mission. By this time Japanese troops were gathering about the Torokina perimeter, and Allied patrols had located two concentration points. These places, Hills 1,111 and 1,000, were struck twice on 25 February by a total of 48 SBD and TBF sorties. A few bombs which failed to release over the target fell into Allied lines, but no damage resulted.²⁵

It was evident by the end of February that the Japanese attack would not be long delayed. On 29 February, 135 TBF's and SBD's, weathered out of Rabaul, struck troop concentrations northeast of the perimeter as instructed by ground forces, and 181 planes struck the same and similar targets on 1 March. Gun positions, known and suspected, were the targets for 22 sorties on 3 March. Two days later, 202 SBD's and TBF's were busy around the perimeter and in support of a patrol at Kuraio Mission. An important innovation at the latter point was the marking of the target with a smoke grenade dropped from a liaison-type aircraft. Another patrol was supported on the coast south of the perimeter.²⁶

By 8 March the largest amount of artillery the Japanese had ever used in the South Pacific was concentrated about Torokina. Early that morning these guns opened fire. Several hundred shells dropped into

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the Allied lines, causing casualties and destroying and damaging planes on two of the airfields. The guns had been carefully positioned on the reverse slopes of hills where, fairly safe from allied counter-battery fire, they could lob shells into the perimeter. For this reason, and because the Army commanders lacked the 3d Marine Division's confidence in close support, air support was devoted almost entirely to enemy artillery positions and to troops and supply installations at some distance from the front lines. In addition to regularly requested missions a constant "perimeter patrol" of at least two SBD's was kept aloft during daylight hours, spotting for Allied artillery and bombing targets selected by the ground forces.²⁷

Though largely without close support, the infantry succeeded in containing the Japanese ground attacks with effective help from Allied artillery. More than 6,000 Japanese were killed in less than three weeks of fighting. While it rarely engaged in close support bombing, Strike Command contributed much to the one-sided casualty toll. More than 1,400 sorties were mounted against perimeter targets between 8 and 23 March. During its stay at Bougainville, a period which began before the battle and continued after it was over, the 7th Tactical Air Communications Squadron provided communications for 97 strikes totaling almost 1,900 sorties. The great majority of these missions were flown by SBD's and TBF's, but two 24-plane B-25 strikes were mounted by the 42d Bombardment Group on 10 March, and Thirteenth Air Force P-39's and P-38's and Royal New Zealand Air Force (RNZAF) P-40's also participated. While these fighters furnished no actual close

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support, the decline in Japanese air opposition led to their more extensive use for bombing and strafing. TBF's were also kept aloft over the perimeter at night as a counterartillery measure.²⁸

The bombing of Japanese artillery necessitated coordination with the ground forces. However thorough the briefing and however detailed the maps and photographs available, it proved impossible for aircraft to locate their targets without help from the ground. The following system of target marking proved feasible:²⁹

When enemy forces came within range of our medium artillery we used smoke shells extensively and effectively in designating targets to our aircraft. When the strike became airborne it established radio communication with the division fire direction center and called for smoke rounds on the targets. Previous arrangements were made with the artillery, and the targets were located by map coordinates and given numbers for the day so that it was easy for artillery to drop a round of smoke on or near the target when the flight leader requested it. It was found that artillery had to smoke a target about 8 times for a 100 plane strike. Smoke shells were used to mark the boundaries of area targets, and if the target was on the reverse slope of a hill, artillery would mark the peak. In the latter case pilots, given previous instructions, would bomb and strafe the slope sheltered from artillery fire.

The jeep-mounted SCR-193 was used for radio communication between the division fire control center and airborne aircraft. No code was used for such radio conversations, and the Japanese therefore sometimes broke in to ask for smoke on the target at inopportune times. This ruse never succeeded, and no record appears of attempts to give otherwise misleading orders to the planes.

The Japanese did attempt to deceive pilots by setting off smoke pots in areas where bombs would do no damage, but in contrast to New Georgia pilots had no trouble in distinguishing these from smoke



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fired by Allied artillery. Even so, General Griswold felt that colored smoke shells would be of assistance in future such operations.³⁰

The Japanese counterattack at Bougainville reveals a regression in the use of close support. The necessity for countering enemy artillery fire on the perimeter was no doubt the determining factor in reducing the amount of close support, but Army distrust was also influential. General Griswold felt at this time that "Unless both the target and friendly troop positions can be clearly indicated, close support missions in jungle terrain must always be undertaken with a definite element of risk." The validity of this statement is obvious, but XIV Corps was apparently unaware that the 3d Marine Division had, with its colored smoke grenades, solved the problem of marking front lines, even though this procedure had been followed on some strikes at Hellzapoppin' Ridge after XIV Corps had taken over command. The Americal Division reached the conclusion (which would be abandoned in the Philippines) that "The successful employment of dive bombers and medium bombers in close support of ground troops is problematical."³¹

Despite this attitude on the part of corps and division officers, some valuable lessons were absorbed. The jeep-mounted radio had demonstrated its value, and it was definitely proved that air-ground communications in the clear would not lose the war or even a battle. The value of oblique photographs to low-flying pilots was realized, and the need of large-scale photomosaics for briefing was appreciated, though the equipment available did not permit their production. The need for thorough briefing of support pilots was reemphasized, and it was suggested that planes fly parallel to the front lines to prevent

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unhappy results from early or late bomb releases. An aspect of air-ground support not previously recorded, though probably appreciated from the beginning, was the morale effect on friendly troops. "It is a known fact that the morale of our front line troops was definitely boosted by their seeing scores of dive bombers mercilessly bomb the enemy areas." Also learned, though not immediately applied, was the fact that planes overhead at night inhibited Japanese artillery fire. TBF's served this purpose several nights during the course of the battle. Another, less encouraging, bit of information garnered "was that it took days of constant pounding by both artillery and aviation to knock out the enemy guns."³²

Bougainville to the End of the War

By the end of March 1944 the Japanese were in full retreat from the Cape Torokina area, and on 3 April seven TBF's flew over Torokina without contact, "on the first day in a long time when no ground support strikes were reported along the perimeter."³³ Thereafter, until November 1944, most ComAirSols effort was devoted to Rabaul, and the sorties sent to Bougainville concentrated mainly on supplies and troops at some distance from the perimeter. ComAirSols came to an end on 15 June, but was replaced by ComAirNorSols, which now became a part of the Southwest Pacific Area (SWPA) command. The few close support missions mounted by ComAirNorSols through November were directed against road-blocks which were hampering patrols in the interior of the island. SBD's and TBF's continued to bear most of the burden in close support activity, but PV's (Venturas) were sometimes called upon and the use of F4U's increased significantly.³⁴



In November 1944, the Australian II Corps replaced XIV Corps on Bougainville, and an attempt to recapture the whole island soon followed. This offensive continued till the end of the war, at which time 18 miles still intervened between the Australians and the main Japanese base at Buin. ComAirNorSols, particularly its RNZAF components, rendered considerable aid to the Australian ground troops and their native allies during this campaign, and some phases of this support are worth recording.

Marking of targets for ground support missions was usually accomplished by Australian tactical reconnaissance Bomberang or Wirraway planes attached to II Corps. Sometimes these planes indicated the target by strafing, but small smoke bombs were found to be more effective. Sometimes mortar smoke was used, but not with comparable success. Late in the summer of 1945 it became a common practice for an F4U, known as "Smokey Joe", to mark targets.

In contrast to these sophisticated methods of marking targets was the equally successful marking done by natives, who by January 1945, were actively operating against the Japanese. Native pressure was usually sufficient to force the Japanese to concentrate their forces in the interior so as to avoid being picked off in small groups. When a number of enemy troops too great for the natives to attack had assembled, they were surrounded to keep them in place. Then the dusky warriors climbed trees in a ring around the Japanese position and affixed red lava-lava cloths where they were easily visible to Boomerang and F4U pilots. On one occasion, perhaps because the supply of red calico was short, the natives built a circle of fire around the cornered enemy. Coastwatchers reported good results from such strikes.

Not all missions, however, were models of well-coordinated close support. Witness the following:³⁵

Downe's Hill strike definitely snafu: 20 Piva Corsairs sallied forth to attack Jap positions on and at the foot of . . . Downe's Hill. The ground troops planned to move in right after the bombing. However, the radio transmission with the tac/r plane was very poor. Furthermore, the mortar smoke was not placed until one hour after the strike. Nevertheless, 12 planes dropped six half-ton and 18 quarter-ton daisy cutters. The tac/r plane observed they fell on the wrong target. The last eight planes put their 8 half-ton stick bombs on a gun position. Downe's Hill basked peacefully in the morning sun.

RNZAF F4U's were the planes mostly used for close support during the waning months of the Bougainville campaign. Napalm was never used in this area, although some inconclusive experiments were made with incendiary bombs filled with ordinary gasoline. The clearing away of underbrush, an accomplishment of napalm which particularly gratified ground commanders, was nevertheless achieved by equipping depth charges, 500-pound, and 1,000-pound bombs with a nose fuze extension which permitted detonation before the bomb had penetrated into the earth. These weapons, known as "stick bombs" or "daisy cutters," were reported to be highly effective in clearing away the jungle cover over Japanese positions.

In April 1945 an interesting and successful experiment in close support was carried out by Corsairs based on Bougainville. Australian ground forces had to advance down a 1,000-yard stretch of road which was strongly defended by Japanese troops entrenched on either side. An ordinary attack, preceded by an air strike, might have dislodged the defenders, but only with the result of their occupying another position farther down the road. It was therefore desirable not only to clear the road but also to destroy the defenders.

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To accomplish this, flanking skirmishers were placed in the jungle several hundred yards from the road on both sides, so as to be in position to shoot down any enemy who attempted to escape into the jungle. The next task was to provide a rolling barrage of bombs, under cover of which the infantry could advance down the road and engage the surviving defenders before they had recovered from the bombing and before they could retire.

Three squadrons of F4U's did the bombing, each plane carrying two bombs or depth charges. Each squadron bombed by sections, but without any time lag between sections or squadrons. After a tactical reconnaissance plane had dropped smoke bombs over the length of the target area and 100 yards apart, the first section of the first squadron dropped one bomb per plane 25 yards apart down the left side of the road, each plane pushing over from 3,000 feet as the preceding F4U released its bomb. The second section bombed similarly on the right side of the road, then section three began bombing on the left where the first section had stopped, and then the fourth section took up the work of the second section on the right. By the time the fourth section had completed its first run, the first section was in position for its second, and thus the parade of bombs marched down the road, with no interval between sections or squadrons to give the enemy time to get out or get set.

Only highly-skilled pilots with considerable experience in close support work could have successfully carried out such an attack but by April 1945 the New Zealand fighter pilots met these standards. Of the 57 bombs and depth charges dropped, 52 were reported as falling within 25 yards of the road, and not one hit the road itself. One of

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the remaining bombs was a dud, and the other four were within 50 yards of the road. The Australian infantry, advancing behind the bombs, received no casualties from the air and captured the Japanese position with relative ease.³⁶

Summary

Close air support during the New Georgia campaign showed little or no improvement over Guadalcanal, where, indeed, actual support of combat troops was rendered more often than on New Georgia. The reasons for this were two: no satisfactory system of marking the areas occupied by friendly troops had as yet been developed, and ground commanders were fearful of the casualties which might result from misplaced bombs.

New Georgia did serve as an example, if a negative one, which was to lead to great improvement of close support during the invasion of Bougainville. The 3d Marine Division, having had the benefit of a training and indoctrination program with improvised air liaison parties provided by Strike Command ComAirSols, welcomed the close support received during the first six weeks of the Bougainville campaign. Problems which had hitherto prevented effective support--those of radio communications, marking of front lines, and target identification--were solved by the mobile SCR-193 and more experienced operators, by the use of colored smoke grenades, and by the use of 81-mm. mortar shells.

The Marines' successor on Bougainville, the Army XIV Corps, had the services of a tactical air communications squadron but failed to make any extensive use of close support during the critical period of the perimeter battle on Bougainville. This was partly due to the need of aircraft for the neutralization of enemy artillery defiladed from



friendly batteries, but also to a conviction among XIV Corps commanders that close support was impracticable in jungle terrain--an idea which probably resulted from the New Georgia experience. Even so, in its use of support aircraft against enemy artillery, XIV Corps made progress in marking targets with artillery smoke shells.

New Zealand F4U's gave on the whole exceptionally good close support to the Australian II Corps in Bougainville during late 1944 and 1945. Tactical reconnaissance aircraft were used to mark targets and coordinate attacks. As a result of much practice RNZAF pilots became highly proficient in carrying out such operations. This experience came too late, however, and in too isolated an area, to have any significant influence on the development of close support tactics in World War II.

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Chapter IV
FROM LAE TO MOROTAI

Development of Air-Ground Liaison in SWPA

The reader will recall that FM 31-35, Aviation in Support of Ground Forces, viewed air support of ground troops in each theater of war as a function of the air support command of the theater air force.* Ten officers trained in air support work were sent out to General Kenney in late 1942 to form the nucleus of such a support command. Kenney, however, finally decided against this plan on the grounds that "The theory of an Air Support Command does not fit the picture in this theater," because "whenever the necessity arises all or an appropriate part of the striking power of the Air Force is assigned to the tasks of supporting the ground force." Realizing that "specially qualified liaison officers" and "communications personnel" were needed to "ascertain and transmit to air control headquarters the needs of the ground forces," Kenney felt that such air support officers should "properly be placed in the A-3 Section." Of the ten air support officers, four who had too much rank to serve in a staff section were returned to the United States, and Kenney asked that they be replaced by officers of lower rank.¹

* See pp. 3-4.

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The six air support officers who remained in Southwest Pacific Area (SWPA) were reinforced when eight officers of the 5th Air Support Communications Squadron (soon to be redesignated as the 5th Tactical Air Communications Squadron), preceding their unit, arrived in Australia. These men, too, were assigned to the A-3 section. Some of these officers went into the field, using communications personnel drawn from various organizations, but a cadre remained at Brisbane and drew up an air support doctrine for SWPA. In July of 1943 the whole section, reinforced by a number of glider pilots who had been shipped over as air support officers, was moved forward to Port Moresby.²

Meanwhile, a few air support officers were gaining combat experience in operations around Wau in New Guinea, in early 1943. Two officers were also detailed to attend a course at the Royal Australian Air Force (RAAF) school of air operations at Canberra, in order that Australian and American concepts of air support could be coordinated. This was necessary since most of the support given during the remainder of 1943 was to be in aid of Australian ground troops. For the same reason, the 5th Air Support Communications Squadron took part in maneuvers with the Australian 6 Division. Officers of the A-3 section were attached to the squadron during these maneuvers. With a view to future amphibious operations, another officer of the section was sent as Fifth Air Force representative to a school of amphibious-landing tactics conducted at Sydney by the United States Navy.³


After the 5th Air Support Communications Squadron's arrival in Australia, it almost immediately began supplying enlisted personnel

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for support aircraft parties (SAP's).^{*} When a party was needed, the officers of the A-3 section who were to direct the air support were attached to the communications squadron. The same procedure was followed with the two other tactical air communications squadrons which eventually arrived in the theater. All new air support officers were assigned to one of the squadrons for indoctrination and training. When the air support section at Brisbane moved forward to Port Moresby, the 5th Squadron accompanied it.⁴

The air support party visualized by the writers of FM 31-35 had been described in TCGE 1-547 (18 February 1942) which as revised provided for 16 parties per tactical air communications squadron. But in SWPA practice "it was only by coincidence that any two parties were constituted alike." The chief reason for this variety was the necessity to conserve personnel. "This . . . presented a problem that required constant basic technical training of replacements . . . (code practice, cryptography, and radio maintenance) and the constant reshuffling of trained personnel." The size of the parties was also greatly influenced by the fact that much of the transportation in the theater was by air. "It was here that the new jeep radio showed its worth. A party of five or six men was standard with this set, the men and equipment making just a comfortable plane load." Eventually more powerful equipment was needed for some operations, so

* These units were at various times also known as air support parties, support air parties, and air liaison parties. To avoid confusion, they will here be consistently referred to as support aircraft parties.



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the SCR-299, often supplemented by one or more SCR-193's, was provided. Naturally more men were needed to operate this much equipment, so the size of SAP's might vary from five to twenty-five men.⁵


The development of the jeep-mounted SCR-193 liaison radio had begun before the 5th Squadron arrived in SWPA, but was completed by the personnel of that squadron. The installation consisted of an SCR-191 transmitter and BC-312 receiver mounted in a chest in the rear of a jeep. Batteries for the radio were placed under the chest. For charging these batteries, a 12-volt generator was mounted under the left fender of the jeep and, by means of a long fan belt, operated whenever the jeep engine was running. A whip antenna was mounted on the vehicle, but was found unsatisfactory in most terrain, so special antenna sets suited to local conditions were provided.

Ground support doctrine for SWPA was promulgated in a standing operating procedure in June 1943. This SOP defined close support as "the employment of Air Force units for a specific purpose intimately associated with a definite operation of a supported force," and named the agencies concerned. These agencies, for the theater air force, were the A-3 air support section and the support aircraft parties, with the support aircraft party officer acting as air force representative at the supported force headquarters. Ground liaison officers were to be located at the headquarters of the air commander as representatives of the supported force. The air support net was to be "a direct communication system linking

Air Support Sections with Air Support Parties and with the tactical elements of the Air Force available for air support missions." Also provided for was an air-ground net, "through which Air Support Officers direct the operation of air support aircraft in flight and receive information pertaining to air support targets."

One or more SAP's were to be assigned to each ground task force by the air force commander. Requests for air support could originate with any ground unit commander, and would be transmitted through normal ground channels until they reached a command post at which an SAP was located. At this command post the ground commander was to evaluate the requests, giving "Full consideration. . . to the Air Support Officer's advice." The final decision as to whether a request was to be forwarded, however, lay with the ground force commander. All requests were to include designation and location of target, location of friendly troops in relation to the target, and the time limits, if any, for the mission.

If the ground force commander approved a request, the SAP was to forward it to air force headquarters, where it would be evaluated by the air support section, giving "Full consideration. . . to the advice of the Ground Liaison Officer." The air force commander was to make the final decision as to whether the mission should be flown, and the requesting ground commander was to be informed of this decision through the SAP at this headquarters. After the mission had been executed the ground commander was required to report the results to air headquarters through the SAP.⁷

While these procedures were carried out in spirit, there were departures from the letter. The air support section at Advon Fifth 

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The Owen Stanleys and New Guinea weather made radio communication between Dobodura and Port Moresby unreliable. After much labor, wires were laid across the mountains, but even these were frequently grounded by storms and corroded by the prevalent New Guinea dampness, and were extremely difficult to maintain in repair. General Kenney therefore decided in March 1943 to create another advanced headquarters at Dobodura. This organization, known first as Buna Air Task Force, then as First Air Task Force (FATF), and finally as the 308th Bombardment Wing, functioned as an operational unit only, administration remaining in the hands of the V Fighter and Bomber Commands. Operationally, however, FATF directed all bomber and fighter units based at Dobodura and was to provide much of the air support for the Lae-Salamaua operation.

Kanga Force in its advance from Wau toward the coast had only two pieces of artillery and thus had to depend upon aircraft for bombardment of Japanese units to its front. The attached SAP established itself adjacent to brigade headquarters and sent requests for air support directly to Port Moresby. In April the 3 Australian Division assumed command of the forces at Wau, and thereafter requests had to be routed through brigade and division headquarters, but otherwise the procedure did not change. Advon Fifth Air Force might itself send out the mission requested, or it might relay the request to FATF at Dobodura. From March through May approximately 225 ground support sorties were flown against such targets as Salamaua, Kubo, Guadagasal, and Nima by A-20's, B-25's, and RAAF Beaufighters.


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Air Force headquarters was informally organized and in practice was made up of officers of both A-2 and A-3 sections. Also, to avoid the word "support", which was believed to imply the inferiority of the supporting arm, the support aircraft parties were referred to as "air liaison parties" until late in 1944. The ground liaison officer, always an Australian at this stage of the war, represented the ground forces in general rather than any particular ground unit. It may be noted that neither in the SOP nor in practice was there any provision for adjacent air-ground headquarters, such as had been already established in North Africa.⁸

The Capture of Lae

By the spring of 1943, the Allies in New Guinea had firmly secured the Buna-Gona area. Allied forces also held the gold-mining town of Wau (south of Lae), which the Australians had never evacuated. Reinforced and supplied by air, and provided with a support aircraft party, the Australian Kanga Force at Wau was ready to go on the offensive toward the coast. By the end of May, their patrols were within five miles of Salamaua. In the meantime an American unit, drawn from the 162d Infantry Regiment but known as the MacKechnie Force, had on 3 April occupied Morobe Harbor, 75 miles east of Salamaua on the New Guinea coast.⁹

Support of the Australian troops moving toward the coast from Wau, and of the MacKechnie Force moving west along the New Guinea coast, posed a problem of command. Some air units by this time were based at Dobodura, near Buna, but Advon Fifth Air Force headquarters was still located across the mountains at Port Moresby.



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A number of factors contributed to making these support operations effective. Liaison was close; an Australian ground officer was assigned to each of the squadrons engaged in ground support, and the SAF officer with the ground troops was for all practical purposes part of the brigade staff. Thus each branch of the service developed understanding of the other's problems.

Despite the firing of similar shells by the Japanese, the Australian troops were successful in using mortar smoke and tree bursts from their mountain guns to mark targets for support aircraft because the smoke from Allied shells was whiter. Other methods of target marking were tried but not with equal success.

Probably of greater significance in the effectiveness of the close support sorties was the use of gridded oblique aerial photographs. Maps of New Guinea were entirely too inaccurate to be used in close support work, and vertical photographs revealed only a jungle or kunai grass-covered expanse. An oblique photograph was one taken from relatively or very low flying aircraft which pictured the terrain ahead of the plane.

The oblique photograph, which revealed much more of elevation differences than a vertical one thus gave about the same view as that from an airplane making a low-altitude bombing and strafing run on the area pictured. These photographs were made more useful by being gridded; that is, arbitrary coordinates were superimposed on them. By means of these coordinates, any specific point in the area photographed could be designated by number. When these gridded oblique photographs were produced in quantity and distributed to squadrons and down through ground units to the company level, target

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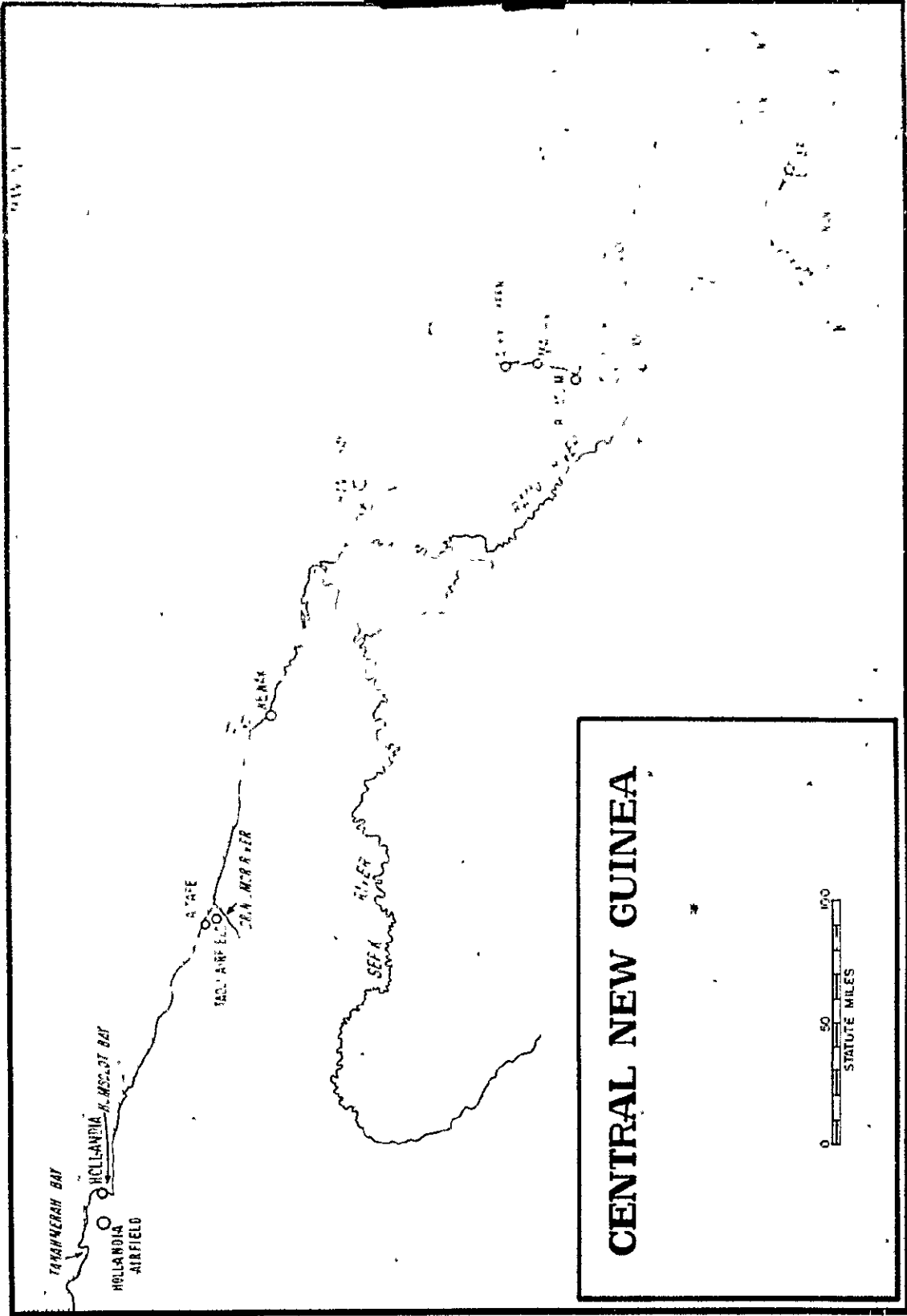
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identification was greatly simplified. Often pilots could pick their target by recourse to the photograph without aid from the ground troops in the way of smoke or panels.¹¹

By June 1943 the SWPA offensive could be stepped up. Kiriwina and Woodlark Islands were to be occupied, and a landing was to be made by MacKechnie Force at Nassau Bay, on the New Guinea coast southeast of Salamaua. No opposition was encountered in any of these landings, but at Nassau Bay the landing force, after moving inland to make contact with the Australians, turned against the Japanese at Mubo. Helped by a strike of some 59 medium and heavy bombers which left "the area littered with the mangled corpses of Japanese infantry," the Allied ground troops took Mubo and turned their attention to Salamaua.¹²

The Allied troops facing the Japanese at Salamaua during August were not strong enough to capture the peninsula, but they did draw Japanese forces from Lae into the battle. Since Lae was the next objective of SWPA forces, this reinforcement of Salamaua was encouraged by giving the Allied infantry there a great deal of air support. B-17's, B-24's, and B-25's cascaded bombs upon enemy positions at Komiatum, Bobdubi Ridge, and on the Salamaua Peninsula itself. The SAP officer with the 41st Infantry Division was by now better served than earlier, when "he had no enlisted assistants, no radio equipment," though he still had no means of contacting planes in flight. Gridded obliques of the target areas were available, however, and their use, aided by the time limits set for the bombings, protected the advancing ground forces. To the ground officers the chief fault in the air support procedure was the unnecessarily long list of headquarters through

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which requests were transmitted. A request for air support originating with a front-line battalion went (assuring approval all along the line) to the Australian 3 Division, to New Guinea Force, to Advon Fifth Air Force, and finally to FATF at Bobodura. On one occasion, after 3 Division had made its request directly to FATF and received a successful strike in return, an official reprimand was issued.¹³

The effectiveness of the air attacks on Salamaua was attested to by a captured Japanese diary:¹⁴

The shelling and bombing while I was at Salamaua were beyond words. Positions taken up by friendly troops were bombed by the enemy at least twice a day. . . The number of casualties resulting from enemy shelling and bombing were increasing, but we could do nothing about it. It was entirely impossible for us to do any cooking in the daytime, as enemy planes were coming over to attack us practically the whole day. Even our movements were extremely restricted. . . Our artillery could not open fire. Several hundred rounds of shells would come over from enemy artillery positions if we fired even a single round. Moreover, our artillery positions would immediately be discovered and become the target for bombing; and our guns would immediately be destroyed by enemy airplanes. . . Japanese corpses were scattered all over the place.

The final assault on Lae and Salamaua was to begin on 4 September with the largest amphibious operation thus far attempted in SWPA, a landing at Hopoi Mission, 29 miles east of Lae on the Huon Peninsula. On the next day paratroopers, followed by airborne troops, were to capture Nadzab, 30 miles northwest of Lae on the Markham River. Thus Lae and Salamaua would be faced with attack from three sides-- American and Australian troops moving northwest from Mubo, American paratroops and elements of the Australian 7 Division moving southeast from Nadzab, and troops of the Australian 9 Division moving southwest

[REDACTED]



from Hopoi.

In preparation for this operation, the Second Air Task Force (SATF), later to be known as the 309th Bombardment Wing, was activated in August to exercise operational control of Fifth Air Force planes at Marilinan, a new airfield on the Watut River in the interior some 50 miles west of Lae. Like FATF, SATF was to "function as a forward unit of the Advance Echelon, Fifth Air Force," and its commander would exercise in the Marilinan area "the same command functions as the Commanding General, Advance Echelon, Fifth Air Force, exercises in the New Guinea area." Whenever possible, the SATF commander was to obtain authority from Port Moresby "for the use of his own units in support of ground forces," but he could render such support without authority if he thought it necessary.¹⁵

Provision was also made for air support communications and liaison. As noted above, one SAP was already assigned to the Australian forces at Wau, where the 5 Division had replaced the 3, and another was with the 41st Infantry Division at Mubo. The Hopoi Mission landing force (the Australian 9 Division) was provided with a five-man party equipped with a jeep radio, and so was the paratrooper and airborne force destined for Nadzab. These parties were by now becoming skilled in their communications work although their activity was confined almost entirely to requesting missions.¹⁶

Close support was provided at Hopoi on 4 September, though opposition turned out to be almost nonexistent. Nine B-25's scattered four-to-five-second delay bombs slightly inland from the landing beach and strafed as the boats approached the shore. The plans provided



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that the amphibious force command could halt this air attack at any time by firing two red rockets, but no such recourse was necessary. Some 7,800 men, including the SAP, were ashore by noon. The Australian infantry was moving forward rapidly against slight opposition and no air support was needed.¹⁷

On the next day, the airborne attack against Nadzab was set in motion. Nadzab was not occupied by the Japanese, but this could not be known for certain ahead of time. Therefore six squadrons of B-25 strafers sprayed the jump area and the approaches thereto with fragmentation bombs and .50-cal. bullets just before the paratroopers landed. A-20's laid smoke to conceal the men of the 503d Parachute Infantry Regiment, and a formation of B-24's bombed Heath's Plantation, the nearest known Japanese strongpoint to the jump area. Australian units which had moved overland from Marilinan crossed the Markham River as soon as the parachute drop began, and the area was soon made secure. Work on an emergency airdrome was begun at once, and the next afternoon transport planes began landing the Australian 7 Division, elements of which immediately set out toward Lae.


By this time much of the Japanese garrison at Lae had been sucked into the battle at Salamaua, where it was being ground away by constant infantry, artillery, and air attacks. As the two Australian divisions advanced toward Lae, the pressure on Salamaua was increased. Aided by a 48-plane B-25 strike on 6 September and a 6-plane A-20 strike two days later, Allied forces overran the Salamaua Peninsula on 11 September.

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Fifth Air Force planes bombed Lae eight out of the eleven days of the period 6-16 September, flying 18 strikes and about 200 sorties by all available types of bombers. On 16 September, when nine A-20's, eight B-25's, 12 B-17's, and three B-26's struck defensive positions within the objective, the commander of the Australian 7 Division radioed Kenney that only Fifth Air Force bombers were keeping him out of Lae.¹⁸

In the campaign for Lae the gridded oblique aerial photograph continued to prove its utility, and there was much uneasiness when not enough such photographs were available for the Hopoi landing. It was again made clear that positive target identification, whether by photograph, smoke, or, as a last resort, maps and sketches, was of primary importance in ground support. Radio communication between air and ground was little relied upon, though the operations orders for the Lae operation provided for such communication on fighter frequency if necessary. Coordination was effected by carefully planned visual signals and the setting of a time limit for support bombing rather than by air-ground radio. Some desire was expressed for a one-man portable radio for such communications.

The SAP's had become highly efficient in establishing communications between ground and air headquarters. Their function was definitely liaison only--seldom if ever did they attempt actually to control aircraft engaged in close support--but this task they carried out well. Resourcefulness and ingenuity, as well as competence, characterized their performance. The SAP which landed with MacKechnie



Force at Nassau Bay lost all its radio equipment in the surf, but by means of a telephone wire strung to the headquarters of the Australian 17 Brigade, six miles inland, was able to make requests through the facilities of another party. The C-47 bringing the 6th SAP into Nadzab on 6 September was wrecked in landing, shaking up the party personnel and jamming the radio jeep so tightly into the fuselage that three hours' work was required to free it. Yet the party was on the air five hours after the transport touched the ground and remained in operation without a break for 2,800 hours thereafter. The SAP at Bulolo (with the Australian 5 Division) had no operational function after the attack on Lae began but made itself useful by acting as a relay station between the front and Fort Moresby and Dobo-dura.

Improvements were made in the parties' equipment during the operation, though new problems also emerged. A waterproof jeep trailer, which could be floated across streams, was developed, and an additional SCR-193 radio mounted therein. Signal Corps batteries proved too weak for extended use in the field, but the 150-ampere battery designed for command reconnaissance cars proved to be an excellent source of energy for radio equipment and was used whenever it could be obtained. After Nadzab, the need for equipment which could be transported by air was not so imperative, and the 3/4-ton weapons carrier was tried as a mount for the SCR-193. It proved more satisfactory than the jeep, chiefly because it allowed the operator more room and its greater road clearance enabled it to keep moving in mud which would stall a jeep.

One problem which was solved only partially was cryptography. Standing order of procedure required all air support traffic to be encoded, with consequent long delay in the transmission of messages.

Until June 1943 the Division Field Code was in use--a system entirely too slow and liable to error. During that month the M-209 convertor system was prescribed for air support traffic, and this system, supplemented by an air support target code which used code words for geographic areas and stereotyped phrases, was found to be a great improvement. However, the necessity for encoding and decoding in the field continued to delay air support communications.

Another persisting problem was the development of a source of power for charging the radio batteries. Australian-manufactured "Tiny-Tim" portable chargers proved too light for the strain of field operations, and spare parts for the unit were not available. The aircraft generator mounted under the hood of the radio jeep did not turn up sufficient revolutions per minute and there was no space there for a system of pulleys which might be used to increase the RPM. An obsolete generator mounted on the jeep's bumper, thus making room for pulleys, served as a makeshift charger, but a heavier and more reliable gasoline-powered charger was definitely needed.¹⁹

Lae to Hansa Bay

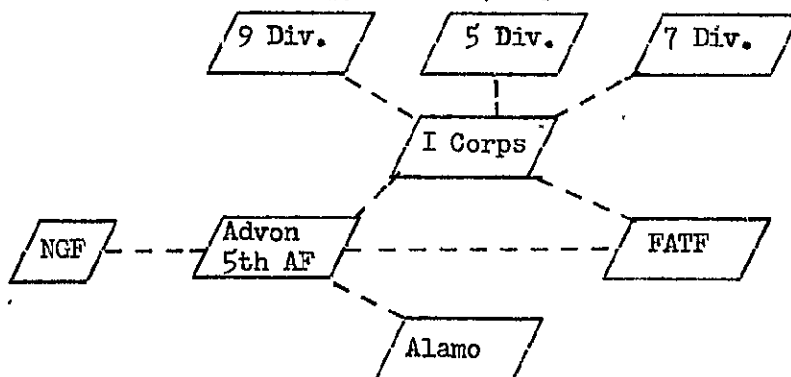
The continuing westward advance in New Guinea broke into two parts after the seizure of Nadzab. Part of the Australian 7 Division immediately began moving through the interior toward Madang, and the Australian 9 Division, after the fall of Lae, made an amphibious attack on Finschhafen, then began to move down the coast. The Third Air Task Force (TATF), later to be known as the 310th Bombardment Wing, was activated on 24 September 1943 to provide support for the movement through the interior.²⁰

Air support communications nets for the westward drive were specified and described in a Fifth Air Force field order. An SAP was assigned to each of the three Australian divisions, including the 5 Division (held in reserve), and to their higher headquarters, the Australian I Corps. The three divisional SAP's were equipped with SCR-193 radios, and the party at I Corps headquarters was provided with an SCR-138 and an SCR-299. Through the SCR-299, I Corps was joined to Advon Fifth Air Force at Port Moresby, New Guinea (NGF), FATF at Dobo-dura, and Alamo Force (Sixth United States Army) at Milne Bay. Thus two nets were in use, the one serving I Corps and the combat units connected at corps level with a second which enables I Corps to communicate with air headquarters.*

An air support request originating with any one of the divisions was transmitted to I Corps by the Division SAP. Corps then relayed the message, but decoded a copy for the commander, who determined the priority of the request and transmitted his decision to Advon Fifth Air Force with information copies to FATF and NGF. All messages were to be encoded by an M-209 cipher device, supplemented with the air support target code. Air support requests had priority over all other types of message on these nets.

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* Sketch of air support nets, September 1943:





Even before the capture of Lae, elements of the Australian Division had driven through the Markham valley to the Ramu river. Moving by great leaps, supplied and transported by troop carrier aircraft, the Australians occupied Kaiapit on 19 September, Gusap soon after, and Dumpu on 5 October. Only 35 miles north of Dumpu lay Bogadjim, on the coast, but between these two points lay a range of razor-back hills known as Shaggy Ridge, and here the Japanese brought the inland advance to a halt. In early December the enemy went on the offensive for a short period, but was halted by air attacks and by a flood which washed away bridges on the road south from Bogadjim.²²

Little close support was needed by 7 Division before it reached the Shaggy Ridge barrier; nearly all the more than 450 ground support strikes flown were directed against enemy communications along the Bogadjim Road. More valuable to the ground troops in their day-to-day fighting were the slow Boomerangs of an RAAF army cooperation squadron. These lightly armed aircraft, comparable to the American AT-6, were mainly occupied with reconnaissance and spotting for artillery, but on occasion used their two .30-cal. machine guns for emergency close support attacks.²³

The Australians remained stalled at the foot of Shaggy Ridge throughout the remainder of 1943. It was decided in December that close support attacks might pave the way for an advance. The key point of the defense was the Pimple, a high point on the north edge of the main ridge, which could be approached only along a path a few feet wide, with sheer drops on either side. TATF set up a mission for 19 December, more or less as an experiment. Four P-40's were led in to the target by a Boomerang on this date, and four more on the next

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day. The results were encouraging; one direct hit and several near misses were scored on the knoll, and friendly troops 150 yards away were unharmed.

Such support having proved feasible, a coordinated air-ground attack was planned for 27 December. Seventeen P-40's dive-bombed the Pimple that morning, one flight furnishing cover while the second made its run. In addition, artillery fired 3,500 rounds into the objective. After this preparation, the Pimple fell to the attacking infantrymen, and the remaining Japanese in the Shaggy Ridge area were doomed. They chose, however, to die in place, and in the rugged terrain they were quite capable of imposing a long delay.

In an attempt to speed the clearing of the enemy out of the area, Allied aircraft gave support on a much larger scale. On 18 January 1944, 48 B-25's worked over the Japanese strongpoints; on the next day 65 B-25's, 12 Beaufighters, and 12 Vengeances hit other targets pointed out by the ground forces; and 63 B-25's returned to the same targets on 20 January. The surviving Japanese were struck by P-40's and Vengeances for three more days. With the aid of these support missions the 7 Division, now greatly depleted by casualties and disease, was able to resume its slow movement northward.

Shaggy Ridge was a new high in close support effectiveness for SWPA. Radio communications by means of the nets discussed earlier were efficient. Liaison was good, both that of the support aircraft parties with 7 Division and I Corps and that of the Australian officers at Dobodura and at TATF headquarters at Gusap. Pilots of the RAAF army cooperation squadron, men who understood both air and ground operations,



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aided liaison by participating in the briefing of fighter and bomber crews.

Target marking was also successfully accomplished. Direct air-ground radio communication was apparently not used, but SAP's turned their radios to the bombers' frequency and were ready to break in with instructions if necessary. The most successful method of marking targets was for the Boomerangs to lead in the attack aircraft, but visual signals supplemented this tactic. Mortar smoke identified some targets, and both smoke grenades and rockets marked friendly positions. Shaggy Ridge also afforded the first example of the effective use of panels in SWPA--arranged so as to form a giant arrow pointing at the target. Australian ground officers not only commented on the effectiveness and accuracy of close support strikes, but also emphasized the excellent effect these well-coordinated attacks had on the morale of the infantry.²⁴

While the Australian 7 Division was making its way up the Ramu valley and through Shaggy Ridge, another campaign was being waged along the coast. On 22 September, before mopping up at Lae was concluded, elements of the Australian 9 Division were put ashore south of Finschhafen, on the tip of the Huon Peninsula, where they were later joined by troops moving overland from Kopoi Mission. The Japanese resisted stoutly, and it was not until 2 October that they gave Finschhafen and its adjacent airfield up. Even then, they remained in strength at Sattelberg, a few miles northwest of Finschhafen, and were strong enough to attempt an abortive counteroffensive before the end of the month. Sattelberg held out until 26 November, and then the Japanese merely dropped back to Fortification Point, which was defended until 20 December. How much longer this delaying action might have lasted no one knows, but on 2 January 1944 the United States 32d Infantry Division made an amphibious landing at Saicon, at the base of the Huon Peninsula, thus

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forcing the Japanese to evacuate. The American forces at Saidor and the Australians pushing west from Finschhafen made contact on 10 February 1944. Westward movement resumed on 5 March, when a short amphibious hop placed troops ashore at Yaula, 30 miles northwest of Saidor. Efforts to link up the forces on the coast and the Division in the interior were abortive, except for fleeting patrol contacts, until early April. Then, as a result of the Hollandia landing far to their rear, the Japanese began to withdraw toward Wewak. Madang and Alexishafen fell in April, Hansa Bay was occupied on 15 June, and during the 15 remaining days in June the Australians moved 80 miles to the mouth of the Sepik river.²⁵

The beaches were not strafed in support of the Finschhafen landings, since Allied patrols had already reconnoitered the area and found it unoccupied. Twenty-five B-25's and A-20's struck nearby Japanese positions on D-day, however, and five more strikes were made in the area before Finschhafen fell. Around Sattelberg, little close support could be rendered during the first three weeks of fighting, because the situation was so confused that the ground commander did not know the location of his front lines. By 20 October, the battle lines were more clearly drawn and the Japanese counterattacks were severe enough to warrant a large-scale support strike. On the morning of 21 October 57 B-24's and 19 B-25's cascaded bombs down upon the Japanese lines. This mission may have been instrumental in checking the Japanese attack, but it did not appreciably speed the Allied ground advance, which resumed only on 16 November. From 16 November until the fall of Sattelberg, however, some 270 B-25, B-26, and A-20 sorties

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pounded the Japanese. Nearly all of these strikes were against targets well removed from the front lines, and, except for single instances of marking the front line with smoke grenades and designating the target by artillery smoke, the ground forces offered no aid to the support planes. Even so, an Australian officer wrote that, "Their bombing and strafing are pretty to watch and never fail to raise a cheer from the troops on the ground."²⁶ At Saidor the landing plans provided for saturation of the beaches by five squadrons of B-25's, but bad weather delayed these aircraft until it was too late from them to attack. Three B-25's did get through to provide a smoke screen for the landing force, however, and 42 B-24's dropped almost 100 tons of bombs on targets beyond the beaches. It proved unnecessary to call upon two heavy bomber groups on ground alert since the landing was unopposed but 40 air alert A-20's were assigned targets by radio from the flagship of the amphibious attack force and put on a spectacular demonstration of bombing and strafing.

After the landing at Saidor, the 32d Infantry Division met little organized opposition, but Japanese troops escaping from the Huon Peninsula were constantly trying to move around the allied perimeter along the inland trails. Artillery and aircraft were used to work over targets located by patrols or natives, and frequently the artillery marked targets for air attacks. According to the SAP with the 32d Division, by the end of the campaign more than 400 aircraft had flown support missions in this area. The secondary landing at Yalau on 5 March was supported in the same manner, though on a smaller scale, as the Saidor operation, and again the weather reduced the planned support. In this instance the air alert planes, B-25's, were not

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needed and went on to strike secondary targets.²⁷

Ground support for Australian troops in eastern New Guinea continued when needed through the remainder of the campaign. As time passed, however, RAAF planes, P-40's, and P-39's took over more and more of the ground support duties. The 1945 drive which finally resulted in the capture of Wewak was a completely Australian show both air and ground.²⁸

The experience gained by the Fifth Air Force in eastern New Guinea in liaison, air support communications, target identification, and attack tactics was the foundation on which air support in the Philippines was to be built. Refinements were needed, and air-ground radio, still in its infancy in New Guinea had to be further developed, but great progress had been made. Meanwhile significant advances in the field of support of amphibious operations had also taken place, less in New Guinea than in the course of the landing assaults in New Britain and the Admiralties.

The New Britain Campaign

By the autumn of 1943 allied commanders had decided to bypass Rabaul. But it was still necessary to establish air and naval bases on New Britain, mainly as a means of protecting convoys moving through Vitiaz Strait off the New Guinea coast. Cape Gloucester at the western tip of New Britain, where a Japanese airfield was located, was an objective as a matter of course, and after considerable discussion it was decided to take Arawe, on the south coast, as well. The invasion of Arawe was set for 15 December 1943, of Cape Gloucester for the day after Christmas.

Photographic reconnaissance of western New Britain had begun early in 1943, and new obliques of the landing areas were made in early December. These photographs were gridded and more than 500 prints of each distributed to air and ground units, including the support aircraft parties taking part in the operation.

The SAP with the force destined for Arawe was to operate from the flagship of the amphibious force until ordered ashore by the attack force commander; then it was to set up its radio on land. Before command of the landing operation had been transferred ashore to the landing force, all requests for air support were to be referred to the naval commander for approval; afterwards, they were to be approved by the landing force commander. Naval radio equipment was to be used until the SAP went into operation ashore.

The radio net for the Arawe landing was a simple one with only four stations--the SAP at Arawe, ALAMO Force at Goodenough island, FATEF at Dobodura, and Advon Fifth Air Force at Port Moresby. Messages from the SAP requesting air support were to be addressed to all these stations; they could be disapproved by either ALAMO Force or Advon, but if they were not disapproved, FATEF was to execute the missions.

On the morning of D-day, 15 December 1943, air alert planes were to be over the landing area. An air coordinator* was to control these aircraft; when the landing force needed the services of the air alert planes, the SAP aboard the flagship was to communicate with the air coordinator by radio, and that officer, from his vantage point in the

* Referred to in operations orders as an air alert control officer.

air over the beaches, would direct airplanes to the target. Operational control of planes supporting the landing was exercised by FATF, although some of the bombers were provided by V Bomber Command at Port Moresby.

An eminent naval historian has stated that Fifth Air Force was so preoccupied with strategic bombing that there was lack of coordination with the Navy in amphibious operations. Aside from the fact that few targets for strategic bombing even existed in SWPA, the support allocated the landings at Arawe, and later landings as well, show this statement to be in error. Two squadrons of B-25's were assigned to air alert over the landing area at Arawe in addition to fighter cover, and two squadrons of A-20's, five squadrons of B-24's, and one squadron of RAAF Bostons were held on ground alert in case their services should be needed.²⁹

The amphibious attack force arrived off Arawe before dawn on 15 December. Troop A of the landing force, (the 112th Cavalry Regiment) was repulsed in a predawn landing attempt at Umtingalu, but the main assault on beaches north of Cape Merkus met with little opposition and reached its final objective in the middle of the afternoon. Because the opposition was so slight, little air support was needed; five of the nine B-25's in the first air alert squadron were assigned a target north of Cape Merkus and bombed and strafed the designated area with unobserved results. The second squadron on air alert had some difficulty in establishing radio contact with the flagship, but finally did so. No close support was needed, and the unit was released by the task force commander to attack its secondary target, the village of Didmop.³⁰

All concerned seem to have been satisfied with the air support rendered at Arawe. FATF reported that "The mission and the manner of its coordination were felt by all participants to have been extremely

effective," and recommended that the same procedure be used in future operations.³¹ The commander of Seventh Amphibious Force stated that "Bomber aircraft on call over the area of operations were most useful in providing impromptu support. Future use of this form of support is recommended."³² Lt. Gen. Walter Kreuger, Sixth Army commander, called the air support "efficient", and credited this to effective liaison and planning by air, navy, and ground representatives.³³ A ground forces observer reported that "The presence of medium bombers on air alert in the early stages and heavy and light bombers . . . on ground alert later in the day would give any commander a feeling that he had an immediate means of dealing with serious threats, either ground or naval."³⁴

This is not to say that Arawe operation was perfect. Preparatory air attacks on the beach at Umtingalu might have prevented the repulse of the troop which landed there. Coordination could have been improved-- destroyers continued to fire on the beach during a bombing and strafing attack made by the first air alert squadron. The use of code for communications between the attack force and FAPF slowed down communications considerably. One Fifth Air Force officer felt that the naval practice of keeping the headquarters ship far out from the beaches endangered close support communications and might result in a breakdown at some critical time. But there was no criticism made of the SAP, which kept its radio net in operation throughout and which, until D plus 1, was the only means the ground forces had of communicating with Sixth Army.

The D-day air alert afforded one of the first examples in SWPA of support targets being assigned by radio, and the 13th Bombardment Squadron, one of the units of the 3d Bombardment group supporting the landing forces reported that "Events proved this system to be very satisfactory, probably

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superior to former methods". The radio was used in conjunction with gridded aerial photographs.³⁵

During the month following the landings at Arawe nine ground support missions were carried out. Because American patrols and native scouts were venturing far into the interior, the bomb line was fixed well in advance of the main line of resistance, but the nine strikes mentioned were inside the bomb line, against targets selected by the ground commander. Only one of these strikes was directed from the ground, however. This took place on Christmas Day, when only one flight out of a formation of 18 A-20's received a request from the SAP asking that an attack be made against a target other than the one previously designated. The flight leader, after receiving authentication and asking testing questions, violated SOP and made the attack. "The request for change in mission was made because of the need for support at once, because of the fact that a definite target was known to be at the . . . new location and because the presence of Japanese there. . . indicated that the original mission would have little effect." The ground force commander stated "that the attack assisted materially in relieving pressure on the ground troops."³⁶

Most of the strikes were against suspected enemy positions, but on 7 January 1944, 12 A-20's were called upon to strike guns known to be located on Analut Plantation. This mission was marred when U. S. naval vessels opened fire on the aircraft shooting one down and damaging two others. The largest, and final, support strike at Arawe came on 16 January against a Japanese position which had prevented movement past Umtingalu for a month. Eighteen B-24's dropped 1,000-lb. bombs in the area, and were followed by twenty B-25's which bombed and strafed from medium altitude.

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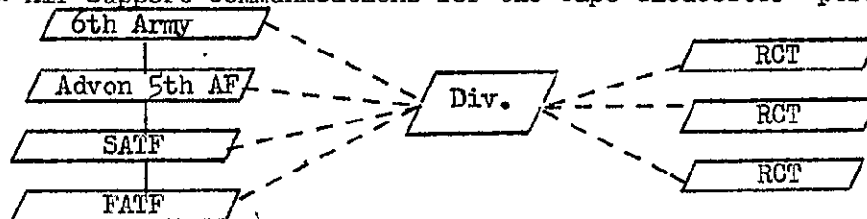


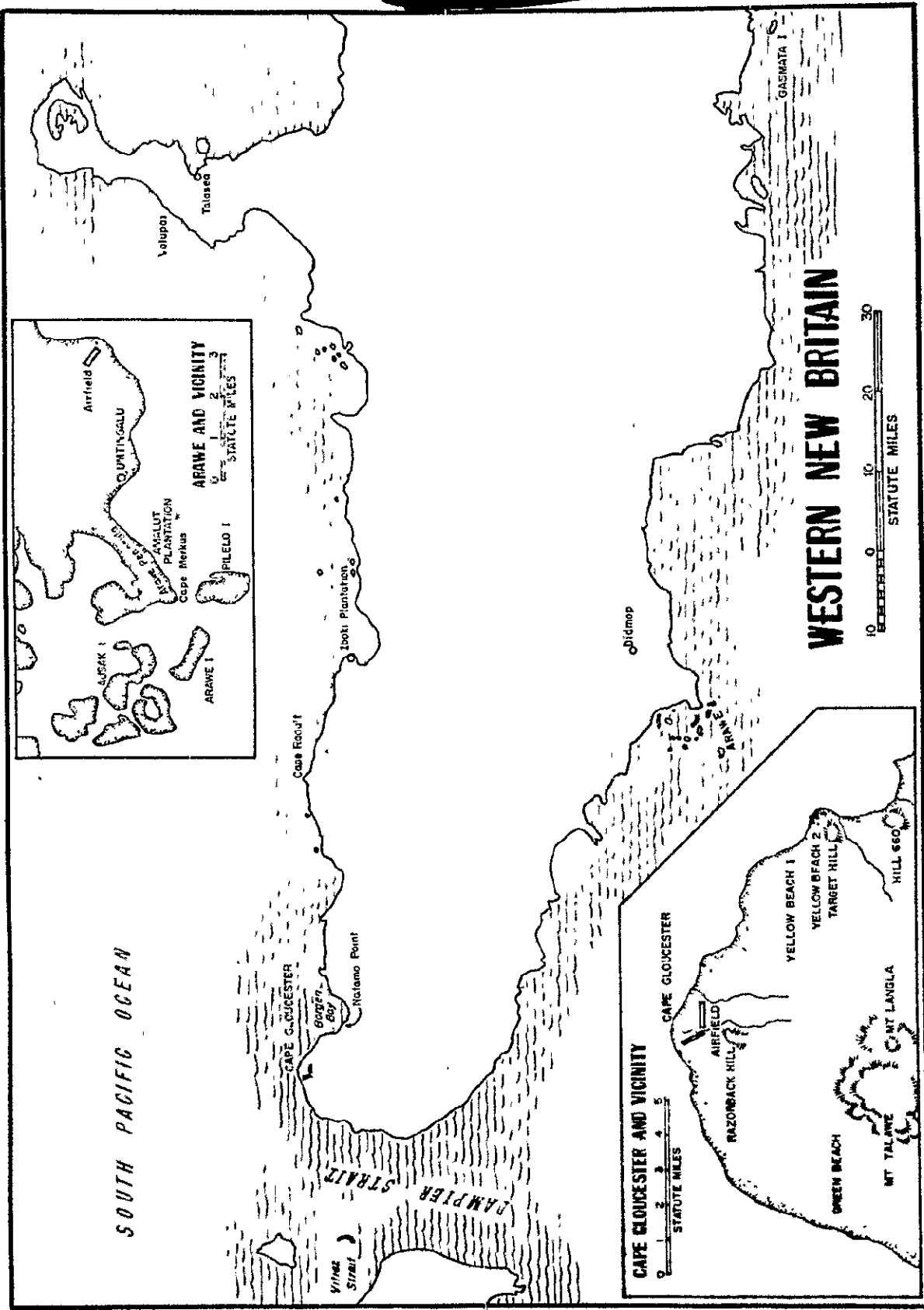
Mortar and artillery fire followed the air attacks, then tanks and infantry pushed through the enemy positions. The Japanese, already driven out of Cape Gloucester, began retreating from western New Britain.³⁷

For the Cape Gloucester operation General Headquarters (GHQ) SWPA had available the 1st Marine Division, rested and replenished after its ordeal on Guadalcanal. Fifth Air Force turned its share of planning responsibility for the operation over to FATF, representatives of which worked closely with the marines. Lt. Col. Earl Field, air liaison officer at Sixth Army headquarters, reported that the ground forces attitude "seems to be that the Air Force knows its business and that we will . . . be able to help them materially in the final planning phase."³⁸

Four SAP's were assigned to the operation. One was to operate aboard the flagship with the task force commander and act as commander support aircraft (CSA), one was assigned to each of the two regimental combat teams (RCT's) slated for the landing, and a fourth was assigned to the reserve at Finschhafen. After the landing was completed, the flagship CSA was to move to division headquarters ashore, receive requests from the combat teams, pass them to the division commander for approval and assignment of priority; and transmit those approved to Sixth Army, FATF, SATF, and Advon Fifth Air Force. Either the division commander, Sixth Army, or Advon could disapprove a request, and either FATF or SATF, or both, might execute the requested mission.* It was also planned,

* Air Support Communications for the Cape Gloucester Operation





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as at Arawe, that air alert planes should be under an air coordinator airborne over the landing area, and that the SAP aboard the flagship should assign targets to the air alert planes through the air coordinator.³⁹

An intensive air preparation was planned for before D-day. On the day of the landing, 26 December 1943, the 345th Bombardment Group was to send one squadron of B-25's to bomb and strafe Target Hill, using white phosphorous bombs so as to blind Japanese observers, and the other squadrons of the group were to bomb and strafe Yellow Beach while the landing craft were on their way to shore. A squadron of B-25's from the 3d Bombardment Group was to bomb and strafe Green Beach, while the group's three squadrons of A-20's were to begin an air alert at 0743 and relieve one another at 30-minute intervals. The 345th Group was to fly a second mission during the afternoon, and the 3d was to go on ground alert two hours after return to base. Four more B-25 squadrons, of the 38th Bombardment Group, were to strike predetermined targets in the Cape area during the morning and were to remain on ground alert during the afternoon. Two additional B-25 squadrons of the 22d Bombardment Group were to be on ground alert throughout the day. Lastly, 11 squadrons of B-24's, loaded with 1,000-pound and 300-pound demolition bombs, were to hit predetermined targets just before and just after the landings and were to be on ground alert, prepared to take off on a second mission, at 1330. Thus the entire bombardment strength of the Fifth Air Force was to be used or to be available for support at Cape Gloucester.⁴⁰

Before D-day, more than 1,600 bomber sorties had been expended on Cape Gloucester to such good effect that throughout the remainder of the war the Fifth Air Force referred to saturation bombing as "Gloucesterization." Air operations on D-day went according to plan, with 19

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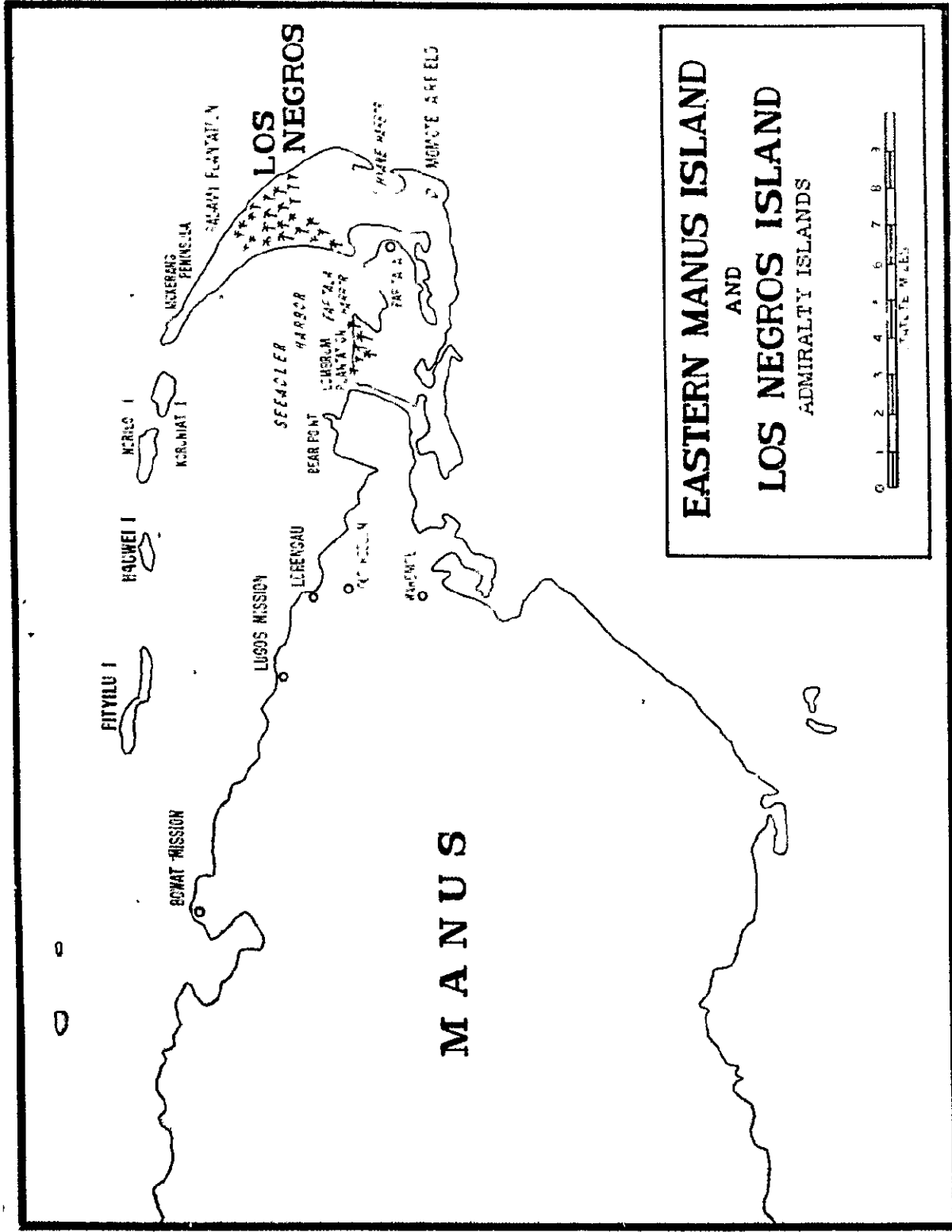
squadrons of bombers supporting the landings and adding to the destruction. As General Kenney had hoped, the marines walked ashore with their "rifles on their backs." The air alert A-20's found that they were not needed, and went on to secondary targets. One incident, however, marred the day. As the 345th Group came over Borgen Bay for its afternoon attack, a Japanese air raid was in progress, and enemy dive bombers passed near the B-25 formation. Naval antiaircraft gunners fired at everything in sight, and the Mitchells, coming in at low altitude and taking no evasive action, made easy targets. "Friendly" fire shot down two of the bombers and badly damaged two others.⁴¹

The landing at Green Beach was intended only to prevent the Japanese from retreating in that direction; it was the action at Yellow Beach which was decisive. From that landing the 1st Marines drove toward Cape Gloucester Airdrome while the 7th Marines captured Silimati Point and Target Hill, then remained in place to protect the 1st Marines' rear. Support was given the 1st Marines on 27 and 28 December, and on the morning of the 29th, in preparation for the attack on the airdrome itself, 54 B-24's, 59 B-25's, and 8 B-26's bombed enemy positions within 500 yards of the Marine lines. Whether or not the air strike was responsible, the Japanese abandoned their prepared positions at the airdrome, which was overrun before sundown on the 29th and secured the next day. But in the foothills of Mount Talowe, from Razorback Hill, some 1,500 yards south of the field, the Japanese subjected the Marine positions to artillery fire. More air support was therefore requested. Razorback Hill was overrun on the 31st after a strike by 22 A-20's, and coordinated air-ground attacks on 1 and 4 January 1944 pushed the enemy farther back into the interior, but by then the main Allied effort had turned to driving the Japanese away from Borgen Bay.⁴²

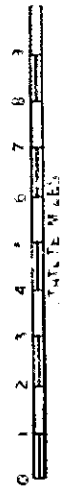
The enemy in the Borgen Bay area had greatly reduced his forces by a banzai attack against Target Hill just before dawn on 3 January. Even before this the 7th Marine Division, supported by A-20's and B-25's, had begun to drive toward the central Japanese position, Hill 660. With the capture of this hill on 14 January the western end of New Britain was safely in Allied hands. Fifth Air Force medium and light bombers made seven strikes in support of the drive on Hill 660, and from 14 January until the end of the month B-25's, A-20's, P-40's, and Beauforts made bombing and strafing attacks on isolated pockets of enemy remaining near Gloucester and on the lines of retreat toward Rabaul. ⁴³

On the ground the campaign now resolved itself into pursuit of the fleeing Japanese. After capturing Natamo Point, the marines drove on overland to Cape Raoult, then took Iboki Plantation by a shore-to-shore movement on 24 February. Talasea, on the Willaumez Peninsula, was the next objective and was assumed to be defended, so a reinforced regiment was assigned as the landing force and two squadrons of A-20's were scheduled to provide support. Bad weather kept the A-20's out, but the marines on 6 March bombarded the beach with tanks carried aboard mechanized landing craft (LCM's), and a successful landing was made at Volupai, across the peninsula from Talasea. During the advance across the peninsula air support was rendered by P-40's, P-39's, and RAAF Beauforts and Kittyhawks, though not in the close vicinity of the ground forces. Talasea fell on 9 March 1944, and the New Britain campaign was for all practical purposes over. ⁴⁴

The New Britain campaign was the first clear-cut example of the technique Fifth Air Force had developed for support of amphibious operations. First, heavy attacks were made on airdromes from which enemy air might



EASTERN MANUS ISLAND
 AND
LOS NEGROS ISLAND
 ADMIRALTY ISLANDS



interfere with the landing. Next, installations in the landing area were subjected to heavy strikes, with emphasis on shore batteries, supply installations, and troop concentrations, culminating on D minus 1. On the morning of D-day, support aircraft bombed the beaches and suspected strongpoints while the landing force approached the shore, and air alert planes flew overhead to strike centers of opposition as they developed. These bombers were backed up by others kept on ground alert at base and subject to call if needed. An air force officer aboard the flagship exercised control of the bomber, and designated targets by reference to gridded aerial photographs. After D-day a bomb line was established and the air bombed at will anywhere up to 500 yards of that line. If the ground commander wanted any target struck within these limits, he established "a target bomb line around the target within which the bombers and strafers" might attack. Air alert planes could deliver a requested strike on a few minutes' notice, but after D-day the marines usually had to make their request on the afternoon of the day preceding the attack.⁴⁵

The New Britain terrain limited close support by making it very difficult to determine the location of front lines--often the ground forces were themselves uncertain of their location. Air strikes were consequently confined to easily located targets such as villages, Target Hill, Razorback Ridge, and Hill 660. It was fortunate that these targets were important in the enemy's defense as well as easily identifiable; otherwise air support would have been of little effect. Surprisingly, though there was one attempt to mark a target with smoke shells, there is no record of the use of smoke to mark front lines. Fifth Air Force felt that American troops were inferior to the Australians in reporting bombers and identifying their positions.⁴⁶ [REDACTED]

[REDACTED]

The support aircraft parties at Arawe and Cape Gloucester functioned well. Not only did they competently handle all air communications, but they twice carried on ground forces communications with other headquarters when ground channels broke down. During the drive on the airfield and the fighting around Borgen Bay, the parties had to do their communicating at night as an entire day was required to move the radio equipment through the jungle mud. Often SAP officers had to leave their equipment behind and use runners to carry back messages for transmittal.

One source of trouble for the SAP's was the SCR-299 radio. In the constant rain of New Britain malfunctions of this set were very frequent, though SCR-193's, carried along as a reserve, were usually able to keep communications going until repairs were made. On one occasion it was necessary to set up a mission by a B-17 escorted by eight P-38's to drop spare parts for the SCR-299's. Effective waterproofing of this radio was badly needed.

Other equipment troubles were more familiar. The provision of power for the jeep-mounted SCR-193 was still unsatisfactory, but the SAP's had noted the battery charging equipment used by the marines and were able to adapt their own to serve in like manner. The tape for the M-209 Converter, (used for coding and decoding), was a constant trial. This tape was gummed on one side for normal, dry-weather operation, and the cryptographers with the SAP's were forced to unwind each roll and reverse it so that printing was done of the gummed side, lest the roll become a solid block of paper and glue. The gum naturally adhered to the machinery, which had to be cleaned twice a day.

[REDACTED]



[REDACTED]

The parties were gratified, however, with the performance of the PE-95, the power plant for the SCR-299. This unit, mounted in a 1-ton trailer pulled by a 1-1/2-ton truck, "proved itself to be very well adapted for the type of trails found in this theater." These units and their mounts could also be easily landed on beaches, "often getting ashore when 2-1/2 ton trucks, weapons carriers, and jeeps failed."⁴⁷

The Admiralties Campaign

Close air support during the invasion of Los Negros in the Admiralty Islands demonstrated a new high of efficiency and effectiveness in SWPA. The initial invasion was a hastily planned and executed affair, 1,000 men of the 1st Cavalry Division having been ordered to make a reconnaissance in force and to remain on the island only if it appeared feasible, but the plans were generous in providing air support. Three squadrons of heavy bombers were to strike Los Negros 20 minutes before the landing, then four squadrons of B-25's were to attack on orders from the flagship or, if no such orders were issued, an hour after their arrival. If coordinated with the landing, these attacks were to cease when the first landing craft reached shore. An air alert of B-25's, one squadron on duty at a time for an hour, was to be ready to support the operation during the first four hours, and three E-25's, prepared to lay smoke, were to be over the area, each flight for one hour, from H-hour until H plus 6.

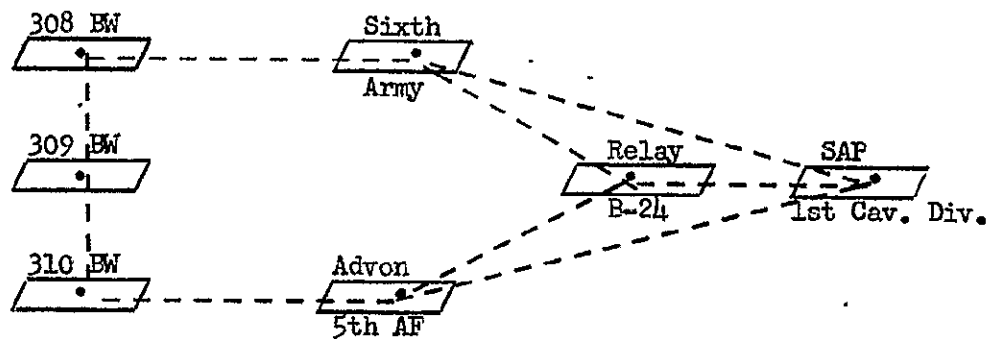
A stripped-down SAP composed of two officers and five enlisted men, equipped with one TW-12 radio and one SCR-193 radio, was to go ashore with the assault troops. Until noon on D-day this SAP was to concern itself solely with air-ground communications, then to enter a

[REDACTED]

radio net including the three Fifth Air Force bombardment wings (successors to the air task forces), Advon Fifth Air Force, and Sixth Army. To insure contact, a B-24 was to take position between Los Negros and Dobodura to serve as a relay station if such was needed. * All planes entering the Los Negros area on D-day were to report in to a Fifth Air Force CSA aboard the flagship until command had passed ashore, and to the SAP thereafter. In case of a failure of radio communications during the landing, a star shell from the flagship was to serve as an order to begin air attacks.

By this time the 5th Tactical Air Communications Squadron was no longer the sole source of SAP enlisted personnel for SWPA. The 9th Squadron had arrived in the theater in late 1943, and its men were fed into existing parties to gain experience. Officer air support personnel increased with the arrival of 20 aircraft observers who were assigned to A-3 for use as SAP officers and attached to the 5th Squadron for rations, quarters, and training. Thus the supply of men for support aircraft parties was considerably increased by the time of the Admiralties campaign. Communications equipment was also more easily obtained, though still in short supply.

* Diagram of air support net for the Admiralties campaign



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[REDACTED]

The cavalrymen went ashore at Los Negros, at a point inside Hyane Harbor and almost on Momote Airfield, during a heavy rain on the morning of 29 February 1944. The weather, which was to interfere throughout the battle, prevented most of the planned air support; only three of the 40 scheduled B-24's managed to bomb, and only nine of the B-25's. These B-25's, elements of three squadrons, were late, the flagship was unable to communicate with them by radio, and they were invisible in the lowering weather. For this reason, naval gunfire did not cease at H minus 20 minutes, as planned, but continued until H minus 5 minutes, at which time a star shell was fired. On this signal the Mitchells made a strafing and bombing run across the beach, disregarding antiaircraft fire from the naval vessels in Hyane Harbor. Of the four squadrons of air alert bombers, one made up six planes of the nine which struck the beach, and the other three, unable to find a break in the weather, bombed a secondary target on Lou Island.

While the support delivered was only a fraction of that planned, the SAP, which was to play an important part in the operations during the days to come, went ashore with the assault troops and was on the air 20 minutes after landing. On the night of 29 February, the party found itself in the midst of a Japanese counterattack, and Maj. Everett King, who had come ashore from the flagship to aid the party, was killed. Some solace for this loss was gained from the fact that Capt. George F. Fredericks, the ranking SAP officer, killed two Japanese.

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On 1 March Fifth Air Force planes made up in part for their inability to lend the planned amount of support during the landing. Three B-25's dropped supplies early in the morning, and a B-17 made three similar runs before nightfall. This B-17, each time it came over, strafed Japanese positions just across the runway from Allied lines on orders from the SAP. The records agree that these strafing passes were unusually effective. During the day, B-25's and B-24's bombed the main Japanese staging area at Lorengau, on adjacent Manus Island, and reported bombs in the assigned targets. The most helpful strike of the day, however, came at 1600, when six B-25's struck the enemy just across the runway. "The air bombardment had unexpectedly good results, for while the bombs were falling. . .about 100 Japanese ran pell-mell across the strip in the direction of the defense perimeter. A majority of these were killed. . .This rush was very definitely not an attack but a mass effort to get away from the bombs." Naval vessels silenced Japanese anti-aircraft guns which fired on these aircraft.⁵¹

The weight of air support was again heavy on 2 March, though marred by poorly executed strikes. This effort was nonetheless important, because it held the Japanese down while reinforcements poured ashore, enabling the ground forces to prepare for an offensive. Air support began when a B-17 dropped supplies, then strafed the dispersal area across the strip, as requested by the SAP to cover ground troops picking up the supplies. When this attack was over, four squadrons of B-25's of the 38th Bombardment Group were standing by. Reception of radio from the ground was very poor, however, and many of the pilots failed to understand the instructions. As a result, squadrons broke

up, with some planes bombing pre-briefed targets, others the target designated by the SAP, and still others going home without bombing at all. The six planes from the 405th Bombardment Squadron saved the mission from total failure, effectively bombing and strafing the area designated. Additional support was provided during the day by 19 P-38's which strafed Los Negros targets after being relieved from combat air patrol.

The newly arrived troops had by this time crowded the original beachhead, and it was essential that the perimeter be expanded. A four-squadron B-25 strike was due early in the afternoon, so jump-off time for the ground attack was set at 1500. The 24 B-25's were attacked by Japanese fighters while orbiting to receive instructions, but friendly fighters drove off the enemy before serious damage had been done.

The SAP changed the group's original assignment, ordering bombs to be dropped on an area southwest of the strip. To avoid the misunderstandings of the morning mission, instructions were relayed to the bombers by "Saucepan," the fighter-director ship, which had a transmitter more powerful than that possessed by the SAP. Even so the strike was botched. The 500th Bombardment Squadron dropped some of its bombs east of the airstrip, killing two cavalymen and wounding four. The 498th and 501st Squadrons hit the assigned area, but the ground station, seeing bombs hit within Allied lines, called off the 499th Squadron before it could release its bombs. In all fairness, however, it must be added that when the ground troops attacked at 1500, they overran the dispersal area west of the runway without any additional casualties.⁵²

On D-day plus 4 (3 March 1944), the ground forces busied themselves mopping up Japanese within the enlarged perimeter and began reconstruction

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of the airfield. Bad weather prevented air support reaching the desired weight during the day; three squadrons of B-24's were unable to penetrate a front which lay between New Guinea and the Admiralties. During the afternoon a formation of A-20's struck the northern shores of Hyane Harbor, and was followed by six B-25's which dropped 100-pound white phosphorous bombs in the same area, thus preventing the Japanese from firing on landing craft coming into the harbor. During the night the troopers withstood the strongest counterattack of the campaign.⁵³

With the repulse of the Japanese counterattack on the night of 3/4 March, the beachhead was reasonably secure, but reinforcements were necessary before the remaining enemy on Los Negros and Manus could be destroyed. Some reinforcements were expected on 4 March, and air strikes were desired to cover their entrance into Hyane Harbor. The SAP had considerable trouble getting its requests through; it was unable to broadcast at night because Japanese snipers fired at the sound of the generators. The request for a strike on the 4th was finally sent on fighter frequency in the clear, and brought results. When the additional troops arrived, B-25's and P-38's on combat air patrol joined with destroyers and artillery to keep enemy heads down. During the day, B-24's bombed enemy rear areas.

Ground operations on 5 and 6 March were directed toward Salami Plantation, north of the beachhead, so as to remove any enemy threat from the east side of Seeadler Harbor. On the 4th, Kenney had ordered Brig. Gen. Ennis C. Whitehead, commander of Advon Fifth Air Force, to Gloucesterize Los Negros, but that constant bugbear of air support in the Admiralties, weather, prevented such saturation bombing. Some support was rendered nonetheless. On 5 March, 17 B-25's and 23 B-24's hit the Salami Plantation area, though 35 other B-24's were forced to turn

[REDACTED]

back. On the next day, three squadrons of B-25's and one of B-24's kept up the pressure on the enemy, striking points at the entrance to Papitalai Harbor, Papitalai Village, and Salami Plantation. Before sundown the ground troops had captured the plantation.

On 7 and 8 March, ground forces finished securing Mokerang Peninsula north of Salami Plantation, moved west from Momote to take Papitalai, and moved by barge across Seeadler Harbor to take Papitalai Mission and Lombrum Plantation. Only one close support sortie aided these landings-- that one by a courier B-25 which took off from the newly opened Momote Airfield and strafed Lombrum Point. Other B-25's shot up barges around Manus Island and bombed Lorengau while B-24's bombed gun positions on Hauwei Island--apparently without success.

On 9 March, the 2d Brigade of the 1st Cavalry Division landed at Salami Plantation, and on the same day 9 Kittyhawks (P-40's) of the RAAF 77 Fighter Squadron arrived at Momote, where they were reinforced by 12 others the next day. After this, air support would not be completely cut off by bad weather between the Admiralties and New Guinea. On 9 March two squadrons of B-25's worked over Bear Point and Lugos Mission on Manus, another squadron sought out enemy barges around the coast, and one lone B-24 struck at the troublesome gun positions on Hauwei. More than 30 B-24's came over the next day and bombed Lorengau and Bowat Mission heavily while 11 B-25's hunted barges. On 11 March, 12 B-25's strafed roads running eastward from Lorengau.⁵⁴

Japanese artillery on Hauwei Island could interfere with a landing on Manus, and American guns emplaced there could support such a landing. A patrol which went to Hauwei on 10 March was driven off with heavy

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casualties, so two troops of cavalry were sent there on 12 March. Captain Frederick, the ranking SAP officer, went ashore with the ground troops and directed RAAF P-40's by means of an artillery radio, his instructions being relayed by the SAP station on Los Negros. The island was secured on 13 March, and the emplacement of friendly artillery began immediately. In the meantime, on 11, 12, 13 March, B-25's were sweeping the roads on Manus Island, and on 14 March P-40's were used against a Japanese pocket on Los Negros.⁵⁵

Troops of the 2d Brigade, 1st Cavalry Division, moved across Seeadler Harbor to Lugos Mission on Manus Island on 15 March; the first boat hit the beach at 0930. Two squadrons of B-25's bombed and strafed the beach ahead of the landing, and two other squadrons remained on air alert, ready to strike any centers of opposition which might develop. Very light resistance was encountered initially, and the SAP, whose radio jeep had been the first vehicle ashore, sent both air alert squadrons against rear area targets. Kittyhawks then replaced the B-25's on air alert, and were used during the afternoon to knock out an enemy position blocking the road to the Lorengau Airfield.

Captain Frederick noted in his journal for the day that he controlled the P-40's from brigade headquarters by talking to troops at the front on one telephone and to his assistant at the jeep radio on the other. He also noted that he was unable to send in requests for the next day's strikes until 1900 because headquarters did not know the location of its troops. "This Brig[ade] does not know the value of air support and will not take suggestions as to the use of it."⁵⁶

[REDACTED]

Almost all the air support on Manus from 16 March on was rendered by the RAAF Kittyhawks based on Momote. On two occasions courier B-25's took off from Momote to attack point targets, and a squadron of A-20's made a strike on 26 March. While air support never again had the weight of the early days of March, some of the techniques used during the remainder of the campaign are worth noting.

For a strike on 16 March, two specially briefed RAAF pilots led six others in to the target. On the 20th, Captain Frederick moved into the front lines and directed a strike against Lorengau Airfield visually. The front lines were marked with a smoke pot on this occasions, and on the next day mortar smoke shells adjusted by an observation plane guided the P-40's to a jungle-shrouded area near Old Rossun. Smoke pots were used to mark front lines again on the 24th.

A coordinated attack on 25 March was designed to aid an 8th Cavalry Regiment attack on strong enemy positions south of Old Rossun. The account of this mission written by Captain Frederick is worth recording.

March 25th--at 0530 left. . .for Lorengau with Lt. King, two men and Sq Ldr Hannigan of RAAF. Arrived at front line of 7th Cav 0745 and gained contact with "Wingpoo" (Wing Comdr Stoege) who was leading flights in air. All went according to plan. 12 bombers at 0300 with smoke pots marking our line at 0735 when planes said OK . . .I was ahead of smoke pots to make sure the planes were doing OK. One bomb hit 200 yards short of objective, about 200 yds from me. At 0810 more smoke pots were set and at 0815 12 more dive bombed (our troops withdrew 500 yds prior to bombing, so planes could hit front lines). Planes returned again at 0925 and this time smoke pots marked front lines and I set one off 100 yds S of line, so planes could estimate 500 yds correctly. They reported it was OK. At 0930 12 planes dive bombed. At 0940 more smoke pots were set off in a line perpendicular to our line and planes were ordered to bomb 400 yds in line with it. This delayed the bombing about five minutes but it was OK and they hit target. At 1005 the 24 planes strafed after we set out smoke pots to mark out line again and they strafed parallel to it. Permission was given by Colonel Bradley, CO 8th Cavalry who were to attack through 7th Cavalry to have planes use all their ammo which delayed artillery fire from

1005 to 1035. All this time General Mudge and Colonel Chandler were asking whether it was over so they could shoot artillery. Finally at 1035 I said OK and planes stopped strafing while troops moved forward under artillery fire which at times fell short and wounded two men. It was 1 1/2 hours before troops reached the line they had evacuated from and with no opposition, but it was due to General Mudge's stubbornness insisting on artillery fire after the bombing and strafing. They sure need practice working with the air. The radio worked fine and we were in constant touch with the planes.⁵⁷

Two other support missions should be mentioned. On 26 March, nine A-20's led in by a P-40 hit a Japanese position at Kawlaik while P-40's successfully dive-bombed Warembu. On 30 March, 24 P-40's and 12 Spitfires were used to support a landing on Pitylu Island. The SAP controlled the pre-landing strikes from a barge, then set up on land when the troops went ashore. Two strikes were directed before the island was secured. Unfortunately Captain Frederick was killed during a Japanese counterattack, and his hard-won experience was lost to future operations.⁵⁸

The close support operations in the Admiralties were a great advance over anything which had preceded them in SWPA. Marking of front lines and of targets, lead-in planes, control of support aircraft from front-line observation posts, air-ground radio: all of these techniques were used extensively. Cooperation between air and ground, despite poorly executed strikes on some occasions and failure of ground troops to follow them up on others, was almost as good as that practiced on Luzon a year later. Maj. Gen. Innis P. Swift, deputy commander of the BREWER task force which conducted the Admiralties operation, wrote to General Kenney: "What we accomplished we could not have accomplished without your help and cooperation."⁵⁹

Yet little advantage was to be taken of this experience. The techniques developed in the Admiralties were not to be employed extensively again until the landings on Luzon, nor was comparably efficient close support for SWPA troops to be forthcoming until that same operation. This neglect was perhaps in part due to a less acute need for close air support after the Admiralties campaign, for in subsequent actions Allied troops outnumbered the defending Japanese, but such an explanation would hardly appeal to the men engaged in the bitter battles along the Driniumor, at Lone Tree Hill, and on Biak, where many ground support but few close support sorties were flown. A more probable explanation is that the death on Fityilu Island of Captain Frederick, who had in large measure been responsible for the great progress made in the Admiralties, prevented the dissemination of his experience to other SAP's for use in future operations.

The Hollandia-Aitape Operation

Although close support was relatively unimportant at Hollandia and Aitape, which were invaded on 22 April 1944, the landings were significant as the first amphibious operation in SWPA not supported entirely by land-based aircraft.* Therefore the plans were an exercise in Army-Navy-AAF-Navy air coordination, and were to set the pattern for future such operations. Fifth and Thirteenth Air Forces adopted many of the techniques planned for command and control of naval aircraft at Hollandia for use in supporting subsequent amphibious operations.

The town of Hollandia is approximately 400 miles west of Madang

* Guadalcanal and Tulagi, where landings were supported by carrier aircraft, were in the South Pacific area.

[REDACTED]

on the New Guinea coast, and Aitape lies some 125 miles east of Hollandia. The Japanese had constructed airfields at both places. Seizure of the two areas would bypass the strong Japanese Eighteenth Army at Wewak, and would provide air bases for the support of subsequent moves along the coast of New Guinea. Warning orders for the invasion were issued on 7 March 1944, and a JCS directive of 12 March ordered the Navy to support the operation with aircraft carriers.⁶⁰

The plans for air support were drawn up by representatives of Fifth Air Force, the naval attack force, the carrier forces, and Sixth Army. Liaison officers were exchanged between Fifth Air Force and the naval attack force. The naval CSA, who was, surprisingly, an AAF officer, Col. William O. Eareckson, arrived in time to take part in the planning, and special representatives of the A-3 section, Advon Fifth Air Force, conferred with Sixth Army on the assignment of SAP's.^{*61}

The naval forces for the operation were divided into three attack forces--one for Humboldt Bay, one for Tanahmerah Bay, and one for Aitape. Attached to Seventh Fleet for the operation was a group of escort carriers (CVE's), and a fast carrier group of the Fifth Fleet was to cooperate. The fast carriers were to provide air support for the landings at Tanahmerah and Humboldt Bays on D-day and through D plus 2. The CVE's were to support the forces at Aitape during the landings, then, upon retirement of the fast carriers, provide close support for all three areas until land-based planes were available. Fifth Air Force's contribution to close support during this initial phase was limited to a squadron of A-20's on air alert at Aitape for two hours

* The officer exercising the function of CSA was known at this time as the support air controller, but the more common term will be retained in order to avoid confusion.

[REDACTED]

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on D-day morning.⁶²

For coordination and control of support aircraft during the amphibious phase, a CSA and staff, provided by Commander in Chief, U. S. Pacific Fleet (CINC PAC) were aboard the flagship for each naval attack force. Fifth Air Force SAP's were to serve during the amphibious phase, but were to be accompanied by a naval officer who would "advise on support air requests and support air direction." In other words, so long as naval planes were in support of ground forces, the naval officer with the SAP's would be for all practical purposes the SAP officer. Thus controllers from either service were present to direct planes of their respective services. According to the operations instructions, senior Allied Air Forces controllers and naval CSA's were to "accompany Naval Attack Force Commanders, advise concerning the capabilities of supporting aircraft, and control the planes of their respective services." If the fast carriers were still providing support when command passed ashore, naval controllers were to accompany each ground landing force commander "and continue to act in the same capacity as while aboard ship."⁶³

During the amphibious phase, two communications channels, support air request (SAR) and support air direction (SAD), were to be in use. The names of these nets are self-explanatory; on the SAR net requests went from the SAP's to the CSA aboard ship. The CSA could then use an air alert formation to carry out the mission, or he could use command communications to transmit the request to the carriers. The SAD channel was used, primarily by CSA, but on occasion he might turn control of support aircraft over to the air coordinator, an officer airborne over the landing area; the SAP's were also equipped to operate in this net.

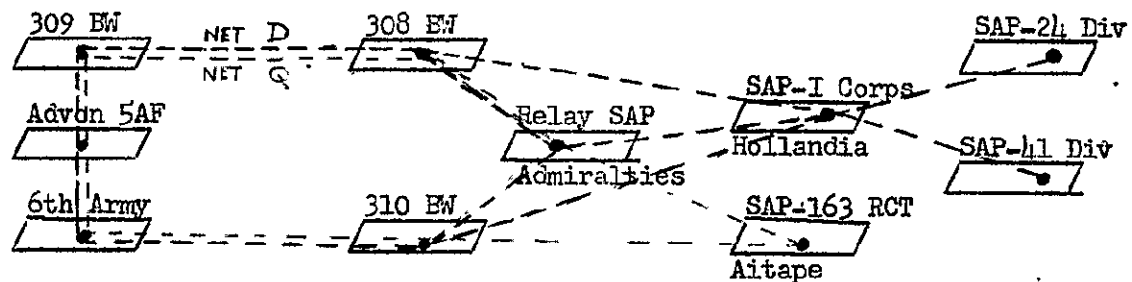


after they went ashore, but they seldom if ever did so at this stage of the war. A separate net for the control of supporting aircraft was an advance in technique, however; the SAP in the Admiralties had been forced to use fighter-control frequency to direct air support.*

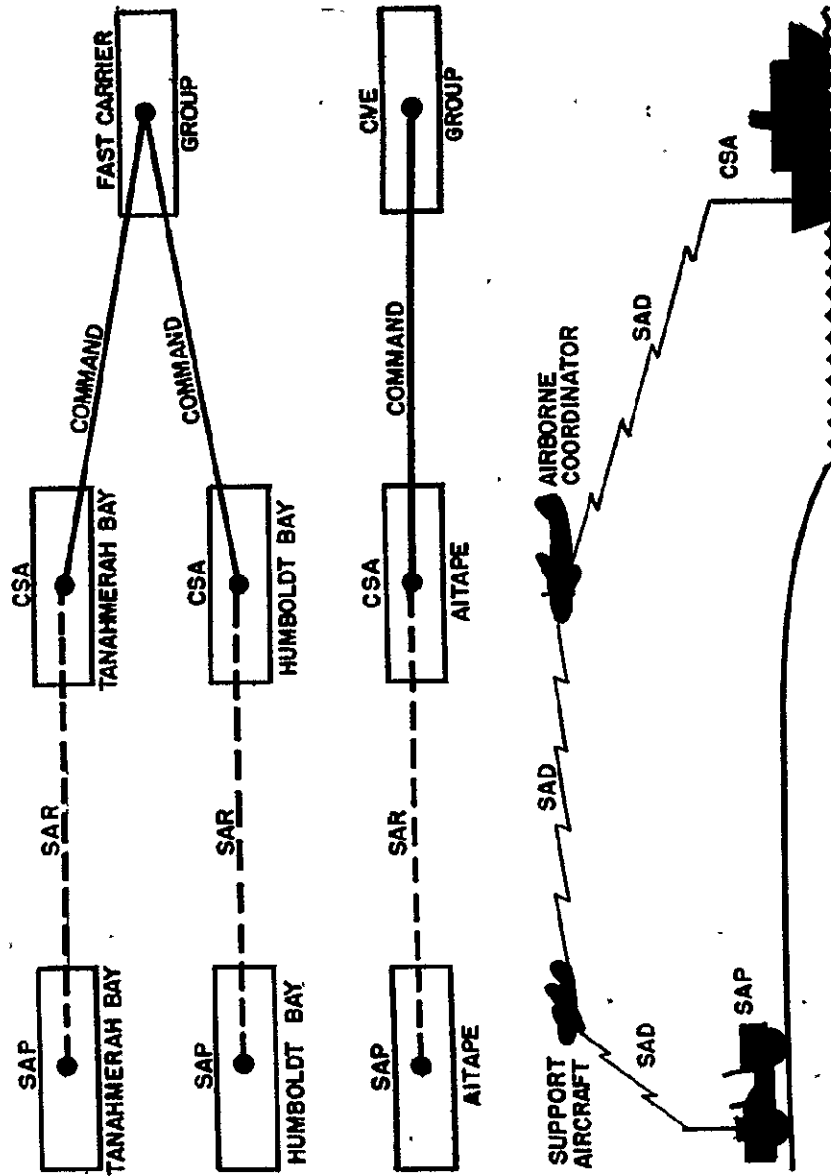
When command had passed ashore and land-based planes had taken over the task of supporting the ground forces, this system was to be modified. The SAP at Aitape was to enter Air Support Net Q, which included Sixth Army, the three Fifth Air Force bombardment wings and Advon Fifth Air Force. SAP 15 with I Corps at Hollandia was to enter Air Support Net D, which included the same stations as well as the SAP's attached to the 24th and 41st Infantry Division. Other SAP's in the Hollandia area were to transmit their requests to SAP 15, which would send them on to the appropriate air force headquarters. The SAD net was to continue in use, without, of course, the participation of the headquarters ship or the air coordinator, for the purpose of checking in planes entering the area on support missions. / 64

* See diagram on the next page.

/ Land-based air support communications, Hollandia-Aitape.

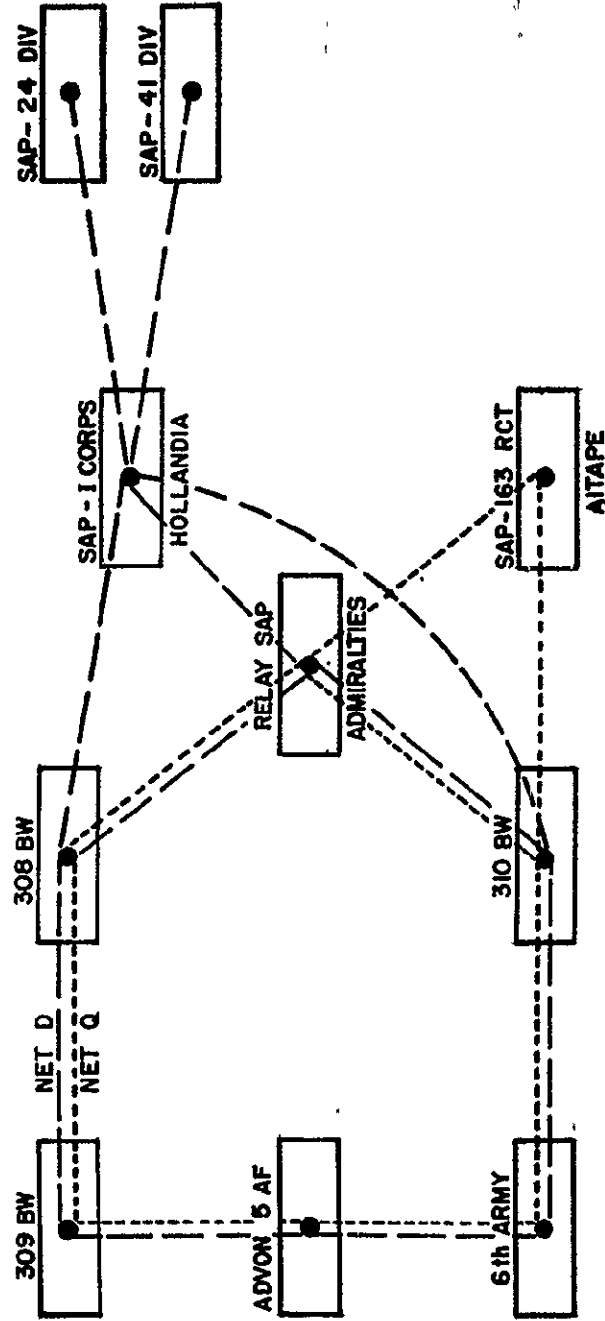


SAR AND SAD NETS FOR HOLLANDIA-AITAPE OPERATION





LAND-BASED AIR SUPPORT COMMUNICATIONS, HOLLANDIA - AITAPE



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SAP's for the operation were six in number. Parties were assigned to I Corps, to the corps reserve, to 41st Division and 24th Division at Hollandia, and to the 163d RCT at Aitape. The sixth party was sent to the Admiralty Islands to serve as a relay between ground and air headquarters as needed.

Equipment for these units was far more extensive than ever before. Each party was to have one powerful SCR-299, two SCR-193's mounted in one weapons carrier, one SCR-193 mounted in a jeep, and one SCR-624. The last-named, a very high frequency (VHF) radio, was necessary because some of the naval aircraft were equipped for VHF communication only. By April 1944, moreover, some progress had been made in equipping Fifth Air Force planes with VHF.⁶⁵

Little support was needed at any of the landing areas. At Aitape, not more than 90 Japanese were in position to defend Tadji Airfield. Planes from the CVE's strafed the beaches until the landing craft were 1,200 yards from shore, but, on the insistence of ground commanders, stopped at that point. This is rather surprising, because the normal practice had been for strafing to continue until troops were 500 yards from shore. Only one of the scheduled air alert squadrons was able to get through the weather to Aitape, but their presence was not missed because of the weak Japanese reaction. The airfield was captured quickly, and Allied planes began landing there on 24 April.

Observation made it evident that the beaches at Tanahmerah Bay were unoccupied, so the air strikes scheduled for that objective were cancelled. At Humboldt Bay the CSA laid on the planned missions, some of which were directed by the air coordinator. Avengers patternbombed to explode possible land mines, and other bombing and strafing runs were

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made on the beaches and terrain features commanding the beaches. One called strike was executed during the afternoon when the 1st Battalion of the 21st Infantry Division was ambushed by a comparatively small group of Japanese. Three planes strafed the enemy position, but it was necessary to call for artillery and mortar fire before the advance inland could continue.

Two called strikes supported the continued advance on 23 April, mortar smoke designating the target in one instance. Mud was the only serious obstacle the troops encountered, and this was not enough to prevent the capture of the airdrome on 26 April. In the meantime the fast carriers and half the escort carriers had left the scene, and the remaining four CVE's provided fighter cover and any ground support needed until 5 May, when they too retired.⁶⁶

During the remainder of the war, Australian aircraft based at Aitape provided most of the troop support in that area. From 24 April 1944 planes of the RAAF 10 Operation Group operated from Tadjil Airfield, aided for two weeks by the American 110th Tactical Reconnaissance Squadron. The RAAF planes, Kittyhawks, Beaufighters, and Beauforts, flew 1,600 sorties in May and even more in June, though they gave little close support. Rather did they concentrate on the enemy troops around Wewak, though elements of Eighteenth Army moving toward the Aitape area were hit often in June.

In July 1944, the Japanese attacked the Aitape perimeter along the Driniumor river. For several weeks the fighting was bitter in this area, and the amount of ground support increased. The RAAF flew

most of these missions, though A-20's were called in to hit several lucrative targets. These were not close support; targets were always predetermined, and almost always at a considerable distance from friendly lines. With the repulse of the Eighteenth Army, ground support decreased to almost nothing, and almost all air sorties were devoted to harassing the trapped Japanese around Wewak. A few coordinated attacks were made against organized enemy parties attempting to escape by moving inland around Aitape and Hollandia. Allied ground troops were seldom near these targets, but frequently L-5's marked them for the attacking planes by dropping smoke grenades.

The American troops in the Aitape area were relieved by the Australians in November, and the next month saw the beginning of an Australian offensive against Wewak. This drive was slow but inexorable, and Wewak fell on 10 May 1945. Some surviving members of the Eighteenth Army, including the commander, were still holding out in the hills south of the town when the war ended.⁶⁷

Wakde-Sarmi

About 140 miles west of Hollandia along the New Guinea coast lay Sarmi; on Insoemoar Island, 20 miles east of Sarmi, Wakde Airfield was located. Two other fields, Sawar and Maffin, were located between Sarmi and Wakde.* Allied commanders planned to land troops to Arara, on the mainland just out of range of small arms range from Wakde, and then on

* Insoemoar Island is usually referred to as Wakde Island, and that practice will be followed here.

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17 May 1944 to seize tiny Insoemania Island, between Wakde and the coast. A landing on Wakde the next morning could be supported by artillery fire from Arara and automatic weapons fire from Insoemanaï. When captured, Wakde Airfield could be used as a base for planes supporting the Biak landing, scheduled for 27 May, and the Japanese forces at Sarimi, powerless to interfere with a farther advance along the coast, could be mopped up later. ⁶⁸

Plans for air support of the landings at Wakde-Sarimi put the burden of responsibility upon the 310th Bombardment Wing, with headquarters at Hollandia. For support of the landings, P-40's in flights of four were to provide an air alert from 0715 until 1430 on D-day and from 0715 until 1000 on D plus 1. These fighters were to remain on station 45 minutes at a time, and were to carry a 500-pound bomb in addition to strafing armament. Additional support was to be provided by one squadron of A-20's due to be based at Hollandia by D-day, and by combat air patrol (CAP) fighters, which were to report in to the controller for strafing targets when relieved from patrol. The Navy requested that no attack be made on the beaches prior to the landing, so General Whitehead sent SB-24's of the 63d Bombardment Squadron to hit the coast just west of the Tor River at first light on D-day. V Bomber Command was to provide a B-25 for the use of an air coordinator over the landing area.

Until the troops were established ashore, control of close support aircraft was to be exercised by a CSA aboard the flagship (CSA afloat). Fifth Air Force was to provide this officer and another to serve as stand-by CSA afloat aboard the relief flagship. Communications equipment for CSA's afloat was to be furnished by the Seventh Amphibious Force. While he had final control of support aircraft in the area until the



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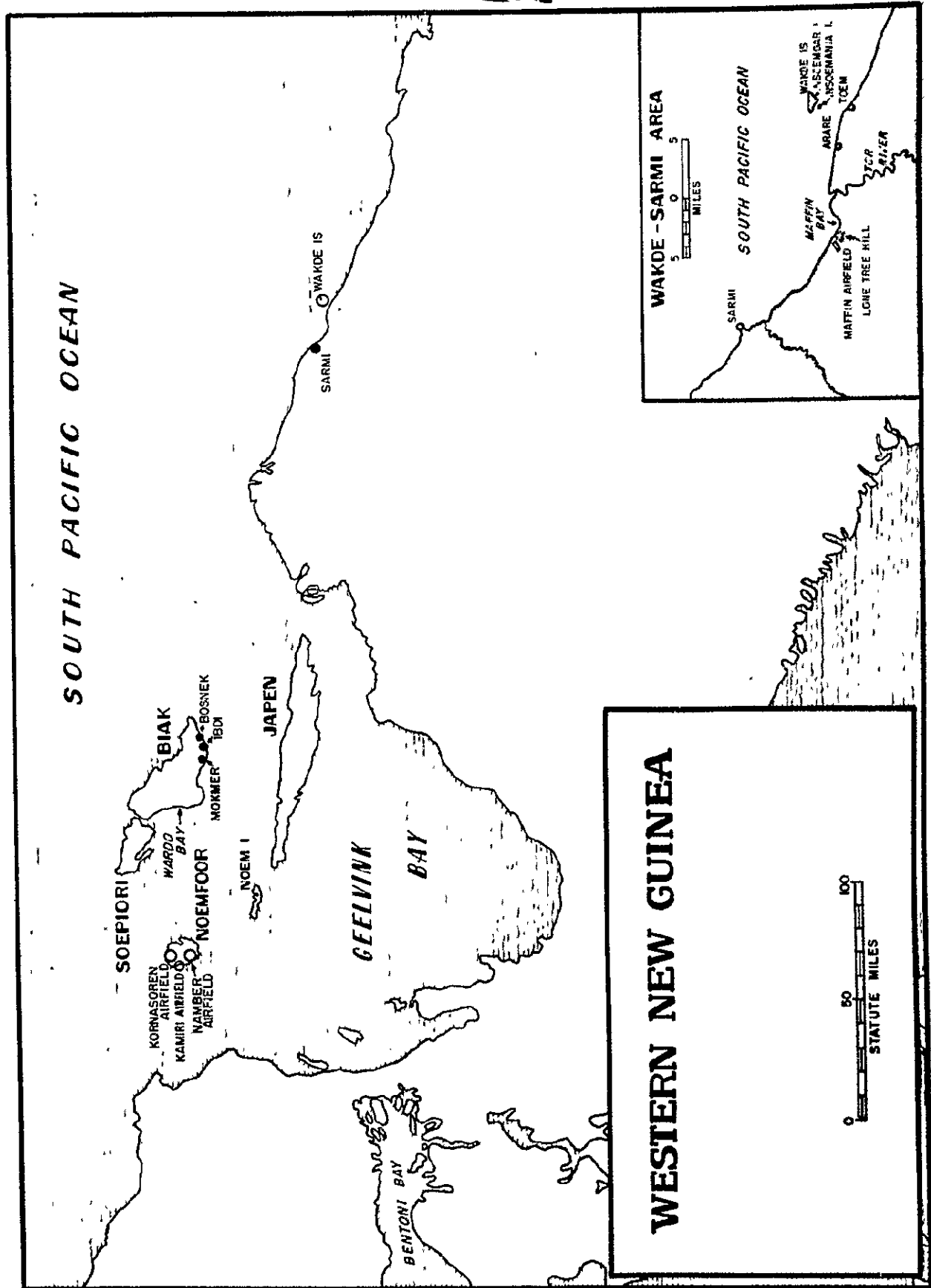
commander of the naval attack force passed his authority ashore to the landing force commander, the CSA afloat could temporarily pass this control to the air coordinator, who was also a Fifth Air Force officer, to the stand-by CSA afloat, or to CSA ashore. The function of CSA ashore was to be carried out by Fifth Air Force SAP 11; all control of support aircraft would devolve upon this party when command of the operation passed ashore.

Two air support communications nets were to be in operation during the landings and afterwards. The SAR net was to include SAP 11 with the ground forces ashore, the 310th Bombardment Wing at Hollandia, the air coordinator, CSA afloat, and stand-by CSA afloat; also on this net was a ground force airborne observer, usually known simply as the air observer. Stations on the SAD channel were to be SAP 11, CSA afloat and his standby, the air coordinator, and the support aircraft. For the passage of intelligence and operational messages (other than requests) to rear headquarters, a new circuit, known as the Support Air Direction Party Net, was established, consisting of stations at the following headquarters: 163d RCT at Wakde-Sarmi, 310th Bombardment Wing and I Corps at Hollandia, Advon Fifth Air Force at Nadzab, Sixth Army at Finschhafen, 85th Fighter Wing, 308th Bombardment Wing, and 309th Bombardment Wing. SAP 12 in the Admiralties was to serve as a relay station for this net.

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The 163d RCT went ashore at Arara early on the morning of 17 May 1944, and landed on Insoemanai later in the day. It was supported during the day by 15 fighter-bomber sorties, but the 8th Bombardment Squadron

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at Hollandia, with only 14 A-20's assigned, managed to put no less than 5 six-plane strikes, 30 sorties, over the area. The last A-20 strike of the day was ordered to hit targets of opportunity near Sarmi, but all the others were directed against Wakde Island. These attacks were designed to suppress Japanese small arms fire from Wakde, which killed one man and wounded four others on Insoemanai, during the day. The only other casualties on the 17th, one killed and six wounded, resulted from a short round from "friendly" artillery.

Artillery, naval guns, and aircraft began bombarding Wakde at dawn of 18 May. A-20's made a pre-landing strike at 0715, and were followed by P-40's which strafed the enemy positions. Troops went ashore at 0900 and, after bitter fighting, secured the island by the afternoon of 19 May. Six A-20's delivered a close support strike against Scrosse Cape on the 18th, being led to the target by the air coordinator's B-25. Two other A-20 strikes on the 18th hit small islands near Wakde. The Japanese on the island were well dug in, and fought with their usual courage, but total American casualties were only 40 killed and 107 wounded as compared with 759 Japanese killed and 4 captured. For this disparity air support was partly responsible.⁷⁰

Once Wakde was secured, the ground forces began moving west from Arara toward Maffin Strip. At Lone Tree Hill, just east of the airfield, strong enemy resistance developed, beginning a battle which was to continue until the end of June. Considerable support was given from the air during this battle, most of it by fighter-bombers. From 20 May through the end of the month, 18 ground support strikes were delivered,

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1 by A-20's, 2 by P-38's, and the remainder by P-40's. On 1 June General Whitehead suggested to Col. Donald R. Hutchinson, commander of the 310th Bombardment Wing, that with the opening of Wakde Airfield he should use P-47's to support the ground forces on the mainland. P-47's based on Wakde would need only 200 gallons of gasoline and only a part load of machine-gun ammunition, and therefore could carry two 1,000-pound bombs. Whitehead was "convinced that four or five days of this type of operation would take the 'steam' out of the Jip troops . . ."71

P-47's were accordingly widely used for air support during June. They flew 25 strikes from Wakde, usually 4 aircraft to a strike, but sometimes 16 or 18 on an important target. Twenty-two other strikes were made by P-40's, A-20's, B-25's, and even B-24's. It took 30 days to "take the steam out" of the Japanese, however, and it is doubtful that bombs accomplished as much as artillery; it is certain that they did not accomplish as much as the infantry. Noteworthy, however, is the fact that all of these strikes reported in to the SAP, and that many of them were directed to the target by air-ground radio. From 20 June until the end of the month, the SAP directed strikes in close support of the 6th Infantry Division's final drive on Lone Tree Hill. Many targets were marked by smoke shells. Despite the relatively short distance between friendly troops and the targets, no Allied soldiers were killed or wounded by wild bombs.⁷²

If the burden of fighting at Sarmi during June fell on the ground forces, it was the air arm which was most active from July through October. Strong Japanese forces remained in the area and Allied ground troops, while strong enough to hold their own positions, had not the strength to drive the enemy from his. Patrols moving out from the

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perimeter located numerous bodies of Japanese troops; the fighters from Wakde and the bombers from Hollandia were then called upon to strike these concentrations. More airpower was available for such missions than might normally have been the case because of the rapid Allied advance up the coast of New Guinea and toward the Philippines. The bases thereby acquired could not provide facilities for all units of the Far East Air Forces (established in June 1944 when Thirteenth Air Force was assigned to SWPA), and heavy bombers, with their greater range, were needed at the forward bases. Therefore light bombers were left behind at Hollandia and were available for strikes in the Sarmi area. Strikes were fairly frequent for four months, and during the first ten days (20-30 October 1944) of the fighting on Leyte, almost 1,500 miles away from Sarmi, the Fifth Air Force flew five strikes in support of ground troops in the Maffin Bay area.⁷³

The Wakde-Sarmi operation demonstrated a significant advance in SWPA technique for close air support of amphibious operations. The Fifth Air Force had taken the Navy system of command and communications as demonstrated at Hollandia, adapted it to fit the equipment and air support personnel available in SWPA, and made it serve a landing supported entirely by land-based planes. With slight modifications, this system was to serve in all amphibious operations supported by land-based SWPA aircraft for the remainder of the war.

During this period, Fifth Air Force was switching voice radio sets on its airplanes from high frequency (HF) to VHF. Aside from the supposedly better communications thus afforded, such a change was essential in order to be able to communicate with naval aircraft.

Tactically, the increased use of fighter-bombers for support was significant. For short-range missions, the P-47 and P-38 had a greater bomb-carrying capacity than the A-20 as well as great strafing power. Bombing accuracy in glide and dive bombing improved with experience, and on Luzon fighter aircraft were to be the star performers in close support. This development was only possible, of course, because the Japanese Air Force offered negligible opposition to advances along the New Guinea coast.⁷⁴

Biak

Biak Island, largest of the Schouten Group, lies just under the equator in the middle of Geelvink Bay, near the western tip of New Guinea. Some 340 miles west of Hollandia and 190 miles west of Wakde, Biak was the site of three airfields, and therefore a desirable acquisition for SWPA forces. From its airfields B-24's could easily reach the Celebes and Palaus, and could strike Mindanao at extreme range if desirable. Unfortunately, the island's terrain, a combination of rain forest and limestone caves, was ideally suited to the jungle and cave defense installations preferred by the Japanese Army.

Bosnek village, on the southern shore of Biak and east of the airfields, was picked as the landing spot. Originally naval and ground commanders objected to the use of 12 B-24's to bomb the beaches just before H-hour because lack of knowledge of wind and tides made it advisable to keep H-hour flexible. When General Kenney offered to provide 52 B-24's from Manus at daybreak on D-day (27 May 1944), however, the planners accepted because the added air effort more than compensated for the sacrifice of flexibility in timing the landing.

It was agreed that the bombers would remain at high enough altitude to avoid interference with the naval gunfire (which the B-24's would normally have done anyway), and that they would not bomb the jetties at Bosnek, which would be needed for unloading, or drop bombs in the water, which might break loose chunks of coral which would be a hazard to the landing craft.⁷⁵

The 310th Bombardment Wing was again made responsible for close support. The operations instructions stated that: "For this close support preparation will be made to employ all air units of the Allied Air Forces under the operational control of the Commanding General, Advance Echelon, Fifth Air Force, which have sufficient range and which are not required on other missions specifically assigned by higher headquarters." Support of the landing, scheduled for 0715 on 27 May was to be provided by six B-25's from 0730 to 0830, and by two flights of A-20's or B-25's, at least six planes to the flight, on air alert over the target area 45 minutes at a time from 0830 to 1145. In addition, fighter patrols were to report in to CSA for strafing missions when relieved on station.⁷⁶

The air support control and communications arrangements for Biak were almost identical to those used at Wakde-Sarmi. CSA afloat and a stand-by were provided by Fifth Air Force, and the air support officer of SAP 14, like his opposite number of SAP 11 at Wakde-Sarmi, was to serve as CSA ashore. Fifth Air Force also provided an air coordinator and a B-25 aircraft for his use. SAP 14 was to land with the 41st Infantry Division, as was SAP 2, designated as a reserve.

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The SAD net for the Biak landing was the same as that used at Wakde-Sarmi. The SAR net this time included 308th Bombardment Wing at Wakde, but otherwise was no different. The support air direction party net was only slightly different.⁷⁷

The E-24 attack on Bosnek Village was not executed as planned. XIII Bomber Command had intended to send two full groups over the target, but two planes crashed during the night take-off at Los Negros, and the runway at Momote was blocked. As a result, only 25 aircraft succeeded in reaching the target, but these hit the assigned areas with 243 x 500-pound bombs of which none struck the jetties or in the water. Later in the day, 80 Fifth Air Force B-24's indirectly supported the landing by dropping 235 tons of bombs along the south coast of Biak.

In addition to the early-morning coverage of the assault by B-25's of the 17th Tactical Reconnaissance Squadron, the 3d Bombardment Group, which now had three squadrons in place at Hollandia, sent eleven strikes to Biak on D-day. SAP 14 was ashore and operating in time to direct the last seven of these strikes, which were sent, in the main, against positions on or near the coastal road leading from Bosnek to Mokmer Airfield. Apparently fighters gave no ground support on 27 May; weather kept them away until 1100, and after that they were occupied with repelling Japanese air attacks. According to the naval attack force commander, "Coordination [of close support] was well conducted and air attacks delivered promptly as requested."⁷⁸

Thanks in part to the preliminary aerial bombardment, the landings at Bosnek were effected with only slight opposition, though with some confusion. The 162d Infantry advanced west along the coastal road to

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Parai before the close of D-day, but the regiment discovered that cliffs, honeycombed with caves, overlooked the road from Ibdia past Mokmer Village. Such terrain gave powerful aid to the defenders, as was to be discovered the next morning. When the advance was resumed, the 3d Battalion, 162d Infantry, pushed on west of Mokmer Village, whereupon enemy troops from their cave positions drove a wedge through to the sea, splitting the battalion and separating most of its elements from the remainder of the regiment. It became necessary to evacuate the isolated troops that night by water, and it was evident that the battle for Biak would not be an easy one.⁷⁹

A-20's and B-25's alone supported the ground troops on 28 May, when it was supposed that the march to the airfield's would continue, but on the 29th, by which time the degree of resistance was evident, a much greater weight of support was given sorties by 40 A-20's which came on alert station at 45-minute intervals, 17 B-25's, and 34 B-24's. A comparable effort was planned for the next day, but only 10 B-25's managed to break through the prevailing bad weather. Eighteen A-20's, 21 B-25's, and 6 B-24's were back over the island on the last day of the month, but despite all this support the ground forces made little progress.⁸⁰

On 1 June, General Whitehead sent a memorandum to Colonel Hutchinson:⁸¹

I am convinced that the ground forces' efforts to capture the BLAK airdromes will drag on indefinitely unless we blast a path for Fuller's [Maj. Gen. Horace H. Fuller, commander of Horlicks Task Force, the Biak landing force] troops to move to the east end of MOKMER Airdrome area where these troops will have some space for maneuvering. At the present time our heavy bombers operating from NADZAB can, when weather permits, attack the BLAK area only between the hours of 1100K and 1230K. The Nips have figured out this pattern. It is very essential that we keep the pressure on the by two or three heavy bomber strikes a day. The plan I have outlined . . . would do this. I am convinced that the Nip troops cannot stand up under frequent attacks with 1,000 or 2,000 pound bombs.

General Whitehead's plan was to send 12 to 18 B-24's to Biak from Nadzab on 2 June, and have them land at Wakde after bombing. On 3 June these bombers would fly one mission from Wakde to Biak and return, reload, bomb Biak again, then return to Wakde for the night. On 4 June these planes would hit Biak in the morning, then fly back to Nadzab. On this same day, 12 to 18 more B-24's would fly up from Nadzab to repeat the process.⁸²

Only a small part of this plan was ever carried out. On 2 June 13 B-24's of the 22d Bombardment Group and 13 of the 90th Bombardment Group set out from Nadzab to Biak, but all except those from the 400th Bombardment Squadron were forced by the weather to turn back. The 400th Squadron landed at Wakde, and struck Biak the next day, but only once. On 4 June it was necessary to send out available heavy bombers to search for an enemy naval force believed to be coming toward Biak; most of these planes bombed the Japanese on the island as a secondary target, but the sequence set up by Whitehead's plan was disrupted. Even so, between 1 and 9 June inclusive, some 83 B-24 sorties delivered bombs to Biak, in addition to support given the ground forces by 104 B-25, 22 A-20, and 12 P-40 bombing and strafing sorties.⁸³

Ground troops captured Mokmer Airfield on 7 June, but the Japanese, who were receiving some reinforcements, had still to be ejected from the ridge overlooking the airfields, whence they were able to prevent use of the runways and frustrate Allied efforts to expand the beachhead. In driving the Japanese from the ridge, the ground forces received comparatively little air support; eight B-25's hit assigned targets on Mokmer



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Ridge on 9 June, and the same number of B-25's, 5 A-20's, and 12 B-24's supported an unsuccessful infantry attack on the 11th. On 13 June, 23 A-20's attacked targets pointed out by the SAP, but for ten days thereafter there were no ground support missions against Biak targets. American planes could be stationed on Mokmer only on 22 June.⁸⁴

The clearing of the airfield left two Japanese strongpoints in operation--the East Caves, north of Mokmer Village, and the Ibdid Pocket, a cave position inland from the village of the same name. No infantry assaults had been made against these positions during the fighting around Mokmer Airfield, but they had been kept under heavy artillery and mortar fire. When the airfields had been secured, the ground forces could turn their attention to these positions.

Air support was to play a part in operations against these caves, though the effectiveness of air attack on such positions was doubtful. Twelve B-25's of the 38th Bombardment Group flew a somewhat unusual mission against the East Caves on 24 June. The bombers landed at Mokmer, and the caves, less than a mile away, were pointed out to the crews. Some of the pilots were flown over the position in an L-5. A difficult bombing problem was presented, because the Mitchells had to pull up and over a 500-foot cliff after releasing their bombs. A direct hit in the entrance of the caves did not necessarily insure damage, because the floors at the entrance sloped upward at a 45° angle. The ground forces later reported that only one bomb actually exploded inside a cave, but the attack had good results. "For a few days at least, almost all the enemy fire was silenced." The position came back to life on the 27th, whereupon an hour-long attack by 12 P-40's silenced

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it again. Patrols which entered the position early in July found it abandoned.⁸⁵

The Ibdì Pocket held out much longer. The Japanese were confined to an area 600 yards square by 1 July, and were thereafter subjected to a seemingly overwhelming artillery and mortar bombardment. Between 21 June and 10 July inclusive, 40,000 artillery and mortar shells hit the pocket. P-39's bombed and strafed on 9 July, but the defense was still too strong for the assaulting infantry, even after part of the Japanese evacuated. Between 10 and 20 July, 6,000 more shells were fired into the pocket. The final blow came on 22 July, when 1,275 rounds of 105-mm. and 155-mm artillery shells, uncounted mortar shells, and 64 x 1,000-pound bombs from eight B-24's paralyzed the defenders. The pocket was cleared before sundown.⁸⁶

The fall of the Ibdì Pocket meant the end of organized resistance on Biak. Several thousand Japanese remained on the island and on neighboring Soepiori, but most of them were without arms and ammunition, and all were too concerned with finding food to be a menace to the Allied forces. Combat patrols had begun to seek them out before the fall of the Ibdì Pocket, and their numbers were rapidly reduced. Fighter aircraft-- P-40's, P-38's, and P-39's--and occasional B-25's which failed to find targets on sea sweeps or at Noemfoor bombed and strafed areas assigned by the ground forces through the SAP. Intelligence reports of Japanese found dead from strafing indicate that these missions were successful. A landing at Wardo Bay on 17 August, supported by 35 P-40 fighter-bombers, split the remaining Japanese forces and ended the faint possibility of concentration for a counterattack. As late as 7 September, when a landing was effected on Soepiori, it was estimated that 1,600 Japanese remained

alive on the two islands, but they were empty-handed, starving, and doomed to extinction.⁸⁷

Biak was another demonstration of the effectiveness of the system adopted in SWPA for land-based air support of amphibious operations. The trials of the infantry at Biak came, not in getting ashore, but in operations undertaken after successful landings. The pre-landing heavy bomber attack, though not so strong as had been planned, was sufficient to neutralize all defenses in the Posnek area, and the air alert A-20's and B-25's were able to blast a way for the infantry until the almost impregnable cave defenses were encountered.

Against the caves, air support was not so successful. These positions, buried deeply in the coral and limestone cliffs, were impervious to anything except a direct hit, and sometimes could survive even that. Napalm bombs which might have been effective were not yet available. It was, as a matter of fact, during this very campaign that Kenney received a note from Arnold informing him of the successful use of napalm in France. Rockets were apparently not considered for use against the caves, though the 417th Bombardment Group at Dobodura was at this time experimenting with rocket-launching A-20's.

Tactically, the chief interest of ground support actions at Biak was the continuing use of fighter aircraft. Ground support missions were flown by P-38's of the 8th Fighter Group, by P-40's of the 49th Fighter Group, and by P-39's of the 82d Tactical Reconnaissance Squadron, and all these units reported success in hitting their Biak targets. The fighter units, well aware of the change taking place in their function, experimented with bombing and strafing techniques.

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The ground forces at Biak were not satisfied with the amount of air support they received, although they granted that the missions flown were excellent. The I Corps action report criticized liaison, complaining that support, photographic, and reconnaissance missions were all difficult to obtain. Communications after the landings were indeed not what they should have been. Numerous missions to which Biak had been assigned as a secondary or tertiary target were unable to make radio contact with the SAP. This seems to have been due in part to the recent switch of most Fifth Air Force units to VHF for voice communications, in part to the rugged terrain.

Liaison cannot, however, have been the chief trouble. The SAP was on hand at all times and was in regular communication with the 310th and 308th Bombardment Wings. Air units were eager to be of service, especially so until Mokmer Airfield had been secured.

The complaints of the ground forces can be attributed to three factors. The first was the weather, which turned back many sorties during the first month of the battle. Second, the threat offered to the operation by a Japanese naval force early in June necessitated the use of aircraft for search and attack which would otherwise have been devoted to ground support. Third, since the support given was not sufficient to break Japanese resistance along Mokmer Ridge, it was not unnatural for the ground commanders to believe that they had received less support than was their due. As a matter of fact, the weight of air support at Biak was greater than that for any comparable operation in SWPA until Luzon, and there can be no doubt that it was a highly potent factor in the victory, though less important than infantry and probably less so than artillery.

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Noemfoor

About halfway between Biak and the eastern coast of the Vogelkop Peninsula lies the coral island of Noemfoor, round in shape and some 15 miles in diameter. Here the Japanese had completed two airfields and begun work on a third. SWPA headquarters decided to seize Noemfoor because it would serve the double purpose of affording protection to Biak and providing additional air bases for supporting future moves to the west and north. Slow progress on Biak delayed the landing, which had been scheduled for 25 June 1944, until 2 July.⁸⁹

The air plan, in addition to pre-D-day Gloucesterization of Noemfoor, provided for heavy bombardment of the beaches on D-day and an air alert of A-20's and B-25's. The D-day bombardment of the beaches was to be a crucial part of the operation because this landing, contrary to usual SWPA practice, was to be made where the defenses were strongest, on the beaches in front of Kamiri Airfield. The barrier reefs about most of the beaches, the desire to capture the airfield quickly, knowledge that the Japanese garrison was weak, and confidence in the efficacy of air and naval bombardment were the factors leading to this decision.

The command machinery for the air support of the landing was made up of the same elements as at Wakde and Biak--CSA afloat and his stand-by, an air coordinator, and an SAP; the one difference was that the deputy CSA afloat was ordered to go ashore with the landing force commander and act as CSA ashore. Heretofore this function had been carried out by the senior SAP officer.

The same three communications nets as at Wakde and Biak were also to serve, though the number of stations were increased. On the SAR net were CSA afloat and stand-by CSA afloat (on D and D plus 1 only), CSA ashore (made up of deputy CSA afloat and SAP 7) SAP 14 at Biak which served the



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41st Infantry Division and the 308th Bombardment Wing, SAP 11 at Wakde serving 85th Fighter Wing and 6th Infantry Division, and SAP 15 at Hollandia, which served the 310th Bombardment Wing and Advanced Echelon, Sixth Army. The SAD net was exactly the same as at Biak and Wakde. The support air direction party net, for transmission of coded intelligence concerning air support, included Fifth Air Force, Sixth Army, 310th and 308th Bombardment Wings, and the SAP with the 158th RCT at Noemfoor. It should be noted that VHF was still the secondary frequency on the SAD net--probably because A-20's were not equipped with VHF.⁹⁰

The preliminary bombardment was intensified during the two days preceding the landing. The naval bombardment of D-day morning, delivered by Australian and American cruisers and destroyers, was the heaviest yet seen in the Southwest Pacific. Then, 15 minutes before the troops reached shore, 33 B-24's dropped 300 1,000-lb. bombs on the coral ridges just back of the beach. The combined air and naval bombardment was terribly effective. As the troops went ashore, "about forty Japanese ran out of a cave. . .and began milling about Showing no tendency either to surrender or to flee, the Japanese were killed by rifle fire or the automatic weapons of the . . .LVT's [landing vehicles, tracked]." ⁹¹ According to General Kenney, who had been uneasy about landing in the face of the enemy defenses, the Japanese "were so stunned by the blast effect of the heavy bombs that they sat by their machine guns staring straight ahead, numb with shock."⁹²

It is interesting to note that both General Kenney, an air officer, and Samuel Eliot Morison, a naval historian, describe the stunned condition of the defenders, but Kenney does not mention the naval bombardment, and Morison ignores the air attack.⁹³ The naval attack force commander,

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Rear Adm. William M. Flechteler, more appreciative of AAF activity, sent the following message to General Whitehead: "The Air Support furnished by Fifth Air Force on Noemfoor Island Dog Day commanded both the admiration and appreciation of Naval forces present. Thank you."⁹⁴

After the troops went ashore, they were supported by A-20's and B-25's on air alert, and by P-40's and P-38's which reported in to the CSA after completion of their patrols. Kamiri Airfield was captured two hours after the landing. Total Allied casualties on D-day were only 3 killed and 19 wounded.⁹⁵

Lt. Col. Richard E. Ellis, commander of the 3d Bombardment Group, served as air coordinator at Noemfoor on D-day. He reported satisfactory working of communications, both HF and VHF. The procedure followed was for the CSA to inform the air coordinator of the general area to be hit and of the position of friendly troops. The coordinator pinpointed specific targets within the area, insured by means of gridded air support photographs that the support planes knew what and where to strike, and then led them in to the attack. Targets were mortar positions, automatic weapons, and routes by which enemy reinforcements might reach the beachhead.

Colonel Ellis recommended, however, that in future operations the air coordinator arrive at the forward base from which he was to operate at least two days before the landing so as to have plenty of time for preparation--particularly for putting his radio equipment in perfect order. For successful operation it was essential that the air coordinator have complete information on the disposition and strength of the naval forces supporting the landings, the ground forces' plan of attack and phase lines, and the time over target (TOT), bomb loads, and call signs of all support aircraft. When fighter cover was available for close support, the coordinator

needed to know the fighters' types, number, position, and length of time to spend in the area. Cooperation with CSA afloat and ashore, and assurance that support aircraft had exact knowledge of target and friendly positions before attacking were prime duties of the coordinator. "Needless chatter on the radio should be prohibited at all costs."⁹⁶

SAP 1 landed with the infantry on D-day, equipped with an SCR-193, SCR-399, and SCR-624. Coral reefs kept the landing ship, tank (LST) on which the party arrived from getting as close to shore as had been planned, and as a result most of the equipment was damaged by salt water. The SAP was able to establish communications, however, because the SCR-399 was mounted in an amphibian truck (DUKW) which did reach shore, although punctured by mortar fire on the way. The lesson thus taught was not forgotten; thereafter DUKW's were used at Sansapor and "every important landing through the Philippines."⁹⁷

The infantry on Noemfoor continued to move ahead with slight opposition until 4 July, when Kornacoren Airfield was captured. On that day contact was made with the main Japanese force, which dashed itself to pieces in a fruitless counterattack on 5 July. Namber Drome was captured by a shore-to-shore movement on 6 July, and therewith organized resistance ceased.

Because of the weakness of the defense, little air support was needed after D-day. Sixteen P-38's strafed an inland trail on 3 July, and A-20's and B-25's laid smoke to cover a parachute battalion which jumped over Kamiri Strip the same day. General Whitehead had moved the P-39-equipped 82d Tactical Reconnaissance Squadron into Biak early because "That squadron can provide better direct support on NOEMFOOR, the kind of support

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the ground forces need such as taking out pill boxes and pieces of artillery, than could a whole group of A-20's or B-25's. When the P-39 squadron dive bombs, they hit what they are aiming at." So weak was the resistance, however, that the P-39's made only two strikes on Noemfoor during the battle.⁹⁸

Sansapor and Morotai

SWPA forces went ashore near Sansapor on the Vogelkop Peninsula on 30 July 1944. This next-to-the-last stepping stone on the way to the Philippines was practically undefended, and therefore it offered few opportunities for close support operations. The plans are worthy of note, however, as an indication of the advanced stage of development of land-based air support of amphibious operations in SWPA.

The command machinery for control of close support was no different from that of the preceding operations on Biak and Noemfoor--CSA afloat, stand-by CSA afloat, CSA ashore, and air coordinator, all Fifth Air Force personnel. An SAP was to serve as CSA ashore and one SAP officer and an enlisted assistant, equipped with a portable radio, were to go ashore with the assault waves to provide liaison between the front lines and CSA afloat until command passed ashore. SAP 11 was moved forward from Wakde for the Sansapor operation, and SAP 3 landed as a reserve.

The air support communications nets for the Sansapor operation differed only in detail from those used previously. The circuit provided for intelligence traffic, formerly known as the Support Air Direction Party Net, was for this operation named Air Support Net 'D'.

The plans provided for six attack bombers on air alert over the landing area from 0700 to 0900, six more from 0900 until 1100. Thereafter the 308th Bombardment Wing was to keep six bombers on ground alert,

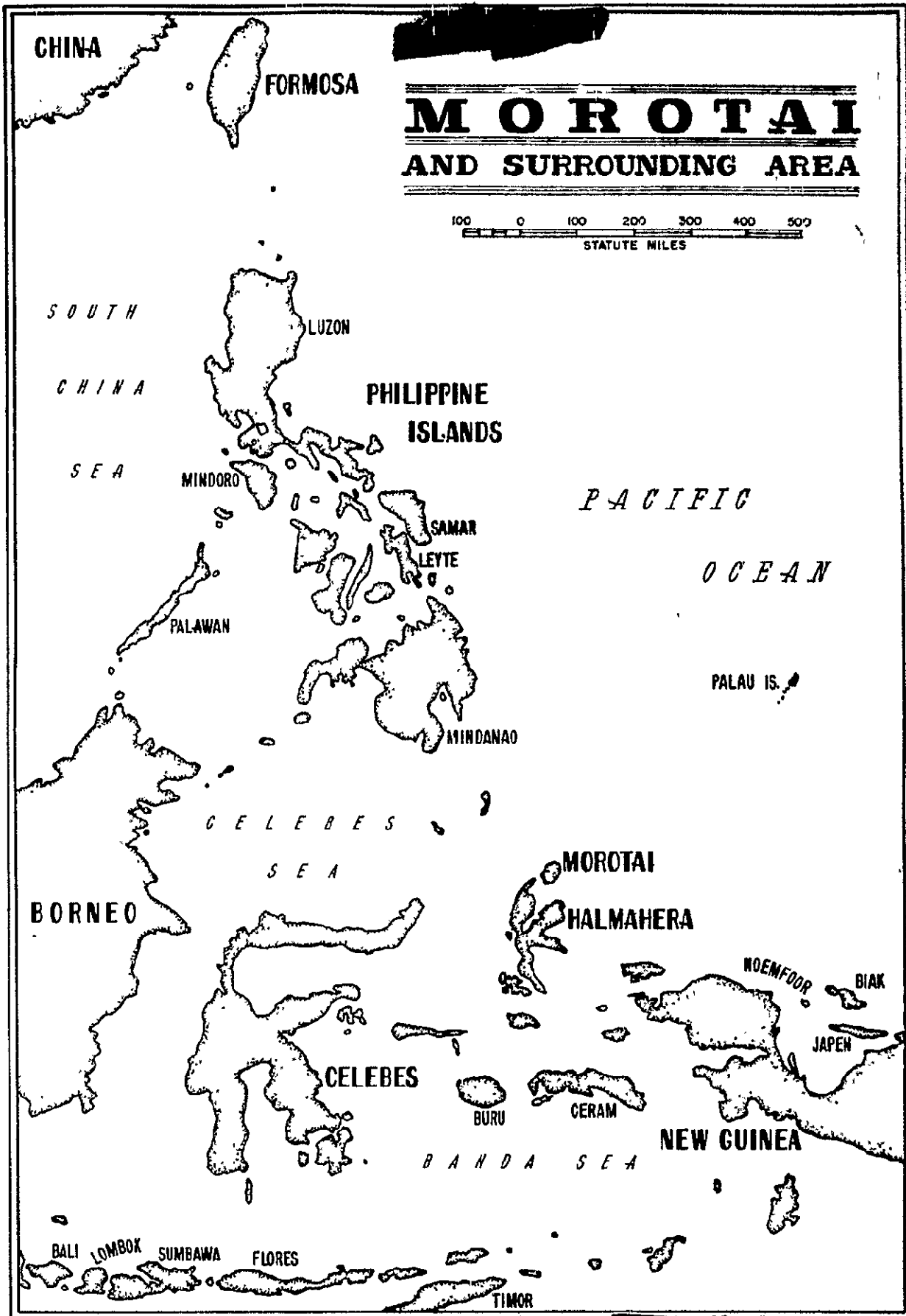
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ready to aid the ground forces at Sansapor if called upon.⁹⁹

The air alert planes strafed the beach before the ground troops went ashore at Sansapor, but thereafter had nothing to do. The infantrymen, who quickly reached their objectives, made no requests that day. The SAP could report only that with its LUKW it kept in communication with CSA afloat while moving in to shore, and that for the first time it conducted all voice communications by VHF.

Support missions in the Sansapor area after D-day continued to be scarce. They included spraying the beachhead area with DDT, which required "assurance that all gun positions and personnel have been ordered not to fire."¹⁰⁰ During August several villages were strafed by fighters on ground force request. Later, in November 1944, the 42d Bombardment Group, directed by a native who rode in the lead plane, bombed and strafed a ravine where several hundred Japanese were surrounded by tribesmen. Aside from these missions, Sansapor was captured and held without close support.¹⁰¹

Before the move into the Philippines, one more advanced air base was needed, and the little island of Morotai, just north of Halmahera, was eventually selected as the objective. Morotai was 335 miles from Sansapor; hence effective land-based air support could not be provided. General Kenney, though sceptical concerning the amount of support that naval aircraft, with their limited bomb load, could give against a defended beach, believed that against Morotai, which he correctly estimated to be very lightly defended, such support would be sufficient. Fifth Air Force was to provide additional airpower if the naval attack force commander called for it, but was not to be responsible for



support of the operation until land-based planes were in place on the island.

The command and communications system was the usual naval type, not greatly different from that used in POA.* Naval personnel were to function as CSA afloat, CSA ashore, and air coordinator, but Fifth Air Force was to provide an opposite number for each of these officers except the air coordinator to control Army planes over the landing area. The air support communications nets were four in number: SAR, SAD, Land Based Air Support, the intelligence net for Army air, and Inter-Commander Support Aircraft, an intelligence and command net between the naval CSA and the carriers.¹⁰²

Troops went ashore on Morotai on 15 September 1944. The Fifth Air Force's SAP 3, using for the first time an LVT, became a little too enthusiastic and reached the beach ahead of the assault infantry. Since there were no Japanese on the beach, this was not so hazardous as it might have been. The escort carriers provided eight fighters and eight bombers over the beach during the assault, and a similar group on call throughout the day, but no support was needed. The infantry quickly took the desired perimeter around the airfield, and on D and D plus 2 Fifth Air Force B-25's sprayed the area with DDT.

Allied planes began flying from Morotai on 5 October. Between then and the end of 1944 American or Australian fighters occasionally strafed a group of Japanese located by patrols or natives, but there was no close support because there was no ground fighting. On 15 November,

* Naval close support procedures are discussed in Chapter.V.

B-25's and P-33's of the Thirteenth Air Force supported a small-scale amphibious attack on near-by Pegun Island, where only 13 Japanese, all of whom committed suicide, were found.¹⁰³

Conclusions

In supporting the tortuous march along the coast of New Guinea, with detours to New Britain and the Admiralties, the Fifth Air Force had learned how to render effective aid to the ground forces. A-20's and B-25's, flying at tree-top height, proved deadly when used against enemy troops, though probably not so destructive as against shipping or parked aircraft. Liberators, bombing from medium altitude, could take field fortifications apart if given time and a distinct target. And every type of fighter aircraft available, P-38, P-40, P-39, and P-47, had shown itself, once enemy air opposition had declined, able to hit ground targets and hit them hard. On short missions the P-47 and P-38 could carry bomb loads heavier than carried by A-20's and comparable to the loads carried by B-25's. The fighters had gained experience, and they were to use it on Luzon.

On the Iae to Morotai operations target marking was improved as greatly as it would be during the Pacific war, although the marking of front lines lagged somewhat. Among the methods used for target identification were gridded oblique photographs, artillery and mortar smoke shells, lead-in aircraft, and oral descriptions by means of air-ground radio. At Shaggy Ridge a large cloth arrow pointed to the target. Seldom was any one of these methods used alone; usually two or more of them were employed in conjunction to

make doubly or triply sure.

Air support communications were also improved, though, except in amphibious operations, it was still the normal practice to request a mission the day before it was to be executed. SAP's had ample radio equipment by mid-1944, and in the late summer the use of the DUKW in the assault phase was preventing the spoilage of radio equipment by exposure to salt water. The SAR net, originating at Hollandia, became a standard feature of each amphibious operation, and provided a more rapid means of getting requests back to the executing agencies. The SAD net was also available for each operation after Hollandia, but was seemingly little used after the end of the assault phase of the operation.

There was still room for improvement in the directing of support aircraft from the front lines. Except in the Admiralties, ground fighting was never so critical that close support was essential against targets on which the pilots had not been briefed beforehand. In the Admiralties, planes were directed to their targets by observers in the front lines who could watch both the aircraft and their targets. In later campaigns the air commanders, while always ready to give what help they could to the ground forces, had no reason to insist on bombing within a few hundred yards of the front lines. Nor were ground force commanders inclined to ask for really close air support unless

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in almost desperate straits, as at Shaggy Ridge and Momote. In the absence of close bombing, ground-to-air radio direction was seldom an essential part of air support control, and therefore the technique was not developed. The death of Captain Frederick, who had gained a wealth of experience in such direction in the Admiralty, no doubt delayed the application of the techniques perfected there to other operations.

Another important development was the command machinery for the control of close support aircraft in amphibious operations. Modeled largely on the system employed by the Navy at Hollandia, this procedure provided a way to use aircraft effectively in aiding ground troops to get ashore without infringing upon the authority of the air commander.


In planning for amphibious operations in SWPA, the air commander participated as a full equal to the ground and naval commanders. Thus it was within his power to decide how much of his striking force he could use to support the planned operation without rendering himself unable to carry out other necessary missions. Once the amount of his contribution had been agreed upon, he could allow the attack and landing force commanders to control the support aircraft while the aircraft were in the objective area. To insure that these planes were used wisely, this control was exerted through air officers, who acted as commanders support aircraft and air coordinators. The naval attack force commander or the landing force commander after he had assumed

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command ashore decided what targets in the objective area, if any, should be hit by support aircraft. Then air officers on shipboard, on the beach, or in an aircraft overhead directed the strike. This system was successful in SWPA during the period covered and for the remainder of the war.

Close support had been effective during these operations, but of course to varying degrees. At Shaggy Ridge the terrain was unfavorable for air support, but the con ending ground forces were so evenly balanced that a comparatively small amount of close support turned the scales. In the jungles north of Finschhafen, air attacks had no doubt hurt the Japanese, but they were driven from the area by an enveloping maneuver, not by the ground and air assault. At Mote, on Los Negros, the Japanese were concentrated across the runway from the 1st Cavalry Division in fairly open terrain; here air support was highly effective. In the caves of Biak, on the other hand, bombs and strafing were simply another siege weapon, helping to wear away the defenders' strength. The aircraft were helpful to the ground forces at Biak, but certainly not decisive. But at Moemfoor, air and sea bombardment of the beaches just before the landing was so effective that the Japanese who remained alive were too stunned to defend themselves.

Thus against an enemy in open terrain, even though under cover, airpower used in close support of ground forces could be devastating. Against an enemy sheltered in caves, as so many Japanese were to be





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in 1945, air support was merely another weapon, albeit a most useful one.

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Chapter V

CLOSE SUPPORT IN THE CENTRAL PACIFIC CAMPAIGNS

Introduction

Military operations in the Central Pacific Area (CEMPAC) were very different from those in the South or Southwest Pacific (SWPA). The differences are accounted for by two factors: the distances between bases and objectives, and the nature of the objectives.

In both the Southwest Pacific and the Central Pacific Areas, the important moves forward were made by amphibious operations, but there the similarity ends. In SWPA the moves were comparatively short; the hop to Hollandia was only about 400 miles, and the distance from Morotai to Leyte, the longest jump of the campaign, was only 625 miles. Land-based planes could support all but the longest moves. In the Central Pacific, the Gilbert Islands lay 800 miles from Funafuti and 2,500 miles from Pearl Harbor, and Kwajalein was 600 miles from Tarawa. From Eniwetok to Saipan was 1,200 miles, and to Peleliu almost 1,800 miles. Iwo Jima lay 750 miles from Saipan, and Okinawa was 875 miles from Iwo Jima and more than 900 miles from Manila.

In SWPA the planners could usually pick an undefended beach from the many choices offered them. Ordinarily heavy fighting began only after the landing force was safely ashore. In the Central Pacific, all objectives were defended, because the land area was so small that

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defensive garrisons could be maintained practically everywhere. All objectives were not alike--the Gilberts and Marshalls were flat coral atolls; the Marianas had almost mountainous terrain and were too large to be neutralized by air and naval bombardment, yet too small to permit freedom of maneuver. Iwo Jima was a volcanic island, honeycombed with natural and artificial caves perfectly adapted to defense; Okinawa, largest CENPAC battleground, was still not large enough for maneuver once the main enemy force had been contacted, and it was defended with all the vigor, tenacity, and disregard for life which the Japanese were so capable of demonstrating.

The distances between the battle areas made the use of land-based planes for troop support impractical or impossible until landing fields had been secured at the objective. Thus close support in the assault phases of CENPAC battles was rendered almost entirely by carrier-based aircraft. Army planes participated in the later stages of the fighting in the Marianas and on Iwo Jima, and both Army and Marine aircraft fought at Okinawa, but in every case except Tinian and Guam this was after the landing force, supported solely by carrier-based planes, had captured an airfield.

The fact that defensive garrisons were maintained on all these small islands made air support a more important part of operations in the Central Pacific than in the advance along the New Guinea coast. Casualties at Tarawa were staggering because the weight of air and naval bombardment in advance of the landing force had not been sufficient to keep the defenses neutralized while infantry went ashore. Thereafter

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naval gunfire, airpower, and, if possible, artillery were used to blast the Japanese into quiescence until a beachhead was established. Most, if not all, of the operations along the New Guinea coast probably could have succeeded without close troop support, though at a far greater expense in casualties. It is highly doubtful that any one of the operations in the Central Pacific could have succeeded had direct support aircraft been lacking.

Before the opening of the Central Pacific drive with the invasion of the Gilberts, experience in amphibious warfare had been gained at Guadalcanal and New Georgia, in the South Pacific; and at Attu, in the Aleutian Islands. The New Georgia landing, supported as it was by land-based aircraft, could teach little of value for close support in CENPAC operations. The landings on Guadalcanal had been unopposed, but the assault on neighboring Tulagi had given some experience in close support. The entire operation also served to test and reveal flaws in the rudimentary command and communications system used for control of aircraft supporting the landings.*

The operation at Attu was, as at New Georgia, largely supported by land-based air, but an aircraft carrier, escort (CVE) participated. More important, for CENPAC operations, a naval system of control was given a tryout during extended fighting, and proved feasible under extremely trying conditions.

* See pp. 17-21.



The commander of the naval task force (CTF 51) for the Attu operation was in control of air support until command was passed to the landing force commander ashore. CTF 51 exercised this control through a commander support aircraft (CSA)* aboard the battleship Pennsylvania; the CSA might give orders to support aircraft directly, or he might turn control over to an air coordinator[/] airborne over the island. It was planned that an AAF officer would act as air coordinator, and the assistant CSA,^{//} a Marine officer, was to carry out liaison between CSA and the CVE Nassau. Air liaison parties (ALP's), composed of one naval officer, one AAF officer, and two AAF enlisted men each, served with the landing force commander and with each battalion ashore.

Only one radio circuit was to be used for air support communications, although four frequencies, two VHF and two HF, were available on this circuit. Stations were CSA aboard the Pennsylvania, the assistant CSA aboard the Nassau, the air coordinator over the island, the ALP's with the ground force units, and the support aircraft. Thus the one circuit served for support air requests, support air direction, and transmission of intelligence.

As might have been expected, in view of the appalling Aleutians weather, the lack of radio circuits, and the distance from friendly air bases, air support at Attu was poor in quality. From the landings on

* Known as "air support control officer" for Attu operation.

[/] Called "airborne liaison officer" at Attu.

^{//} Called "assistant air support control officer" at Attu.



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11 May 1943 until the end of the month, there were 11 days when the Aleutians weather prevented any support at all. On the other 10 days, air support "was not coordinated with ground action."¹

It couldn't be. The planes were based at Amchitka a distance of 300 miles away. These people would want air support on some particular target. When the planes came out to attack these people were probably in bed by that time. Also, when you wanted it /air support/ up here /at Attu/ and it was clear, you couldn't get up here. So all the operations were merely this: when you could get planes off Amchitka, and they could come . . . through to make an attack, they came. These people would keep howling for support all the time and wondering why they didn't get it. You can't tell a ground officer you can't furnish him ground support when he can see clear weather here - he can't visualize 300 miles. They don't know the people are sitting back here in solid fog.

Weather was responsible for most of the aircraft losses, though one plane was shot down by antiaircraft fire. Naval planes, based on the CVE and therefore much nearer the target than the land planes at Amchitka, also suffered; on 14 May three F4F's out of eight airborne were lost to weather.

The number of attacks made against friendly ground troops was also in part attributable to weather. Visibility was so poor that pilots made passes too hurriedly during their fleeting chance to pick out targets. But poor planning was also responsible. The island had been laid out in predetermined target sectors before the invasion began, and no marking of particular targets within those sectors was attempted during the operation. In addition, entirely too much dependence was put on visual signals; the communications plan called for no less than 34 different panel signals. Small wonder that ground troops were sometimes more concerned about the danger from friendly aircraft than from the enemy.²




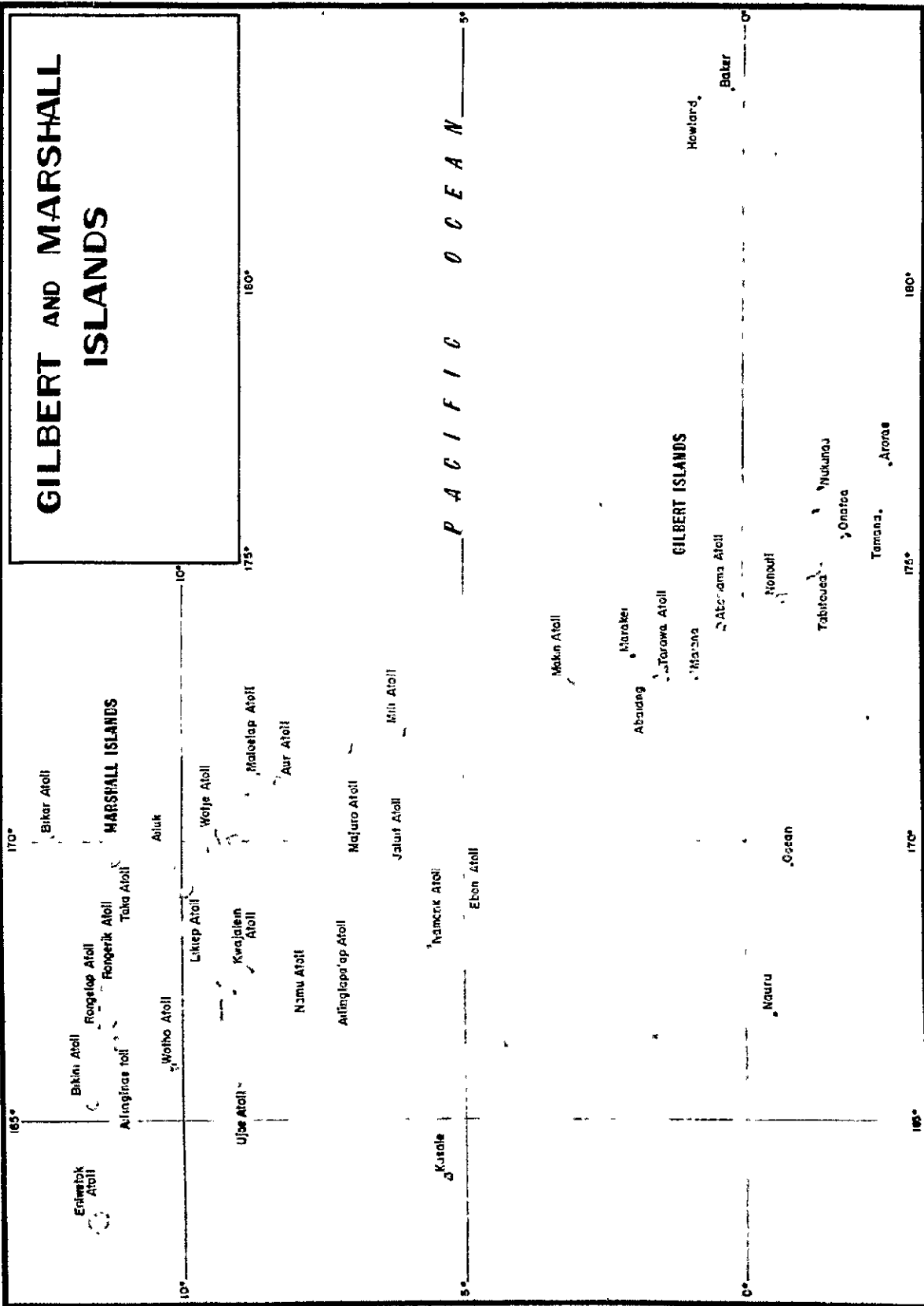

The Invasion of the Gilbert Islands

The first step in the drive westward across the Pacific was the capture of Makin and Tarawa atolls in the Gilbert Islands group. The two atolls were more than 100 miles apart; hence it was necessary to divide the naval forces, including the carriers, into northern and southern attack units. So far as close support was concerned, Makin and Tarawa were separate operations.

The system of control used in the Gilberts was an expanded version of the one at Attu. One CSA, under the naval commander, supervised air support for the whole operation; this position was filled by Col. William O. Eareckson, an AAF officer who had gained experience at Attu, and was later to act as naval CSA during the Hollandia-Aitape operation. He was stationed on the battleship Pennsylvania, off Makin. Under Colonel Eareckson were CSA's north and south. The plans called also for dual air coordinators, airborne over each objective. Air liaison officers were assigned to each landing force, and were attached to regiments and battalions with enlisted assistants supplemented by Marine Corps communications personnel.

As at Attu, one radio net with alternate frequencies was expected to carry all air support radio traffic, but in the Gilberts this one net served operations on two widely separated islands. As a result, there were no less than 18 stations on the net, a number almost sure to lead to congestion at critical moments. The reservation of all VHF frequencies, which were less susceptible than HF to interference, for fighter control was another handicap. Lastly, and perhaps most

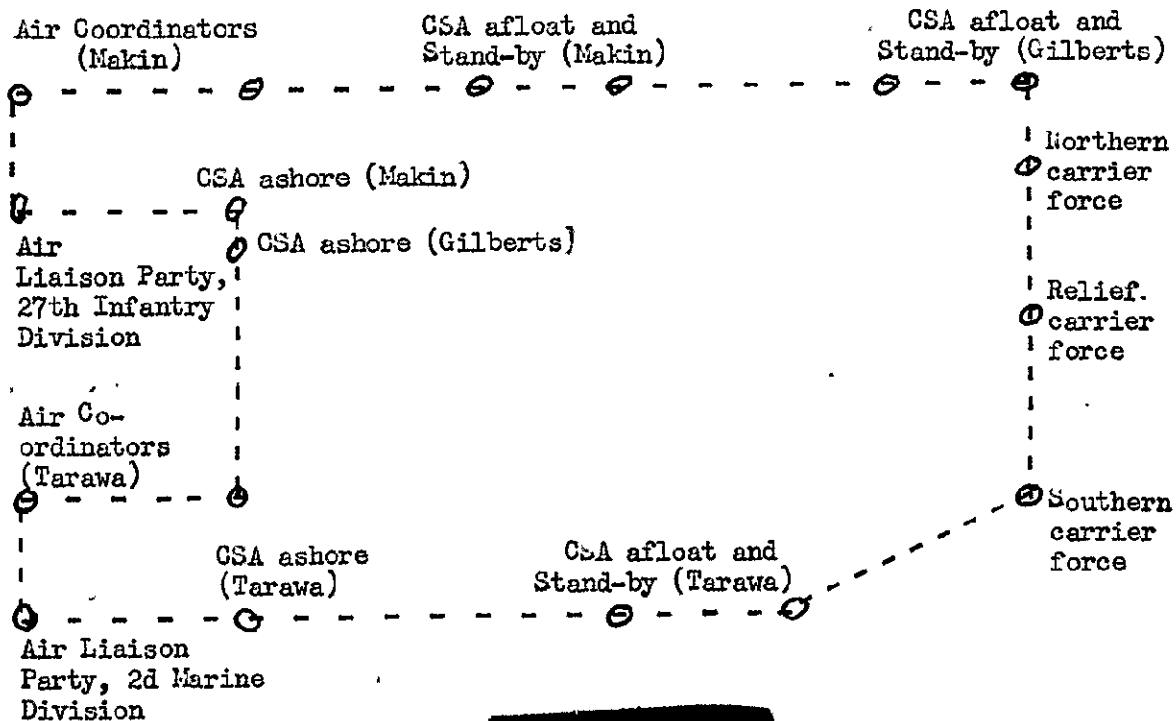


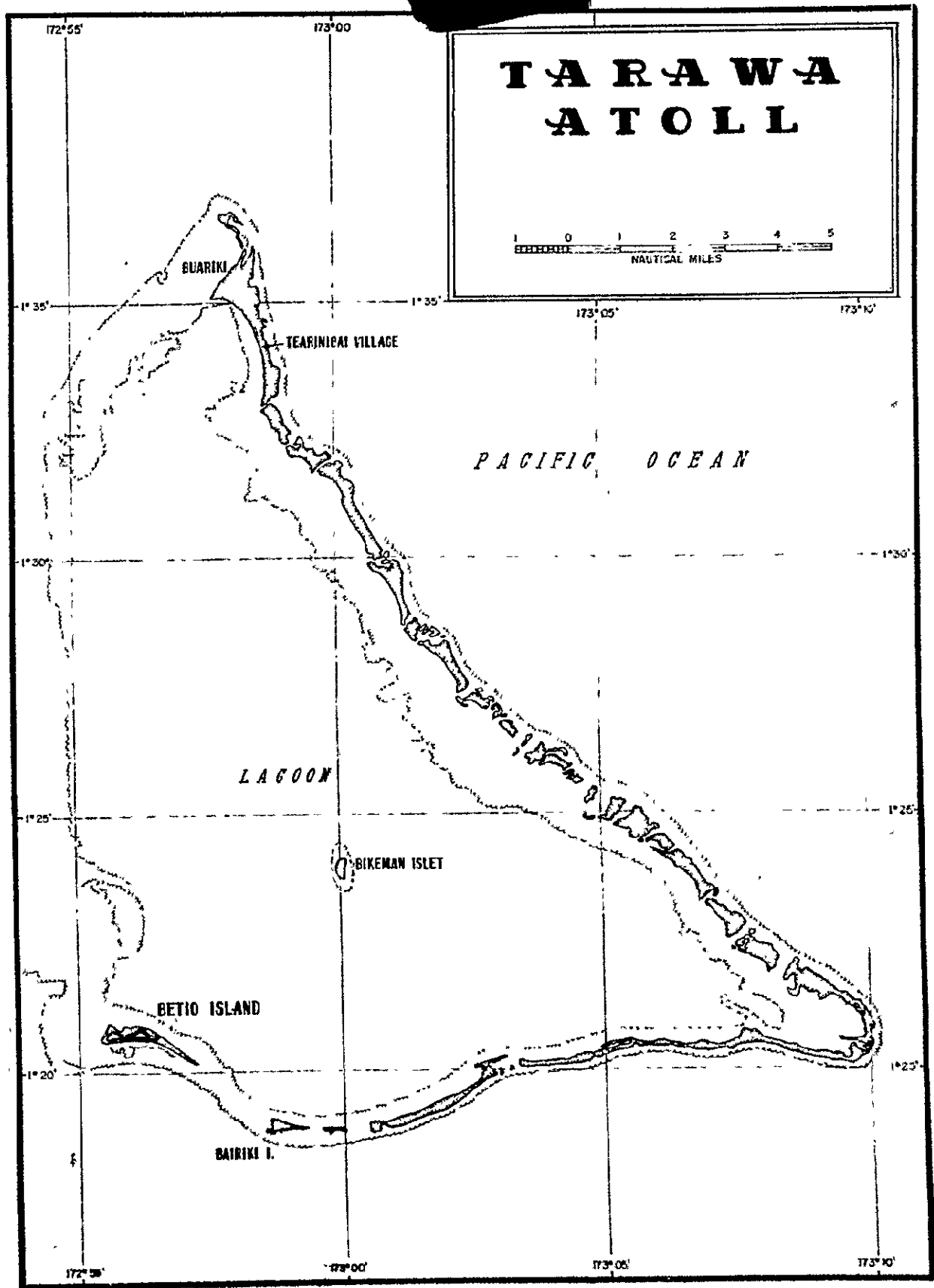


most important, the naval tradition of using a battleship as a flagship was followed, and the flagships were the nerve centers of the communications systems not only for air support but for the entire operation. The Pennsylvania, at Makin, was not fully equipped for such a role, and the obsolete Maryland, which served at Tarawa, was definitely inadequate. Both flagships were, of necessity, part of the naval bombardment force, and every salvo fired from the Maryland was to knock out communications for a few precious minutes.*

The plans envisaged some preliminary bombardment by Seventh Air Force heavy bombers, but this was to be concluded well before D-day (20 November 1943). On the morning of the landings, the following program was to be followed at each objective. For 30 minutes prior to the final naval bombardment, all available torpedo bombers, all

* Air support communications net for Gilberts operation:





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fighters not needed for combat air patrol, and as many dive bombers as would not prejudice the success of later missions were to be used to attack installations on the islands, such as coast defense and antiaircraft guns, radio installations, and buildings. Those torpedo bombers attacking gun emplacements were to be armed with 2,000-lb. bombs fuzed for 1/10-second delay, and the remaining torpedo bombers were to carry 100-lb. and fragmentation bombs. The fighters were to strafe, and the dive bombers were to drop 1,000-pounders. At the close of the final naval bombardment, about H-hour minus five minutes, fighter planes were to strafe the beaches, gradually hitting points farther inland, and ceasing fire when the first boat touched shore. At the close of the strafing attack, dive and torpedo bombers were to bomb both flanks of the landing beaches, putting their bombs into an area 500 to 1,000 yards from the ends of the beaches.

After troops were ashore, all relieved fighter patrols were to report to the CSA for ground support strafing missions before returning to their carriers. In addition, from H-hour plus 30 minutes on, a support air group of 12 dive and 6 torpedo bombers was to be kept on air alert at an orbit point near the objective, ready for support attacks as directed by CSA. These groups were to be replaced as ordered by CSA after expenditure of their ammunition.

The plan of procedure was for support aircraft to call in to CSA when they arrived at the initial point, or, in the case of fighters, upon release from Combat Air Patrol (CAP). CSA would then transfer control of the flight to the air liaison party ashore if the ALP

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was in position to direct the strike. To avoid congestion, the ALP's while directing aircraft were to use another frequency than the one utilized by CSA. All flights, upon completion of their attacks, were to report to CSA before returning to their carriers.³

Air operations went according to plan at lightly defended Makin Island, but at Betio, in Tarawa atoll, where the Japanese had located their main strength, it was a different story. Naval gunfire stopped at 0542 so that the first planned air attack could be carried out at 0545. Communications were so poor, and so frequently interrupted aboard the Maryland, that for some still unexplained reason the planes were more than 30 minutes late without the CSA's so having been informed. The whole schedule for air and naval gunfire support was thus thrown awry at the beginning. As Lt. Gen. Holland M. Smith, U.S.M.C., Commander of the landing forces, put it, "Air assistance was no better gauged than naval support, and the strikes were poorly coordinated. The planes were not there when needed." This was a violation of the main principle "of amphibious warfare [which] is concentration of your forces and meticulous coordination of all elements, plus as much naval gunfire and air bombardment as you can pour into enemy positions."⁴

After the first day's landings were over, air support at Tarawa improved but was still far from ideal. Communications both afloat and ashore were still subject to frequent breakdowns, and when it was in operation the radio net was entirely too crowded. On D plus 1, when Japanese snipers and machine gunners located on a grounded hulk offshore were picking off marines wading in to the beaches, support

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aircraft were able to silence the hulk temporarily but not to destroy it. Demolition teams had to be called in to finish the job. Strikes against Japanese-held areas on the island were more successful, however, especially on D plus 2, when the surviving enemy troops were concentrated on the tail of the island. No strafing was allowed after noon of D plus 1 for fear of hitting friendly troops.

The worst aspect of air support was the frequency with which bombs were dropped in friendly areas. Some of these mishaps' were due to poor communications, some to dependence upon panels to mark front lines, some to sheer carelessness on the part of pilots. Marines were killed by strafing on Tarawa, and on Makin, where the Japanese had no tanks, friendly tanks were bombed so effectively that three men were killed and several others wounded. Moreover, a crucial ground advance on Makin was delayed because aircraft continued an attack after the deadline, even though CSA had acknowledged the ground commander's request that the attack stop.

Perhaps the most successful strike of the war, measured in terms of immediate results was made in support of a landing on tiny Bairiki Island, which might have served as a refuge for fugitives from Betio had it not been occupied by the marines. The island was garrisoned by 15 Japanese, all of whom were burned to death when a bullet from a strafing aircraft exploded a gasoline drum.⁵

Air support at Betio and Makin was in general poor. The weaknesses in communications, training, accuracy, and discipline have already been mentioned.

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Pilots were late when their strike could have been and should have been delivered on schedule. They were right on the spot when the exigencies of the situation demanded delay. They not only failed to hit the target . . . but interfered with the naval gunfire and helped to dissipate its effect.

Small wonder that Adm. Chester W. Nimitz, Pacific Ocean Areas Commander, concluded that naval pilots were not well enough trained to support amphibious operations efficiently.⁶

It may be noted that the criticisms made of air support were applicable to practically all other phases of the Gilberts operation, particularly so at the bloody business of Tarawa. Planning was poor; equipment was inadequate; naval gunfire and the preliminary air bombardment were insufficient and poorly directed; and the communications trouble which plagued air support hampered all phases of the operation. Tarawa was a laboratory for amphibious operations, albeit a horribly expensive one. It taught many lessons, both as what to follow and what to avoid, which were to be profited from in future battles.

Thus CENPAC commanders could take comfort from the fact that one of the weaknesses in air support could be traced to the control system. The three elements of this system, ALP, air coordinator, and CSA, might well be made more effective, but they did not need to be abolished in favor of other control mechanisms. Except in the directing of aircraft, which communications seldom permitted, the performance of the ALP's was surprisingly good--frequently higher commanders could get intelligence from shore by no other means. That they were not always able to secure air strikes requested by marines or infantrymen even though aircraft were overhead was the fault of CSA and communications if fault there was.

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But if the control system had proved its worth, the use of the conventional battleship as a command post for amphibious operations was an unequivocal and universally recognized failure. A few months later, when the Marshalls were invaded, two of the new amphibious force flagships (AGC's)—converted transports with elaborate communications systems especially designed for flagship duty in amphibious operations—were on hand.

The Gilberts operation made it clear that the CSA had to exercise tighter control of support aircraft, so as to prevent attacks on friendly troops and to have the planes available when needed. It demonstrated the need for better radio discipline. Since the operation had also demonstrated the need for better coordination between air support and naval gunfire, it led the Joint Chiefs of Staff (JCS) to direct the organization of joint assault signal companies (JASCO's) to conduct both air and naval gunfire liaison and communications.⁷

Invasion of the Marshalls

The lessons taught at Tarawa led to great improvement in air support of the invasion in February 1944 of the Marshall Islands, the next objective of CENPAC forces. The Marshalls, like the Gilberts, were coral atolls, and lessons learned in the first operation applied well in the second. There was no change in the principles and methods of control of support aircraft, but there were many improvements.

The new headquarters ships (AGC's) have already been mentioned. Two of these, the Rocky Mount and the Appalachian, were on hand for

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this operation; they were a great improvement over the battleships which had served as flagships in the Aleutians and Gilberts. The AGC's were received only a short time before the invasion was mounted, however, and some trouble was experienced in accomodating on board all the headquarters necessary. This was especially true of the Rocky Mount, on which were located Adm. Richmond K. Turner's two headquarters as commander of the joint expeditionary force (CTF 51) and commander of the southern attack force (CTF 52), General Holland Smith's headquarters as commander of the expeditionary troops (CTF 56), and headquarters of the 7th Infantry Division (Task Group 56.1). The Appalachian, containing only the headquarters of the northern attack force and the 4th Marine Division, was not so congested. The commander support aircraft was a part of the headquarters of each attack force commander.

To avoid the congestion on the radio which had characterized the Gilberts action, a much more complete system of radio circuits was provided. Each attack force was to maintain separate support air request (SAR), support air direction (SAD), and support air observation (SAO) nets. A common SAD-Emergency frequency was provided for both attack forces but, as the designation implied, this was for emergency use only.

The SAR net was to be used by the air liaison parties in requesting missions from the CSA, who in turn requested the aircraft from the commander of the carrier task group assigned for that purpose. If air alert planes were available, this second transmission would not be necessary. The carrier commander, in turn, informed CSA of flights

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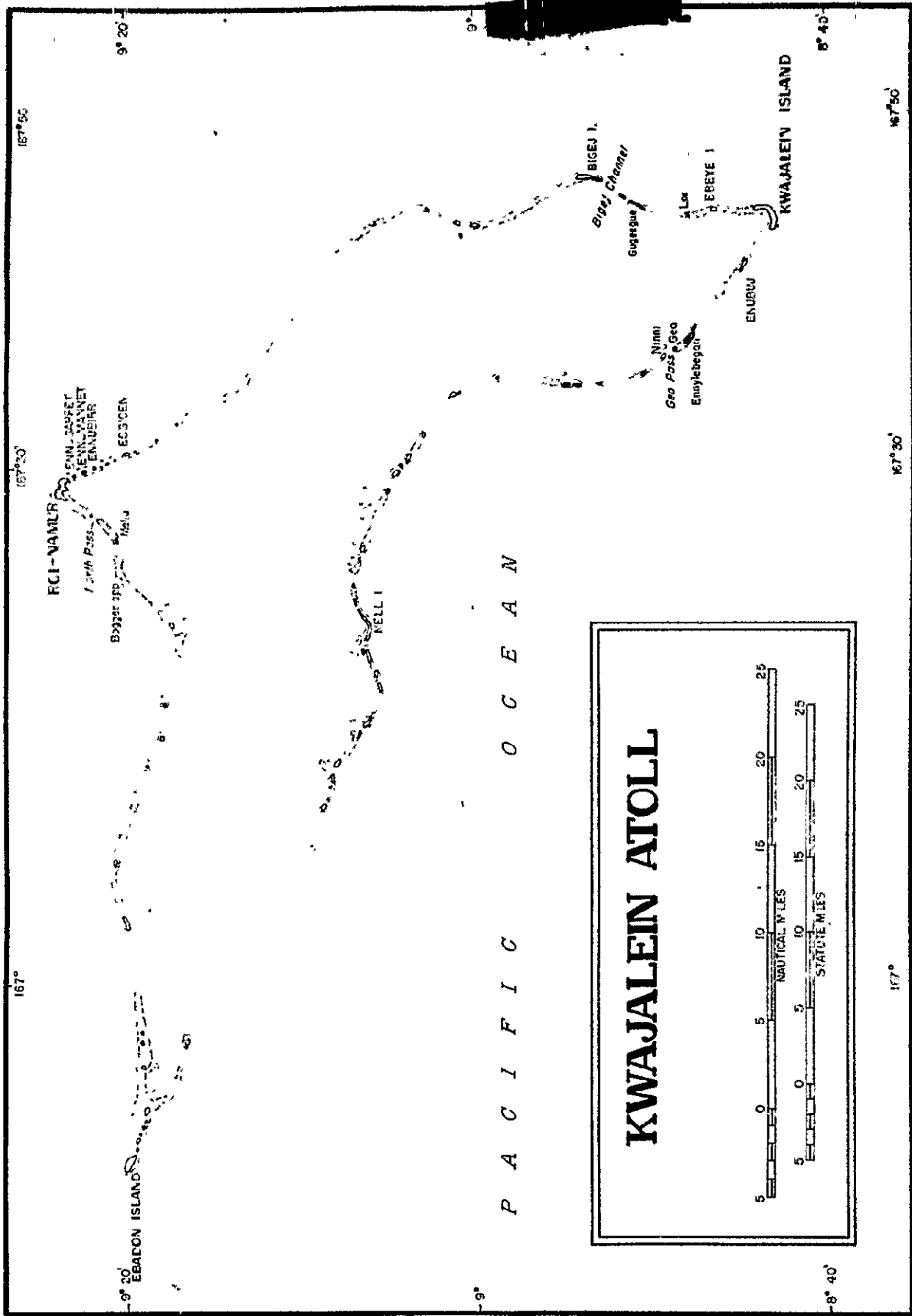
coming up by means of the SAR net, whereupon CSA used the same net to give this information to the ALP. CSA was also to use SAR for informing carrier commanders of flights returning to base, and the net was to serve for other administrative traffic between CSA and the carriers.

Aircraft arriving on station were to use SAD for reporting to CSA; CSA could then order them to wait, give them a target, or turn them over to the ALP or the air coordinator for direction. Fighters relieved from CAP and bombers returning from antisubmarine patrol with unexpended armament were also to use this net for reporting to CSA. The SAD-Emergency was to be used only in case of equipment failure or overcrowding on the regular net.

The SAD net was an innovation. It consisted of an observer airborne over each objective and in contact with a ground force officer located with CSA on the headquarters ship. The observer reported the progress of friendly troops, the location of enemy strongpoints, such enemy activity as he could see, and made any other observations he was requested to make. This information proved to be very valuable to the ground force commanders.

Another innovation in the Marshalls was the JASCO, an organization for which the need had been demonstrated by the poor coordination of air support and naval gunfire at Tarawa, and which, as the reader will recall, had been brought into being by a directive from the JCS. The JASCO was designed for attachment to an amphibious assault division, and was a mélange of Navy-Marine or Navy-Army elements. It had three component sections: naval gunfire control, air-ground liaison, and

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beach control. The air-ground liaison section had an authorized strength of 13 officers and 39 enlisted men, divided into 13 ALP's which were attached to divisional, regimental, and battalion headquarters. Each party was composed of one officer, two enlisted radio operators, and one driver.

Only one JASCO was available for the Marshalls invasion; it served with the 4th Marine Division on Roi and Namur in the Kwajalein atoll and later at Eniwetok. To serve the 7th Infantry Division at Kwajalein, a JASCO was improvised from naval air and gunnery officers and men from the Army 75th Signal Company. The JASCO personnel for the Marshalls operation were poorly trained and equipped, but they functioned surprisingly well.

Thus the main elements for the control of support aircraft in the Central Pacific remained unchanged. The CSA aboard the flagship under the attack force commander exercised operational control over all support aircraft in the objective area, but he might, if circumstances dictated such a course, temporarily pass this control to an air coordinator or an ALP. His communications were much improved, the new flagships making possible separate SAR and SAD nets for each attack force. Better coordination of air support and naval gunfire could be expected through the efforts of the new JASCO's, and another new assault agent, the air observer, was a source of valuable information.⁸

The campaign in the Marshalls may be divided into two parts--the seizure of Kwajalein and Roi-Namur, in Kwajalein atoll, and the seizure

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of Eniwetok. The first two operations were carried out simultaneously, the main landings taking place on 1 February 1944. The capture of Eniwetok atoll began with landings on Engebi Island on 18 February; this was followed by the invasion of Eniwetok Island on 19 February, and of Parry Island on 22 February. Other islets in both atolls remained to be taken, but these were merely mopping-up operations.⁹

At Kwajalein, the fighting began on 31 January 1944, when ground forces began the seizure of small islands to permit the entrance of ships into the lagoon and to serve as sites for artillery to support the main landing the next day. Preliminary bombing by dive bombers softened the islets, and fighters strafed the beaches as boats went in. The fighters employed a new tactic, making their approach perpendicular to the beach at a steep angle. This permitted fire directly on the beaches ahead of the landing craft, afforded some opportunity for bullets to reach into foxholes and trenches, and also avoided the possibility of short rounds striking the troops in the water.

Beginning at H-hour, nine torpedo bombers and nine dive bombers were by means of hourly reliefs kept continually on the alert, prepared to attack targets in support of the ground troops; in the event they were not needed on the islets, they were directed against Kwajalein. In all, on 31 January, 85 sorties were reported made against 4 islets, 44 against Kwajalein, and 58 against Japanese boats in the lagoon. A low ceiling forced the cancellation of some dive bomber strikes. The effectiveness of the support was well demonstrated on one islet where

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the assault troops killed 65 Japanese but found 45 others already dead as a result of the air strikes.¹⁰

On the morning of the main landing on Kwajalein Island, 18 dive and torpedo bombers were on air alert overhead, ready to strike any target to which they were directed by CSA. In addition, approximately an hour before the landings 6 Seventh Air Force B-24's dropped 12 tons of bombs near the landing beaches. The Liberators were followed by a heavy strike of dive and torpedo bombers, directed against pillboxes and other defensive installations. Thirty minutes before the landing craft reached shore, fighters began strafing the beaches, again making their approaches at right angles in a steep dive. Lastly, from 30 minutes before the landing until the troops reached shore, six planes were ready to lay smoke if it was needed. Altogether, including the B-24 strikes 250 sorties were made against Kwajalein, adjacent islands, and the few Japanese small craft remaining afloat on 1 February.

On 2 February, 70 sorties were made against Kwajalein--mainly against gun positions well away from friendly troops. Forty other sorties struck other islands in the atoll. On 3 February there was a total of 132 sorties, none against Kwajalein, and on 4 February, though planes were available all day, only one five-plane strike by torpedo bombers was called for, that one in support of troops on Ebeye Island.¹¹

Air support at Kwajalein was highly successful, and it could almost be said that as at Cape Gloucester the troops went ashore with their rifles on their backs. Considerable fighting had to be done before the

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island was secure, but there was never any danger, as there had been at Tarawa, of the assault troops being thrown back into the sea. The number of close support missions flown after the troops were ashore were few because the ground forces made only a few requests. CAS was therefore forced to initiate attacks against targets of his own choosing. Fortunately, a list of possible targets had been prepared in advance, and through information received from the support air observer, the air coordinator, photographs, prisoners of war, and other sources it was possible to keep the status of these targets up to date. Thus when there was no call from the ground forces for the services of a strike group on station, CSA could give the planes a target based on fairly recent intelligence. The target-data file was to be an important feature of later campaigns.

The air coordinator was an essential part of the air support system. This position was filled at Kwajalein by the air group commander and the squadron commanders from the carrier Enterprise. The air coordinator, because he was on station over the scene of battle long enough to become familiar with the terrain below, was able to orient flights arriving on station and frequently to lead them to their target. It was discovered that CSA could most efficiently control attacks requiring coordination with artillery and naval gunfire because he was located on the flagship, where such coordination could best be effected. The air coordinator, however, was in better position to direct strikes which required coordination with the ground troops, especially those which had to be timed with a view to the positions of landing craft.

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The experience of the Marshalls indicated that more attack direction should be conducted by the air coordinator.

As might have been anticipated from the improvised nature of the ALP's used in the Kwajalein operation, their performance did not measure up to the highest standards. They had trouble with their radio sets, mainly because of improper calibration of transmitters. It was suggested that more training and the provision of crystal-controlled transmitters could solve this particular problem. It was felt, however, that ALP's were not likely to be well-trained enough in the foreseeable future actually to direct air support missions. Therefore it was not believed necessary for them to guard SAD circuit or to carry equipment for transmission on that circuit. The GSA believed that these parties could have been of more service to the ground force commanders by guarding SAO circuit and reporting the information thus gleaned to the commander of the unit to which they were attached. It should be added, however, that Marine commanders did not agree with this conclusion; they continued to ask for more direction of air support strikes by air liaison parties.

As a whole, the communications for air support worked well. SAR circuit experienced some difficulty during the early stages of the action because the carriers maintained radio silence, thus leaving GSA in doubt as to which strike groups could be expected in answer to his requests. Also, as mentioned above, trouble was encountered in communicating with some of the ALP's on Kwajalein. On the SAD net, reception was good on both the HF and VHF frequencies, but an effort was made to confine as much of the traffic as possible to the former.

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This led to trouble with pilots who, preferring VHF, reported in on that frequency without attempting to use the other. SAD-Emergency circuit also performed well, but it was used to a very limited extent. Some confusion on SAD resulted from fighter aircraft changing their code call name when reporting in to CSA after relief from CAP. This procedure was specified in the operations plans, but it was felt to be undesirable, since it served only to distinguish relieved fighters from those on patrol, and this could have been effected just as well by direct communications between CSA and the fighter director aboard the flagship.

No record appears of pilot's having trouble identifying targets on Kwajalein, and instances of bombing of friendly troops were rare-- apparently there were no casualties from such bombing. Targets such as gun positions were easily seen from the air, and other targets were usually located after pilots were given their position by coordinates or by reference to a target map. When all else failed, the air coordinator might be able to point out the target in reference to the location of the first bomb dropped or, after antiaircraft fire was silenced, the attack group might locate the target by flying over the area at low altitude. Panels marked the front lines, but there was no use of panel pointers or smoke to mark targets.

The effectiveness of the bombardment by naval guns, artillery, and aircraft was beyond question. Nothing was left standing on Kwajalein. But there was disagreement as to which types of bombs

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were most effective in the aerial bombardment. The air units, well aware that many small positions such as machine-gun nests, mortar pits, and the like could not be located in advance, favored dropping as many small bombs as possible. Ground force commanders, on the other hand, after seeing heavier installations stand up under direct hits from 100-lb. bombs, favored the use of more 1,000 and 2,000-pounders.¹²

The landings on Roi-Namur (two islets connected by a causeway) followed almost exactly the same pattern as those on Kwajalein. On 31 January, neighboring islets were seized as a site for field artillery to be used in support of the main landing. Preliminary air strikes were made on these islets, and strafing covered the landing craft on their way in to the beaches. Artillery, naval gunfire, and air strikes paved the way for the main landings on Roi-Namur on 1 February. All told, 223 sorties were reported on 31 January, 122 on 1 February. Again very few of these sorties were against targets within 1,000 yards of friendly ground troops.

Difficulties in disembarking the landing forces slowed down the Roi-Namur operation, and these delays provided a stern test of the flexibility of the air support control system. On 31 January, CSA was forced to relieve the beach striking force for the invasion of two islets lest the tightly scheduled landings and take-offs from the carriers be disrupted. A new flight of bombers was due in time to support the landings, but it seemed that beach strafing would be impossible. At this juncture, however, the leader of the CAP flight

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on station reported to CSA that his flight had been briefed on the beach strafing attack. Since the fighter director's radar screen was clear of enemy planes, the 12 fighters on CAP were called down to strafe and did a workmanlike job, expending, as instructed, only half their ammunition. Upon completion of the strike, they returned to their patrol station.

Another example of the flexibility of the control system was afforded the same day, when, during the assault on Emmugarret Island, just off Namur, Japanese troops were reported to be concentrating on the southeastern beaches of Namur, whence they could wade to Emmugarret. No air alert planes were on station at this time, but a flight of six TBF's returning from antisubmarine patrol reported in to CSA at the critical moment. Instructed by CSA, the torpedo bombers were releasing instantaneously fuzed depth charges three minutes after reporting in. It was later determined that there had probably been no troop concentration in that area, but the strike was well executed, and when the troops landed in the bombed section the next morning they found the underbrush cleared away by the depth charges.

The attack on Roi-Namur was also delayed, with consequent danger to supporting aircraft, because the prelanding strikes had to be coordinated not only with the flat-trajectory naval gunfire but also with high-angle artillery fire from the islets captured the day before. As if this delay were not enough, at the moment when the air strike should have started and the landing craft were already moving toward shore, a rain squall moved in between the strike group and the islands.

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Fortunately, the flagship was on the other side of Roi-Namur, and the attack force commander could see from the bridge that the strike could be made from his side. CSA was informed, and at his direction the aircraft moved to a new initial point and commenced a successful strike. Bombs stopped falling and naval guns and artillery shifted to inland targets when the boats were 750 yards from the beach. The marines advanced from the water's edge to their first-phase line standing up.

Thus the control system worked as well as or better in the Roi-Namur operation than had been the case at Kwajalein. The communications net functioned smoothly, and there were few complaints of breaches of radio discipline. The regularly constituted JASCO on Roi-Namur apparently performed better than the emergency organization on Kwajalein—at least there were few if any criticisms of its performance.

The commander of one of the carrier groups supporting the marines felt that the practice of the air coordinator in pointing out specific targets within areas designated by CSA produced much better results than the system used in the Gilberts—indiscriminate bombing of the designated area. The same officer recommended that after the period of danger from enemy air attack was ended, strike groups be made up of planes from the same carrier. Such a practice would, he felt, permit more unvarying pressure on the enemy and, because all pilots in the strike group had been briefed together, lead to better results.

The small versus large bomb controversy did not arise at Roi-Namur, where the results obtained using 2,000-lb. bombs against pill-boxes pleased everyone concerned. The commander of the northern attack

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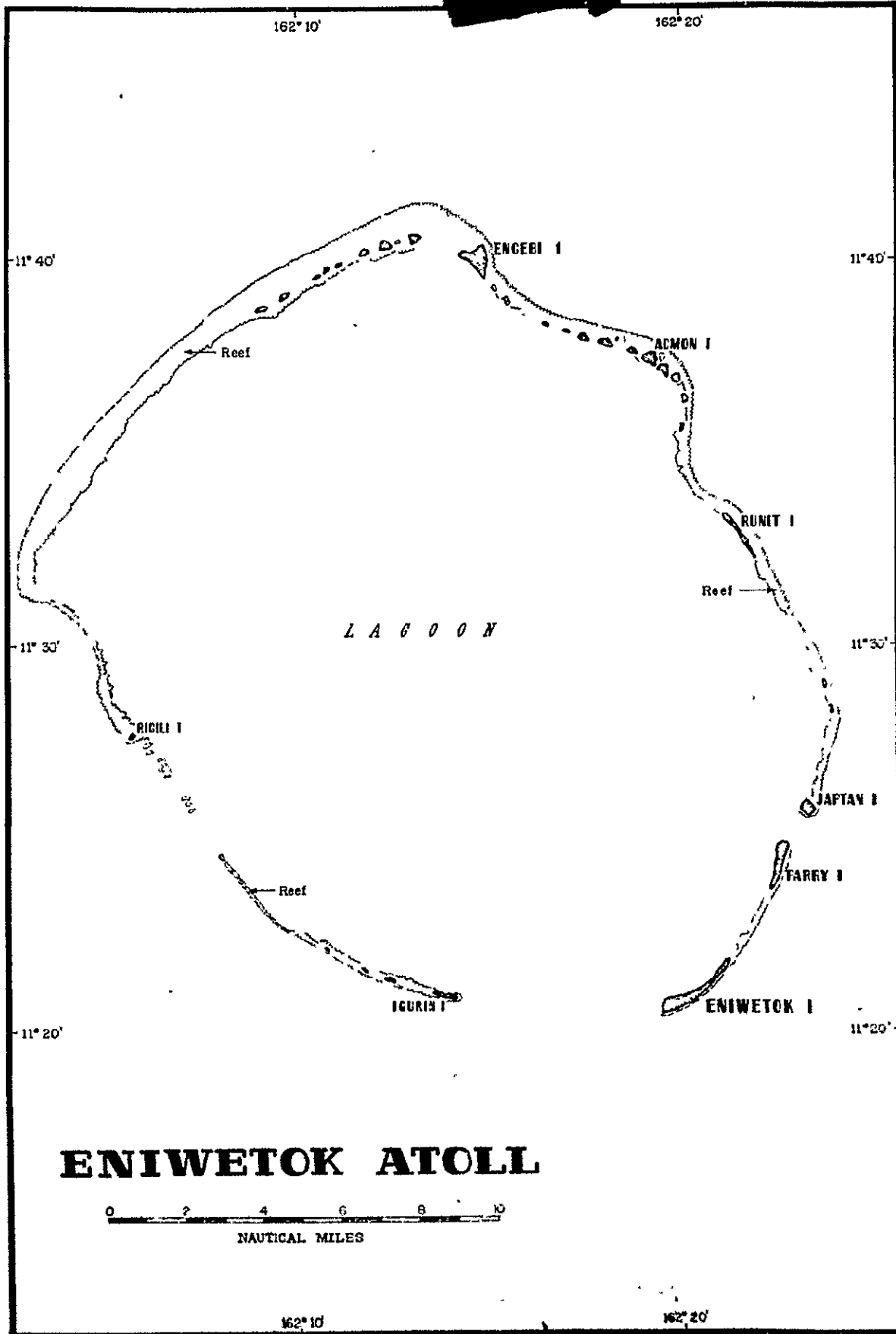
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force, commenting upon the effectiveness of simultaneous naval gunfire, artillery, rocket barrage, and air bombardment, suggested the use of aircraft rockets and many more 2,000-lb. bombs during the assault phase of the next operation.¹³

Rapid conclusion of the Kwajalein and Roi-Namur operations, with less resistance, fewer casualties, and the expenditure of less materiel than anticipated, permitted stepping up the tempo of operations in the Marshalls. Originally, it had been supposed that an assault on Eniwetok atoll would have to be delayed until spring, but reserves were not committed during the earlier assaults, and therefore fresh troops were available. It was decided to take Eniwetok during February, using forces already present in the Marshalls.

No one island dominated Eniwetok atoll, since Engebi, Eniwetok, and Farry was all defended. Since some ground units had to be used twice, simultaneous assaults were impossible; the three main islands were taken one at a time. Air support followed the same pattern as Kwajalein--preliminary bombing, then a bombing and strafing attack coordinated with naval gunfire and artillery as the landing craft approached the beach, and air alert groups available for air-ground support thereafter. The control and communications systems were also the same, except that at Eniwetok the support air observer was put on the SAR net in order that his observations might reach the interested parties directly. In the course of the operation it turned out that at times his comments almost monopolized the circuit, so his independent communications were restored.





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Engebi Island was struck by 104 sorties which made 90 strafing runs and dropped 40 tons of bombs before the landing. After the troops went ashore on 18 February, there were no calls for close support, even though the regimental and battalion ALP's established and maintained good communications with CSA.

The landings on Eniwetok Island on 19 February also received heavy air support. A 15-minute strafing attack was launched 50 minutes before the landing, while artillery and naval guns were silent, and exploded some land mines in addition to its other accomplishments. Dive bombers worked over strongpoints as the naval gunfire was resumed, and TBF's dropped 2,000-lb. bombs on the beaches as the landing craft began their run to shore. Bombing was halted and naval gunfire shifted inland on signal from the air coordinator when the boats were 800 yards from the beach. All told, 106 sorties, which made 24 strafing runs and dropped 52 tons of bombs, hit Eniwetok Island before the troops reached shore.

The landing force at Eniwetok Island, the 106th Infantry Regiment, called for 28 air support strikes during the next four days. Twenty-four of these requests were granted, and the missions, mainly strafing, were carried out by 159 sorties. Four strikes were refused for the following reasons: friendly tanks noted by the airborne observer in the target area, inability of ALP to give definite information on the location of the front line, failure of naval guns and artillery to stop firing, and location of target too near friendly troops. When the position of the front line was known, it was satisfactorily designated by reference to coordinates on target maps and to outstanding

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landmarks, and by panels. Panels were useful, especially when displayed on the top of tanks, but in one instance a unit left its panels on the beach, causing considerable confusion.

Parry Island was blasted by 219 sorties before the landings on 22 February, with 210 strafing runs made and almost 100 tons of bombs dropped. The Japanese defenders were destroyed before sundown of 23 February. Only one mission was requested by the troops ashore, and this was refused because it would have interfered with an essential artillery bombardment.

The fighting on Eniwetok Island led to more close support missions than on any other island in the Marshalls. Fighter planes were used for many of these strikes, and they often carried bombs which, it was discovered, could be dropped more accurately by low-level skip bombing than by conventional glide bombing. Shallow strafing runs against zig-zag trenches succeeded only in knocking sand off the edges; the most successful attack on such installations was made from a dive at a 60° angle, pressing the triggers at 4,000 feet and continuing in short bursts down to 1,000 feet. Artillery fire, with its maximum ordinate of 4,000 feet, had to be called off before such strafing attacks could be made.

It was discovered that the best method for fighters to use in strafing a small area target as part of a coordinated air-ground attack was first to fly low across the target at about 200 feet to make identification certain, then to climb to 2,000 feet to begin the firing run. Pilots began strafing the side of the target nearest to friendly troops at 1,500 feet and gradually shallowed the dive during

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the attack, stopping fire at the far edge of the target area at an altitude of only 50 feet.

A group commander who served as air coordinator at Eniwetok gave the following as the chief duties of that officer. 1) He should familiarize himself completely with the area to be assaulted, both from charts and from flights over the area. 2) He should know the capabilities of the pilots in the air support groups. 3) He should spot bomb drops in relation to the target over SAD radio, thus inducing a spirit of competition among the pilots and improving the bombing. 4) He should coordinate strikes when CSA was occupied. 5) He should locate targets for CSA and the strike groups. 6) He should himself make bombing and strafing runs when the ground forces needed support immediately and no other planes were present. This commander also pointed out the necessity for good communications between support planes and CSA, and suggested that any pilot who could not hear clearly when the targets were assigned should return to base without attacking.¹⁴

The Marshalls campaign was in all respects a great improvement over the preceding Gilberts operation, but this improvement was due in large measure to the experience gained in the Gilberts. Communications difficulties were in large part resolved by the use of the new AGC flagships, and good communications permitted satisfactory coordination of air, artillery, naval gunfire, and ground force action. For attacks on small islands, the pre-assault air bombardment proved more important than later air support, but this would not necessarily be the case with landings on larger islands. Eniwetok demonstrated that effective air support could be rendered in island fighting if the ground forces called

for it. While the JASCO's as a whole functioned well, a most disappointing aspect of the operation was the fact that the ALP's showed themselves too poorly trained to direct support missions. The ground forces hoped to see this situation rectified in the future, but were to be disappointed.

The Marianas Campaign

Saipan, northernmost of the larger islands of the Marianas group, was the next objective of CENFAC forces. The capture of Saipan would seal off neighboring Tinian from reinforcement, as well as Guam 100 miles to the south, and thus facilitate their subsequent capture. Assault on Saipan was the largest amphibious operation undertaken in the Pacific war up to that time. Planes from 16 fast carriers and 11 CVE's were on hand for the landing, and land-based planes were to be brought in as soon as an airfield could be captured and prepared for occupancy.¹⁵

The landings on Saipan did not take place until 15 June 1944, but the air bombardment began four days earlier, and battleships arrived to commence the naval bombardment on 13 June. On the morning of the 15th, the naval guns assumed responsibility for neutralizing the beaches and an area 1,000 yards inland, with other targets left to the air. The selection of air targets was left almost entirely to the air coordinator and the flight leaders during this phase, except for a scheduled strike at the time of the landing. "Small groups of planes, under the command of their respective flight leaders, were detached from the Direct Support Groups and directed to patrol definite areas

... with instructions to attack active guns, troops, tanks, and targets of opportunity." According to the CSA at Saipan, "This plan worked with a large degree of success in that it definitely prevented the enemy from reinforcing the beaches, destroyed trucks and several tanks . . . and allowed a large part of the available aircraft to operate independently . . . during a period when communications facilities . . . were taxed to the limit." These patrols were continued after H-hour, "with the exception that no aircraft were allowed to make attacks in the general area where our troops were operating without specific instructions from CSA." These independent flights did not silence all artillery and mortar positions by any means, but some were destroyed and the aircraft kept others inactive by driving the gunners to cover.¹⁶

In addition to these patrols, which operated all of D-day, a heavy strike on the beaches and adjacent areas was mounted at H-hour minus 90 minutes. Naval gunfire was halted while 60 fighters, 51 dive bombers, and 54 torpedo bombers strafed and bombed. The bombs used were mostly 500-pounders, although, according to an AAF evaluation board report, "smaller bombs would have been adequate for the job and would have allowed better coverage of the area."¹⁷ Ground force commanders who had seen the results of both heavy and light bombs in earlier operations would not have agreed with this conclusion.

In the Marshalls operation, most of the supporting fire covering the landing craft on their way in to the beach had been provided by field artillery mounted on islets adjacent to the objective. This was not possible at Saipan, so an air strike was substituted. A strafing and rocket attack by 48 fighters and 24 torpedo bombers began when the landing craft were 800 yards from shore, and bullets and

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rockets continued to pelt the beach until the boats were only 100 yards away; then pilots switched their point of aim 100 yards inland and continued to fire until the first boat reached the beach.¹⁸

The results of the preparatory and D-day bombardment of Saipan were distinctly disappointing. Despite the great number of bombing, strafing, and rocket attacks made by aircraft, and despite the intensive naval bombardment, Japanese mortars, machine guns, and even artillery opened up when the landing craft passed the reefs on their way in to the beaches. Naval gunfire had failed to take out such weapons within 1,000 yards of the beach line, and support aircraft had failed to silence guns farther inland. Because of the failure of preparatory fire, casualties to the marines during the first two days of the operation were much higher than expected, reaching the tremendous total of 4,000 men.¹⁹

Accounting for the failure of preparatory bombardment at Saipan when it had succeeded in the Marshalls and was to succeed again at Tinian and Guam is not easy. The lack of artillery for troop support certainly must have been an important factor, but no artillery was used before the landings on Guam either. At Guam, however, unlike Saipan, there was a carefully prepared target chart, kept up to date throughout the action. In comparison, the air bombardment at Saipan was somewhat haphazard.

The amount of air support available at Saipan was perhaps more than GSA could handle effectively without a list of targets with assigned priorities. The fact that flights were ordered to attack targets of

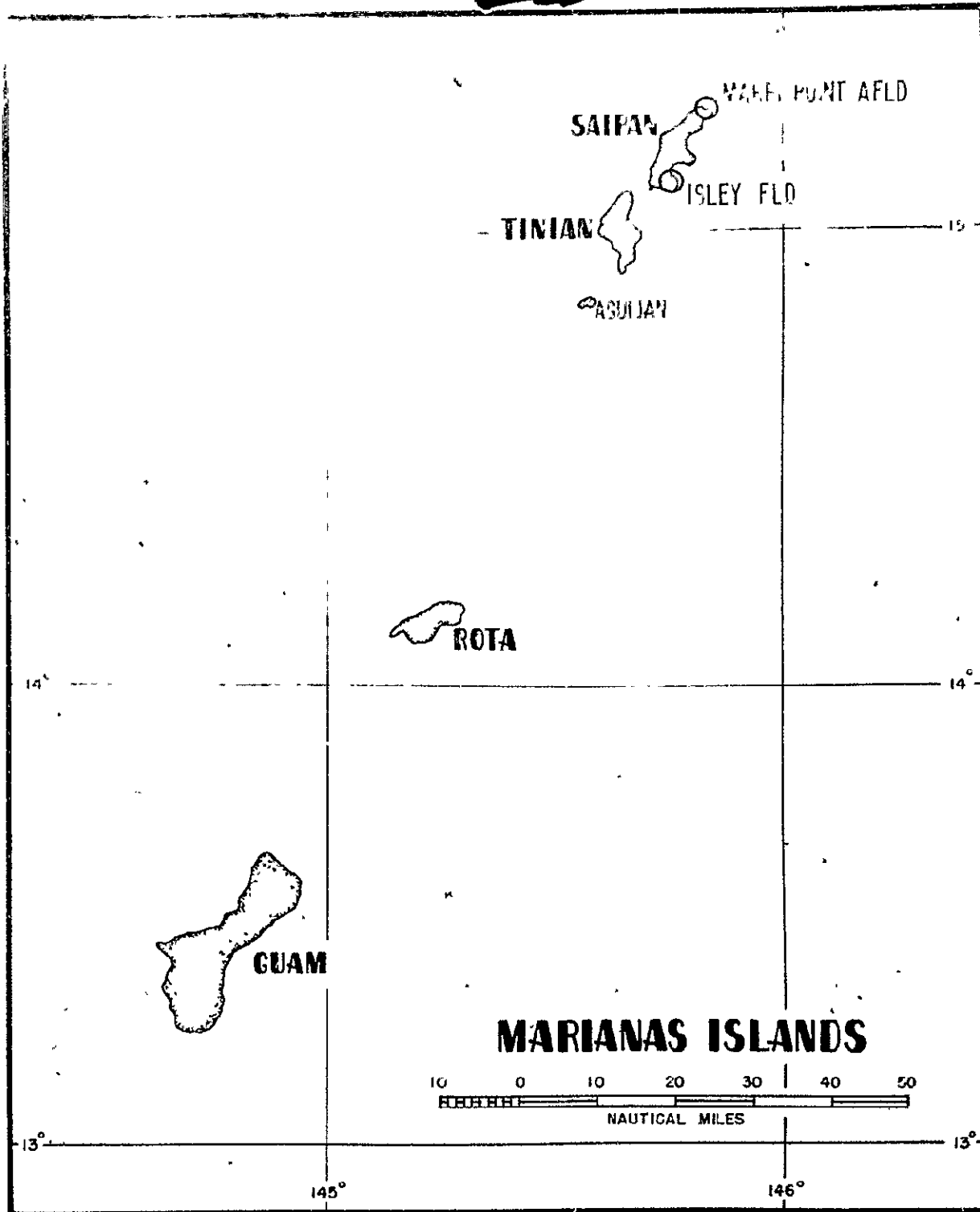
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opportunity consistently on D-day at a time when enemy mortars and artillery were taking a terrific toll of the assault troops would certainly indicate that CSA could not effectively control all the support aircraft he had available. Had he been able to do so, he would surely have been using all the planes in the air to strike the guns and mortars firing on the beachhead.

Close support during the assault phase at Saipan was as unsatisfactory as the preparatory bombardment. The dissatisfaction of the ground troops seems to have stemmed from the delays of an hour or more between requests and the execution of the mission rather than from failure to hit the target. But such delays were inevitable. During the first few days of the operation, before artillery was fully established ashore, CSA frequently had to deal with as many as 12 urgent requests at a time. Yet the fighting was still limited to a small area, so only one strike at a time could be carried out. Ground force commanders advocated that in the interests of speed such strikes be directed by the ALP's, but air liaison personnel were not sufficiently skilled to perform such duties with safety to ground troops in the area. It seems likely that allowing ALP's to direct missions would have consumed even more time, with a consequently increased time lag between request and execution.

A landing force commander support aircraft (LFCSA) and party went ashore at Saipan with the landing force commander. This officer was provided with equipment for controlling strikes, so he could serve as a relief CSA. He did control a few missions, but his main function was coordination of air support with corps artillery and liaison between the landing force commander and CSA.

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One of the chief difficulties in air support during the first few days of the operation was the exceedingly large number of stations on the SAR net. When all three divisions were ashore, 41 ALP's were on this net; in addition to the ALP's, CSA, stand-by CSA, LFCSA, and the carrier commanders also received and transmitted on SAR circuit. To make confusion worse confounded, the transmissions of the carrier commanders, even when purely administrative, had priority over all other traffic.

Small wonder, then, though it may have meant additional delay, that CSA set up a "filter officer" in his headquarters, with the duty of screening requests before they were passed on to CSA. The harried commander was also no doubt gratified when regimental and division command posts were established ashore and began serving as additional "filters." While the establishment of these links in the chain of command undoubtedly served to delay the execution of requested missions, there can be little question that it also served to prevent bombing of friendly troops, and it is probable that it increased the effectiveness of the strikes actually delivered.

Once artillery had been established ashore, the need for close support was greatly reduced. Thereafter, targets on or near the front line were struck by aircraft only when they were not vulnerable to artillery or naval gunfire. Targets requiring air action were usually on the reverse slopes of ridges, but all such locations were not of necessity air targets, because ships could often maneuver into a position offshore from which they would bring reverse slope positions

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under fire. Artillery was established ashore none too soon, because on 18 June the fast carriers had to withdraw from Saipan in order to fight in the Battle of the Philippine Sea, and air support such as had been given during the first two days of the operation would not have been possible from the CVE's alone.²⁰

Aslito airfield, soon to be renamed Isley Field, was captured on 18 June, and work began immediately to put it in condition to serve as a base for fighter aircraft. The runway was ready by 22 June, when P-47's of the 19th Fighter Squadron, 318th Fighter Group, were launched from CVE's and flew in to land. Other planes of the 318th Group arrived in the same manner, and by 24 June there were 73 P-47's on Saipan.

The primary responsibility of these AAF fighters was defensive cover of Saipan, and most of their effort during June was devoted to CAP. The P-47's were available for close support, however, and reported in to CSA upon completion of their patrols. Usually they were ordered to strike targets on Tinian, or Marpi Point airfield on Saipan, but twice before the end of June the Thunderbolts strafed Japanese troop concentrations.

Between 1 and 7 July Army planes flew more close support missions. Four of the land-based fighters hit a troop concentration on 1 July after artillery had marked the target with smoke. Four other P-47's, whose pilots were gratified by seeing a smoke shell burst on their target within 30 seconds of their asking for it, struck a position opposing a ground force advance on 1 July, and the pilots saw enemy soldiers

running for cover. A strike against Japanese troops in a ravine on 3 July was extremely successful. The ground forces reported finding 1,000 enemy dead in the ravine, many of whom had been killed by strafing. About one-third of the P-47 missions flown on Saipan during July were in close support of the ground forces.

The ground forces were nevertheless not pleased with the support they received from the 318th Fighter Group. On 28 June, one pilot who thought a mortar flash was a target marker fired rockets into friendly positions, killing and wounding several men. This incident, and the fact that the Army pilots were not trained in close support, led the CSA and the air coordinator to require dry runs over the target before expending ammunition. This practice made even more acute that chronic subject of complaint by CENFAC ground commanders, the time lag between request and execution of close support missions.

The ordnance used by the P-47's did not add to the quality of their close support. The 4.5-inch rocket with which AAF planes were equipped at this time was neither reliable nor accurate. Only delayed-action fuzes were available for the 500-lb. bombs used by the P-47's, and much better dive-bombing results could have been obtained with instantaneous fuzes. Nor was this all; bomb shackles functioned poorly, presumably because of dust and primitive maintenance conditions at the airfield. Hung bombs and late releases were not uncommon, and for a time, after a plane and pilot were destroyed by a hung bomb which exploded when the plane landed, the P-47's were restricted to strafing.²¹

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A report by the 295th JASCO, which served with the 27th Infantry Division on Saipan, agrees with other sources as to the greatest deficiency of air support--the delay between request and execution. During the operation, the ALP's of this unit requested 115 missions for the 27th Division. Half of these requests were for observation missions, but more close support would have been requested had the air liaison officers (ALO's) not known that no aircraft were available. Ten requests were made from division, 28 from regiments, and 77 from battalions. Thirty-nine of these requests were disapproved: 20 because planes were not available, 15 because the target was too near friendly troops, 2 because artillery would not cease firing, and 2 for unknown reasons.

Since battalion ALP's were not allowed to direct close support missions, members of the air liaison section of the 295th JASCO felt that the carrying of radio equipment for use on the SAD net was an unnecessary burden. Also, after artillery was set up ashore, battalion ALP's were believed unnecessary, for air liaison work could be carried on just as well by the regimental and division parties.²²

Despite the prevalent dissatisfaction, operations on Saipan showed considerable advances in close support techniques. Fluorescent panels, which pilots found easier to see, were used to mark the front lines. Smoke shells were found to be the most easily visible means of marking targets, but the prevalence of smoke of many kinds on a battlefield made it necessary for the support planes to be in direct communication with an ALP or other control which could call out on the instant of impact of the smoke shell. An air target map "adequate to guide the

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pilot to the general area of the target but . . . not sufficient to pinpoint a target" was in the hands of pilots, infantry, artillery, and naval gunners.²³

The time lag of which the ground forces complained was, it must be repeated, unavoidable. It was essential, when three infantry divisions were operating on a small island, to have planes under control at all times. To achieve this control, the chain of command mentioned earlier was indispensable, despite the delays it caused. The necessity for coordinating air strikes with artillery and naval gunfire resulted in further delays. In practice, not much difficulty was encountered in coordinating air effort with naval gunfire, since CSA was located on the flagship, but artillery posed a more complicated problem, and artillery fire, with its high trajectory, was a greater danger to aircraft than was naval gunfire. There was room for improvements in this field; the ground force commander at Saipan suggested that control facilities for support aircraft and corps artillery set up adjacent headquarters ashore. The necessity for dry runs over close support targets was another delaying factor, but one which few front-line commanders would have done without; even with all the precautions taken, bombs, bullets, and rockets sometimes hit friendly positions.²⁴

When Saipan was secured, and well before mopping up was concluded, attention was turned to neighboring Tinian. Some bombs and shells had been directed at this island from the beginning, but not until 11 July was a major part of the air effort in the Marianas devoted to troop concentrations and coastal defense guns on Tinian; after that date the bombardment continued until the island was in Allied hands.

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If for no other reason, Tinian was an important milestone in the Pacific war because napalm tanks, dropped by Saipan-based P-47's, were first used there. These tanks were initially dropped on 22 and 23 July, the days immediately preceding the landings, and proved to be superior to any incendiary agent previously used against sugar cane and undergrowth, and fairly effective against troops in foxholes and trenches. Napalm was not an important weapon in this campaign, however. The supply was limited, and carrier commanders had an understandable aversion to mixing the highly inflammable agent aboard their vessels.²⁵

Tinian was seized by a shore-to-shore movement from Saipan, beginning on 24 July 1944. The preparatory bombardment had been more effective than at Saipan, mainly because more time was available for the compilation of target data, striking the targets, and keeping their status up to date. Even so, when "Batteries of 4 to 5 guns, clearly visible from the air" were bombed several times by flights of six to eight bombers, "Photographs later showed that in most instances only a few of the guns had been hit and definitely knocked out." This was true despite the fact that the attacks were made under extremely favorable conditions.²⁶

Since the landings on Tinian could be supported by artillery firing from Saipan, air support of the assault was not so crucial as had been the case in the first Marianas operation. Even so, 224 sorties by planes from Isley Field and the CVE's supplemented the bombardment from 156 pieces of field artillery and from 3 battleships, 6 cruisers, 16 destroyers, and 30 gunboats. The Army planes, in addition to flying a majority of the bombing and strafing sorties, guided the assault boats into the narrow beaches $3\frac{1}{2}$ miles from Saipan. Soon after the

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beachhead was established, 27 P-47's used 500-lb. bombs and their machine guns to silence mortars firing into the beachhead.²⁷

Close support was more important after the assault phase was over, especially so since the rapid advance of the marines soon carried the front lines beyond effective range of the artillery emplaced on Saipan. Aircraft over Tinian could also do effective work interdicting the battlefield, since the Japanese defenders had been caught out of position. An average of 175 sorties a day from CVE's and Saipan was flown during the remaining days of July. On 26 July, for example, 124 P-47 sorties and a strike by a squadron of B-25's aided the ground forces. On several mornings, air strikes were used in lieu of artillery for preparatory bombardment before an infantry advance. By 31 July, the defenders had been driven into a last-ditch position at the southern end of the island, and naval guns and artillery ceased fire for an hour while approximately 125 P-47's, B-25's, and TBF's dropped 69 tons of bombs into the constricted area. "The results were more than satisfying. Prisoners of war later reported . . . the attacks . . . [to be] almost unbearable. Great strips of land were blasted clear of underbrush, and the smoke and concussion blinded and confused the defenders. There can be no doubt that . . . this mass bombing contributed signally to the final destruction of the Japanese defenses."²⁸

The control system used at Tinian differed from that employed earlier. In addition to the CSA aboard the flagship, in this instance, the Gambria, a subordinate CSA ashore was stationed at Isley Field on Saipan to control and coordinate the efforts of the Army aircraft there.

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The air coordinators and ALP's functioned in the same manner as on Saipan. No fault was found with the control system, but Marine Corps commanders renewed their plea that the ALP's be allowed to control missions in support of the units to which they were attached.

The communications system was the same as had been employed at Saipan. Since the number of troops engaged and the amount of air support were not as great as in the earlier Marianas operation, the SAR net was normally not overburdened. However, several breakdowns of equipment aboard the Cambria and the practice of shutting down the SAR net while CSA directed strikes were reported to have greatly hampered ALP's in their endeavors to get requests through. The complaint was also made that CSA, in granting requests, paid little attention to the order in which they had been received, thus leaving ground troops uncertain as to whether they should wait for air support or go on without it.

The most common complaint of ground commanders on Tinian was again the length of the interval between requests for air strikes and their execution. They felt that an hour was entirely too long to wait for close support strikes. When air alert planes were actually overhead awaiting assignment, the average time elapsed was only 30 minutes, and this was sometimes cut to 15 minutes. On the other hand, when planes had to be called up from Isley Field or the CVE's, something more than an hour was required to put bombs on the target. The history of later operations was to demonstrate that this last interval was an almost

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irreducible minimum if the planes were to remain under centralized control.

The problem of coordination of air support with artillery was still very much unsolved. The requesting ALP was responsible for securing, through ground force commanders, the cooperation of the artillery. Too many times on Tinian

the air liaison party requested an air strike be sent in to attack a certain target on a close support mission. Assurance was given by the ALP that gunfire and artillery would stop in that area for the strike. After briefing the pilots (by radio) and setting up the entire strike, it was found that the artillery could not be stopped and the air strike had to be cancelled.

Again it was suggested that air, naval gunfire, and artillery officers work as a unit ashore "and decide just which weapon would be used on the target under consideration."²⁹

The assault on Guam was delayed by the unexpectedly heavy resistance at Saipan. The delay had a brighter side, however, because it permitted a more thorough prelanding bombardment. Systematic attacks on known targets began on 5 July 1944, and on 14 July the intensity of the bombardment was increased to a high level which was maintained until troops went ashore. By keeping up-to-date target charts and maintaining a file on the current status of the targets, the directors of the prelanding naval and air bombardment eliminated in advance many positions which planes, naval guns, or artillery would otherwise have had to destroy after the troops were ashore.³⁰

Air support control organization for Guam was of the type made familiar by preceding operations. The CSA was also air operations

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officer on the staff of the attack force commander, which resulted in increased centralization of control of support aircraft and made it easier for CSA, already a member of the staff, to coordinate air support with other activities of the attack force. CSA was provided with two communications units, known as air support control parties, by Commander Support Aircraft, Pacific, so that one party could be assigned to the stand-by flagship.

The ALP organization was similar to that used earlier in the Marianas, and the air coordinator carried out his normal functions. The LFCSA, who had been little more than a liaison officer with the landing force commander in previous operations, assumed new importance on Guam. The stand-by GSA afloat, a Marine officer, set up an improvised LFCSA unit early in the operation with officers drawn from ship-based parties and communications personnel from the landing force. By 2 August another Marine officer, Col. Frank Croft, had become LFCSA and, with an augmented party, directed all close support missions until the end of the operation.³¹

Communications nets were the same as for the other Marianas invasions. As at Saipan, the large number of stations on the SAR net caused congestion and the solution adopted was for ALP's with battalions to submit their requests to regimental ALP's for approval and transmission to GSA. This cut down traffic on the SAR net to a point at which it could be efficiently handled.³²

Probably the most important advance in technique of the Guam campaign was Plan Victor, a means whereby simultaneous air and naval

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gunfire bombardment of the same target or target area was made possible. When it was desired to use both of these supporting arms on a target, both parties were notified to put Plan Victor into effect. Naval guns were thereby restricted to trajectories under 1,200 feet, and supporting aircraft were not permitted to descend below 1,500 feet. Because naval gunfire had a flat trajectory as compared with artillery, Plan Victor did not greatly reduce the weight of shells falling into a target, and it did not interfere with dive or horizontal bombing at all. High-angle strafing was possible under the plan, but it was still necessary to halt naval gunfire if aircraft were needed to make low-altitude strafing or skip-bombing attacks. It was recommended after the operation that a careful study be made to determine whether some similar plan could not be devised to insure coordination of artillery with support aircraft.

In one respect the techniques of air support at Guam as in the other Marianas operations were far behind developments in SWPA. Pilots were provided with a book of gridded maps, the scale of which "was entirely too small to permit accurate pinpointing and orientation by ALP's, pilots, and CSA. Furthermore, "The details, particularly road locations and their configurations, were inaccurately located, wooded areas were not clearly shown, and tended to further confuse . . ." No gridded chart of the entire island was available, so pilots had considerable trouble in locating targets described to them by coordinates. "A folder of good aerial photographs of important areas with an arbitrary grid superimposed on them . . . would be of great assistance

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to the pilots and to CSA," stated the action report. Such grided photographs had been in use in SWPA for more than a year.³⁴

The preplanned D-day strikes on Guam were well conceived and executed. Throughout the day a roving patrol ranged over the hills inland from the beaches but within mortar and artillery range. These patrols were instructed to strike any guns or mortar positions discovered which opened fire, or could open fire, on the assault troops. In the event, it was discovered that if any such positions had existed, they had been destroyed by the preliminary bombardment. The roving patrol was diverted by CSA to strike targets discovered by the air coordinator or air observer.

At 0715 on 21 July and for an hour thereafter, 312 aircraft from 3 fast carrier groups struck the western side of Guam, dropping 124 tons of bombs. Naval gunfire continued during this time under Plan Victor. When the boats carrying the assault troops were 1,200 yards from shore, the air observer over each beach released parachute flares as a signal for the naval gunners to lift their fire to points inland from the beach. While the landing craft drew nearer, 32 fighters dropped instantaneously fuzed depth charges on each beach and then strafed until the boats were near the shore. Twelve other fighters then took up the strafing and continued until the assault troops were actually on shore. While the marines were establishing their perimeter, 24 fighters with rockets and machine guns and 24 torpedo bombers loaded with 100-lb. bombs made a concentrated attack on the area 1,500 to 2,500 yards inland from the beaches. Approaches for

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all these strikes, directed by the air coordinator, were made parallel to the beach.

For the remainder of 21 July three zones north, south, and east of the beachhead were declared open to bombing of targets of opportunity; thus no planes had to leave Guam without expending their ammunition. For direct support of troops, an air support group composed of 16 fighters, 12 dive bombers, and 9 torpedo bombers reported to CSA every 90 minutes. Additional support was available from fighters relieved from CAP and from TBF's returning from antisubmarine patrol. The use of the latter was soon discontinued, however, because the length of time required to effect a rendezvous threatened to disrupt the landing schedule of the carriers.

An elaborate chart of the objective area, showing targets, orbit points, etc., aided CSA in keeping track of the aircraft under his direction by means of "geographical bookkeeping." Every flight reporting in was positioned on the plastic-covered chart in grease pencil, with a block legend showing time of arrival, time over target, and time of departure.

Marines going ashore on Guam met some scattered mortar and artillery fire, but of so sporadic and intermittent a nature that if was no real obstacle to successful landings, though it did inflict some casualties. After noon of D-day, the Japanese began a more effective fire from Fonte Ridge, but this was soon silenced by air strikes. Guam was still to be the scene of heavy fighting, and marines

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and infantrymen were to sustain many casualties, but there was no punishment on the beaches like that undergone at Saipan. For this gratifying state of affairs the preliminary bombardment and the highly coordinated air strikes and naval gunfire on the day of the landing must receive credit. Once troops and artillery were established ashore, the fate of the defenders was sealed.³⁵

There was an attempt on Guam to provide closer support of ground troops than had been the case in previous CENPAC operations. Bombs were sometimes dropped within 100 yards of friendly lines. Between 21 July and 1 August inclusive, the ground forces made 109 requests for close support, of which 88 were granted. These strikes expended almost 500 tons of bombs in addition to rockets and machine-gun ammunition. All of the strike groups reporting on station could not be used for close support, so their number was reduced on D plus 2, and even then some groups were sent to strike other targets.

Close support at a very short distance from ground troops was found to be time-consuming; first it was necessary for CSA to determine whether the mission could be executed without unacceptable danger to friendly troops, and this frequently necessitated consulting the corps operations and air officers. To avoid danger to the pilots, it was essential that the strike be coordinated with naval gunfire and artillery. As in other operations, it was the coordination with artillery which proved difficult. During the early stages at Guam, this was accomplished by consultation with the division ALP on the SAR net, care being taken to make certain that corps artillery plans were also known. After

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LFCSA was set up ashore, he maintained liaison with all artillery through corps artillery headquarters and thus facilitated coordination. But even after artillery and naval gunfire coordination had been achieved, it was still necessary to instruct pilots and the air coordinator very carefully as to the target, location of friendly troops, and method and direction of attack.

When all this had been accomplished, execution of the mission could begin, but this also took time. The usual procedure was for the air coordinator to make a dry run while the ALO watched to see that he was aiming at the correct target. Sometimes he had to make several such dry runs before the ALO was satisfied. Once the target was definitely located, the air coordinator made a live run, dropping a 100-lb. practice bomb or firing a burst of tracer into the target, thus identifying it for the strike pilots. If the ALO on the ground was satisfied with the accuracy of the live run, the coordinator then led in the strike planes, one at a time, to deliver the attack.

Sometimes, after LFCSA was well established ashore, the complete direction of close support strikes was turned over to the ALP, but since the same precautions were necessary, little if any time was saved thereby. CSA reported that the time required to execute a close support strike made it inadvisable to use aircraft which could not remain on station for at least an hour after being assigned the mission. Even then, not more than eight planes could be used.

By turning one flight over to the air coordinator and another to an ALP, CSA could conduct two close support strikes at the same time

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if the targets were far enough apart. The number of SAD frequencies available limited the number of such simultaneous strikes if other restrictions such as lack of air space did not make themselves felt first. CSA suggested that more SAD frequencies be made available for large-scale operations. On Guam the regulation SAD HF frequency and the SAD-Emergency VHF frequency were used.

CSA could have speeded up close support strikes on Guam by eliminating some of the above precautions. Ground force commanders, who as usual complained of the time lag between request and execution, might have approved the omission. However, the 21st Marines suffered casualties from friendly planes on 24 July, the 3d Marine Division command post was strafed in one instance, and the 305th Infantry atop Mount Tenjo was bombed and strafed on 28 July. Such accidents could not be wholly prevented in close support operations--several times on Guam the 77th Infantry Division suffered men killed and wounded by friendly artillery fire--but their occurrence did not argue for a relaxation of the precautions taken.³⁶

The planes used for close support at Guam were mainly Navy fighters and torpedo bombers. P-47's and B-25's from Saipan flew down to strike targets on Guam, but most of their missions were against points well removed from friendly troops. Three Marine fighter squadrons arrived on the island on 4 August, but by that time the backbone of Japanese resistance had been broken and calls for close support were few. The Navy fighters were often armed with 500-lb. bombs, but strafing was considered their most effective tactic. TBF's were usually armed with

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rockets for close support work, and they carried 100-lb. bombs fuzed for five-to-eight second delay. The commander of the 1st Provisional Marine Brigade on Guam asserted that the accuracy of the fighters was so poor that their close support work should be limited to strafing.³⁷

Comments by ground commanders, and by historians who have relied upon Marine Corps records, give the impression that close air support on Guam left much to be desired. This may well have been correct, but had the ground troops on Guam been the same units, with the same commanders, that fought on Saipan and Tinian, it is probable that their comments would have reflected the improvements in close support that had taken place. All other evidence indicates that air support on Guam was the best up to that time in the Central Pacific campaign.

Comments by Marine Corps commanders almost inevitably closed with the recommendation that Marine aircraft be provided to furnish close support for Marine ground units. This was a normal and understandable desire, but when these commanders went on to say that Marine pilots could give better close support, they were merely speculating. In mid-1944, Marine air units had had little experience in close support, and there was no reason to expect them to do better work than Army or Navy units which had had such experience. While Marine pilots were to carry out excellent close support missions in later operations in Palau, the Philippines, and on Okinawa, Army and Navy airmen showed equal proficiency.

A similar lack of realism was detectable in Marine commanders' insistence that air liaison parties be allowed to direct all close

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support strikes. Some parties on Guam were able to direct strikes well, but only under close supervision by CSA or LFGSA. Otherwise the ALP attached to one unit might well have directed planes against targets which were too near the line of an adjacent unit for safety. III Amphibious Corps found it necessary during the Guam operation to order that subordinate units clear through corps or with adjacent units before placing air strikes, naval gunfire, or artillery fire near unit boundaries.

What ground commanders desired, of course, was that strikes against targets near their front lines be directed from the front lines themselves. Unfortunately, the ALP's on the whole were not to reach a point in training and experience which would qualify them for such work before the end of the war. However, the problem of front-line direction of critical strikes was to be solved, as will be seen, by sending teams forward from LFGSA to direct specific missions.

No action could be taken, however, to abate the remaining chronic complaint of the ground forces, the time lag between support requests and their execution. A few minutes might be shaved off the time lag here and there, but if adequate control was to be exercised, an average delay of from 30 minutes to an hour was unavoidable. The ground forces would have been the first to complain had less rigid control led to more frequent instances of casualties to friendly troops from mis-directed air strikes.³⁸

Close Air Support in the Palaus

Before the advance toward Japan was renewed, CENPAC forces were diverted to the south, to Palau. This invasion, taking place at the

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same time SWPA forces went into Morotai, completed the isolation of Truk, protected the right flank of northward-moving SWPA arms, and provided an air base for bombing the Philippines. In addition, it made possible the use of Ulithi atoll, northeast of Palau, as the major naval base in the western Pacific. It brought about, also, some of the hardest ground fighting of the war.

The Palaus are a group of small islands located roughly 7° above the equator in the western Pacific. Extending about 125 miles from Babelthup, the largest and northernmost of the group, to Angaur in the south, they are approximately 525 miles north of Biak, 625 miles east of Mindanao, and 850 miles southwest of Guam. The three southernmost islands of the group, Peleliu, Ngesebus, and Angaur, were selected for the invasion, with Peleliu as the first objective.

Fast carrier aircraft began a sporadic bombardment of Peleliu on 6 September 1944, and reported that the island had already taken a beating from SWPA-based B-24's. The regular preliminary naval and air bombardment by ships and CVE-based planes of the attack force began on 12 September and continued through the 14th. Troops of the 1st Marine Division went ashore at 0830 on 15 September.

The air support control system for Peleliu was that which had become normal for CENPAC operations. A 50-plane attack on gun positions and other installations on or near the beaches was concluded at H-hour minus 25 minutes, having been executed under Plan Victor without interfering with naval gunfire. Then, as the landing craft approached the beach, 48 fighters strafed, moving their points of aim inland as the

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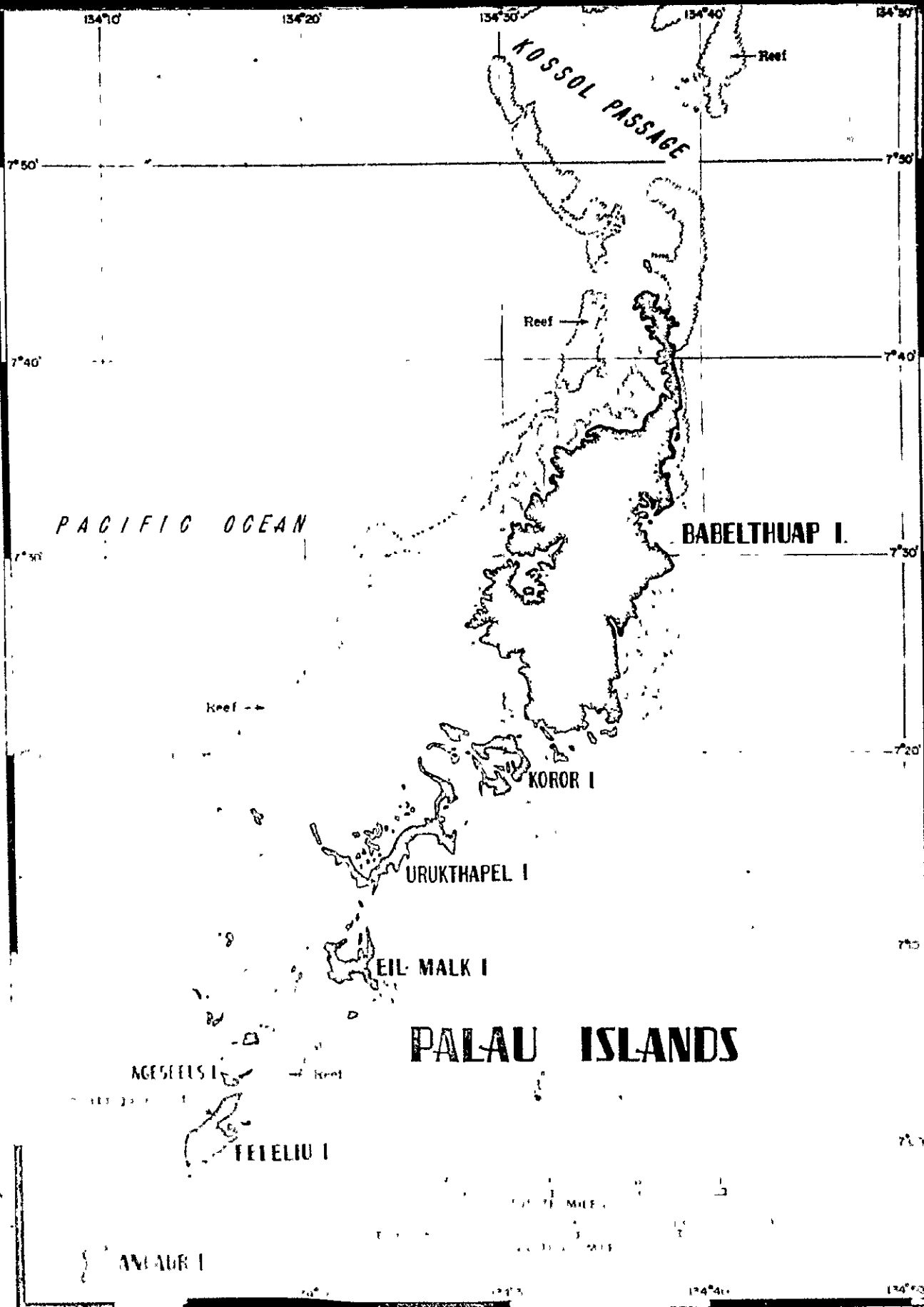
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troops neared the shore. The same procedure, on a lesser scale, was followed two days later when the 81st Infantry Division went ashore at Angaur.

The preliminary and D-day bombardment enabled the assault troops to establish themselves ashore, but they met fierce opposition and suffered relatively heavy casualties in so doing. The Japanese were able to withdraw into the interior of the island, where, restricted though the area was, they were able to hold out for almost 2½ months. AAF observers who watched the assault felt that the air phase was lacking in aggressiveness; planes made their runs at high speed, even though there was little or no antiaircraft fire. Strafing in conjunction with naval gunfire was of necessity from steep angles and concluded at 1,500 feet or above, but the observers felt that the opening bursts from as high as 5,000 feet were wasted ammunition. Napalm, which was used, was dropped from altitudes of 300 feet or more, thus detracting from accuracy and failing to give the best possible pattern for the incendiary mix.³⁹

CSA controlled air support until 28 September, when the CVE's left the Palaus. The Navy made a half-hearted attempt to set up an LFCSA to establish liaison with the airfield when it was captured, so as to provide the landing force commander with a medium for expressing his desires on close support, and to control strikes to a limited extent. The LFCSA headquarters, "consisting of one radio DUKW [an amphibian truck], one naval aviator of the grade of lieutenant, and three or four enlisted ratings," was a total failure. According to a Marine Corps source:⁴⁰

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The DUKW, sent ashore in the assault waves, was waterlogged and its radio put out of action; the lieutenant was shell shocked by a near miss The division staff in any event would have paid scant attention to so junior an air support commander, since rightly or wrongly professional competence in war is largely judged by insignia of rank.

Air support was widely used on Peleliu during the first few days of the operation, even though division headquarters instructed units to call for close support only against Japanese positions which could not be reached by artillery. "This would seem to indicate that front line troops who were in a better position to witness the accuracy of aerial bombing were more trustful of its efficiency and safety than rear echelons." After the first week of the operation most strikes were well in advance of the front lines until land-based planes arrived.⁴¹

Air support was not so popular among the infantrymen on Angaur as it was with the marines on Peleliu. A strike by Navy fighter planes helped check a Japanese counterattack on 18 September, but about noon on the same day six others bombed and strafed the 2d Battalion, 322d Infantry. This error was costly, killing 7 men and wounding 46 others, and it destroyed the troops' confidence in air support. The commander of the 81st Infantry Division ordered air attacks on Angaur stopped until further notice. Later in the battle, which ended only on 21 October, Marine planes were permitted to strike Japanese troops hemmed into the "Bowl" area, where the defenders made their final stand.⁴²

The airfield on Peleliu was captured on 16 September, and the first of three squadrons of Marine F4U's of Marine Air Group (MAG) 11 arrived

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on 24 September. These Corsairs were to provide close support for the long-drawn-out remainder of the operation. When the CVE's departed on 28 September, the commander of MAG-11 assumed control of close support. Battalion ALP's made their requests directly to him, but these requests were monitored by the division ALO, who broke in to reject them if the object of the mission could better be accomplished by naval gunfire or artillery. Such coordination as was necessary was accomplished at division headquarters.

The first important operation of the Marine squadrons in Palau was support of a shore-to-shore movement against Ngesebus Island on 28 September. This was the first instance since the beginning of the war when Marine planes gave the sole aerial support to a Marine landing. As might have been expected in view of the air units' lack of experience in such operations, the timing was faulty, so the landing craft made most of their run in to the beach without air support. The island was not strongly defended, however, and was quickly secured. The Corsairs received deserved praise for their bold and accurate execution of strafing attacks on Ngesebus.

When Ngesebus had fallen, the Palau campaign centered around the Umurbrogol Pocket in the center of Peleliu. Here the Japanese occupied an ideal defensive position, roughly 1,500 yards long and 500 yards wide, reminiscent of the Ibdi Pocket on Biak.

It was . . . a chaotic jumble of steep coral ridges, the tallest . . . about 300 feet high. There were innumerable caves . . . ranging from large caverns with small entrances to open shallow shelters big enough for only one man. Some caves extended through ridges; these and many others had two entrances, permitting the Japanese to move from one position to another without appearing above ground.

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In addition, the defenders had improved these natural caves and had dug artificial ones. At the beginning of the fighting these positions were concealed from view by heavy vegetation, but this was shot and burned away during the course of the fighting. This pocket was occupied on 27 September, by about 2,000 men.⁴³

Close air support was not a decisive factor in the reduction of the Umurbrogol Pocket. The marines and infantrymen, carrying sandbags to provide a modicum of shelter in their otherwise exposed positions under the dominating enemy-held ridges, deserve credit for the extermination of the Japanese on Peleliu, but the F4U's of MAG-11 were able to give considerable help, and they gave it well.

Air strikes against the pocket began on 29 September. Since the maps available were unreliable, squadron and battalion commanders made reconnaissance flights over the area to familiarize themselves with the terrain. In the two months to follow, that terrain was to become as familiar as the face seen in a mirror. In some respects the strikes were reminiscent of Guadalcanal, because the airfield was practically on the front lines. Flying time from the field to the enemy positions was only 15 seconds, and many pilots did not even bother to raise their landing gear.

For the earlier strikes the Corsairs carried 1,000-lb. bombs; there was little point to using anything smaller on the protected positions of the Japanese. Every precaution was taken by the pilots to avoid hitting their own men, and the ground troops marked their front lines with colored smoke grenades. The target area soon became so familiar

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that there was no need to mark targets. As the pocket was gradually reduced in size, the use of such heavy bombs became too dangerous for the surrounding Allied troops, and on 12 October the Corsairs began dropping fuel tanks filled with napalm.

These incendiary attacks, constant pounding by artillery, and constant pressure by the infantry gradually weakened the defenders, the area they held being continuously reduced. Nonetheless, every time the ground forces tried to move forward they met heavy resistance. Superior firepower was in itself not enough to rout fanatical Japanese from cave positions. Peleliu was a forecast of Iwo Jima, Okinawa, and the mountains of Luzon.

Before the battle was over, the Japanese-held area was so small that friendly troops were endangered when aircraft dropped fused napalm tanks, but even this did not halt air support. On 20 October the F4U's began delivering napalm without fuzes; when the target was covered with the incendiary mix, ground forces ignited it by firing white phosphorous shells from mortars.

The campaign on Peleliu dragged to its end in late November 1944. It was in many respects a mismanaged operation, and perhaps not even necessary. It did serve to demonstrate the nature of Japanese cave defenses, however, and enabled Marine pilots to gain close support experience which would be useful in the Philippines.⁴⁴

Circular Letter All1

The experience gained in amphibious operations led to the issuance, in October 1944, of Circular Letter All1, Support Aircraft--Organization,

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Training, and Operations, by Commander, Amphibious Forces, United States Pacific Fleet. This letter amounted to a directive on air support organization and procedures. Air support of amphibious operations was divided into three types: planes based at a distance which protected the fleet, performed reconnaissance, and struck the objective before the assault; planes, no matter where based, which had local tasks protecting friendly ships and troops "while . . . enroute to and at the objective" against counterattack by enemy ships and aircraft; and planes "which [had] local tasks against enemy units on shore . . . during the time the assault and occupation phases of the operation [were] in progress."

Command of planes in the first category was to be exercised by the commander of the base or carrier on which they were stationed, but planes of the second two categories were to be commanded by the attack force commander through a commander air support control unit (CASCU) during the assault phase. This CASCU was comparable to the CSA of previous operations. Air support control units (ASCU's) of the Pacific Fleet were a permanent part of the Amphibious Forces, and were under a Commander Air Support Control Units, Amphibious Forces, United States Pacific Fleet. These ASCU's included "the parties attached to the command and relief command flagships" of attack forces, and "the control units attached to the Commanders Landing Force."

Security missions by support aircraft--that is, CAP, antisubmarine patrol, and reconnaissance of sea areas--were to remain under CASCU until the naval attack force left the scene of operations. CASCU was

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also to control aircraft supporting the direct advance of troops during the assault phase of an amphibious operation. Troop support missions during the occupation phase, "which begin when the task was no longer that of landing troops but became that of reducing the enemy by the effort of the troops ashore," were to be turned over to the commander of the landing force "after he had been established ashore and the Commander Landing Force Air Support Control Unit (LFASCU) was ashore and ready to function."

The naval support aircraft organization, then, was headed by Commander Air Support Control Units, Amphibious Forces, Pacific Fleet. He advised the commander of the Amphibious Forces on support aircraft operations, supervised training of ASCU's, and was responsible for their organization and assignment. At the next lower echelon came the commander of the ASCU of a joint expeditionary force who was responsible for the preparation of general air support plans, for the organization and training of ASCU's for the expedition and for general supervision of operations.

But it was CASCU for the naval attack force, next in the chain of command, who would actually direct aircraft during an assault. Embarked in the flagship of the attack force, he was responsible for detailed air support plans, and for supervision and training of ASCU's and of support aircraft assigned to the attack force. Under him there might be an advanced CASCU, who from one of the ships in the bombardment group controlled support aircraft during the preliminary bombardment of the objective until the flagship with the CASCU aboard arrived on

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the scene. He was also over the LFASCU--who frequently functioned as stand-by attack force CASCU during the assault--the ASCU's proper, fighter director teams, air coordinators, flight leaders, and airborne observers. While not technically part of the control organization, air liaison parties worked with it during training and operations. ALP's were, as usual, to be attached to battalions, regiments, and divisions, and the parties attached to higher echelons were to monitor requests from those attached to subordinate units in order that requests for air support, insofar as possible, would come through the "Senior Commander of the Landing Force operating in any particular area."

Circular Letter ALL1 gave detailed instructions for the operations of ASCU's and support aircraft. As the fruit of experience these instructions are worth noting. All units were expected to report any observations of military significance to CASCU without delay. In designating targets, all units were to give the name of the objective, the target-map sheet number, and then the numbers and letters of the coordinates of the target area--for instance, Guam, Sheet 6, Target Area 564 Able Baker. These designations were not to be coded unless so ordered.

CASCU was responsible for air defense through his fighter director officer, for antisubmarine patrol, for air-sea rescue, and for liaison with the attack force and landing force commanders and their staffs, especially for purposes of coordinating air, artillery, and naval gunfire, as well as for control of troop support aircraft. The stand-by CASCU was to be prepared to take over these functions if the

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flagship was disabled, or to direct aircraft if so instructed by CASCU. LFASCU was also to be ready to take over direction of support aircraft when so instructed by CASCU.

The air coordinator was an important figure in the control organization. It was essential that he be completely familiar with the plans, the tactical situation, and the location of the front lines. As the airborne representative of CASCU, he was to coordinate the operations of flights assigned to him. He was to specify the direction of approach and, on direction of CASCU, guide planes to their objective by "zooming the target or dropping smoke or live bombs. The drops or dummy runs of the air coordinator [were to] be adjusted by air liaison officers with the troops who [had] direct observation of the target . . . The Air Coordinator [would] in turn observe and adjust the drops of the flights ordered to attack the target."

The air observers for an operation were, whenever possible, to be embarked on the same carrier "to enable them to compare information and insure regular reliefs and continuity of information." Their primary function, of course, was to observe and report on activities on the ground. They were to be transported in torpedo bombers, and pilots were to carry out the observers' requests "insofar as practicable without taking undue risks."

Air liaison officers had the primary duty of transmitting requests for air support from the landing force commander to CASCU. Requests were to include the following information: type of air support desired; target description; location of target by reference to target maps and,

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if possible, landmarks; time limits for the strike; location of friendly troops in relation to the target; and method of marking to be used for front lines and the target.

In large operations when the SAR net was crowded, ALP's with battalions were to send their requests to the regimental ALP for transmission, and some means other than the SAR net was to be used for such traffic. The ALO was to insure that targets were marked with white phosphorous smoke, and that the front lines were marked with colored smoke or fluorescent panels. He was also to be prepared to transmit on the SAD net in order to direct aircraft on to targets or to call them off when friendly troops might be endangered. Other duties of the ALO included reporting the results of missions to CASCUC, informing CASCUC of front-line changes, giving his unit landing force commander information received from the air observer, coordinating his activities with naval gunfire and artillery liaison officers at his unit command post, and indoctrinating troops in the necessity for removing panels when the front lines were moved forward.

All support aircraft, including relieved CAP and antisubmarine patrols (except planes equipped with secret detection devices), were to report in to CASCUC. They were to give the flight leader's voice call sign, the number and type of planes in the flight, their mission, the time available before they had to leave station, their armament, their location, and their altitude. In the air support plans for every operation several orbit or initial points 8 to 12 miles from the objective area were to be designated as stations for support planes to take while

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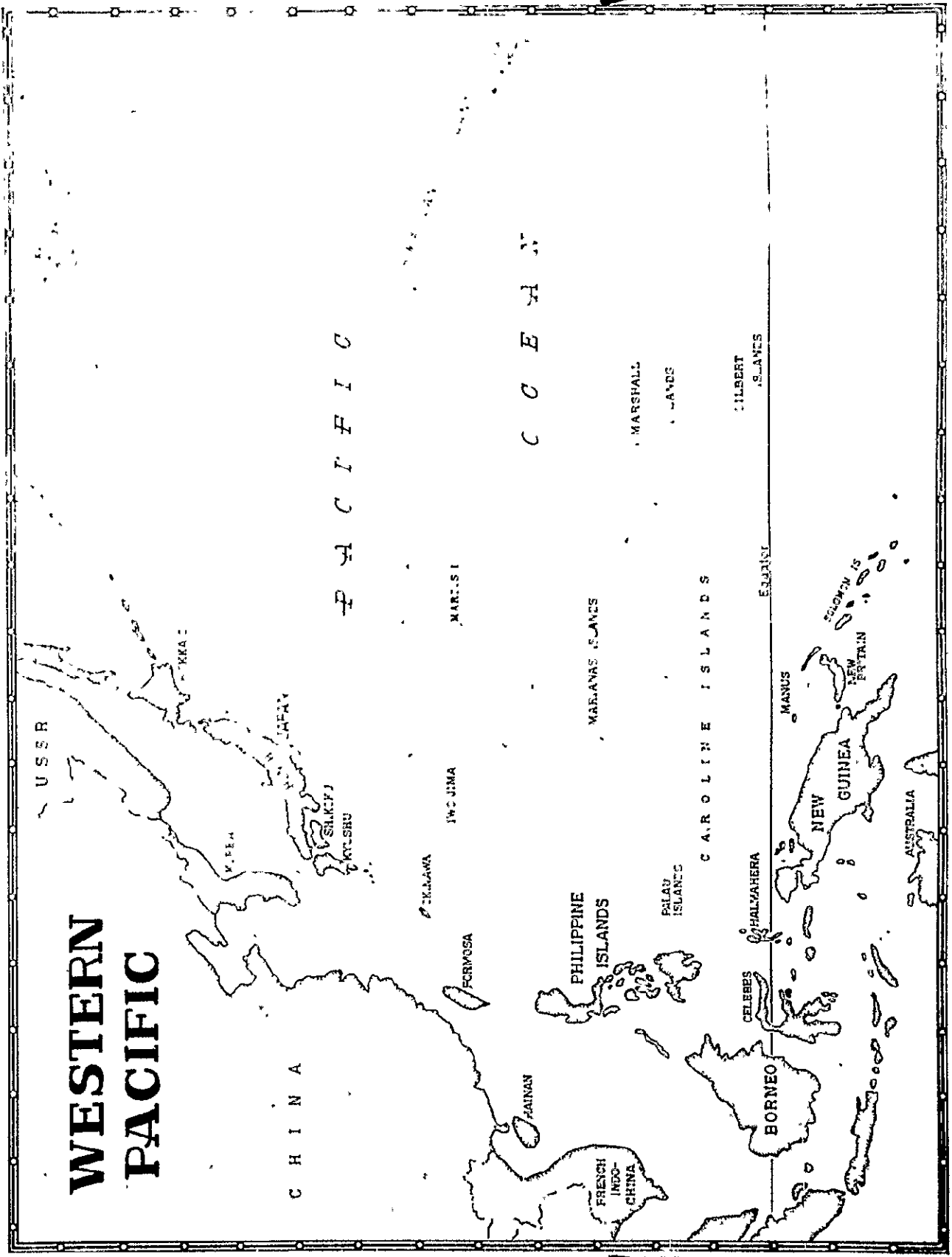
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reporting to and awaiting instructions from CASCU. Course rules were to be made for flight in the vicinity of the objective, and these rules were to be obeyed to the letter in order to avoid confusion.

All concerned were to remember the extreme importance of timing in close support strikes. "Troops might be using support aircraft to cover an advance. Attacks beyond a special time limit might hit our own forces."

It was essential that pilots know the location of the targets perfectly before attacking. "They must know that they will hit the target. Bombers must pull out without releasing and fighters must hold their fire if they are not on the target." Pilots were cautioned on the necessity of allowing for wind drift when bombing on the smoke or dust caused by bombs from a preceding plane, and all concerned were reminded of the importance of coordination in smoking targets. A dry run before the actual attack was considered advisable if there was any danger of hitting friendly troops. Aircrews were reminded also that planes should not fly over friendly shipping or in the line of fire of mortars and artillery, that more hits could be expected from dropping one bomb at a time than from dropping in trail, and that the speed and altitude necessary to arm the type of bomb carried should be maintained. Perhaps most important of all was the admonition that "Bombing and strafing . . . not be initiated except on order of Commander ASCU or those under his direction. There are no exceptions."

Circular Letter ALL1 specified 11 radio circuits for air support control, but of these only the familiar SAR, SAD, and SAD-Emergency



**WESTERN
PACIFIC**

C H I N A

U S S R

P H I L I P P I N E

C A R O L I N E

PHILIPPINE ISLANDS

PALAU ISLANDS

CELEBS

MALAYALAHERA

BORNEO

NEW GUINEA

AUSTRALIA

MARIANA ISLANDS

MARSHALL ISLANDS

LIBERT ISLANDS

C A R O L I N E ISLANDS

ESPAÑOL

MANUS

SOLOMON IS

NEW BRITAIN

FORMOSA

HAINAN

FRENCH INDO-CHINA

OKINAWA

IWOJIMA

MARTSI

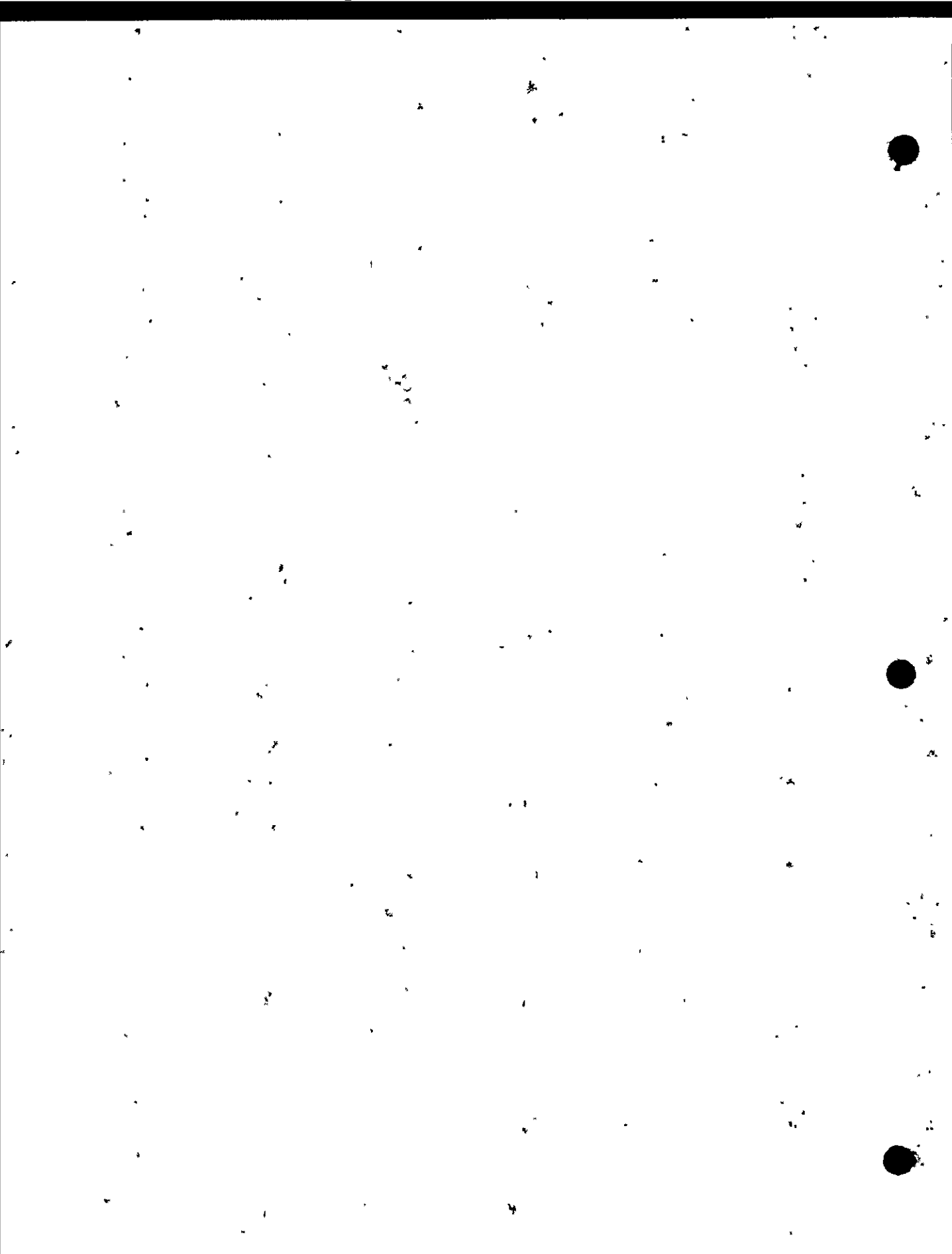
KAIASHU

SHANSHU

Y. PEH

JAPAN

KIAZ



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nets were important for troop support. It should be noted, however, that a new net, Inter-Commander Support Aircraft, later to be known as the Air Support Command Net, was provided for administrative traffic. Thus one cause for the overloading of the SAR circuit was to be avoided in future operations.⁴⁵

The Assault on Iwo Jima

Some 750 miles north of Saipan and 650 miles southeast of Tokyo lay Iwo Jima. This volcanic pinpoint, which had arisen from the sea early in the twentieth century, was made up of soft stone and black volcanic sand and ashes jumbled together in ridges and valleys seemingly without pattern. The terrain was ideal for defense, and the works of nature had been improved by the labors of the garrison. This pork-chop shaped island with a width of never more than 5,000 yards and a length of only 9,000 yards contained, in addition to countless natural and artificial caves, 65 coast defense guns, 35 heavy antiaircraft guns, 228 light antiaircraft guns, 46 blockhouses, 91 covered artillery and antitank guns, and some 450 pillboxes, all well camouflaged. Manning these formidable defenses were more than 20,000 Japanese, all of whom could take shelter underground during the preparatory bombardment. The troops' commander, Lt. Gen. Tadamichi Kuribayashi, was perhaps the ablest Japanese leader to face the Allies during the war.

Iwo Jima was dubbed the "inevitable island," because its capture was essential. Its airfields, which were immediately repaired whenever bombed, were a serious threat to B-29 bases in the Marianas.

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Moreover, the island lay on the route between the Marianas and Japan, thus forcing flights of B-29's to lose time and waste fuel avoiding it. In American hands it would serve as an emergency landing field for weary Superfortresses and as a base for long-range fighters which would escort the great bombers on daylight raids over Japan. It was fortunate that there were no more Iwo Jimas; for the first time since Bataan and Corregidor an American casualty was to be exacted for each Japanese life.

The preparatory bombardment of Iwo Jima might be said to have begun on 10 August 1944, when the first B-24 raid from Saipan was flown. Between that date and 15 February 1945, when the prelanding bombardment proper got under way, 9,616 tons of explosives had been expended on Iwo Jima: 5,582 tons by Seventh Air Force B-24's, 1,223 tons by B-29's of XXI Bomber Command, 2,405 by surface craft, and 406 by naval aircraft. This amounted to almost two tons of steel and TNT an acre, yet the Japanese were much stronger on 15 February 1945 than they had been on 10 August 1944. Apparently the chief effect of this long bombardment was to cause the garrison to build more and better defenses underground.⁴⁶

In the plans for air support on Iwo Jima, the need for more SAD frequencies was met by providing two VHF channels for primary use and an HF secondary channel. The elimination of the old SAD-Emergency VHF channel made the gain more apparent than real, however. SAR was restricted to one HF channel, but two air support command nets (formerly Inter-Commander Support Aircraft), one VHF and one HF, were available to handle administrative traffic, thus reducing the load on SAR.

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Forward lines were to be marked by 30 x 36-inch fluorescent panels: red to indicate the 5th Marine Division, yellow to indicate the 4th Marine Division, and alternate red and yellow to indicate the 3d Marine Division. Four men from each squad were to be selected to carry and display the panels. If further identification of front lines was requested by pilots, colored rifle grenades set to explode 600 feet in the air were to be used if available. Otherwise, ordinary colored smoke grenades were to be exploded on the ground. Two or more white phosphorous or colored smoke shells were to be used to mark targets, but only on request, and pilots were always to be notified of the exact time of impact of the smoke. The air coordinator was to carry red and green smoke canisters which were dropped by parachute; a red canister was to signal the end of an attack. For target marking, the air coordinator was to carry smoke rockets.

During operations after D-day (19 February 1945) there were to be, in addition to regular strike groups reporting at intervals throughout the day, a special "morning strike group" composed of 36 fighters, 18 dive bombers, and 18 torpedo bombers over the island at 0810. "The purpose of this strike was to make a coordinated attack on the enemy front line positions in order to provide maximum support to our troops as they begin their attack for the day." The air coordinator could break this group into smaller units if necessary.

To permit simultaneous naval gunfire and air bombardment, Plan Victor was to be put into effect in a limited area. Under this plan no trajectory over 1,100 feet was to be permitted within a circle of 2,500 yards' radius centering on the target, and aircraft attacking the target were to remain above 1,500 feet. When low-altitude air attacks were necessary, Plan Negat was to be used. No trajectories at

all, either of artillery, mortar, or naval gunfire, were to be allowed within a similar circle.

For coordinating air, naval, and ground fire during the assault phase of the Iwo Jima operation, representatives of corps artillery, naval gunfire, and CASCU were to work in the joint operations room of the flagship.

These officers would consider all requests for air support in relation to the restrictions imposed on other supporting fires, the effect on the efforts of adjacent units, and with a view to prevent/ing/ duplication of effort In addition these officers would take the necessary action to suspend or restrict other fires during the progress of the air support mission.

Artillery fire was to be called off by the representative of corps artillery over a radio net common to all artillery units. Mortar fire was to be handled differently, the ALO of the battalion requesting the air mission being responsible for calling off mortar fire during the strike.⁴⁷

For D-day support at Iwo Jima, planes from 17 CVE's and 16 fast carriers were available. Japanese kamikaze tactics, however, had necessitated increasing the fighter complement of the carriers, and this meant fewer bombers and therefore less striking power. It was planned for 200 aircraft to hit the beaches and adjacent areas just before the landing--scheduled for 0900--but of the 45 B-24's dispatched from the Marianas, "29 planes were abortive, thirteen arrived too late, eleven made a 'dry' run, three were separated from the formation, and two had malfunctions." Thus most of the bombardment had to be carried out by naval aircraft. Most accounts agree that the strafing attack

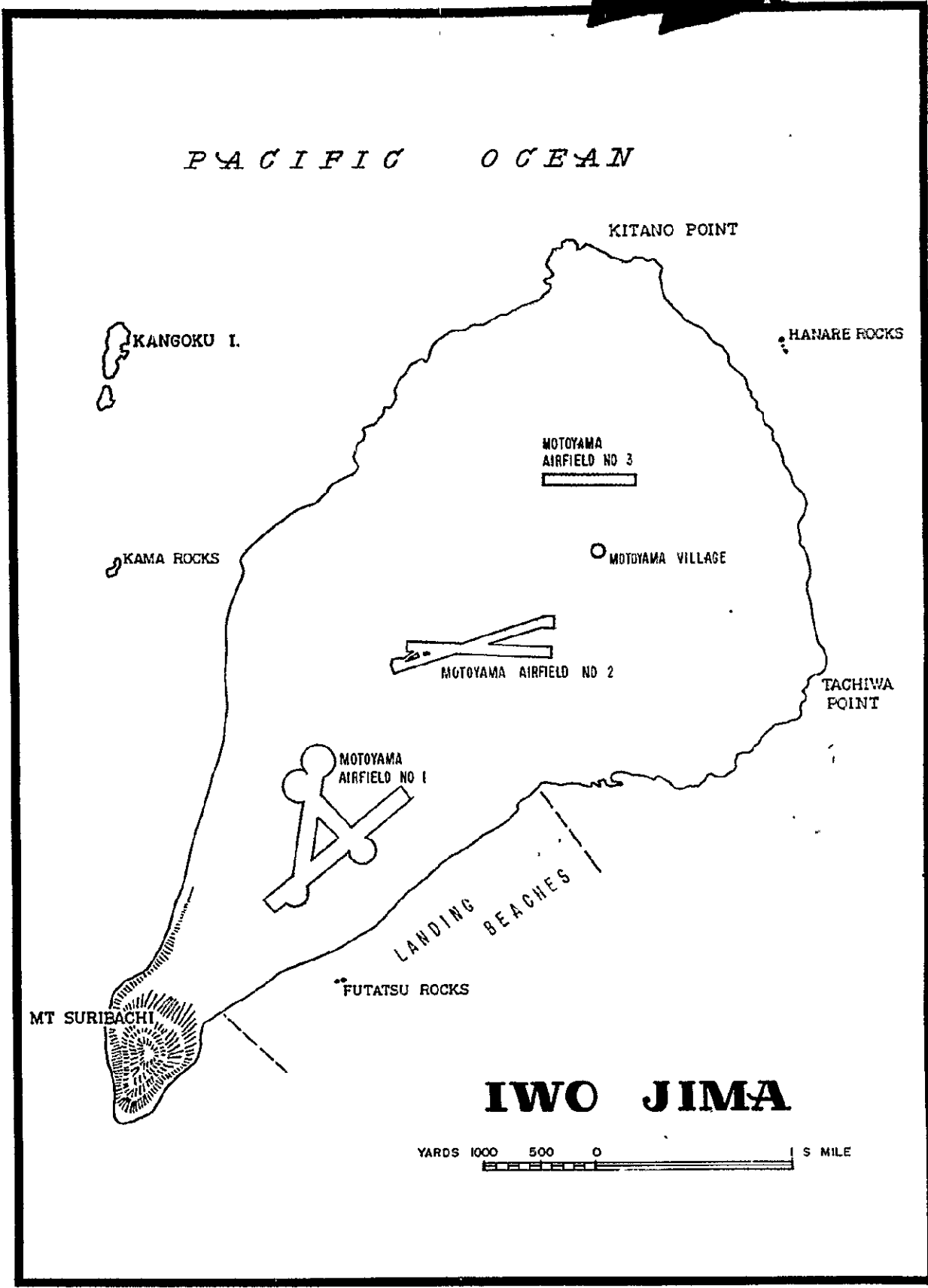
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made by fighters, some of which were carrier-based Marine F4U's, as the landing craft headed for the beach was a classic of its kind. The pre-H-hour air and naval bombardment at least kept the Japanese in their shelters long enough for the first wave of landing craft to reach shore without loss.⁴⁸

Though the first and second waves of assault troops reached shore without serious opposition, thanks to the neutralizing effect of air bombardment and naval gunfire, and, perhaps, to calculated delay on the part of the Japanese commander, resistance became strong when the marines reached a point 200 yards inland from the beach. Requests for air strikes began to come in as soon as this Japanese fire was encountered, and they continued to be received throughout the day. The requests were for the most part granted; 16 fighters and an equal number of torpedo bombers arrived on station at one of the orbit points designated in the plans every 90 minutes. Including pre-landing strikes and CAP, more than 700 sorties were flown on D-day. By night-fall the marines of the 5th Division had pushed almost across the narrow part of the island, but the 4th Division was held up at the edge of the airfield.

Progress on D-day was less than had been hoped for, but still gratifying in view of the strength of the defenses. The contributions of air support to this advance cannot be evaluated in isolation from those of the other weapons used, but there can be little doubt of its neutralizing effect; it kept the defenders in their holes while the troops established themselves ashore. Whether bombs and bullets from aircraft did much more than this is doubtful. An AAF evaluation board



concluded that the cave and dugout positions on Iwo Jima were almost invulnerable to air attack, and that the open emplacements in the loose volcanic sand were safe from everything except a direct hit. High hopes had been held for napalm in this operation, but trouble with the release mechanism greatly reduced accuracy, and the percentage of duds was out of all reason. The evaluation board reported that of some 200 releases observed only 15 or 20 ignited, and these burned but a few seconds. The Navy procedure was to release napalm tanks from fighters at about 600-foot altitude from an angle of 30 to 70°. The Marine F4U's obtained a higher percentage of ignition, though still only about one out of four drops, from level flight at about 150-foot altitude. After napalm had proved highly successful elsewhere, it was suggested that two igniters per tank instead of only one should have been used at Iwo Jima, and that in many cases the igniters, due to the high altitude of release, had been torn loose before impact because of the tumblings of the tanks while still in the air.⁴⁹

The fast carriers of Task Force 58 remained at Iwo Jima through 22 February 1945 and rendered valuable support, especially to the drive of the 5th Marine Division against Mount Suribachi. Planes were plentiful so long as the fast carriers were on hand, and Suribachi was an easy target. Requested strikes were delivered within 15 to 30 minutes and facilitated the capture of this commanding height.

The departure of the fast carriers and the commitment of the 3d Marine Division from reserve resulted in a decline in the quality as

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well as the quantity of close support. Usually more than an hour passed before a requested strike was delivered, and then the execution was frequently poor.

Three factors, apparently, explain the delays. In the first place, the addition of the 3d Division ALP's to the SAR net overloaded that circuit, a condition which was worsened by poor radio discipline on the part of some parties. Secondly, after Suribachi had been captured and the drive northward began, there were no outstanding terrain features which the pilots could use as reference points. For this reason, CASCU and the air coordinator had to use more time making certain of the location of friendly positions and of the exact location of the target; the Japanese installations were so well camouflaged that, even though smoke signals and radio were used to the fullest, the ground forces were frequently unable to point out a target so that pilots could see it. Lastly, the plane complement of the CVE's was now simply not great enough to answer all the requests for support.

Many of the complaints on the poor quality of the support given by CVE-based planes can be attributed to the fact that some of the targets were simply invulnerable to air attack--or to any other save an infantry squad with demolitions. Excellent Japanese camouflage was also partly responsible. It may have been true, as was asserted, that the CVE pilots were not so skilled as those from the fast carriers, but there is little evidence to this effect. It is true, however, that the armament was unsuitable for the targets. Napalm tanks, as has been seen, usually failed to ignite. Small bombs--and many 100-pounders

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were used--were worth little more than .50-caliber bullets, and nothing larger than 500 pounds was dropped. Rockets proved useful when direct hits could be obtained, but here the difficulty of spotting pinpoint targets came to the fore. Finally, the operation lasted much longer than expected, and by 1 March the CVE's had exhausted much of their aircraft armament.⁵⁰

An example of the difficulties encountered by the pilots came in a mission, successful as it turned out, by four torpedo bombers and two fighters on 5 March. The target was a mortar position which the ground troops had located. Visibility over the island was good; no antiaircraft fire was encountered, and white phosphorous shells were placed near the mortar pit. Finally, when the ground observer reported the target as so many yards in such-and-such direction from the last smoke shell, one pilot out of six in the formation spotted it. It was "a position 12 x 6 feet, covered with a removable metal cover, opening on hinges in the middle like a cellar door hatch." The pilot who had spotted the pit fired his rockets and then led the other planes in. Once sighted, the position was destroyed, but its destruction necessitated the expenditure of 56 rockets, 8 x 500-lb. bombs, and almost 5,000 rounds of .50-caliber ammunition.

The importance of air support in keeping the Japanese under cover was exemplified in a strike by CVE-based planes. Again the target was a mortar position, but it lay well behind the front lines. In locating this position, the aircraft made several dry runs across the front lines at low altitude. During these dummy runs "the enemy must have

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remained underground, permitting the marines to advance. The yellow panels were seen to crawl right up behind the path of the planes."⁵¹

B-24's from Saipan flew three missions against Iwo Jima after the landings. Though their targets were well removed from the front lines, they operated under CASCU direction. Missions on 25 and 27 February were satisfactory but not outstanding. On 26 February, CASCU sent the Liberators home with their bombs because the target was overcast.⁵²

Iwo Jima was the first operation in the Central Pacific wherein support aircraft were effectively controlled by a land-based commander support aircraft. The Fleet Marine Force had organized a provisional air support command in November 1944 "to organize and equip landing force air support control units" which were to be attached to a corps headquarters for future amphibious operations. Since support on the next objective, Iwo Jima, was to be given by Navy planes, the commander of this first LFASCU planned to use naval control methods to the letter, and the naval ASCU was duplicated insofar as possible.

Originally it had been planned to get LFASCU One, as the unit was designated, ashore and in operation by D plus 4 at the latest, but faulty loading of equipment and congestion on the beaches delayed disembarkation until D plus 7 (26 February). The unit began monitoring all circuits on 28 February, and at 1000 on 1 March took over control of all troop support missions. Control of CAP, antisubmarine patrol, and air-sea rescue activities was retained by CAECU on shipboard. When the CVE's withdrew from Iwo on 11 March, most of the personnel and

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equipment of LFASCU One was withdrawn to Saipan so the unit could be prepared for the Okinawa invasion, but Col. Vernon E. Megee, the commanding officer, remained behind with a skeleton staff and equipment to control air support during the remaining four days when there was still room for air strikes on Japanese-held areas.

The records contain no complaints on the performance of LFASCU One, and troop commanders felt that they were getting strikes where they needed them instead of against numbered targets laid out before the operation began. It is interesting to note that while Marine ground control of supporting aircraft had finally been established in this wise, it was still not feasible to use ALP's to direct close support strikes. Dependence was still placed upon an air coordinator or, when it was essential that the planes be directed from the ground, a control team was sent to the front from LFASCU One.⁵³

The reader will recall that coordination of supporting fire during the assault phase was to be effected from the joint operations room of the flagship by representatives of corps artillery, naval gunfire, and CASCU. This arrangement was duplicated ashore with the establishment of a fire support coordination center (FSCC). The commander of corps artillery was made responsible for such coordination. He controlled artillery action through his own staff, and air and naval fire through the representatives of the Navy and LFASCU in the FSCC. The FSCC monitored requests for support, decided which arm could best carry out the mission, and made the necessary arrangements. It was seldom necessary for FSCC to reject a request for air support. Regiments

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and divisions coordinated requests from battalions before they were sent to the executing agencies. Probably as important as FBCC's function in coordinating execution of support was its planning as to what arms to employ against the targets needing neutralization in view of troop movements planned for the next day.⁵⁴

P-51's of the AAF 15th Fighter Group began arriving on Iwo Jima on 6 March; they flew their first mission on the afternoon of 8 March. The Mustang pilots had no experience in close support, but under the direction of LFASCU and the air coordinators they learned rapidly. After the departure of the carriers on 11 March, air coordinators were provided from within the group.

For their first mission, the P-51's were briefed over the radio by Colonel Megee, then led in to strafe by the air coordinator. Some damage was received from light antiaircraft fire, but a dry run and five strafing runs were made over the target, which was simply an area in front of the front lines. The runs were made from 3,000 feet down to 50 feet, and the pilots changed their angle of glide frequently in order to deceive the Japanese gunners. They reported that on each pass the coordinator led them closer to friendly lines; he was heard "asking ground observer for a pinpoint target saying our boys were doing the best job of any planes in two weeks."⁵⁵

After the first day the P-51's were often assigned pinpoint targets, and while all missions did not succeed in destroying the blockhouses, pillboxes, cave entrances, and other targets assigned, a surprising number of them did. Two mortar pits were destroyed by direct hits on

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9 March, and seven bombs were placed within 100 feet of a pillbox on 11 March. A blockhouse received several direct hits on the morning of the 12th, and later the same day a number of direct hits were made atop an underground position; in hitting the latter target, one pilot managed to skip two 500-lb. bombs through the entrance, and when the bombs exploded smoke was seen to puff from a dozen or so holes in the vicinity of the target. On 14 March, napalm tanks were dropped in the small area still held by the Japanese, the incendiary being released from an altitude of only 25 feet. Ten tanks were dropped, and only two of them failed to ignite. After 15 March the enemy troops were compressed into so small an area that close support could not be continued.⁵⁶

Most sources agree that the Army fliers gave the marines better support than that received from planes based on the CVE's. The fact that the pilots were fresher may have been one reason for this; the Navy pilots had been flying missions over Iwo since 15 February, and may well have become strained. By the time the P-51's went into action, the LFASCU controllers had had time to become skillful in directing aircraft, and the constant bombing and shelling had stripped much of the camouflage from close support targets. Most important of all, however, the Army pilots were superb fliers; they were flying one of the best planes to be developed in World War II; and they pressed their attacks lower than the Navy planes had been doing. This last characteristic endeared them to the marines on the ground.

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The Mustang pilots encountered difficulties in addition to those imposed by the terrain and the Japanese. One trouble was the insistence of ground observers on glide approaches, rather than the low-level run the Army pilots favored. The observers could judge bomb trajectory from a glide, but not from a low-level approach. Pilots also felt that too many dry runs were called for when light Japanese antiaircraft guns were still active. A number of planes were damaged by AA, though none were shot down. Another difficulty was that late-afternoon attacks frequently had to be made without the benefit of panels marking the front lines because the marines believed that the enemy used the panels for sighting in artillery and mortars for night fire. Most annoying of all was a bottleneck in communications. The only frequency available to the Marine LFASCU and the Army P-51's in common was VHF Channel C, which was also used by the control tower at the airfield. Thus instructions from the ground might be interrupted by landing or take-off instructions. After B-29 missions to Japan, when cripples were coming into Iwo for emergency landings, communication between the P-51's and the ground was almost impossible.⁵⁷

Air support on Iwo Jima, though no failure, was not as effective as had been hoped. The number of installations damaged and the casualties inflicted on the Japanese by the preliminary bombardment and by attacks on positions behind Japanese lines after the landings cannot be computed, but there are indications that the effect was small. Yet, however small the results in relation to the effort, every position or gun or enemy soldier destroyed averted casualties to the landing force.

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All in all, close support was much more effective. If air strikes had done nothing more than keep the Japanese under cover while the marines were inching forward, they would have been worth while. This they did; not only were front-line enemy troops kept under cover during strikes, but mortar and artillery fire decreased noticeably while U.S. planes were overhead. In addition to this neutralization, guns, mortars, pillboxes, and soldiers were put out of action by close support planes. The fact that most Japanese positions had to be destroyed by tank-infantry teams does not obviate the fact that close support aircraft succeeded in destroying others. The AAF P-51 group could be particularly proud of its record against pinpoint targets.

An encouraging feature of the Iwo Jima operation was the efficient working of the air support control system that had evolved with the experience gained in previous CEM/PAC operations. The CASCU had little trouble other than crowding on the SAR circuit, and this was corrected by having regimental and division headquarters screen requests from battalion ALP's, a shift which had been allowed for in pre-invasion plans. The LFASCU, which also worked efficiently, was an acceptable compromise between the Navy desire for centralization and the Marine commanders' desire for ALP control. A further step to comply with the ground commanders' wishes was the practice of sending teams forward from LFASCU to control specific strikes. ALP's, of course, gave a go-ahead signal before bombs were dropped near the front lines. The FSGC was another important innovation at Iwo Jima. Though it may have delayed strikes while it effected coordination, its existence prevented

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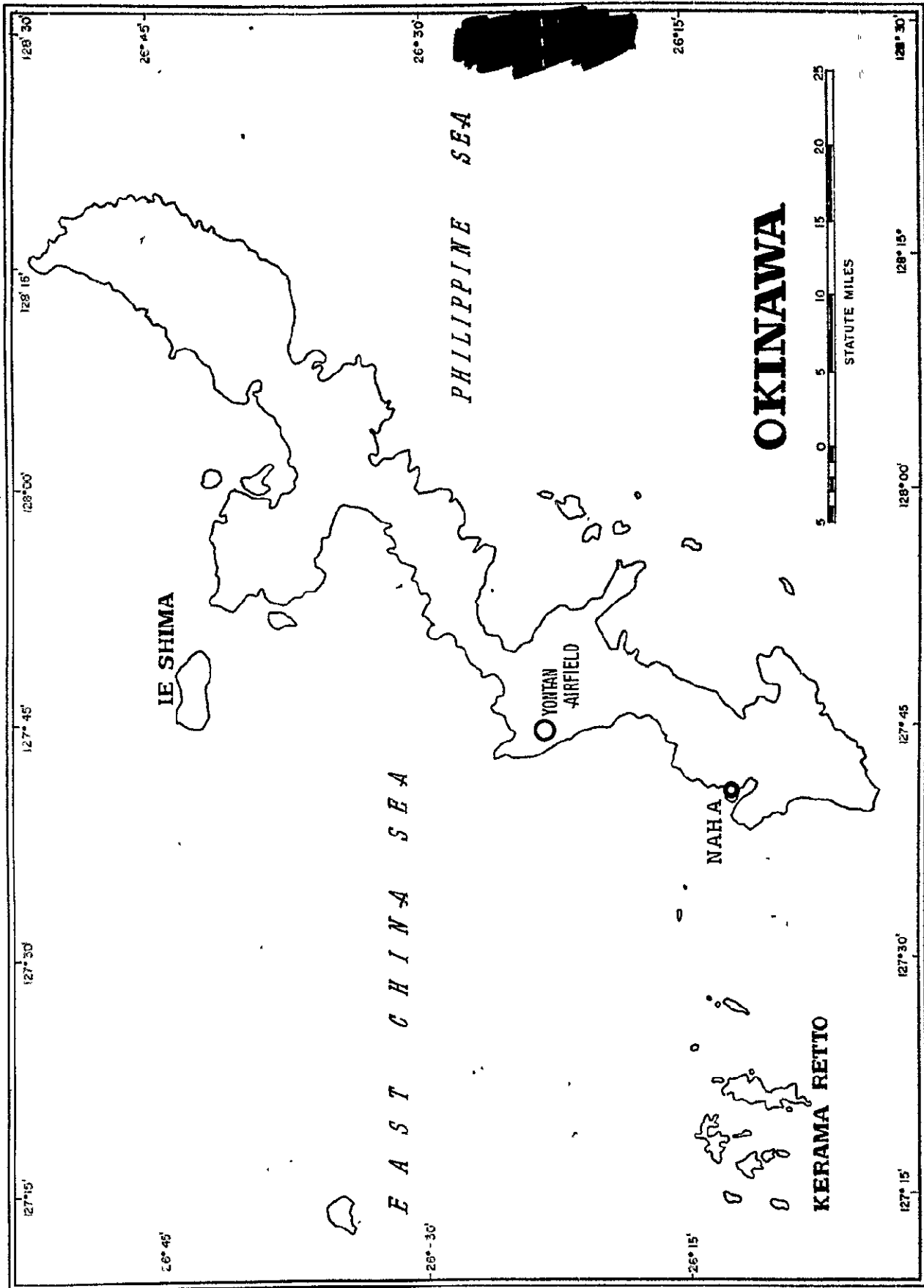
cancellation of missions because artillery could not be called off, a mishap that had happened too often previously. The fact that marines on Iwo Jima were seldom if ever bombed or strafed by friendly planes, even though they were getting a great deal of air support, is evidence of the effectiveness of the control and coordination exercised.

Yet despite complete air superiority and the utmost cooperation by the air arm, the Japanese on Iwo Jima had succeeded in exacting casualty for casualty from the immensely superior Marine forces. In part this was due to the outstanding ability of General Kuribayashi, but there was more to it than that. The bravery of the Japanese soldier and the cave defenses provided him virtually nullified the advantages afforded by the great American superiority in firepower. Protected from bombs and shells by his cave, and unwilling to surrender even when the battle was lost, the Japanese soldier continued to inflict casualties until he was either killed or sealed in alive.

The Seizure of Okinawa

Okinawa was the largest amphibious operation and the bloodiest battle of the CENPAC campaign. Fortunately for both Japan and the United States, it was the last great battle of the war. Okinawa, the largest island in the Ryukyu chain, is 60 miles long and from 2 to 18 miles wide. On 1 April 1945 it was in the midst of areas held by the Japanese—approximately 350 miles from Kyushu, 375 miles from Formosa, 525 miles from Shanghai, 700 miles from Korea, and 825 miles from Tokyo. The nearest point on Luzon was more than 650 miles away, and Iwo Jima was about 875 miles distant.

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The plans for air support at Okinawa applied no new principles, nor did the execution of those plans result in anything save confirmation of the soundness of the techniques developed in preceding campaigns. The operation was, however, of greater magnitude than any of its predecessors, and air support was on a comparable scale. On 1 April, the day of the landing, 7 large carriers, 6 light carriers, and 18 CVE's provided aircraft, and by 9 April eight squadrons of Marine planes were on hand. By the end of May, 8 fast carriers, 12 CVE's, 8 Marine fighter squadrons, 3 Army fighter squadrons, and 1 Marine squadron of torpedo bombers were participating in the battle.

Air support on such a scale as this demanded more complex control system than had been necessary for any previous operations. For the landing phase, control of support aircraft was distributed between six flagships. One ASCU was located aboard the flagship for each of the three attack forces; one aboard the flagship of the demonstration group, which was only to feint a landing; two aboard the Estes, which served as the flagship for both the Amphibious Support Force and the Eastern Fire Support Group; and one aboard the flagship of the joint expeditionary force commander. This last ASCU was to supervise all the others. All of these ASCU's except one actually controlled aircraft at one time or another during the battle.

A complex control system was also necessary for the time when control of support air would pass ashore. Tenth Army, composed of the XXIV Corps and the Marine III Amphibious Corps, was to conduct the ground operations on Okinawa. Three LFASCU's were provided, one to control air support for each of the two corps, and one to serve with Tenth Army headquarters

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as a coordinating agency. The normal complement of ALP's were provided for the landings, but XXIV Corps which found the JASCO organization unsatisfactory, reduced the number of its parties to five per division once ground warfare had begun.

A new feature at Okinawa was the provision of a tactical air force (TAF) as part of Tenth Army. TAF was to begin to function when land-based planes were available. This again was nothing new in principle; land-based planes had taken part in the Marianas, Palau, and Iwo Jima operations, but at Okinawa so much land-based air power was to be utilized that a new headquarters had to be provided. TAF, commanded by a Marine Corps officer, was under Tenth Army for operations, and was charged with providing air defense, troop support, and photographic reconnaissance when established on Okinawan airfields. TAF was eventually to be composed of 23 Army and 16 Marine squadrons, but Marine aircraft were in the majority during the height of the fighting on Okinawa.

Communications, too, had to be expanded. SAR, SAO, and air support command (for administrative traffic) nets were as usual restricted to one primary and one secondary frequency each. SAD, however, was provided with one HF and six VHF frequencies, compared to the two or three used in previous operations. Even at Okinawa, so many frequencies were not necessary for the simultaneous direction of aircraft, but it was necessary nonetheless to have them all because the one VHF channel common to planes of all services had to be used for the control tower once the airfield ashore was in operation. ⁵⁸

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Though D-day was set for 1 April 1945, amphibious landings took place before and after that date. Seizure of islands in the Kerama Retto, west of Okinawa, began on 27 March, so that an anchorage for the fleet would be available. On 16 April the strongly defended island of Ie-Shima, a site for airfields, was invaded. Finally, on 25 June, Tsuken-Jima was taken. Air support was provided for all these landings, and in the Kerama Retto and on Ie-Shima the troops required further support after they were ashore.⁵⁹

Support for the landing on the west coast of Okinawa was massive--- 128 planes strafed as the first wave went ashore, and more than 500 troop support planes participated altogether. The tremendous firepower of aircraft and practically all types of naval vessels proved unneeded, because the Japanese commander had decided not to defend the beaches, and the main body of the enemy had withdrawn to the southern part of the island, where they awaited the invaders.⁶⁰

III Amphibious Corps in the northern part of Okinawa encountered relatively light opposition and needed little air support. To the south, however, XXIV Corps on 6 April ran into strong defenses, and by 10 April the southward movement had almost halted. On this southern front, defended by more than 100,000 Japanese troops, fighting continued until the end of June. It was therefore on this front that the great majority of air support missions were flown.

Because of the threat to the operation from kamikaze attacks on Allied shipping, command was retained afloat until 17 May. Before mid-April, however, the three LFASCU's were operating ashore, controlling

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and coordinating attacks in support of ground troops. The first units of TAF began operations on 7 April, and the strength of this organization rapidly increased.

The ground forces needed all the support they could get. During the 47 days from 1 April to 17 May the ALP's made 787 requests. Of these, 117 were made to GASCU's afloat, before 10 April, of which 81 were fulfilled. The III Amphibious Corps transmitted only 191 requests to LFASCU One between 10 April and 17 May, and many of these were sent after Marine units were put into the line in southern Okinawa. Of these 191 requests, 131 were approved and executed. It was XXIV Corps which had the greatest need for support during this period; no less than 479 requests to LFASCU Two were recorded, though only 293 of these requests were granted. Even so, this was an average of six strikes a day on a 10-mile front, and from mid-April to mid-May, when the heaviest fighting was going on, the number of strikes per day was considerably greater.

During the first 47 days of the operation, a total of 1,388 air support missions were flown, or almost 14,000 sorties. Aircraft dropped almost 6,000 tons of bombs and more than 900 napalm tanks; they fired more than 36,500 rockets in addition to uncounted rounds of machine-gun ammunition. Of course not all these missions were in close support of troops, but no less than 507 were against targets selected by ground commanders, and many, if not most, of these targets were within 1,000 yards of the front lines. ⁶¹

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The transfer of command of the Okinawa operation from the attack force commander to Tenth Army brought no radical change in air support operations. LFASCU's with III and XXIV Corps continued to direct troop support strikes by TAF and naval aircraft while the ground forces pushed their way through the Shuri line and constricted the desperately fighting enemy to an ever diminishing sector of southern Okinawa. The outcome of the battle was never in doubt, but the Japanese will to fight continued strong, and air support was required day after day. Probably the morning strikes preceding infantry attacks, which tended to neutralize the defenses in addition to whatever destruction was wrought, were the most useful. Pinpoint attacks against enemy blockhouses, guns, and mortars were successful when such targets could be accurately located. Success against caves was more doubtful. On one occasion torpedo bombers dropped 500-lb. bombs on the reverse slope of a ridge, successfully blasting Japanese emplacements less than 50 yards from friendly infantrymen across the crest. On another occasion, when the weather was so lowering that the enemy concluded planes would not fly, strafing Corsairs killed many Japanese in a troop column caught in the open.⁶²

Because of the large number of troops, guns, and planes involved, coordination of artillery, naval gunfire, and air support was a difficult problem on Okinawa. The Tenth Army artillery officer was in charge of coordination; he was aided by a representative of the Army LFASCU and a naval gunfire liaison officer. Thus there was, in effect, an Army JSCC, and this arrangement was duplicated at corps level. At

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division headquarters, the division artillery officer presided over a coordination center made up of himself, a naval gunfire liaison officer, and the division ALO. At each level, it was the artillery officer who was responsible for the final decision on which support arm to use to strike a particular target. The army and corps FSCC's also kept lists of targets and their status, so that bombs, ammunition, and time would not be wasted when there were no support requests from front-line units.⁶³

There can be little doubt that air support was carried out more efficiently on Okinawa than in any other CENFAC operation. The LFASCU's directed more than 10,500 sorties during the campaign, and the aircraft they controlled expended more than 5,000 tons of bombs, more than 35,000 rockets, and more than 1,100 napalm tanks; yet only 10 instances of bombing or strafing of friendly troops were reported. The command system was complex, and appeared somewhat cumbersome, but in fact was not. III Amphibious Corps reported that the average time between request for and delivery of a strike was no more than an hour.⁶⁴

Air support tactics on Okinawa were those that had proved effective and practical in earlier operations. Targets were troop concentrations, guns, mortars, defensive positions, and areas in front of friendly troops. Front lines were marked by panels and colored smoke, targets by white phosphorous. Because low clouds so often covered Okinawa, the pushover for bombing and strafing attacks was made at lower altitude than had been the case in the Marianas, but a slightly shallower approach compensated for this. After LFASCU's assumed control of troop support, a designated air coordinator was seldom utilized;

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instead the flight leader for a particular strike was appointed coordinator for his flight. The number of dry runs taken on close support targets indicates that the flight leaders took this position seriously.

A practice which had begun as early as Tarawa (November 1943), the use of fighter aircraft as the most important weapon in close support, was intensified at Iwo Jima and Okinawa by the need for more fighters aboard the carriers to meet the kamikaze menace. TAF on Okinawa contained but one squadron of bombers (TBF's) during the main period of ground fighting, and this unit was partly occupied with anti-submarine patrol. No Army bombers arrived before the ground fighting was concluded; for that matter, no Army planes of any kind were used for close support on Okinawa, although the 318th Fighter Group, which had had experience in the Marianas, was on hand before the end of the fighting. Thus Marine Corsairs and Navy F6F's bore the main burden of troop support activity. The fighters were prepared better than formerly to carry out this duty, because the addition of rockets and napalm tanks to their armament gave them greater striking power.

Both rockets and napalm were important weapons on Okinawa. The Japanese were soon afraid to use their artillery in daylight, thus taking some pressure from friendly forces, but artillery was active at night and mortars were used with deadly effect both day and night. Air strikes definitely contributed to keeping the volume of this fire down. Support aircraft also served their usual function of preventing enemy troop movements by day, though this was little handicap on

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Okinawa, since the Japanese-held area was small enough to move troops anywhere between sundown and dawn. For that matter, the nature of the enemy defenses did not require a great deal of movement on the part of the defending troops.

Against cave positions, support aircraft were hardly more effective on Okinawa than they had been on Iwo Jima, though almost all the Okinawa caves were artificial. Thirty-six strikes against caves by naval aircraft using huge Tiny Tim rockets, five-inch rockets, and various bombs were tabulated; half the pilots claimed to have made hits in the target area, but only 2 percent claimed to have destroyed caves. It was the consensus that rockets were more effective than bombs against caves, but that artillery was more effective than either, and that tank-infantry teams were most effective of all. So far as Okinawan caves were concerned, napalm apparently accomplished little except burning away camouflage.

Every division that operated on Okinawa, with the single exception of the 6th Marine Division, sang the praises of the air support received. Once again, however, air support had proved itself to be merely another supporting arm insofar as its battlefield missions were concerned. Time after time infantry attacks against positions which had received heavy and accurate preliminary bombing and strafing and shelling were thrown back with heavy losses. The Japanese, sheltered underground, retained their will to fight until the final collapse, and they continued to exact casualties for every yard of ground taken from them. Aircraft could, and did, give effective support, but they could not perform the final tasks of sealing the caves and killing the last-ditch Japanese defenders.⁶⁵

Okinawa, then, as befitted the last great battle of World War II, saw air support of ground troops on a much greater scale than ever before attempted in the Central Pacific. There were no important new developments, however, in tactics or control. The control system which had been evolved on the way across the Pacific from Pearl Harbor to the China Sea proved flexible enough to handle operations on this increased scale. Likewise, tried and tested tactics were successfully continued, though the addition of rockets and reliably fuzed napalm bombs to aircraft armament increased their effectiveness.

The TAF, Tenth Army, was a new kind of organization, though the use of land-based planes from captured airfields was an old story. The establishment of TAF was made necessary by the size of the operation, the number of land-based planes being far greater than had ever before participated in a CENPAC battle. More such organizations, modeled on the tactical air commands of the European Theater, would have been needed for the invasion of the main islands of Japan.

Okinawa also reaffirmed what had become clear on Iwo Jima, that cave warfare combined with the fight-until-death characteristic of the Japanese soldier had partially neutralized America's superior firepower. The infantryman needed all the help aircraft, naval guns, and artillery could give him, but so long as cave-sheltered Japanese troops would not surrender when their position became hopeless, the ground soldier had to perform the final and bloody task of extermination. Fortunate it was that it did not prove necessary to invade the Japanese homeland.

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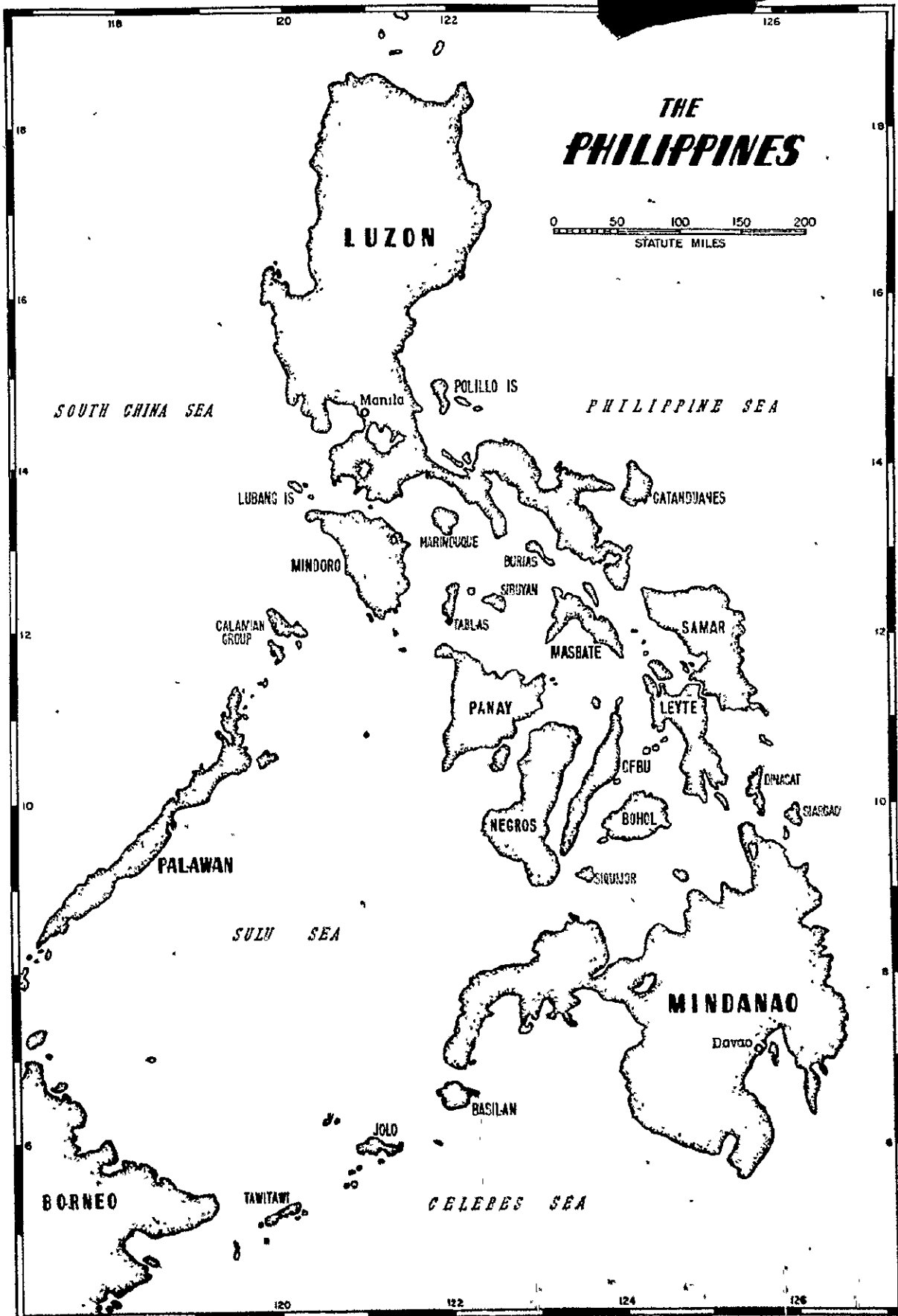
Chapter VI

THE PHILIPPINES: LEYTE THROUGH LUZON

Air Support Plans for Leyte

In making the decision to invade the Philippines at Leyte in October 1944, Allied commanders realized that their ground troops would be out of range of effective support by land-based aircraft. Carrier-based planes were therefore to support the assault troops until airfields could be prepared and land-based planes flown in. Once land-based aircraft were established on the island, they would take over support of the infantry.

In September 1944 General Headquarters, Southwest Pacific Area (SWPA) had issued a standing operating procedure for air support of amphibious operations when both naval and land-based planes were to be used. This SOP adopted the procedure and nomenclature used in Central Pacific operations through the Marianas with only a few modifications. Commander support aircraft (CSA) afloat and ashore, the air coordinator, the air observer, the support air request (SAR) radio net, and the support air direction (SAD) radio net were all constituted as they had been in the Central Pacific and, for that matter, in SWPA operations since Hollandia. The air liaison party (ALP) was likewise, as in the Central Pacific, "A small communication team which transmits requests to . . . CSA and keeps him informed of positions of front line troops, results of close support missions, and location of remunerative targets." This definition should be



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noted, because heretofore in SWPA the term "air liaison party" had been used to mean the same organization as the support aircraft party.

In this SOP, the support aircraft party (SAP), was defined as "An Air Force party consisting of a Support Aircraft Controller, necessary officer and enlisted assistants, and equipment designed to transmit and receive requests for air support between supported force commanders and supporting air commanders and to control air support missions." Thus The SAP was the nearest equivalent to the landing force air support control unit (LFASCU) developed in the Central Pacific.

In addition to the SAR and SAD voice radio nets for requesting and directing air support of an amphibious operation, the SWPA SOP provided for an air support net (ASN), which was to be a continuous wave (CW) circuit linking the CSA afloat or ashore with higher headquarters and the land-based air units providing air support. Normally the ASN circuit would continue in operation as the link between SAP's and supporting air force headquarters when the carriers had left the scene of the operation.¹

The Fifth Air Force, designated as the assault air force for the Leyte invasion, provided SAP's for divisional and corps headquarters. At Hollandia the Navy trained ALP's from X Corps to serve its units, and the air liaison sections of Marine Corps 2d and 3d Joint Assault Signal Companies (JASCO's) were provided for XXIV Corps. Thus the SAP's for the operation were Fifth Air Force personnel, ALP's for X Corps were Army personnel trained by the Navy, and ALP's for XXIV Corps were marines.²

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Support of the Landings on Leyte

Three naval attack forces were used in the Leyte operation, one to cover the landing of X Corps (made up of the 1st Cavalry Division and 24th Infantry Division) below Tacloban, one to land XXIV Corps (the 7th and 96th Infantry Divisions) in the Dulag area, and one to cover the 21st Infantry Regiment in its landing on Panaon Strait to secure control of the entrance to Sogod Bay. Eighteen escort carriers (CVE's) were on hand to support the landings, and they were divided into three groups, one for air support of each of the landing forces. No opposition was encountered in the Panaon area, so the aircraft assigned to operate in support of that landing were diverted to help the forces on the other beaches.

The control system was the same as was then being used in the Central Pacific. CSA Central Philippines, under Commander Task Force (CTF) 77, was in over-all control of air support and assumed direct control of security missions. A CSA for each attack force controlled troop support aircraft, including direct support, smoke planes, air observers, and photographic reconnaissance and artillery-spotting aircraft. ALP's served only to advise ground force commanders and to request missions; they had no control functions. The SAP's, though they went ashore early in the operation, contributed little more than the monitoring of radio circuits to obtain information for the ground commanders during the assault phase.³

The Japanese had prepared formidable beach defenses on Leyte, but they evacuated most of these positions before the landings took place.

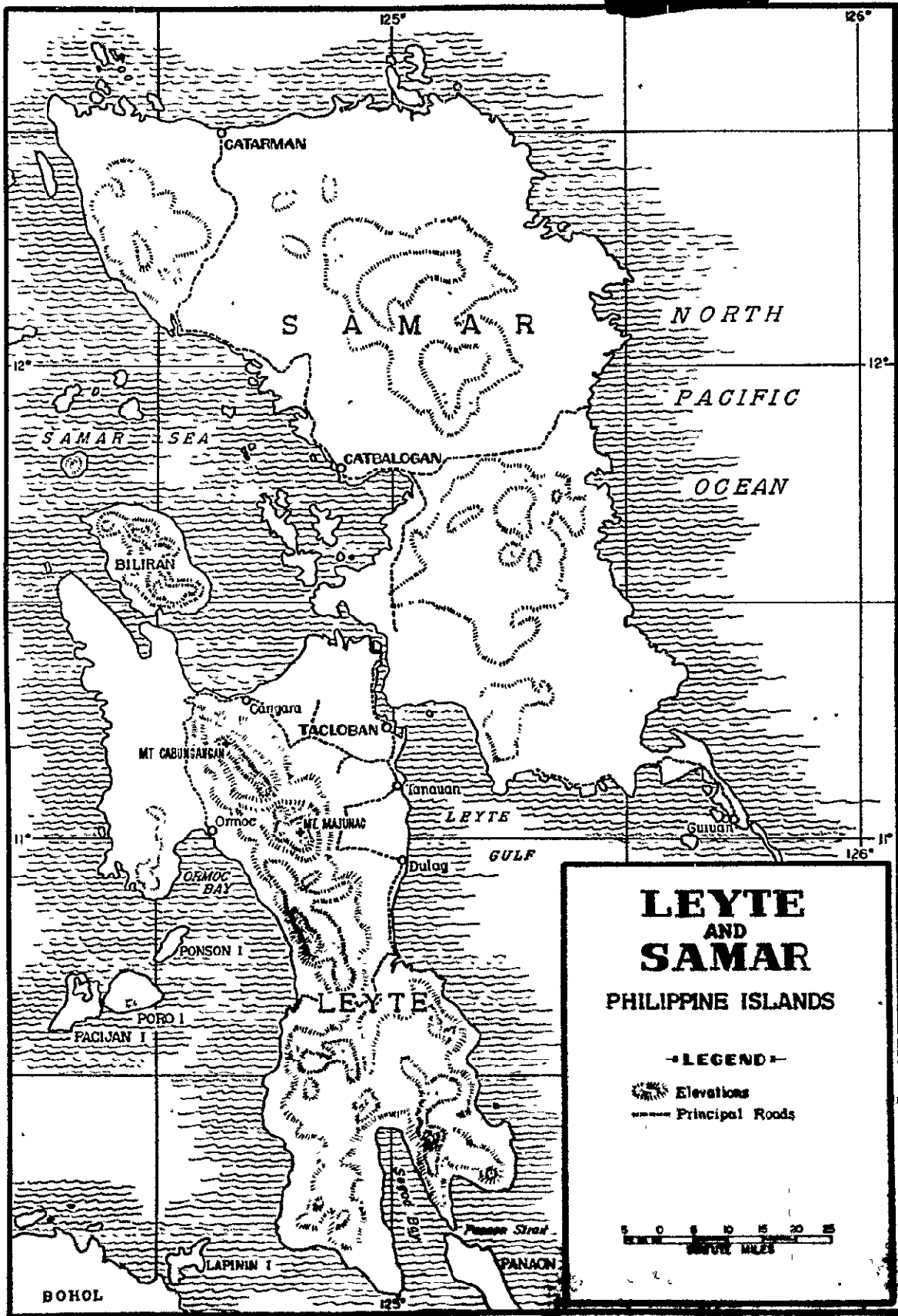
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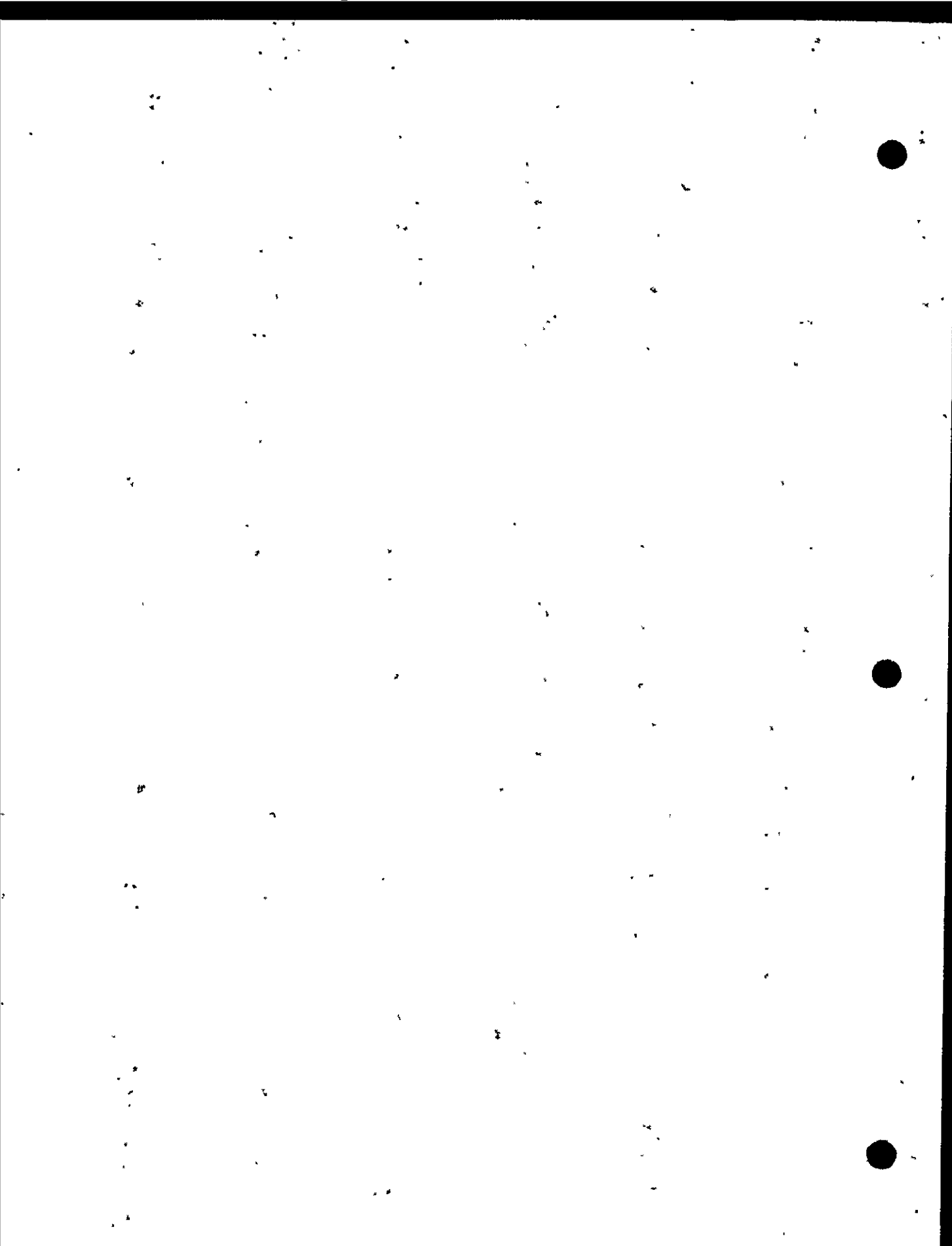
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Supporting air attacks were restricted to areas inland from the beaches, and only naval gunfire was utilized against the shore defenses. Sixteen fighters and six torpedo bombers reported on station over each attack force every 90 minutes from 0630 onward, and a heavy strike from the fast carriers came over just before H-hour (1000 on 20 October 1944). The bombardment, while light as compared with similar operations in the Central Pacific, was sufficient, thanks in part to Japanese cooperation. Only the 24th Division encountered serious resistance during the landings, and this was soon overcome.

Planes from the CVE's provided ground support for the first five days of the operation. During this period, however, the troops ashore met strong resistance only in the northern area, so the demands for close support were not numerous; only 33 of the 121 troop support missions flown on the first five days were in response to requests from the troops ashore. On 24 October the number of aircraft reporting on air alert for strike missions was reduced from 44 every 90 minutes to only 12 at the same interval. During the naval battle which began on 25 October naval aircraft were unable to render close support, and as a result of this encounter the CVE force was so weakened that thereafter it could do little more than provide air defense.⁴

All concerned seem to have been satisfied with the close support received from naval aircraft during the first five days at Leyte. Coordination of naval gunfire, artillery, and air was carried out under the direction of corps artillery officers, and air strikes were, in the main, delivered within a reasonable time after the request was received. The results of the strikes were frequently unknown, but





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ground force reports indicate that some of them were highly effective in reducing resistance. Sometimes aircraft were kept waiting too long before being assigned a target, and light antiaircraft guns both afloat and ashore fired at friendly planes, in one case shooting down a TEl, but control and coordination as a whole were good.

Communications were satisfactory, though the lack of common VHF channels on Army and Navy aircraft was reported as a handicap. The ALP's carried out their duties acceptably, but many of the parties with the 96th Division were unable to maintain contact after their equipment became wet. Although there were some breaches of radio discipline on both SAR and SAD nets, important traffic was seldom delayed. The SCR-284 portable radios which had to serve the ALP's when jeep-mounted AN/VRC-1 sets failed to arrive on time were not good, but served their purpose. By monitoring SAR, SAD, and support air observation (SAO) nets, the SAP's with the divisions ashore provided the ground forces with valuable information.⁵

Air Support on Leyte After 24 October 1944

The end of naval close support on Leyte could almost be considered the end of all close air support on that island. The first land-based planes landed on Tacloban airfield on 27 October, but these aircraft and those which were to follow were needed far more for defense against Japanese air attacks than as a supporting element for the ground forces. When enough strength had been accumulated for planes to be used for purposes other than interception and patrol, they were still not available for close support. The Japanese were pouring reinforcements into



Leyte, and all available aircraft were needed to strike shipping coming into Ormoc. Even when no shipping targets were present, strikes on supply areas and lines of communication were obviously more profitable than close support strikes would have been.

The inability of Fifth Air Force to provide adequate close support for the ground troops on Leyte has led to considerable comment. The comment of the commanding general of Sixth Army on this subject should be sufficient:⁶

The inadequate number of aircraft on Leyte practically ruled out all close support missions and materially restricted direct support missions. In fact, the first air strike by Army planes in support of ground troops was not made until 26 November But even after that date, air strikes in close support of troops were very limited. . . .

Adequate Allied air strength on Leyte would unquestionably have shortened the operation by eliminating the influx of enemy reinforcements, by assisting ground troops in reducing enemy defenses, and by facilitating patrol operations of naval craft. Besides, it would have reduced ground forces losses materially.

The failure to provide adequate air strength on Leyte during most of the operation was definitely not the fault of the Air Forces, however. Fifth Air Force had an ample number of planes available on Morotai and at other bases in rear areas but could not bring them forward until the necessary facilities had been provided for them on Leyte. . . .

If the airstrip construction requirements could have been met, four medium bomber squadrons would have been operating from Leyte by 4 November. But with things as they were, light and medium bombers did not operate from Leyte until late in the operation. It was therefore no wonder that Fifth Air Force fighters had all they could do to hold their own against Japanese air raids, and that very few planes were available to keep hostile reinforcements from reaching the island and practically none for close support missions. . . .

While strikes against Ormoc, Palompon, and the Valencia area were frequent during November and early December, being made by fighter-



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bombers based on Leyte and heavy bombers based on Morotai, there was no close support until four P-40's assisted the advance of the 7th Infantry Division on 26 November. Before 25 December, when operations on Leyte were turned over to Eighth Army, three other close support missions were flown. Much fighting still remained to be done; more than 24,000 Japanese were killed on Leyte between 25 December 1944 and 8 May 1945. During the first weeks of Eighth Army operations, P-47's and P-40's made five strikes in support of ground troops, and 12 P-47's covering a landing at Palompon on 26 December were ready to help but were given no targets. The mop-up operations from January through May did not require much air support. Two Marine Corps groups of Corsairs based on Leyte and Samar flew more strikes in support of guerrillas and amphibious operations on adjacent islands than of Eighth Army on Leyte.⁷

An analysis of air support at Leyte must discuss the validity of a frequently cited report on this operation though source material of patent inaccuracy is usually better passed over than criticized. Since, however, the AAF Evaluation Board report on Leyte has been widely used by Navy and Marine Corps historians as a damning indictment of AAF close support it cannot be ignored.

The two officers who made the report were members of the Pacific Ocean Areas (POA) Air Evaluation Board, and had sailed from Hawaii aboard the amphibious force flagship (AGC) Appalachian with the headquarters of the 7th Infantry Division, XXIV Corps. At the time of

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sailing, XXIV Corps was slated to assault the island of Yap, but the convoy was diverted at sea to enable the corps to take part in the invasion of Leyte. The board was thus out of its assigned area at Leyte, though this in itself does not invalidate the report. Nor is the description and commendation of naval air support out of place. Naval air had developed an effective system of close support of ground troops in amphibious operations.

When, however, these observers affirmed that "Support as rendered by Army Air Force is not effective in assisting the advance of the infantry and may be detrimental," and that "Army Air Force units have no system and hence cannot be sufficiently controlled to permit close support of ground forces," they were making strong statements based on most inadequate evidence.

Accounts already given of close support in SWPA offer detailed evidence that the above statements were untrue, but it may be worth while to dig deeper into the circumstances of the report. It should first be noted that the two officers responsible were at Leyte only from 20 to 23 October, and therefore had no opportunity to see SWPA support aircraft in action. Save for the operations of the 318th Fighter Group on Saipan, which were under naval control, there had been no opportunity in POA for observation of AAF ground support. And the two observers failed to interview any SWPA personnel before reaching their conclusions. The report itself was gratuitous, not to mention the comments quoted above.

The report itself makes it clear that the authors' opinions on close support were based upon comments by headquarters personnel of the



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7th Infantry Division. This unit had up to this time participated in two operations--Attu and the Marshalls. Air support at Attu had been given as far back as May 1943 by both Army and Navy aircraft under a naval control system, while at Kwajalein and Eniwetok all close support had been afforded by Navy planes. This was no adequate background for judgment of AAF close support activities in late 1944.

There are many other specific weaknesses in the Leyte report, but the above notes should be enough to invalidate its criticisms of air support of amphibious operations in SWPA. The observers based their evaluation of AAF close support on observations of naval air operations and on hearsay evidence from incompetent witnesses. They did not know what they were talking about.⁸

Mindoro

The Leyte campaign provided a staging area and a naval base in the central Philippines, and destroyed a large number of Japanese infantry units. But because of weather and terrain, Leyte could not provide an adequate number of airfields in time to permit land-based planes to support planned landings on Luzon. Yet the Leyte campaign had demonstrated that carrier-based air was not sufficient for support for a long campaign in an area where the enemy was strong and active; therefore another site for airfields was needed.

Mindoro, 300 miles northwest of Leyte and due south of Manila Bay, fitted the specifications. A range of mountains down the center of the island insured that its southwestern coastal plain would remain

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dry when most of the other Visayan islands were undergoing their rainy season. The coastal plain was wide enough to allow space for as many airfields as desired, and the sandy soil lent itself to runway construction much more readily than did the rice paddies of Leyte. Finally, it was known that Mindoro was lightly garrisoned.

Troops went ashore on Mindoro on 15 December 1944. This operation was hazardous enough at sea, since kamikaze attacks were frequent and effective, but at the beaches a short naval bombardment was sufficient to scatter the few defenders. The landing force suffered no casualties from enemy ground action. Thus no close support was needed, which must have been a relief to Fifth Air Force, which had been hard pressed to provide land-based fighters to supplement naval defensive cover of the convoy.

The first airfield on Mindoro was ready for use on 20 December, and another was in operation three days later. Eventually four fields were in use. The Japanese continued heavy air attacks on the island through most of December, but defensive fighters, when relieved from patrol, reported in to the DAP with the ground troops if they had fuel and ammunition remaining. During the last six days of December, P-38's and P-47's flew 59 close support sorties. Some fighting remained to be done on Mindoro after Eighth Army took over from Sixth Army, but these small-unit actions did not require air support in any appreciable quantity. AAF units on Mindoro could devote their full attention to support of the landings on Luzon.⁹

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Preparations for Close Support on Luzon

The battle for Luzon was to be the greatest in number of men engaged yet fought by SWPA forces, and, as it turned out, the greatest in the war against Japan. Air superiority over Luzon was assured, else the campaign had not been possible. But since anti-air operations would not, as had been the case at Leyte, practically monopolize Allied airpower, and since the Japanese ground forces on Luzon were known to be strong, it was logical to assume that troop support would be an important function of Fifth Air Force. Preparations were made accordingly, though it is doubtful that AAF commanders realized that troop support would be their main concern on Luzon.

Fortunately there was no lack of aircraft. The 310th Bombardment Wing was already in place on Mindoro, and the 308th Bombardment Wing, designated air task force for the operation, was to begin operations from Luzon airfields as soon as possible. The terrain in the Lingayen area was known to be suitable for airfields, and it was expected that planes could be based there soon after the landings. Until that time, AAF planes would support the landing force, but when striking targets near the beaches would operate under naval control. AAF planning for air support was therefore concerned mainly with the period after Sixth Army would have taken over control of the operation.

When 308th Wing was ready to assume control of ground support in the objective area and had so notified Fifth Air Force, requests for air support would be made by the unit needing support to the divisional SAP, then be transmitted by SAP to 308th Wing. Should more support

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be needed than 308th Wing could afford to give, 310th Wing on Mindoro could be called upon by use of command communications between the two wing headquarters.

Communications channels for air support requests were to be established through cooperation between Sixth Army and Fifth Air Force units. Two high frequency code circuits were to be established; during the early part of the operation one was to be used to transmit requests and information from army and corps headquarters to 308th Wing, the other for transmitting requests originating at division level or below. Also, as it turned out, the naval SAR voice circuit was kept in operation for the transmission of requests for immediate support during the final few days after 308th Wing had assumed control of air support.

For the assault phase at Lingayen Gulf, ALP's were to be furnished by JASCO's assigned to the four assault divisions. Ground commanders were instructed, however, to train an ALP from the personnel of each regiment and battalion, so that parties would still be available if the JASCO's did not arrive on time. These parties could also continue to carry out liaison functions after the occupation phase had begun and the JASCO's had departed. Each ALP was to be equipped with two SCR-536 radios and one portable SCR-284 radio; regimental ALP's were to have a jeep-mounted AN/VRC-1. The only function envisaged for these parties was the transmission of requests back from the front to the division SAP.

For early operations on Luzon, Fifth Air Force was to provide 12 SAP's, one for Sixth Army, one for each corps (I and XIV), and one for

each division and independent regimental combat team (RCT). These parties were to be formed from the 5th, 7th, and 9th Tactical Air Communications Squadrons, each of which was strengthened for the operation by the addition of 10 officers--3 majors, 3 captains, and 4 first lieutenants--from theater sources.

Each SAP was to be composed of 2 rated observer officers and 20 enlisted men--radio operators, radio technicians, cryptographers, and drivers. They were to be liberally equipped as compared with the early days in New Guinea; each party was to be provided with one SCR-399 HF radio, four SCR-193 HF radios, one SCR-610 frequency modulated radio, and one AN/VRC-1 jeep-mounted combination HF and VHF radio. Transportation, in addition to the jeep, was to be provided by one DUKW, one LVT, and one weapons carrier.


It is evident from this list of equipment that these SAP's were intended to direct close support aircraft in addition to performing liaison between ground and air forces. A legend that such a function was never intended for SAP's has developed, mainly from Marine sources. It is a matter of record, as described earlier, that Fifth Air Force SAP's did direct close support in the Admiralties and during the drive up the coast of New Guinea. They did not perform this function to any great extent on Leyte, because the aircraft for close support missions were not available. Probably no one foresaw the extent to which missions on Luzon would be directed from the ground, because no one could envision the complete collapse of the Japanese Air Force which made such large numbers of close support aircraft available, but the

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SAP's went into Luzon burdened with equipment which they would not have needed had there been no plan for direct air-ground communication between SAP's and support aircraft. The SCR-399, one or two SCR-193's, and the SCR-536 would have been more than sufficient for communications with the ALP's and air forces headquarters.


By way of review, it would be well to trace the planned path of an air support request. The request would probably originate from a battalion or regiment, and would be transmitted by ground forces radio circuit or wire from the ALP to the SAP at division headquarters. The SAP would then consider the request, consulting with appropriate members of the division staff. If no objection was found, the SAP would communicate with the SAP's of adjacent divisions to make sure that the proposed mission would not interfere with operations planned for those units. If no disapproval was forthcoming, the request was then transmitted to air headquarters, which in this instance would be the 308th Wing. Corps and Army headquarters might monitor the request net and break in and disapprove if they desired, but if they did not speak, an army liaison officer at wing headquarters could still recommend that the request be rejected. Whether the request was rejected or approved, the SAP with the requesting division was informed of the action taken; if it was approval, the SAP was told what type and number of planes were assigned, their armament, call sign, and time over target. The SAP then informed the ground commander who had asked for support. The flight commander was to report in to the SAP for clearance and possible instructions before leading his planes to the attack.¹⁰


The Lingayen Landings

Eighteen CVE's were assigned to Seventh Fleet for support of the landing of I and XIV Corps on the beaches from the mouth of the Agno River to a point north of San Fabian on Lingayen Gulf. Task Force 38, with 13 fast carriers, rendered indirect support with attacks on Luzon airfields, French Indochina, and Formosa. In addition, 310th Bombardment Wing had three fighter groups, one night fighter squadron, one light bombardment group, and two tactical reconnaissance squadrons in place on Mindoro by D-day (9 January 1945). Thus there was no dearth of aircraft for support of the operation, and the support potential of these planes was increased when a low-level strike on Clark Field on 7 January radically reduced the number of air attacks against the invasion fleet.

The CVE's arrived in Lingayen Gulf on 6 January, and in conjunction with naval guns their planes conducted preliminary bombardment of the landing areas for three days. An advanced CSA aboard the battleship Pennsylvania controlled air strikes during the period. Since Army aircraft not under naval control were operating over Luzon at this same time, the carrier plane attacks were restricted to an area north of Camalig and west of a line drawn through Camalig and Bagabag.¹¹

Troops went ashore at 0930 on 9 January. Naval bombardment and rocket fire being relied upon to disperse or destroy defenders on the beaches, no air strike was made on that area. In each corps zone, however, a strike group of 16 fighters and 9 torpedo bombers struck





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specific targets in the area 3 to 10 thousand yards inland. The infantry encountered little opposition on D-day, that little centering in the hills on I Corps' left. Therefore most of the air strikes were made in that area. Even so, the San Fabian Attack Force commander reported that ALP's made no requests for air strikes on 9 January. Since this was the case, CSA had to choose the targets to be hit, and he directed sorties by 75 fighters, 67 torpedo bombers, and 35 Army bombers from Mindoro. The targets assigned were usually those which I Corps had designated in advance, defended areas far enough inland to permit simultaneous air and naval gunfire bombardment.

During the entire assault phase, which lasted through D plus 7 (16 January), ALP's on the northern front requested 49 missions, of which 36 were flown. The others were refused because targets were unsuitable, too close to friendly lines, or unmarked. Most of the 36 targets attacked were too far from the front lines to be considered close support, as were the targets struck by 37 missions sent out by CSA on his own initiative or on the recommendation of the air coordinator or air observer. A total of 994 sorties were flown under direction of CSA San Fabian Attack Force, 394 of them by Army planes. The CVE-based aircraft flew a total of 41 strikes during the first eight days of the operation, only 16 of which were in response to requests from the ALP's. The advance of the ground forces was so rapid that it was twice necessary to enlarge the zone in which attack force aircraft could operate, so that they might continue to strike targets ahead of the troops.

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As a whole, the Lingayen landings went off smoothly. The fact that Army and Navy aircraft not under common command were operating over the same island was dangerous. This danger was not wholly eliminated by the restriction of direct support planes to specified areas, or by the requirement that any Army planes coming within 75 miles of Lingayen report in to CSA. There was at least one instance of naval fighters attacking Army P-47's.

Liaison was satisfactory. Lt. Gen. Walter Kreuger, Sixth Army commander, established his headquarters in the joint operations room of the flagship, and representatives of CSA were located with army and corps headquarters after these command posts went ashore. These representatives used the equipment of the Fifth Air Force SAP's for their communications with CSA. JASCO ALP's had been provided for the assault troops, and though there was complaint because they were not permitted to direct support aircraft, they functioned well.

Communications during the assault phase were as specified in SWPA and POA directives. An SAR and an SAD net were provided for each attack force, though these were consolidated after D plus 6, when many of the naval vessels left. Some interference was encountered on the SAR circuits, particularly from informal nets used by ground forces ashore. Such interference was particularly annoying because it could not be traced down and corrected. Another communication difficulty arose from the difficulty of Army pilots in understanding naval terminology, and from CSA's lack of adequate advance information concerning flights of Army planes, which it was therefore sometimes unable to identify by their call signs.

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It was felt that coordination of air and artillery left much to be desired. This was, as usual, a responsibility of corps artillery officers. So long as corps headquarters remained on shipboard, few difficulties were encountered, but CSA's communications with corps deteriorated after those headquarters had moved ashore. This led to the cancellation of several air strikes because artillery fire could not be stopped. In one instance, when an urgent message demanding an immediate reply was sent to a corps headquarters by voice radio, the reply was received by mail three days later.

Ground commanders in some instances thought that the communications system was too slow; they blamed this tardiness on the troubles encountered by the ALP's in getting their requests through to CSA. They also felt that missions could have been speeded up by allowing the ALP's to communicate directly with planes overhead when those planes, as frequently happened, had difficulty in identifying their assigned target.¹²

The success of the landing on Luzon was evidence enough of good planning and adequate support from all arms. By the end of the first week the beachhead was roughly 30 miles deep and 30 miles wide. Airfield construction was begun soon after the landings, and a strip at Lingayen was ready for occupancy on 16 January, a day ahead of schedule. By 22 January, a field for medium bombers was ready at Mangaldan. By the end of the month, one group of P-38's and a mixed squadron of P-40's and P-51's were in place at Lingayen, and two fighter groups were based at Mangaldan. In addition to the fighters, the B-25's of

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the 38th Bombardment Group and SED's of two Marine Corps dive bomber groups were available before the end of the month. The 308th Bombardment Wing assumed control of air operations on 17 January, well in time to support the drive of XIV Corps on Manila.¹³

The Importance of Close Support on Luzon

From Buna through Morotai, ground action in SWPA and SOPAC had been for all practical purposes in support of the air forces. The drive up the Solomons chain and along the New Guinea coast had been for the purpose of establishing advanced air bases which would permit another move forward to establish more air bases. The justification of the campaign had been to permit a return to the Philippines. When that return was effected, the roles of the two arms were reversed. The occupation of the Philippines was a task for the ground forces, but they needed support which only airpower could give. On Leyte this support had been indirect; the planes available on that muddy island had been too busy countering Japanese air attacks and, less successfully, preventing the arrival of Japanese reinforcements to give direct support to the infantry. But on Luzon direct support was to be the principle air activity.

One reason for the predominance of air support missions was the paucity of strategic air targets--as had been true throughout the war in SWPA. Formosa was within easy range of Luzon, but had been under attack by planes of the Fourteenth Air Force throughout the war, and had also been bombed several times by planes from carriers. There were still a few strategic targets, mainly refineries, on that island, but

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a small fraction of the striking power of Fifth Air Force could handle them. Attacks on transportation targets in Formosa might be moderately profitable, but here again no major effort would be needed.

Japanese shipping was still a prime target. The establishment of airfields on Luzon made the interruption of the Empire's "life line" between the home islands and the East Indies simpler. Patrols off Luzon could extend all the way to the China coast, where they were supplemented by Fourteenth Air Force patrols extending outward from China. Antishipping efforts did not limit the possibilities for close support, however, since the attrition of four years of war had greatly reduced Japanese tonnage.

Thus the scarcity of strategic targets insured the predominance of tactical air operations. Attacks against the enemy air force had first priority in tactical operations; this was the main factor limiting close support on Leyte. By the Lingayen landings, however, the Japanese air force in the Philippines had been largely destroyed. Airfields on Formosa demanded some attention, but not a great deal. Enemy planes destroyed there were not replaced, because B-29 attacks and, later, the invasion of Okinawa necessitated the retention of Japanese planes at home. Thus fighter aircraft could be used against ground targets, an activity in which they had acquired skill in previous operations. The availability of bombardment aircraft for troop support would also be greater than previously, since they would not be needed for attacks on enemy airfields.

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Second priority in tactical air operations went to the enemy's communications. Japanese shipping has already been discussed. On Leyte almost all air effort not used for air defense had been turned against second-priority targets. On Luzon, isolation of the battlefield had begun before the landings and before the end of January had largely been accomplished. This had, in the main, been the task of Fifth Air Force planes, while naval aircraft supported the landing force at Lingayen. So thoroughly was the battlefield isolated that General Kreuger, foreseeing difficulties for his own forces from wrecked communications, requested that henceforth bridges be bombed only on request and that trains be attacked only when in motion. After the first three weeks of the operation, few worth-while communications targets were available on Luzon.

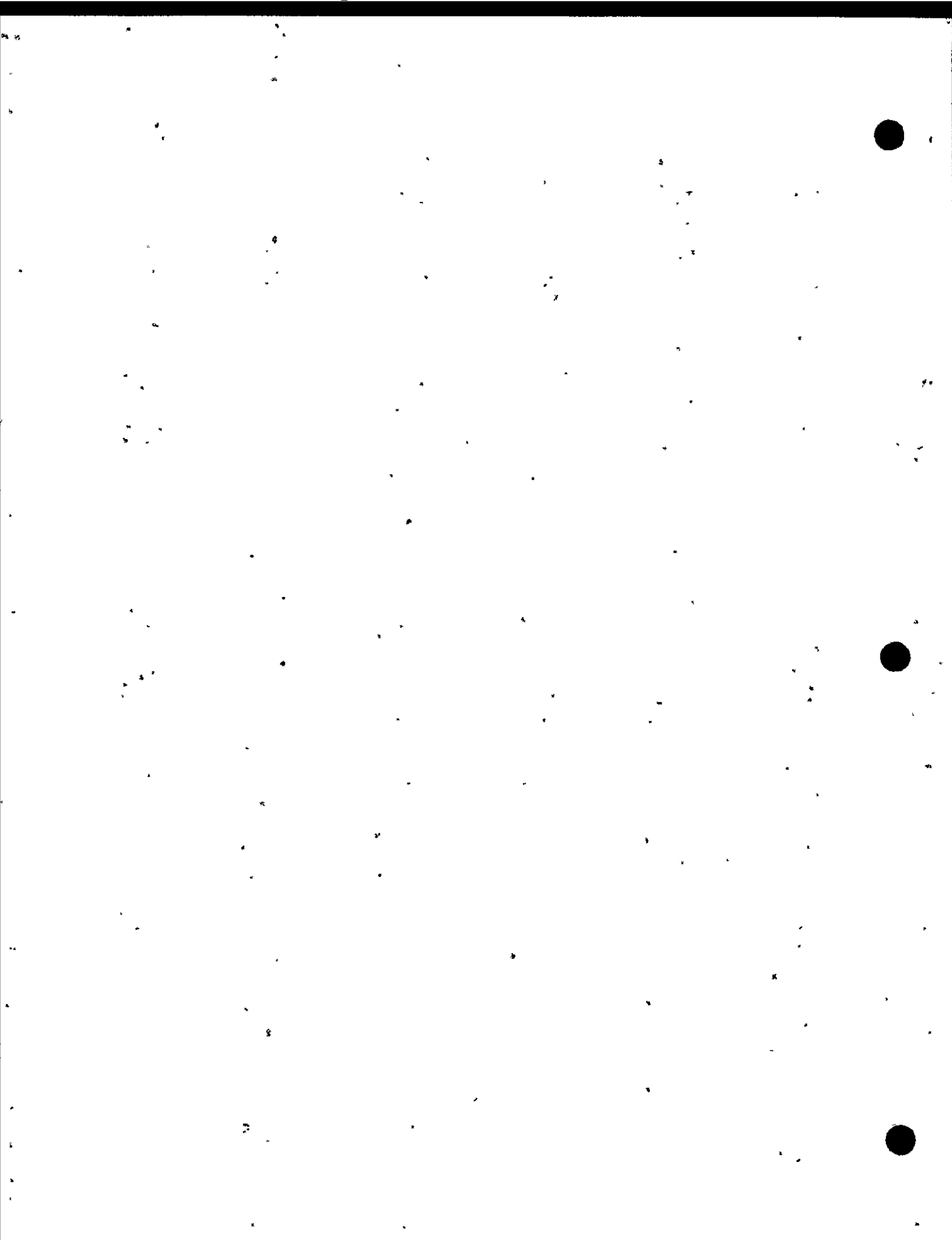
Since attacks on strategic targets and tactical operations against enemy air and communications would require only a small part of the potential of AAF units available for the Luzon campaign, third phase tactical operations were to be the main activity of Fifth Air Force and attached units. Sources disagree as to the exact figures, but more than 47,000 (out of a total of about 55,000) sorties on Luzon were flown in support of ground troops. Not all third phase missions were close support--headquarters, troop concentrations, motor pools, or supply dumps well behind the lines might be highly profitable ground support targets--but on Luzon a tremendous number of sorties were to be flown in close support of the infantry.

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observers were the first in SWPA to direct air operations from the front lines. In fact, Fifth Air Force had provided air alerts of fighters, A-20's, or B-25's over every beachhead within range of such planes during the drive up the New Guinea coast. Moreover, air strikes had been directed from the front lines in the Admiralties and had been directed visually, if not from the actual front lines, at Wakde-Sarmi and Biak. Indeed, forward observer teams from Fifth Air Force SAP's had directed close support strikes in support of I Corps on Luzon before the arrival of Marine units. The necessity for exploding the myth, however, should not be allowed to conceal the significance of the contributions of Marine Aircraft Groups 24 and 32 to close support on Luzon.¹⁵

By mid-1944, the Marine Corps air units in the South Pacific had been left behind by the advance of the fighting fronts to the Marianas and western New Guinea. Rabaul was isolated and somnolent; the Japanese on Bougainville asked only to be left alone; and New Zealand aircraft could easily take care of the small amount of pounding needed to maintain the status quo. Thus the Marine Corps units of Air Command Northern Solomons (ComAirNorSols) were in search of a mission.

The search ended on 10 October 1944, when it was learned that 1st Marine Aircraft Wing (MAW) organizations were to participate in the Philippines campaign with the primary mission of supporting ground forces. At the time, no Marine Corps doctrine on close support existed, nor were the pilots of 1st MAW trained in close support work. Therefore the 24th Marine Aircraft Group (MAG) when it learned of its new mission, was compelled to initiate a study of close support and a training program.



The study apparently gave great weight to the opinions of GENPAC Marine Corps commanders on the need for fast action in response to air support requests, and to their advocacy of support air direction by ALP's in the front lines. The doctrine finally evolved by MAG 24 was as follows:

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Close air support is an additional weapon to be employed at the discretion of the ground commander. He may employ it against targets that cannot be reached by other weapons or in conjunction with the ground weapons in a coordinated attack. It should be immediately available and should be carried out with deliberation and accuracy and in coordination with other assigned units.

There was little in this doctrine with which Fifth Air Force could quarrel except the phrase "immediately available." A theater air force, though its mission be almost wholly tactical, must reserve the control of its own aircraft in case action against the enemy air force or against lines of communication should become necessary. Marine air commanders were not immune from this necessity. In the Okinawa operation, where the tactical air force came under Tenth Army and was commanded by a Marine Corps officer, "There were," in the words of Marine Corps Brig. Gen. Vernon E. Legee, "days . . . when the overriding priority of the air defense against kamikaze attacks required the dispatch of every available plane on interception missions, leaving none for the close support of troops."¹⁷ General Kenney wrote on 6 January 1945:¹⁸

Our ground commanders are unanimous that our first objective is the enemy air force, second, the sinking of enemy shipping to isolate his troops and prevent their getting supplies and reinforcements, third, the reduction of shore defenses prior to the landing, and fourth, the close support of ground forces after the landing is made.

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But once planes were assigned to a close support mission, it followed inevitably that they should be used against targets of the ground commander's choosing, that the attacks "should be carried out with deliberation and accuracy," and that the support air should be coordinated with the other arms used against the enemy.

In its training program on Bougainville, MAG 24 used both classroom and field exercises. Lectures were given by air liaison officers with experience in the Central Pacific, by Seventh Fleet intelligence officers, and by ground officers of the 37th and Americal Divisions, which were also slated for the Philippines. In the field, the SBD's took part in simulated attacks by the 37th Division on abandoned Japanese positions on Bougainville. But apparently no attempt was made to allow ALP's attached to the ground troops to direct the simulated attacks. On the contrary, MAG 24 created its own "air liaison parties" (sometimes called "K-ration teams" for some obscure reason), which were to go forward and direct strikes. These parties, though still small, were larger than a battalion or regimental ALP. Made up of a pilot and an intelligence officer and a few enlisted communications men, they more closely resembled a Fifth Air Force SAP. Like the SAP's, they were equipped with an AN/VRC-1 jeep-mounted radio which could be used in directing strikes from an observation post on or near the front lines. Since the training program envisaged support aircraft on air alert, the control function of the Marine air liaison parties* received a great deal more emphasis than the procedure for requesting missions.¹⁹

* To avoid confusion, these parties will always be referred to as "Marine air liaison parties" in this monograph, while the conventional air liaison parties will be referred to as such, or as ALP's. The reader should bear in mind that the Marine air liaison parties were not the normal ALP's which requested missions for ground units.

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MAG 24 and MAG 32, the latter arriving on Bougainville in time to take some part in the training program, arrived on Luzon on 25 January 1945. Collectively the two groups were known as "Marine Air Groups, Dagupan" (MAGSDAGUPAN); they operated under the control of 308th Bombardment Wing. They went into action on 27 January and flew about 250 sorties before the end of the month, but their operations were similar to those of other air units. Targets, all of them more than 1,000 yards from the front lines, were assigned as a result of requests received from SAP's with I Corps units and were set up the night before the attack. Such missions afforded little opportunity for testing the Marine air liaison parties, but they did give the SBD pilots a chance to demonstrate their ability to hit pinpoint targets.²⁰

MAGSDAGUPAN were to receive an early opportunity to test the Marine air liaison parties. On 1 February, the 1st Cavalry Division began a dash for Manila from Guimba, and the SBD's and the 82d Tactical Reconnaissance Squadron were ordered to provide an air alert over the division during daylight. This alert, composed of nine SBD's and four F-40's or P-51's, was to be used to watch enemy movements, break up any attack attempted against the left flank of the division, and to serve as an immediately available force to strike any enemy defenses which might oppose the advance. Should more striking power be needed, a squadron of A-20's was to be available on ground alert.

Two Marine air liaison parties with radio jeeps were assigned to the division, and one accompanied each brigade during the advance. These parties maintained radio contact with the planes overhead, and, for communication with Dagupan, a truck with more powerful radios went

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along with division headquarters. Thus the marines had virtually duplicated the equipment and function of an SAP. For communications with 308th Wing, a DUKW-equipped SAP also accompanied the advance.

The aircraft supporting the drive toward Manila struck an enemy road block on the northern approaches to Cabanatuan on the morning of 1 February, then, bombing well ahead of the column, disorganized a Japanese armored force which might have attacked the troopers' left flank at Gapan. At the Santa Maria River, on 2 February, SED's made several dry runs at a strongly entrenched enemy force, frightening them into abandoning their positions.

The dive bombers made few close support strikes during the three-day drive on Manila from the north. Their main service to the 1st Cavalry Division was as a reconnaissance force. The presence of Marine air liaison parties with the brigade headquarters, and the knowledge that they were in direct communication with planes overhead, made a deep impression on 1st Cavalry Division commanders. Influenced by this, and perhaps by memories of air support in the Admiralties, these officers became missionaries of a sort, and preached the gospel of close air support to other divisions of XIV Corps.

MAGSDAGUPAN continued to participate in the Luzon campaign for several months, during which they flew almost 9,000 sorties--about 15 per cent of the ground support sorties flown under Fifth Air Force operational control. Their performance was superb; the accuracy of the SED's became renowned. The dive bombers contributed a great deal to the acceptance of close support by ground commanders, some of whom

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entered the campaign with strong objections to bombing near their lines. The Marine air liaison parties capably directed Marine and Army aircraft, and aided in demonstrating that efficient air support could be given to guerrilla troops. But all this does not alter the fact that the Marine aircraft groups were simply a part of the 308th Wing for the remainder of their stay on Luzon. Their missions were assigned to them by the wing on the basis of requests submitted to the latter.²¹

The drive on Manila did not come from the north alone. On 31 January elements of the 11th Airborne Division landed at Masugbu on the western coast of Batangas Province, then moved against Tagatay ridge, where the main Japanese defenses were assumed to be located. A paratroop drop took the ridge in advance of the force marching up from the sea, and as soon as supplies could be brought up the division moved northward toward Manila.

Air support of the northward advance was of the same nature as was supplied the 1st Cavalry Division moving south. From four to eight P-47's or P-38's were over the beachhead on call for close support all of D-day, and four fighters were overhead every day thereafter until 24 February. These fighters served a triple purpose: they guarded the 11th Airborne Division against enemy air attack, provided it with on-call close support, and guarded part of the route flown by transport planes on their way to Lingayen. An S&P landed with the division at Masugbu, and an S&P officer jumped with the parachute troops at Tagatay ridge. The paratroopers needed no support missions, but several

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times the SAP, when support from the air alert fighters proved insufficient, called for and obtained attacks by light bombers.

Strikes in support of the 11th Airborne Division were from the beginning fairly numerous, since the controllers made a point of finding targets for the air alert fighters, but they were not of great importance until advanced elements of the division reached Nichols Field, on the outskirts of Manila. For 17 days, after 7 February, close support played an especially important part since heavy resistance was encountered and the airborne division had only pack artillery. This made it necessary to depend primarily on aircraft for bombardment of gun emplacements, pillboxes, and entrenched enemy troops. Five bomber missions, including 65 SED sorties, hit the Nichols Field area on 7 February, and fighter strikes were made every day thereafter until 25 February.²²

The battle for Manila proper was fought almost entirely without air support. The 38th Bombardment Group sent B-25's over the metropolitan area several times, but in nearly every instance the strike was no longer desired when the planes arrived. Because of the great number of civilians in the city, and because he wished to avoid destroying its buildings, General of the Army Douglas MacArthur forbade aerial bombardment in the city proper. The bitterness of the Japanese defense served to bring about perhaps as much destruction as would have air support, but civilian lives were doubtless spared by MacArthur's decision. At any rate, fighting within the city was at such close quarters that it is doubtful that air support could have been utilized to advantage. One thing

that airpower could and did do was silence enemy artillery fire at night by keeping a P-61 on patrol over the enemy's positions.²³

Outstanding Ground Support Operations on Luzon

The amount of close support given the ground forces during the Luzon campaign was so great that any attempt to describe it in day-by-day order would result in excessive length and unbearable repetition. From February through June 1945 only one day passed on which planes did not take off on close support missions. On 22 February, 15 troop support strikes were flown against 15 separate targets, involving sorties by 99 B-24's, 81 SBD's, 17 P-38's, 8 P-40's, 46 P-47's and 15 P-51's. One month later, on 22 March, bad weather limited the air effort, but 13 missions struck 14 targets, using 8 B-25's, 74 A-20's, 18 SBD's, 21 P-38's, 42 P-47's, and 85 P-51's. On 22 April, 23 missions, involving 468 sorties by B-25's, A-20's, P-38's, P-40's, P-47's, P-51's, and F-6's, struck 15 target areas. On 22 May, 515 sorties by the same types of planes, excluding the P-40's, struck six separate target areas. On 22 June only 270 sorties went out on troop support missions, all by fighter-type aircraft, and by 22 July the need for air support had so declined that only 6 missions by 121 B-25's, P-38's, and P-51's took to the air. The above dates were selected arbitrarily, but are nonetheless typical. Close support activity on Luzon continued, though on a greatly reduced scale, until the end of the war.²⁴

Since it is obviously impractical to discuss all Luzon close support operations in detail, some important engagements will be reviewed as examples.

Fort Stotsenburg and the area west of the fort were an early scene of close support activity. The Japanese forces in this area posed a threat to the right flank of the drive on Manila, so the 37th Infantry Division was deployed against them while the rest of XIV Corps pushed on to the south. Three times in January--B-24's on the 15th, A-20's on the 23d, and P-51's on the 27th--the Fifth Air Force struck the fort, which fell to the infantry on 31 January.

The Japanese, though pushed out of the fort, were strong in the hills immediately to the west, and the 40th Infantry Division, which replaced the 37th in this area, found a well dug-in opponent blocking its every move. Nine tactical reconnaissance P-40's led 16 P-38's in to strike the defenses on 6 February, and on the 7th 113 P-40's, A-20's, and SBD's struck the Japanese-held ridges. After this buffeting the enemy withdrew, offering only token opposition to the infantry advance, but he was still an organized force in being and therefore a threat to future operations.

Six air strikes by P-38's, P-40's, A-20's, and SBD's kept these Japanese off balance between 10 and 20 February. Then, on the 21st and 22d, 184 B-24's pounded the remaining enemy-held positions. SBD's attacked ahead of the advancing infantry on 23 February, and again the Japanese were driven out of their prepared positions and forced to retreat into the hills to the west. Weakened by many casualties and driven from commanding ground, the enemy west of Fort Stotsenburg was no longer in a position to interfere with operations elsewhere. Limited infantry action and persistent air attacks were depended upon

It was well that this massive air support was available to Sixth Army. On Luzon the ground forces were not merely establishing a perimeter against which the enemy could dash out his brains in futile counterattacks. Rather were they seeking out the enemy where he was strongest, attempting to destroy him. The Japanese, after the fall of Manila, took refuge in the hilly terrain which they knew so well how to defend, digging mutually supporting cave and dugout positions. These emplacements were, though perhaps not so strong, of the same nature as those encountered on Iwo Jima and Okinawa, and the ground troops needed all the aid the air could give them in reducing such defenses.¹⁴

Marines on Luzon and the Drive to Manila

There is a legend which holds that Marine Corps aviation units on Luzon taught Fifth Air Force how to execute close support missions. The Marine air units did make contributions to close support techniques, and, as will be seen, provided highly effective close support on Luzon and, later, in the Visayan Islands and southern Philippines. Without detracting in any way from the important contribution made by Marine units on Luzon, however, it must be stated that the legend, assiduously cultivated by Marine Corps publicists and historians, is a myth and nothing more.

The main points of the legend are that Marine units provided air alert support planes for the first time in SWPA, and that Marine forward

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to keep these troops neutralized. Almost 300 sorties by SED's, P-38's, P-47's, and P-51's were flown against them from 24 February through 1 May. The effectiveness of these strikes was demonstrated when infantry patrols found hundreds of Japanese corpses in the area.²⁵

Air support was given all the ground operations devoted to clearing Manila Bay, but support of the combined paratroop and amphibious assault on Corregidor was the only operations of its kind in the Pacific war and is worthy of special attention. The greatest weight of air support on Corregidor was given before D-day (16 February 1945). Fifth Air Force planes, and Thirteenth and Seventh Air Force B-24's flying from Leyte, Morotai, and Palau dropped 3,128 tons of bombs on the less than one square mile of land which made up "the Rock." Despite the heaviest concentration of bombs in SWPA operations, however, "the Japanese troops hiding in the bowels of the battered island obviously remained very much alive."²⁶

The plans for the Corregidor operation encompassed considerable air support. A CSA afloat was aboard the flagship of the naval attack force, but actual control of aircraft in such cramped quarters as the island afforded was turned over to an air coordinator who circled overhead in an A-20 on D-day, or to a support aircraft party officer who, along with naval gunfire control officers, jumped with the paratroops.

At 0759 on 16 February, 24 E-24's dropped fragmentation bombs on gun positions; they were followed by 11 B-25's which bombed and strafed from low altitude. The E-25 attack was coordinated with an attack on Corregidor and adjacent Caballo Island by A-20's; this strike continued until one minute before the paratroop drop began. While the

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drop was going on, and while the amphibious troops were crossing from Mariveles, two groups of A-20's bombed and strafed predetermined targets. For the remainder of D-day fighters were overhead and on call for ground support missions, but apparently only one flight of P-47's was actually called down.

P-47's gave support on Corregidor every day through 25 February, flying some 150 sorties. Napalm was the usual armament for these strikes, but demolition bombs served on occasion. Napalm killed many Japanese, and flushed others out into the open, where they were finished off by the infantry. On 19 February, demolition bombs penetrated into an underground barracks and reportedly killed some 500 enemy soldiers. Organized resistance was over by 27 February, and on the 28th further air attacks were forbidden. A stubborn blockhouse forced a modification of this order, however; 16 P-47's supported ground troops in a coordinated attack on this installation on 1 March, even as Allied shipping was steaming into Manila Bay.²⁷

Clearing the Japanese from south Luzon was accomplished soon after the fall of Manila, as columns extending southward from that city and northward from amphibious landings along the coast sought out and destroyed Japanese forces. Organized enemy troops and stragglers from other areas gathered at Mount Malepunyo, in Batangas Province, however, and held out there for some time by virtue of mutually supporting pillboxes and caves. Fifth Air Force supported operations all over south Luzon, but Mount Malepunyo, which was bypassed, surrounded, and then reduced by the 1st Cavalry and 11th Airborne Divisions, may be taken as an example.

Air action against this well-organized position began on 13 April when 32 P-38's made bombing and strafing attacks. Ground action at this time failed to achieve its objectives, but reinforcements were brought into the action, and a supply road was constructed so an attack could be made from a new direction. While these preparations were going on, 27 A-20's, and 16 P-38's struck the enemy positions on 21 April, and 15 and 28 P-38's respectively prepared the way on 23 and 24 April. The advance into the enemy bastion began on 25 April, supported by three squadrons of A-20's and 24 P-38's. The *coup de gr[^]ace* was given on 28 April as P-38's, dropping 1,000-lb. bombs within 500 yards of the infantrymen, enabled them to capture a dominating hill. Japanese trying to leave the area were slaughtered by patrols, and organized resistance was at an end in Batangas Province.²⁸

After the fall of Manila, the Japanese held a strongly fortified line running from Antipolo on the south through Montalban and to a point northwest of Ipo. Thus the enemy occupied a great arc from a point slightly southeast of Manila to Morzagaray to the northeast. This so-called Shimbu line was located in advantageous terrain and, being defended in depth, was the scene of heavy fighting from February into June. Air support was given Sixth Army and guerrilla elements all along this line throughout the period. It was in the neighborhood of Ipo, to the northeast, that the line was strongest, however, and air effort was concentrated against that section.

Between 4 February, when 13 A-20's struck Ipo, and 28 June, when 10 P-51's worked over enemy remnants in the area, almost 5,000 sorties were flown against the luckless defenders. P-51's, which flew more

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than 2,200 sorties, were most active, but P-38's flew more than 1,500. The remainder were contributed by B-24's, A-20's, and P-47's in the main, although P-40's flew two strikes and B-25's an equal number.

B-24's contributed more than 100 sorties the last three days of February, then returned with 99 sorties on 2d, 3d, and 4th May. The heavies met no antiaircraft opposition worthy of note and bombed from 2 to 4,000 feet, dropping 500-lb. and fragmentation bombs. The crews noted that the bomb line at Ipo had moved less than 1,000 yards between the end of February and early May. It seems unlikely that the May strikes of the Liberators helped the ground forces move any faster; the area was partly cloud-covered throughout the three days, and the bombers had to make individual runs, dropping through holes in the clouds, "a process that sent a large percentage of bombs offside." After the strike on 2 May one squadron reported that "If every . . . mission were . . . like this one, the Air Forces would contribute mightily to the war effort by converting all aircraft into aluminum cigarette holders and joining the infantry."²⁹

The B-24 effort was only a small part of the total during this period, however. Other types of aircraft, predominately P-51's (about 1,450 sorties) and A-20's (about 350 sorties) flew almost 2,000 bombing and strafing sorties against this sector of the Shimbu Line between 4 February and 15 May. The ground forces were moving forward, though very slowly, throughout this period. Progress was slow because munitions were being used rather than manpower; the ground forces estimated that air attacks during the first six days of May had killed 2,000 Japanese

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troops. The enemy was driven into his caves by prolonged aerial and artillery bombardment which inflicted casualties and blasted camouflage from the cave entrances. Infantry demolition teams moved forward under cover of the bombardment and either sealed the caves with TNT or killed the occupants with flame throwers. Such tactics might have been too slow for the Central Pacific, where it was essential to conclude the fighting on an objective while the naval forces could remain in the area, but after Manila Bay was secured there was no great hurry on Luzon. No doubt the positions around Ipo could have been overrun more rapidly by more aggressive infantry action, but substituting bombs and shells for men accomplished the same result--³⁰ the destruction of the enemy troops--with fewer American casualties.

On the night of 6 May the 43d Infantry Division launched a sustained drive against the Ipo Dam area, from which came much of Manila's normal water supply. From 6 to 14 May, as this attack continued, approximately 220 sorties by A-20's, 140 by P-38's, and 350 by P-51's aided the ground soldiers. By 12 May, Allied troops were within 1,000 yards of Ipo on the south, 5,000 yards away on the west, and 3,500 yards away on the northwest. Torrential rains on 13 and 14 May almost halted the attack, however, since muddy roads prevented bringing up supplies and evacuating the wounded.

Since it was desirable to capture the Ipo Dam intact, Fifth Air Force laid on all available fighter-bombers to support the continuing drive. General Kenney states, perhaps facetiously, that the lack of water for the swimming pool at his quarters in Manila influenced the air force decision. At any rate, the greatest napalm strikes of the Pacific war resulted.

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Support for the final attack on Ipo Dam was carefully planned by V Fighter Command operations and intelligence sections, working with the ground forces G-2 and G-3. Five centers of enemy resistance, each about one square mile in area, were selected for destruction. These were then divided into three target areas, one of which was to be hit each day during the three-day operation being planned. In view of the uncertainty of the weather, a P-61 weather ship was detailed to reconnoiter each morning before time for the strike planes to take off; this prevented waste of fuel on the morning of 15 May, when the target area was completely closed in. According to the plans, aircraft in the target area were to be controlled by an air coordinator, which position was to be filled by a group commander. The ground forces, as instructed by the SAP with the 43d Division, were to outline the appropriate targets with white smoke. In view of the nature of the enemy's cave defenses, which had withstood day after day of battering by artillery and demolition bombs, it was determined to load the planes with napalm.

On the morning of 16 May, the reconnaissance P-61 reported that the weather was good over Ipo, so four groups of fighters, one of P-51's, one of P-47's, and two of P-38's, roared to the attack. As directed by the air coordinator, each flight went over the target as it arrived on station, usually eight planes abreast. At first each plane released both its napalm tanks simultaneously, but after several pairs had collided in the air and ignited prematurely, pilots allowed an interval between releases. The services of the air coordinator were essential,

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because the smoke from raging fires had hidden most landmarks by the time the later waves arrived; had he not been on hand to point out the areas where the bombs were to be dropped, complete coverage of the target might not have been accomplished.

On 17 May, three groups of P-58's and one group each of P-47's and P-51's came over Ipo. The operation was a repetition of that of the previous day, except that some fragmentation bombs were mixed with the napalm and the problem of visibility for later waves became even more acute. For the strikes on 18 May, again by five groups, all runs were made downwind, and the first wave dropped its bombs at the end of the target area. Each succeeding wave then dropped upwind of the preceding drop. During the three days, 673 fighter bombers had dropped 571 tons of napalm.

Moving forward behind these strikes, the infantry found enemy artillery completely eliminated and encountered only sporadic resistance from Japanese troops. Ipo Dam was captured intact on 17 May, although demolition charges were in place and wired, and on the next day the last hills commanding the dam were overrun. The 43d Division counted 2,100 enemy dead, of whom 650 were estimated to have been killed outright by the air strikes. Most of the remainder had lost their lives to infantry and artillery fire while running from napalm bombs. Many caves were filled with dead Japanese.

As was usual on Luzon, fighting in the Ipo area did not end when Allied objectives were attained. The Japanese east of the dam would neither retreat nor surrender, and were therefore targets for bombing

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and strafing until the end of June. Almost 1,500 more sorties were flown before the end of May, and about 550 during June. The importance attached to air support at Ipo, aside from the number of sorties, is indicated by the fact that the infantry in that area received support on all but three days between 7 April and 15 June.³¹

Another area of sustained close support on Luzon was Balete Pass, the gateway into the Cagayan Valley. Allied ground troops of the 25th Infantry Division reached the southern end of the approaches to the pass the first week in February, and hard fighting continued in this area through May. In reality, the Balete Pass battle was a pincers movement, with the 32d Infantry Division fighting toward Santa Fe along the Villa Verde trail from the west. Not until the fall of Santa Fe, however, did the two divisions join forces, so it is convenient to study air support at Balete Pass separately.

More sorties, almost 7,000, were flown against the Japanese at Balete Pass than were flown against the Ipo area, but the Balete Pass air support reached no climax such as came at Ipo in mid-May. During the operations at Lingayen Gulf, bombing attacks were made on the pass in attempts to cause landslides which would cut communications along Highway 5 running through the pass. Troop support began with an attack by 35 A-20's on 19 February. Other types of planes soon joined in, and by the end of March 244 B-24 sorties, 115 SBD sorties, 89 A-20 sorties, and 712 by fighter aircraft, mainly P-38's and P-51's, had hammered at the Japanese defenders.

Frontal attacks up Highway 5 during March and the first week in April made only small gains. Japanese dug into the hills around

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Kapintalan held their ground despite air and infantry assaults. To make matters worse, a severe shortage of artillery ammunition developed during this period, so air strikes were more important than ever. Incidentally, 90-mm. antiaircraft guns, which were brought to the front because there was plenty of ammunition available for them, proved a most effective weapon against cave positions because of their high velocity and flat trajectory.

When frontal attacks failed, 25th Division troops on 7 April abandoned the highway and took to parallel ridges on either side. Aided by an average of 63 sorties a day by Fifth Air Force planes which dropped bombs and napalm within 100 yards of friendly troops, two regiments, moving north on each side of the road, enveloped and captured Kapintalan on 28 April.

During the first half of May, the demands for air support along the Shimbu Line and bad weather limited the amount available to I Corps, but nonetheless an average 59 sorties a day, mainly by P-51's, hit the Japanese in the Balete Pass area from 1 to 13 May. With this support the infantry made its way along the ridges to within 300 yards of the pass itself by 5 May and, after careful preparation, captured it on the 13th.

After a few days spent in regrouping and recuperation, the 25th Division pushed on to the north. Here air support was available now, and every day more than 100 A-20's, P-38's, P-47's and P-51's aided the ground troops. On 26 May, with 250 A-20's and fighter bombers preparing the way, the 25th Division captured Santa Fe and made contact with the 32d Division, approaching from the west. The back of the

Japanese forces was now broken; the 37th Infantry Division, which replaced the 32d, fought its way into Aritao on 5 June as 56 P-47's and 60 P-51's bombed targets assigned by the division's S&P. Bambang was captured the next day; armored forces and motorized infantry could now proceed to drive the Japanese out of the Cagayan Valley. The infantry had some mopping up to do in the Balete Pass area, and about 300 fighter-bomber sorties supported this work during the remainder of June.

Liaison, Communications, and Control

Good liaison between air and ground units was an essential element in effective close support. Fifth Air Force assigned liaison officers to Sixth Army headquarters, and the ground forces assigned representatives to Fifth Air Force, to 308th Bombardment Wing during the first months of the Luzon operation, and to V Fighter Command. Planning sessions were attended by representatives of both services--and of the Navy if amphibious operations were contemplated. Personal contact between Gen. Walter Kreuger and Maj. Gen. Lnnis C. Whitehead, Fifth Air Force commander, contributed to good liaison at air force and army level.

Fifth Air Force attached a support aircraft party to each of the three corps which operated on Luzon, and the officers of these parties served as liaison personnel as well as a means of controlling missions and transmitting requests. Informally, each of the Fifth Air Force bombardment wings supported a corps: the 308th, based at Lingayen, aided I Corps in the north; the 309th, based at San Marcelino, supported XI Corps east of Manila; and the 310th, based on Mindoro, supported

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XIV Corps in southern Luzon. This arrangement was not rigid; if either of the corps needed more help than the appropriate wing could provide, arrangements for the additional planes could easily be made through Fifth Air Force or V Bomber or Fighter Command. Liaison in the first two cases was highly effective, but the distance between Mindoro and Luzon caused difficulties in liaison and communications between 310th Wing and XIV Corps.

It was also necessary, especially during the first phases of the campaign, to establish liaison with guerrilla units on Luzon. This was first accomplished through Sixth Army, but 308th Wing soon discovered that information received through this channel was too old to be useful. Therefore direct contact was established between 308th Bombardment Wing headquarters at Lingayen and USAFIP (United States Army Forces in the Philippines) headquarters at Luna. In February the guerrillas constructed an airstrip at Luna to facilitate the exchange of maps and documents. Marine air liaison parties and forward observer teams from SAP's joined guerrilla units to control close air support and served as liaison agencies as well. Air support was particularly valuable to USAFIP, which had little or no artillery, but the exchange was not one-sided because the information secured from the guerrillas was very valuable; it made it possible for the air forces to give effective assistance to the infantry by destroying Japanese troops in rear areas. USAFIP was frequently able, also, to inform air units of the results of their strikes, although there was a tendency for these reports to be exaggerated. ³³

SAP's, at least one of which served with each division in action, accomplished liaison at divisional level. These units not only served as a channel through which requests from the division went to air headquarters; they also controlled strikes against enemy rear areas and, through forward observer teams, directed close support strikes. They were expected to advise infantry commanders on close support. SAP officers might be--and usually were--of low rank, but they were men of importance at infantry headquarters. The historian of the 11th Airborne Division tells of "an Air Corps Lieutenant named Hatfield, who landed with his DUKW and radio at Wasugbu." The division had no air liaison parties, but Hatfield "moved wherever the main attack was occurring and directed his planes to the target." A great believer in airpower, "at times he seemed cantankerous . . . but day after day he superbly handled the many air support missions. . . . When air strikes were hard to obtain, Hatfield would scan the skies and, with his persuasive radio voice, grab planes out of the air and direct them to our support."³⁴

No formal liaison existed between air and ground units below the division level, except in the case of independently operating RCT's. Not all divisions had air liaison parties, and when these teams were available, they were either ground force or JASCO personnel and therefore could not provide liaison between air and ground. In practice, of course, the SAP officer frequently came in contact with regimental and battalion commanders, and so did the SAP forward observer teams. Of even greater importance to mutual understanding as well as to the

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morale of the ground troops were the visits made by pilots to forward ground units. This practice, apparently begun by marines from Dagupan, became widespread before the end of the campaign. Ground commanders were enthusiastic in their approval. ³⁵

An elaborate communications system was required for air support on the scale of the Luzon operation. Each of the three bombardment wings had a bomber communications center, and an SAP for communications with the SAP's assigned to the ground forces. Most communications dealing with close support were handled by the SAP, but a high frequency voice channel leading into the bomber communications center and intended primarily for control of flights from wing headquarters and transmission of strike reports by aircraft in flight was used by bombers not equipped with VHF for communication with ground stations in coordinated missions.

By the time of the Luzon campaign, all Fifth Air Force fighter planes were equipped with VHF radios with four frequencies. Most bombers were provided with similar VHF sets in addition to HF radios, but A-20's and SBD-5's (the latter being one of the two types used by the Marine units) had no VHF facilities. Thus it was necessary for SAP's and forward observers to be able to communicate with support aircraft on either HF or VHF frequencies. Since HF transmissions had much longer range than VHF, HF channels were more subject to interference from other stations. For this reason, SAP's reserved the bomber tactical voice channel for communication with SBD-5's and A-20's. Even so, confusion and misplaced bombs sometimes resulted when planes with different communications facilities were striking the same target.



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The SAP's, as noted earlier, each had one powerful SCR-399 radio, four SCR-193's, one SCR-610 FM set, and the jeep-mounted AN/VRC-1. The SCR-610 proved to be of little use during the Luzon campaign; many SAP's turned them in, and the remainder seldom used them. For communicating with aircraft, the SAP's relied almost entirely on the AN/VRC-1's, which had both HF and VHF channels. These radios had few malfunctions, but when they were used for long periods, as was frequently the case on the Shimbu Line and in the mountains, the necessity for continuous idling of the jeep motor to provide power led to frequent breakdowns of the jeep engines, which held up but a few weeks under the strain. Before the end of the campaign, VHF sets were often mounted in liaison-type aircraft, permitting the controller to direct strikes from the air.

The SCR-399's and the SCR-193's transmitted requests and other information back to the bomb wings or to Fifth Air Force. Lack of radio discipline by some operators at times created difficulties. According to one unit which had come to Luzon from the Thirteenth Air Force on Bougainville, "5th Air Force operators working other stations on the CW net had a procedure all their own, incorporating 'ham' signals, Army, Navy, Air and a few special signals of their own."³⁶ The only complaints on the SCR-193 came from the 25th Infantry Division, which reported that the set was not powerful enough for use in the mountainous area around Balete Pass.

Visual signals were not greatly different from those used in earlier operations. Panels were generally used to mark front lines, and pilots generally did not see them. Ground forces used white

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phosphorous smoke to mark targets in most instances. Guerrillas behind the Japanese lines marked their areas with panels laid so as to form two letters, the combination being changed from time to time to prevent the enemy's taking advantage of it. Sometimes colored smoke was used for target marking and sometimes to mark front lines, and red smoke was often a signal to call off an air attack. In March the 308th Wing ordered the use of red flares as a standard signal for calling off attacks, and prescribed varying the use of smokes for front line and target marking so as to prevent the enemy from knowing what signals to use in order to confuse support aircraft pilots.³⁷

Requests for air support included the type of strike desired (bombing, strafing, reconnaissance, etc.), the time it was to be delivered, complete target data and information on bomb line and disposition of friendly forces, methods of target marking to be used, and any other pertinent information. The requests often recommended that a certain type and number of aircraft be used and that they carry a certain type of bomb, but final decisions on these matters lay with the air commander. The altitude of the attack and the technique to be used (dive bombing, medium altitude, skip bombing) were left up to the commander of the group making the strike.

There were, as mentioned earlier, two air support nets for the transmission of requests during most of the campaign, and both were usually available. These nets included all CAF's (division, corps, army, and bombardment wings), Fifth Air Force headquarters, and headquarters ships during amphibious operations. All air support requests, except some from guerrilla units, came over these nets.



If requests originated below division level, except in the case of an independent RCT with SAP attached, they were transmitted to the divisional SAP over ground force communications. If the division had ALP's, they transmitted the request to the SAP, but otherwise the division's command communications were used. Division headquarters made the final decision as to whether the request was to be submitted, and the SAP officer was expected to advise the commander on the suitability of targets for air attack.

Requests could and did originate at the corps or army level, but most came from the divisions. The SAP normally transmitted the request to the appropriate bombardment wing. SAP's at corps and army headquarters monitored the net, and if they did not break in to disapprove, silence was taken as consent. The division set up priorities on each of the missions it requested, and corps, monitoring, established priorities for all missions on the corps front.

There were some exceptions to the rule that requests were transmitted to the bombardment wing supporting the corps involved. Requests for heavy bombardment missions, practically all of which originated at corps or army level, went directly to Fifth Air Force headquarters. Also, SAP's with the troops landing at Batangas or on Corregidor sent their requests directly to Fifth Air Force, since no bombardment wing had been assigned to support the operation. Fifth Air Force sent these requests on to one of the bombardment wings, usually the 310th, for execution. The same procedure was followed in the case of the Subic Bay landings, where, although the 309th Bombardment Wing had been



assigned as the air task force, only its headquarters went ashore with the assault troops.

When a request reached the bombardment wing, it was first recorded. All except those of an emergency nature had to be submitted by 1600 of the day preceding the strike, so evaluation and coordination could begin at that time. The SAP officers at the bombardment wing checked the requests against one another and against the Fifth Air Force's schedule for the next day to make sure there was no duplication, then presented them to a meeting of the wing commander, his chief of staff, his operations officer, and his intelligence officer. This meeting decided what missions would be flown, and in case the resources of the wing were not sufficient to meet all valid demands, relayed the excess to another wing. After the meeting, fragmentary field orders and "air intent" (a list of missions planned for the next day) were prepared, and material for briefing was gathered. Group commanders and their operations and intelligence officers were briefed at wing headquarters early in the evening, then returned to their respective areas to brief squadron commanders and operations and intelligence officers. The pilots who actually flew the mission were briefed in the morning before they took off.

Often, of course, support targets developed after the deadline for submitting routine requests had passed. In such a case, a request could be dispatched from the SAP attached to the ground unit in normal fashion, but designated as an emergency. Such requests were fulfilled by the bombardment wing whenever possible. Ground commanders had yet

another recourse when emergency targets developed; if planes were coming over to strike some other target on the division front, the SAP might divert them to the newly developed target. Some commanders, in fact, sent a request every day with the avowed purpose of diverting the strike aircraft to new targets which might develop before their arrival.

Whether the bombardment wing, or Fifth Air Force, granted or rejected the air support request, the requesting SAP was informed of the action taken. An affirmative reply told the ground commander the type and number of aircraft to be used, the time of their arrival over and departure from the target, the approach procedure to be used, the call signs of the flight leaders, and the radio frequencies to be used for air-ground communication. This information was standard with all such replies, and any other pertinent remarks were added.³⁸

The SAP's with the divisions controlled direct support missions. Often, when targets were far enough away from the front lines that there was no danger to friendly troops, the SAP merely gave the already briefed pilots permission to go ahead with their attack. Attached as they were to division headquarters, the SAP's were seldom far enough forward visually to control aircraft making support strikes, though this sometimes was possible in mountainous terrain, where a SAP with a division command post on one mountain top could visually direct planes against another mountain miles away. Usually, however, the SAP merely cleared the aircraft for attack against a distant target or turned them over to a forward observer team for close support strikes. The SAP had the duty of coordinating air strikes with artillery action,



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and to facilitate the performance of this task had direct wire communications with the division artillery command post. In addition, an artillery liaison officer was often attached to the SAP.

Forward observer teams on Luzon were of three types. Marine air liaison parties, of which there were seven in operation by the end of February 1945, were really forward observer teams, and as such they directed not only Marine SED's but Army planes as well. Fifth Air Force established some similar teams, composed of one officer and three enlisted men, which were assigned to SAP's for particular operations, but which could be transferred from one SAP to another as the need dictated. More numerous than either of these were the informal forward observer teams made up of personnel organic to the SAP. For direction of a particular strike or series of strikes, an officer and several enlisted men from the SAP would go forward to the front lines with a jeep-mounted radio, direct the aircraft, and then return to the main party. One of these informal teams might accompany a unit of the division engaged in independent or isolated action.

Whichever type of forward observer team controlled close support aircraft, it used the AM/VFC-1 radio for air-ground communication. Usually the jeep could be driven close enough to the front lines for direction to be carried out from its parking place, but not always. In the latter case, the jeep was driven as near the best observation post as possible, then a wire was run forward to the observer's station. In this way the observer could literally direct aircraft from the front lines.

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Strike planes were turned over to the forward observer after reporting in to the SAP. If smoke was to be used to mark the target, the observer described the marking of the front line to the flight leader and then made sure that he saw those markings. Then he told the flight leader to call for smoke on the target when he was ready. When the flight leader asked for smoke the SAP, monitoring the conversation, signalled the artillery, which fired a smoke shell into the target. The time of impact was called out to the flight leader so he would be able to spot the marker smoke even if the Japanese fired smoke of their own. Sometimes recognition was made doubly sure by firing several shells into the target area at regular intervals. The aircraft, once the smoke was on the target, made their bombing and strafing runs, using the smoke as an aiming point unless corrected by the observer. Sometimes mortar smoke was used in lieu of that fired by artillery.

On occasion, a target would be so situated that it was in defilade from friendly artillery and mortars. Often, also, USARP units had no smoke shells. When this situation existed, panels were displayed to mark the front lines and some type of visual signal, perhaps an arrow made of panels, was laid out pointing to the target. The observer then described the target to the flight leader very carefully, and directed him while he made an approach to the target at low altitude. This was repeated until the flight leader had positively identified the target and could lead his flight to the attack. The observer could then orient each pilot, as he made his approach, in relation to the bomb burst of the preceding plane. It might be added that repeated



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dry runs over targets defended by antiaircraft guns were discouraged, since they gave the enemy too good an opportunity to adjust his fire.

Another method of control practiced on Luzon was by means of an L-4 or L-5 liaison-type aircraft. The use of liaison planes to lead strike aircraft in to a target dated back at least to the Shaggy Ridge strikes in the Ramu Valley of New Guinea, where Australian Boomerangs pointed out Japanese positions to P-40's, and the Fifth Air Force had practiced this technique in western New Guinea in mid-1944. On Luzon, however, something new was added when the liaison aircraft were equipped with VHF radio sets, so that the pilot, usually a rated officer of the SAP, could communicate directly with the strike planes he was controlling. Aloft in the L-5, the observer could direct the strike planes in the same manner as from a ground observation post, with the advantage that he had much better visibility. If he wished, he could lead the strike to the target by swooping down upon it himself, or he could mark it by dropping a smoke grenade. Rocket installations on L-5's were experimented with during the campaign, so that the liaison planes could fire smoke into a target without exposing themselves, but this equipment was apparently not used in action.

An air coordinator was also a part of the control system used on Luzon. For large-scale support such as occurred at Corregidor in February and around Ipo in mid-May, an officer, usually a group commander, was designated to coordinate all the strikes made in the area. The SAP or forward observer gave instructions to the coordinator, who then gave specific directions to the various flights. SAP's always exercised control through the flight leader of small formations, except when the

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observer was giving corrections to individual planes making individual runs on a target. Normally, then, the flight leader served as air coordinator, receiving instructions from the ground and then directing the individual pilots under his command.

On the whole, this control system was highly effective. Thousands of strikes were executed, and in only a few instances did harm come to friendly troops. Ground troops developed such confidence in the aircraft giving them support that they welcomed strikes with 1,000-lb. bombs within 500 yards of their positions and napalm strikes much nearer.

Naturally there were failures. Too often support aircraft could not make radio contact with the SAP and were forced to return or to go on and strike secondary and presumably less critical targets. Sometimes artillery fire was not called off in time to permit a strike, but this was not as great a problem on Luzon as it was in the Central Pacific. Sometimes the Japanese managed to confuse the pilots of the support aircraft by firing smoke shells and giving false instructions over the radio. Such tricks never caused a bomb drop on friendly troops, but they sometimes did succeed in preventing any bomb drop at all. In March a Japanese radio operator succeeded in talking A-20's striking a Batangas target into range of machine guns, but no planes were shot down and the trick did not work a second time. In nearly every instance, the Japanese lacked enough knowledge of American idiom to make their false instructions convincing.³⁹

Tactics and weapons

Fifth Air Force had used heavy bombers for troop support in eastern New Guinea before the end of 1943, and had continued to use

them thus when they were needed and available all through the approach to the Philippines, so their use for this purpose on Luzon was nothing new. Between October 1944 and July 1945, B-24's flew about 950 sorties in support of ground troops in the Philippine Islands, the great majority of these sorties being against targets on Luzon. This amounted to about one-fourth of the total heavy bomber effort in SWPA during the period.

It does not follow that all these sorties were in close support of ground troops; most were pre-invasion strikes against Mariveles, Corregidor, and Legaspi, as well as areas in the Visayan Islands and Mindanao. Even when B-24's intervened in the land battle, as they did at Baguio, Balete Pass, Fort Stotsenburg, and the Shimbun Line east of Manila, their bombs were seldom if ever aimed at areas within 1,000 yards of the front lines. They did, however, receive instructions from the SAP's before bombing in such areas.

The heavies seldom encountered antiaircraft fire on ground support missions, and hence could make their bomb runs at a very low altitude for that type of plane. Runs below 4,000 feet were not uncommon, and seldom were bombs dropped from above 10,000 feet absolute altitude. Ordinarily, bombing approaches were made in normal squadron formation, but on occasion, especially when broken clouds hindered visibility, single plane runs were made. Despite the low altitude, which should have led to greater accuracy, many bombs dropped by B-24's fell outside the assigned target areas. Even so, infantry commanders regarded heavy bomber attacks as desirable, and they believed that the results were

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definitely worth while.⁴⁰

Available to the Fifth Air Force during the Luzon campaign were B-25 medium bombers, A-20 light bombers, and, until April, Marine SBD dive bombers. Between October 1944 and July 1945, approximately 30 per cent of all B-25 sorties were in support of ground forces, but, as in the case of B-24's, few of the missions were close support. The Mitchells usually attacked troop concentrations, supply centers, and villages well to the rear of the scene of fighting. Another specialty was sweeping roads ahead of the advancing ground forces. On 18 February, B-25's and fighters very successfully provided a "rolling air barrage" ahead of troops moving across Bataan Peninsula; the infantry, which met little resistance, reported finding parts of Japanese bodies hanging from trees along the way. Most B-25 strikes were made from treetop altitude, but some medium altitude strikes were made against mountain targets. At low altitude, the Mitchells usually attacked in line abreast, each wave composed of enough planes to cover the width of the target. Medium altitude bombing was done in formation, usually in flights of six planes. B-25's also served as night patrollers to observe and inhibit Japanese artillery fire.⁴¹

More than 50 per cent of the A-20 sorties flown by Fifth Air Force between October 1944 and July 1945 were against ground support targets. After the invasion of Luzon, the percentage of ground support was even higher. On that island, from April through July, 65 per cent of all effort by the light bombers was devoted to direct support of ground troops. Like the B-25's, the A-20's performed much of their ground support by striking troop concentrations, supplies and roads not

immediately adjacent to the front lines, but probably more than half of their ground support sorties were in close support, controlled by a forward observer in the front lines or in a liaison plane. The A-20 units made a few medium altitude strikes in mountainous terrain where low altitude strikes were impossible or difficult, usually bombing on a B-25, but all their close support strikes were at treetop level. Like the B-25's, they attacked in line abreast, strafing to inflict casualties and to keep down anti-aircraft fire, and toggling out delayed-action or parachute-suspended bombs. A-20's were vulnerable to light anti-aircraft fire, and sometimes flight commanders found it necessary to refuse to make dry runs over defended areas or to bomb such areas without strafing.⁴²

Marine SBD's on Luzon flew almost 9,000 sorties, of which all were in support of ground troops. A great majority were in close support of the infantry, the function for which they had been brought to the Philippines. The SBD's were slow, had little strafing power, and carried a lighter bomb load than most fighters, but none of these features of the obsolete dive bombers disqualified them as close support aircraft in an area where enemy air opposition did not exist. They could perform ground support, and the pilots were eager to do so; they sought every opportunity to make themselves useful to the ground forces, and strove constantly to improve their importance. Comments by infantry commanders, while always tactful, leave the impression that they considered the support rendered by the SBD's superior to that furnished by organic Fifth Air Force units.

The dive bombers usually proceeded to their targets in a squadron formation of nine planes, but they always bombed individually. The usual bomb load was one 500-pounder on the belly rack and two 250-pounders under the wings, but sometimes a single 1,000-lb. bomb was carried. The bombs were released from a steep dive, usually at an angle of about 70°. The dive was begun at 4 to 5,000 feet altitude; the bomb was released between 1,500 and 2,500 feet; and the bombers pulled out of the dive between 1,000 and 2,000 feet. Often the bombing was followed by a low-altitude strafing pass at the target.

As noted earlier, MAGSDAGUPAN provided an air alert for the 1st Cavalry Division's final three-day drive on Manila. Thereafter, like other 308th Bombardment wing units, they were ordinarily dispatched on missions requested the day before. In some operations, however, especially in supporting USARP forces around San Fernando and the 25th Infantry Division around Balete Pass, flights reported in to the ground controller at regular intervals, thus in effect maintaining an air alert. The great effort these dive bomber units made to render effective support was demonstrated at Balete Pass; there, for several days before the SBD strikes began, flight leaders reconnoitered the area from the air, familiarizing themselves with the terrain.⁴³

In SWPA, 90 per cent of the ground support sorties were flown by fighter aircraft. On Luzon, fighters could devote practically all their effort to support of troops, because there was no Japanese air opposition, but fighters had begun to perform ground support tasks when the Japanese Air Force was still a potent adversary. Indeed, P-40's were equipped with bomb racks on Bataan in early 1942, when

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they dropped fragmentation bombs on Japanese airfields with good effect. When Allied forces retreated to Australia, a factory there was set to work producing bomb racks for P-40's, P-400's, and P-39's. On 21 September 1942, P-40's of the 49th Fighter Group, which had already made a strafing attack against barges at Buna, made their debut as fighter-bombers, hitting the Japanese along the Kokoda Trail with 500-lb. demolition bombs. On Guadalcanal the P-400's and P-39's were demonstrating their capacity as troop support aircraft at about the same time.

P-400's, P-39's, and P-40's were used as fighter-bombers partly because they could not engage in aerial combat with Japanese fighter planes on equal terms. The P-38 was far superior to Japanese fighters, however, and it was carrying bombs before the middle of 1944. This twin-engined fighter could carry two 1,000-lb. bombs with ease, and at short range it could carry two 2,000-pounders. The single-engined P-47, next fighter to arrive in the theater, proved to have a bomb-carrying capacity equal to that of the P-38, and it was widely used for ground support in western New Guinea and for neutralization of airfields in the Halmaheras. On Luzon the P-51 Mustang joined these planes; the P-51 compensated for a smaller bomb load (two 500-lb. bombs) with its superior flying characteristics, which enabled pilots to bomb with great accuracy.⁴⁴

P-39's and P-400's had been retired to pasture before the Luzon campaign began, but some venerable P-40's were still in action and continued to fly sorties for several months. They were used only by tactical reconnaissance squadrons, however, and while they performed

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some close support work, they were mainly engaged in armed reconnaissance of enemy-held areas. Before the end of the campaign they were replaced by F-6's, reconnaissance versions of the P-51. P-38's, P-47's, and the newly-arrived P-51's continued in operation until the end of the campaign.

Fighters made glide-bombing, dive-bombing, and skip-bombing attacks on support targets. Skip bombing was more accurate than the other two techniques, but it had three disadvantages. In the first place, if demolition bombs were to be used, it was necessary to equip them with delayed-action fuzes, and this might not only decrease effectiveness but also endanger succeeding waves of aircraft. Secondly, skip bombing was sometimes most difficult to carry out in rough terrain, although the maneuverable fighters could perform in areas which were impossible for A-20's. Lastly, skip-bombing planes were more vulnerable to ground fire than those making other approaches to the target. In dropping napalm tanks, however, skip bombing was the only technique used by fighters.

Glide bombing was falling into disfavor when the Luzon battle began, and had almost disappeared by the end of the campaign. Glide bombing differed from dive bombing only in the angle of approach, and it was discovered that, other things being equal, the greater the angle of approach, the more accuracy could be expected. Also, high-angle strafing was more likely to inflict casualties on enemy troops sheltered in open foxholes.

There was apparently no standard method of approaching a dive-bomb target, nor, for that matter, was there any standard method of making

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the dive. "As explained by one group commander, every method used has been quite successful, and until one method has been proved superior to all others, it is considered wise to let each squadron and, to a large extent, each pilot work out his own system."⁴⁵ After a visit to Luzon by an instructor from the Central Gunnery Instructors School in the United States, many squadrons adopted the dive-bombing technique taught there, but many others continued using their own methods. All concerned agreed that dive-bombing approaches to a defended target should be made from around the compass, and that breakaway from a close support target should always be made over enemy lines, so that a bomb which did not release over the target would not fall on friendly troops. Both bombers and fighters liked to make their approach to a close support target parallel to the lines, regarding range error as likely to be larger than deflection error.

Strafing was part of every bomb run unless the target was extremely close to friendly lines.⁴⁶ Strafing inflicted casualties on enemy troops in the target area if they were exposed, and it kept them in their shelters if they were not. Strafing was also likely to do serious damage to any vehicles, fuel drums, or ammunition located in the target area. From the pilot's point of view, this was a most important part of the attack, because it silenced enemy antiaircraft guns.

An AAF Evaluation Board report concluded that in many respects fighter planes were superior to bombers for attacking targets within their range. The fighter was better suited than the bomber because in an emergency it could jettison its bombs and effectively defend itself

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against enemy fighter attack; it could make low-level attacks over terrain too hazardous for the less-maneuverable bomber; it could be refueled, rearmed, and ready to take off on another mission faster than a bomber; it cost less to build and operate and carried only a one-man crew; and it was smaller, faster, and more maneuverable, and therefore safer from antiaircraft fire.⁴⁶

The 500-lb. general purpose demolition bomb was the high explosive most frequently dropped by ground support aircraft on Luzon; from 1 April until the end of July, 16,728 of these bombs were aimed at Japanese ground positions. The 1,000-lb. demolition bomb exceeded the 500-pounder in tonnage dropped in support targets, some 12,195 of them being used in troop support. In general, P-38's and P-47's carried 1,000-lb. bombs while SBD's and P-51's carried 500-pounders. Thus the type of plane, rather than the nature of the target, determined which of these weapons was to be used. Either was effective against a cave entrance in the rare event of a direct hit, but the 1,000-pounder was more likely to be effective in a near miss. In mountainous terrain, the larger bomb often sealed caves by causing landslides. In general, neither type of bomb killed sheltered enemy troops, but the blast effect of their explosions did leave Japanese in caves and dugouts temporarily stunned and helpless. Unless the infantry followed closely behind the bombs, however, the troops in the target area recovered and continued to resist.

The lighter 250-lb. and 100-lb. general purpose bombs were usually dropped by SBD's or A-20's in ground support strikes. In the case of

A-20's, these bombs were often suspended from parachutes. They were doubtless effective on those rare occasions when the Japanese were caught above ground, and the concussion effect, while less than that of the larger bombs, must have been considerable. Since more of them could be carried, the smaller bombs had the advantage of providing more explosions in a given area. On the other hand, there were frequent complaints that these para-demos contained a large percentage of duds.

Fragmentation bombs were normally carried by A-20's, which dropped them suspended from parachutes so that they would explode above ground, but fighter planes could carry six of the 260-lb. variety. They were primarily a weapon for use against exposed personnel, though they also had great destructive effect when exploded near vehicles. Probably the most efficient ground support use of fragmentation bombs was in conjunction with a napalm attack. Enemy troops in the open, fleeing from the napalm fires, made good targets. It is doubtful, however, if fragmentation bombs were much more effective against such personnel than artillery or mortar fire.⁴⁷

Napalm mix was used on Luzon for close support, the first such use of the incendiary in SWPA. Napalm had been dropped in late 1944, mostly from B-24's, though P-40's dropped some wing tanks, but it was mainly used as a conventional incendiary, and was loaded in 100-lb. or 500-lb. incendiary bomb casings or 55-gal. oil drums. A grenade-type fuze was used as an igniter. During December 1944 and January 1945, when less than 100 tons of napalm was dropped (about 250 gallons to the ton), none was put on ground support targets.

This situation changed in February, when 89 per cent of the 390 tons dropped was contained in wing tanks, and 61 per cent was devoted to ground support targets--a proportion which was to grow to 94 per cent in April. The ground forces soon became propagandists for napalm. On 5 March, near Fort Stotsenburg, the 43d Infantry Division reported that 590 Japanese in cave-type defenses had been found dead after an artillery barrage and napalm strike. The division knew from experience that artillery was relatively ineffective against such defenses, and gave most of the credit to the incendiary. In the Zigzag Pass area on Bataan, a sustained five-day napalm attack on the Japanese defenses by P-51's brought applause from the ground forces not only because it inflicted casualties, but because the napalm burned the camouflage from enemy positions. From Corregidor it was reported that napalm, dropped 100 yards ahead of American troops, had seeped into a ravine and killed 60 Japanese who had not been harmed by demolition bombs or artillery. The success of massed napalm attacks in the Ipo Dam area has already been related. Ground sources everywhere agreed that the enemy soldiers were terrified by napalm to such an extent that they often ran out into the open, where they fell easy victims to artillery fire or strafing. Napalm was not always so effective, however; in mountainous terrain it was sometimes impossible to place the tanks on enemy positions with accuracy, and the 11th Airborne Division reported from Ternate that napalm failed to burn away the thick green bamboo which sheltered the enemy in that area.

Napalm was dropped by all types of bombers except SED's, which found that it was not a suitable weapon for dive bombing, and wing tanks filled



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with napalm were dropped by all types of SWPA fighters. Ordinarily P-47's and P-38's carried two 165-gallon tanks of the mix, and P-51's carried two 75-gallon tanks. Other tanks, from as small as 30-gallon to as large as 300-gallon, were used to some extent. The consensus was that the 165-gallon tanks gave the best results; smaller ones covered too small an area to be effective.

Napalm tanks were dropped from very low altitude in level flight at a speed in excess of 300 miles per hour. Some pilots advocated allowing an interval between the release of the two tanks carried, while others preferred to drop both at once. The latter practice gave greater concentration of the mix and presumably more efficiency, but sometimes the tanks, which fell erratically, collided in the air and ignited prematurely. A high degree of accuracy was obtainable; it was estimated that an average pilot could hit a 50-foot circle three times out of five.

When a 165-gallon napalm tank hit the ground it ruptured, and at the same instant the fuze ignited the mix. The impulse of the speeding aircraft threw the scorching jelly forward over an area which in open terrain might be 300 feet long and at the widest point 150 feet across. This area, however, was usually considerably reduced by underbrush. There were instances on Corregidor, when cave entrances faced the direction of splash, of penetration into the caves up to 35 feet. The fires from a napalm tank burned with great intensity for about one minute, and they continued to burn at a slower rate for three to five minutes. An officer of the 43d Infantry Division who had been

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located within 250 yards of a napalm bomb hit reported that he felt almost unbearable heat for about 20 seconds, and that he did not believe he could have survived had he been within 100 yards of the point of impact.

As a matter of fact, the officer in question probably would have survived unless he had actually been hit by some of the burning mix. Most of the casualties from napalm were caused by burning. Secondary effects, in the form of suffocation, carbon monoxide poisoning, and heat prostration were reported, but in all probability more important than these was the fear that the fire bomb aroused in the Japanese, causing them to run out of their shelters and expose themselves to strafing, ground machine-gun fire, mortar or artillery bursts, or fragmentation bombs.⁴⁸

No discussion of troop support tactics would be complete without a consideration of how they complemented the ground force effort. In general the ground forces used aircraft for deep support and reconnaissance when advancing rapidly, as a siege weapon against fortified positions, and as a means of inhibiting enemy artillery fire at night.

When moving forward rapidly, the ground forces seldom called for close support, but they did like to have aircraft available for such support in case it should become necessary. In XIV Corps' advance on Manila an air alert was provided, so that planes were always available overhead. In later operations characterized by swift movement against light resistance, mainly in south Luzon and the Cagayan Valley, no formal air alert was provided, but flights of planes frequently reported in to the SAF. If the ground forces had a new target for these planes,

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it was attacked; otherwise the aircraft went on to strike their originally scheduled target, which was usually well in front of the ground forces.

In a fluid situation the ground forces usually found it wiser to send support aircraft against points well ahead of the advancing column.⁴⁹ The 6th Infantry Division reported the following on its advance from Bagabag toward Bontoc:⁵⁰

In this campaign our advance was tied to the one existing mountain road, Highway #4, because of the extreme difficulty of cross-country movement. By the same token, the Jap defense was also tied to the road. These conditions made the employment of air and artillery in depth particularly effective, as succeeding objectives for days ahead could be readily selected and all possible defensive localities in the area could be constantly pounded, day and night. This had an accumulative effect that grew in intensity as the advance progressed into the enemy position. It immobilized him, disrupted his line of supply, evacuation, and communications, destroyed his defensive positions, caused him constant casualties, harassed his reserves, gave him no rest, and lowered his morale to the breaking point. Against these tactics the Jap had no defense. To escape this relentless punishment he had to either die or withdraw far to the rear. The hundreds of Japs found dead from artillery, air bombing, strafing, and napalm strikes . . . during the advance, attested to the deadly effectiveness of these tactics. Many PW's testified as to the devastating effect constant shelling and air strikes had on the nerves and morale of their troops, not only in the front lines, but also all along their lines of communication and in their rear areas. Many, who could not stand the punishment any longer, committed suicide, ran to the rear, or made suicidal banzai attacks against our troops to end their sufferings.

More common on Luzon, where the Japanese usually fought from fortified positions or not at all, was the use of air strikes as a siege weapon. In the Shimbu Line, at Balete Pass, around Baguio, on Corregidor, and at scattered strongpoints all over Luzon, planes blasted away at Japanese positions day after day until the enemy had been



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sufficiently weakened for joint air-infantry action to drive him from his advance positions. The same treatment would be given to the next line of defenses, and the next, until the enemy force, weakened by casualties and lacking reinforcements, collapsed and made it possible to overrun the whole position. This pattern was repeated time after time.

Heavy demolition bombs and napalm were the favorite armament for such work. Napalm burned away camouflage so that artillery might be brought to bear on cave entrances, burned enemy personnel in the open, and sometimes forced Japanese sheltered in caves to come out in search of air. Heavy demolition bombs sometimes penetrated caves, dugouts, or pillboxes and killed the occupants; and occasionally they blew up cave entrances, sealing the defenders within, where they died of suffocation. Even when the bombs inflicted few casualties directly, the concussion frequently left the enemy so dazed as to be helpless. The 37th Infantry Division reported as follows from the fighting around Baguio:⁵¹

The approach to Baguio from the west was dominated by two pieces of commanding ground - Observatory Hill and Camp Henry T. Allen Hill. Both positions were well organized and occupied by determined enemy forces. In both instances the enemy positions were subjected to repeated bombing and strafing attacks over a period of several hours. In the case of Observatory Hill, the enemy forces not killed by the bombing and strafing withdrew to the reverse slope of the hill and the infantry, following closely on the completion of the air attack, was able to seize the crest of the hill at a cost of but one man wounded. Similarly, in the attack on Camp Henry T. Allen Hill, the infantry found a number of serviceable heavy machine guns in positions commanding their approach route, but the enemy personnel were so stunned by the intensity of the air attack that they did not fire a shot. Some thirty enemy were found in one group, killed by concussion alone.

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The confidence ground troops had developed in air support was demonstrated on Corregidor, when napalm was dropped within 100 yards of friendly lines. Even more impressive, however, was the attitude of the troops of the 11th Airborne Division.⁵²

1. On 29 April, the division attacked Hill 2610 in the MT. MALEPUNYO HILL MASS in Southern LUZON. It was the last stronghold of the FUJI HEIDAN (Southern LUZON Defense Force) and was extremely well defended. High casualties were expected from the attack.

2. The 8th Fighter Group was requested to bomb the hill prior to the attack. The troops of the division had fought their way to a position 400 yards from the hill and were reluctant to withdraw from the terrain so dearly won. Because of the proximity of the troops to the target, the decision was made to cancel the strike, but the troops requested that the strike be made as scheduled.

3. Three flights (9 each) of P-38's, each with two one thousand pound bombs hit the hill. At the end of the second strike, the Company Commander reported that the concussion had given his men nose bleeds, but that they earnestly requested the third strike notwithstanding. The planes were directed to the target.

4. As the last bomb detonated, B Company of the 511th Parachute Infantry pushed off and assaulted and seized Hill 2610 without resistance. Hardly had they gained the top when 124 stunned Japs emerged from the caves to man their defensive guns. They were slaughtered as they moved to the positions.

5. We of the division are grateful for this support, and are proud that our confidence in air support has reached the point where we are willing to remain within 400 yards of 1,000 pound bombs.

The above demonstrated a cardinal fact concerning close support, true from the Admiralties through Luzon. So long as the bombs were intended merely to destroy enemy positions and inflict casualties, the responsibility for the necessary coordination lay with the air arm,



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which needed only to hit the target while avoiding friendly troops. When the air strike was an immediate prelude to infantry attack, however, the ground forces were responsible for moving into the target area as soon as possible after the last bomb fell. Every minute that passed permitted more of the surviving enemy troops to recover from the effects of concussion, take up defensive positions, reestablish communications, and otherwise prepare to repel the coming assault.

The supporting aircraft could often aid the infantry in reaching the enemy's positions before he had a chance to recover by continuing to make dry runs after ammunition had been expended. So long as the planes seemed to be continuing the attack, the Japanese would often remain underground until Allied infantrymen reached the target area. Then, as was the case at Hill 2610, the defenders could be shot down as they came from their shelters. No consistent pattern could be followed in these dry runs, because the Japanese quickly caught on and took up defensive positions in spite of the roaring aircraft. When coordination between the aircraft and the supported infantry was good, however, dry runs could be interspersed with live ones until the confused Japanese must have felt that they had a choice only between remaining in their caves to be killed by the advancing infantry or emerging to be killed by bombing and strafing.⁵³

A feature of air support on Luzon to which the air arm paid little attention, but to which ground commanders attached great importance, was night flying. Before the end of the Luzon campaign, night fighters were engaged in intruder operations deep in Japanese-held areas on

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Luzon and also over Formosa, but the ground forces were more interested in flights directly over the front lines. Over Manila, the Chimbu Line, Balate Pass, and other areas in orbiting P-61 or B-25 served to inhibit Japanese artillery fire and sometimes to detect the location of those pieces which did open fire. The ground forces wished to have these planes bomb at night also. As the commanding general of the 37th Division wrote in June: ⁵⁴ 5 Jun 1945

Repeated requests for night bombing forward of infantry elements have met with disapproval. The many reasons for disapproving these missions are familiar to this headquarters. However, it is still strongly felt that with proper coordination and selection of targets at sufficient distance from friendly troops to eliminate the possibility of accidents, this technique would be of tremendous value to the ground forces. The Jap knows we do not bomb him tactically at night. Hence he operates at will; he moves his supplies and troops, lays his communications, cooks, and altogether does as he pleases during the hours of darkness. This opportunity should be exploited.

The P-61's did engage in night intruder missions into the Cagayan Valley before friendly troops entered that bastion. Moreover, B-25's sometimes carried 100-lb. bombs which they dropped at random well back of the enemy lines when engaged in artillery suppression missions. Nonetheless, there was no planned tactical bombing at night. Before the end of the campaign, a number of SCR-584 fighter control radar sets, which had been used with some success for controlling night tactical bombing in Europe, arrived in Luzon, but because of lack of trained personnel and proper plotting boards, they were used only for local air warring. Probably night troop support would have assumed greater importance had the planned invasion of Japan been carried out.⁵⁵

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Evaluation and Conclusions

The specific effects of Luzon close support strikes on enemy materiel and personnel were most difficult to determine. Pilots usually saw nothing but the explosion of their bombs, and could report only unobserved results. When the ground forces occupied an area immediately after an air attack, the infantry could count the enemy dead, but had no way of determining which had been killed by artillery, which by infantry weapons, and which by bombing and strafing. Concussion victims sometimes could be identified, but bomb and shell fragments made similar wounds, and only a grisly autopsy could determine whether a corpse charred by napalm had been dead before the fiery jell had done its work. Strikes in support of guerrillas who had no artillery might have been a measure of effectiveness, but casualty counts from guerrilla sources were notoriously exaggerated.

There were, of course, outstanding strikes where tangible results could be ascertained, some of which have already been described. After attacks on Mount Pinatubo west of Fort Stotsenburg on 29 and 30 March by a total of 51 P-38's and P-51's, 600 dead Japanese were found in an area where most of them had certainly been killed by the air strikes. A strike by three flights of P-38's in support of I Corps on 11 May killed about 100 enemy troops above ground, blew up several gun pits and trenches, obliterated a bivouac area, destroyed a store of mortar ammunition, and scored direct napalm hits on occupied caves. A strike in the Santa Fe area on 25 May by more than 200 P-38's, P-47's, and A-20's enabled the 126th Infantry to pass through a heavily fortified

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target area without resistance and frightened away 150 Japanese who had not been bombed and who could have inflicted heavy casualties on the advancing troops. Air strikes in the Ipo area from 10-16 June, when mopping-up operations were being carried out, were reported to have killed at least 800 enemy troops with many others probably killed. A pillbox near Mankayan, built of 20-inch reinforced concrete and covered with 20 feet of earth, had survived 600 rounds of 155-mm., 1,400 rounds of 75-mm., and 100 rounds of 90-mm. shells. It was struck by 32 F-38's carrying two 1,000-lb. bombs each. Three direct hits were made on the pillbox, blowing 60 corpses outside and trapping 80 live Japanese inside. Twelve of the latter were shot down while trying to escape.⁵⁶

Interrogation of prisoners of war contributed to knowledge of the effects of close support air strikes, though there was probably a tendency on the part of prisoners to magnify the trials they had undergone before surrendering. One of several prisoners captured in the Shimbu Line area stated that his unit of 255 men had had 80 casualties from bombing and strafing during the month before his surrender. All Japanese interrogated after the napalm strike at Ipo testified to the terror inspired by the fire bombs, though few of them had actually witnessed any casualties caused thereby. One of these men said that it was impossible to remain in caves during napalm strikes and listed a surprising amount of materiel which he said had been destroyed by the mix. An officer said that 40 per cent of the casualties suffered by his unit had been inflicted by aircraft. A prisoner taken in the Balete Pass area stated that only 40 men were

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left from an initial 350 in his unit, and that most of those lost had been killed by air action, which had also destroyed the horses and carts on which they depended for transportation. Other testimony of like nature was received throughout the Luzon campaign.⁵⁷

But the basic source for any evaluation of close support on Luzon must be the reaction of the ground commanders, for no one could know better than they whether or not the air effort, mounted to aid the ground forces in accomplishing their mission, had achieved this purpose. It is highly significant, then, that virtually all corps and division commanders considered air support of ground troops an important factor in the victory. Such phrases as "extremely accurate," "excellent support," "fine work," "telling effect," "ample and effective," abound in messages from ground commanders to air headquarters. The simple fact that these ground commanders continued to ask for support strikes day after day is testimony enough to their belief in its effectiveness.⁵⁸

The above is not to imply that corps and division commanders had no criticisms of the support they received. There was very little bombing of friendly troops during the Luzon campaign, but inevitably a few instances occurred. Friendly ground troops along the Pampanga River were strafed by P-51's late in January, and another unit was struck by E-25's on 4 February. E-24's bombing west of Fort Stotsenburg late in February dropped some bombs 9 or 10 miles off target, but fortunately inflicted no casualties on American troops. The 11th

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Airborne Division had 7 men killed and 14 wounded by friendly aircraft near Nichols Field on 12 February, and the 38th Division had a man wounded by strafing on Bataan. All these incidents took place early in the campaign, before air and ground had had much experience in working together. However, this explanation will not suffice for two instances along the Villa Verde Trail in late April; 33 casualties were inflicted on the 32d Division. "Reactions of the air commanders to these incidents was somewhat less philosophical than those of the ground generals, one of whom spoke of having experienced short rounds from his own artillery."⁵⁹

The criticism of air support common to almost all ground commanders concerned timing. All too often a flight of support aircraft failed to show up when due. This placed the ground commander in a dilemma. If he went ahead with his planned attack on schedule, he not only lost the benefit of the air strike, but also ran the risk of exposing his men to attack by friendly planes. On the other hand, if he delayed his attack until the planes arrived and made the strike, his troops might not have time to carry out the operations planned and thus might be exposed to Japanese counterattacks against poor defensive positions. The 11th Airborne Division found it necessary to cancel eight planned coordinated strikes during the campaign, and other units reported similar experiences. This fault in close support was well on its way to correction before the campaign ended, but, even allowing for the effect of weather and other uncontrollable factors, it is

surprising that it was permitted at all. Since the requests were submitted the day before the strike, there was simply no satisfactory explanation for support flights arriving late so frequently.⁶⁰

Most ground generals were full of praise for the SAP's, but these organizations too were subject to criticism. The commander of the 43d Infantry Division, who had dealt with four different SAP officers during the campaign, felt that one officer should remain with a division throughout a battle. He also felt that "selection of SAP personnel should permit evaluation of the officer's personality as well as his professional skill," because "Some SAP officers have distinguished themselves by their extraordinary skill and willingness to cooperate, while others have substantially handicapped smooth air-ground harmony by overemphasizing their prerogative of authority in the selection of air targets." This commander also believed that "Forward controllers should be indoctrinated with the idea that they are a part of a combat team," and that they should remain with the unit to which attached throughout an operation. "Too often controllers drift back to rear areas for one reason or another." One senses the uncertainty of the infantry officer on how to treat these aliens in his division: "Local commanders hesitate to take command action with respect to SAP personnel in an effort to preserve harmony and insure the availability of support when it is needed."⁶¹

XIV Corps suggested in its after-action report on the Luzon operation that SAP's have command authority corresponding to the units to which attached. In other words, an army SAP would command corps

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SAP's, and the latter would issue orders to SAP's with divisions. Because each SAP on Luzon was responsible directly to air force headquarters, "Necessary coordination and policies of higher ground commanders . . . [were] occasionally ignored by the Support Air Parties of lower units." XIV Corps also suggested that SAP's be attached to ground units by proper orders through command channels, to prevent their withdrawing from operations "on their own volition." Also, it was held desirable that the corps commander or the corps SAP be authorized to detach SAP's from one division and attach them to another. In one case a reserve division committed to the line had to operate without an SAP for three days until air force headquarters could take the necessary action.⁶²

Other criticisms were minor. Already noted is the complaint of one division commander that not enough attention was given to night tactical bombing. Others believed that the air force should pay more attention to ground force suggestions as to the type of bomb to be used against support targets, and it was felt that more knowledge was needed on the effect of different bomb types on various targets. Sometimes support planes remained in the target area too long after completing their attack, thus preventing planned artillery concentrations. Others felt that the opposition of the air force to air alert support was unrealistic, since ground commanders could secure what amounted to an air alert by requesting strikes to arrive on station at one-hour intervals. When the planes arrived, the SAP could divert them to a newly developed

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target if this seemed desirable.⁶³

The opinions of the ground commanders and other evidence suggest that close support on Luzon, though not perfect, was probably the best of the Pacific war. In inflicting casualties on the enemy, destroying his front-line installations, and blasting a path for the infantry, it was superior to anything that had gone before in the South or Southwest Pacific, apparently superior to close support operations in the Central Pacific. With the equipment available, it is doubtful that coordination, target designation, and general effectiveness could have been significantly improved.

In one respect, air support on Luzon was very different from that in the Central Pacific. With the exception of the formal air alert in the drive on Manila, the informal equivalent thereto in some later operations, and a few emergency requests, support missions on Luzon were requested the day before they were flown. This had advantages, since the pilots could be more thoroughly briefed and ground commanders had more time to make plans for coordinating artillery and infantry action with the air strike. The disadvantages of this system in a rapidly changing tactical situation were obvious, but this was partially corrected by the ability of the SAP's to divert flights of support aircraft to new targets.

Air support on Luzon was also apparently effective against cave-type defenses, something which had not been true in the Central Pacific. The fact that the fighting on Luzon was at a more leisurely pace permitted aircraft to blast stubborn areas for weeks at a time, so that the cumulative effect of air strikes was an important factor in breaking

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down such defenses. Also, the aircraft used for air support on Luzon had, in general, greater bomb-carrying capacity than those in the Central Pacific, so more bombs and, more important, larger bombs could be employed. Napalm was certainly partly responsible for the success of aircraft against caves; it was used more extensively and in larger tanks than in the Central Pacific; and it was delivered against defenses immediately in front of the advancing ground troops. Whether or not it killed Japanese inside caves, as many believed, it burned away camouflage and made pinpoint demolition bombing or direct artillery fire possible. The system of reducing caves on Luzon, in which air support played an important part, certainly resulted in lower casualties.

The strength of the defensive installations must enter into any comparison of the efficacy of air support in the two theaters. The defenses of Iwo Jima were stronger than those encountered anywhere else in the war against Japan, but nothing in the records indicates that the defenses of Saipan or Okinawa were any stronger in themselves than those of the Shimbu Line, Zigzag or Balete Pass, or the Villa Verde trail.

Yet it does not follow that the air support methods used on Luzon, ideally suited as they were to the fighting there, would have been suited to the Central Pacific islands. Ten divisions took part in the Luzon campaign, on an island 40,420 square miles in area. Okinawa, where six divisions fought, is 794 square miles in area, but the fighting was confined, in the main, to the southern half of the island. Three divisions operated on the eight square miles of Iwo Jima. Had troops been concentrated on Luzon as they were on the southern half of Okinawa,

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600 American divisions would have been in action. If the concentration on Luzon had equalled that on Iwo Jima, 18,000 American divisions would have been facing 181,000,000 Japanese troops! Such figures, though of course fantastic emphasize the fact that the close support methods appropriate for Luzon, where each American division operated more or less independently and where there was, even at Balet Pass, room for maneuver, were hardly appropriate for the battles in the Central Pacific.

Far East Air Forces (FEAF) commanders realized that the methods used during the Luzon and southern Philippines campaigns were not suited to large-scale operations in a restricted area where air opposition was probable. At the end of the war Fifth Air Force was in the process of organizing tactical air commands on the European model. These commands, designed to control masses of aircraft engaged in the support of mass ground operations, were intended to function after Allied troops invaded the home islands of Japan.

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Chapter VII

AIR SUPPORT IN MOPPING UP THE SOUTHWEST PACIFIC

Introduction

Leyte and Luzon had been the decisive battles of the Philippines campaign, but strong Japanese garrisons remained on other islands of the archipelago. Lt. Gen. Robert L. Dickelberger's Eighth Army, which had taken over the conclusion of the Leyte fighting in December 1944, assumed the task of liberating the Visayan Islands and Mindanao. While this effort was going on in the Philippines, Australian army units were to eliminate the Japanese garrisons from the Netherlands East Indies.

Thirteenth Air Force, which had been left behind in New Guinea and Morotai while the Fifth Air Force moved up into the Philippines was to provide air support for Eighth Army. If more support should be needed than the Thirteenth and units under its operational control could provide, aid would also be given by Fifth Air Force. Air support for the Australian ground forces was to be under the operational control of the Royal Australian Air Force (RAAF), but the Thirteenth Air Force was to provide most of the aircraft in the beginning, and the Fifth could be called upon for help if necessary.

Thirteenth Air Force was much smaller than its sister organization in Far East Air Forces (FEAF). In January 1945, it was composed of two P-38 groups, two B-24 groups, a E-25 group which had the unique distinction of having five squadrons, and one night fighter squadron. One more

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night fighter squadron was to be added before the end of the war. One of the fighter groups, the 18th, was on Luzon under the operational control of Fifth Air Force from the beginning of February, but it would be returned to the Thirteenth before the campaign in the south had ended. In addition, two Marine Corps fighter groups equipped with F4U's, two Marine SBD groups which had served with distinction on Luzon, and a Marine PFJ (B-25) squadron would be under the operational control of Thirteenth Air Force for most of the campaign.

Two tasks had to be completed by Eighth Army before the liberation of the Visayan Islands and Mindanao could begin. The first of these was mopping up the areas left to it by Sixth Army. Conclusion of the Leyte battle was time-consuming, since some 24,000 Japanese remained to be exterminated, but mopping up Mindoro and Marinduque was not nearly so difficult. The second task, clearing the Visayan passages so as to shorten the convoy route to Luzon, did not involve much hard ground fighting, but it did necessitate nine small-scale amphibious operations.

Air support for these early Eighth Army efforts was given, in the main, by F4U's of Marine Air Groups (MAG's) 12 and 14, based on Leyte and Samar. On Leyte, Mindoro, and Marinduque little support was needed because of the disorganization of the Japanese forces, and support for the small amphibious operations usually required only a flight of F4U's, which bombed and strafed the beach before the troops went ashore. The weak Japanese garrisons usually made no attempt to defend the beaches. There was an exception at Biri Island on 20 February, where, according to the Americal Division, the bombs and bullets of four Corsairs "had only succeeded in stirring up a hornet's nest."¹ The first attempt at a landing at Biri

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was beaten off, but a shore-to-shore movement from adjacent Macarite during the afternoon of the same day, supported by 13 Corsairs, was successful.²

Air Support of Guerrillas in the Southern Philippines

XIII Fighter Command took over control of air units in the Leyte-Samar area in January 1945, and found a situation little to its liking. The Thirteenth Air Force historian stated that "The Commanding General of the XIII Fighter Command and his tactical staff were accustomed to executing assigned missions with the aid of complete map and photographic coverage of targets as well as fairly complete intelligence information", and "The Fifth Air Force, evidently, did not conduct operations in a comparable manner. . . . No functioning liaison had been established with guerrilla forces . . . with the result that detailed planning and briefing, so essential in guerrilla support, was impossible until early February."³

This obstacle to guerrilla support was surmounted by the attachment of guerrilla officers to air headquarters on Leyte and by the formation of guerrilla air support teams, of which five were operating on the air support radio net by early March. Two of these were formed from rated or communications officers and enlisted communications personnel of Thirteenth Air Force. The origin of the remainder is obscure, but they probably were formed from personnel of MAG's 12 and 14, as Marine air liaison parties on Luzon had been formed from MAG's 24 and 32. These teams were equipped with the AV/VRC-1 jeep-mounted radio and, while their main function was requesting air support for guerrillas, they were prepared to direct the strikes when they came over.⁴

Most of the air effort devoted to guerrilla support was expended against targets on Cebu, but Filipino troops on Negros, Bohol, and

Zamboanga Peninsula all received support at one time or another from Thirteenth Air Force or attached units. The guerrillas were strong enough by this time to hold airfields at Tuburan, Cebu, and Dipolog on the Zamboanga Peninsula. Pilots often landed at these airfields to get first-hand information on the needs of the Filipino forces, and air support was probably the decisive factor in preventing Japanese recapture of the strips. When flyers landed at these fields, they were entertained so royally by guerrillas of both sexes that it became necessary to forbid that such landings be made without orders except in emergencies. Apparently many emergencies occurred whenever pilots felt the need of entertainment and companionship.⁵

Guerrilla Air Support Team No. 1 on Cebu recorded its experiences, and they merit study as an example of guerrilla support. The team consisted of a captain from a night fighter squadron and three lieutenants and six enlisted men from a fighter control squadron equipped with a jeep-mounted combination high frequency (HF) and very high frequency (VHF) radio. Personal equipment and rations were loaded in a jeep trailer.

Early in February 1945, Lt. Col. James Cushing, commander of the guerrilla forces on Cebu, asked for air support to aid his troops in turning back a Japanese force threatening Tuburan from the north and to destroy Japanese personnel and supplies in Cebu City. On 14 February, the air support team, jeep, and trailer were loaded into a C-47 and flown from Leyte to Tuburan. There the officers went into conference with the guerrilla staff, which over a surprisingly efficient barbed wire communications system requested regimental commanders to send in targets. On the 15th the team moved up to the front on the road between Tabuelan

and Lugo. That night requests were transmitted to Lyte.

Eight F4U's came over on 16 February and struck Lugo, a Japanese concentration point. The next day, beginning at 0930, four flights relieved one another on station, bombing and strafing pinpointed targets in the Lugo-Sogod area. Weather prevented air action on 18 February, but on the 19th thirteen of the gull-wing Marine fighters reported in. The last flight of the day bombed and strafed the head of a Japanese column moving north toward Lugo. Delivered only 45 minutes after guerrilla scouts had sighted the enemy, this strike inflicted casualties and gave the Filipinos time to prepare an ambush which turned the Japanese back. This action prevented the enemy force in northern Cebu from receiving reinforcements from the Cebu City area, and enabled the guerrillas to capture Lugo. There they reported finding many graves, blood on the ground, and a pile of burning bodies. This put an end to the Japanese offensive for the time being, and air strikes on the 21st were directed against small parties retreating toward the northern end of the island.

These parties travelled at night, but this did not save them from air attack. Guerrilla scouts followed them during the night, noted where they made their bivouac to wait out the day, then made their way back to the nearest station on the barbed-wire telephone line to report the enemy's location. One such bivouac was struck on 21 February, and a civilian who was in the area when the attack began reported seeing many casualties.

At the close of operations on the 21st, the team began moving toward Cebu City, the main Japanese base. The route was down the west coast to Asturias and then overland to an observation post overlooking the city.



Thousands of guerrilla volunteer guards had built a road through the jungles and hills, and hundreds of them were on hand to pull the jeep through rivers and up mountains too steep for it to ascend under its own power. At daybreak on the 22d the team and jeep were atop a mountain ten miles from Cebu City and had telephone communications with observers in the guerrilla front lines. During the day, 12 F4U's were sent against a bivouac area, a motor pool, and the enemy headquarters. "From the first mission we had instantaneous information as to the position of our aircraft with respect to the targets, and observed results" over the barbed-wire telephone line.

After the last operations February 22d we moved to Tacit Ridge, about four miles north of Cebu. To describe this move is a task impossible to do. To see it is the only way of believing it. The radio jeep was pulled and carried up and down mountains by uncountable Volunteer Guards. The brush had been cleared away from the sides of the trail by bolos. Some idea of the steepness can be gotten by the fact that steps had been cut in the sides of the inclines. About 200 Volunteer Guards pulled on a rope going up, with others surrounding the jeep sides and rear. It was a symbol to them of American power, and the first aid in three years. How they got us to Tacit Ridge I don't know. At times all that was between us and a drop of a thousand feet was the strength in the arms and bodies of the Volunteer Guards.

The team operated from its new post atop Tacit Ridge until 13 March. Every day, three or four flights of F4U's reported in and were given targets in the city or along the Japanese lines facing the guerrillas. Cebu City and its vicinity offered targets of all kinds--troop concentrations, "bivouac areas, supply and ammunition dumps, officers' quarters, docks, lumber yards, ship yards, submarine hideouts, motor pools, a cement factory, railroad yards, airdromes, and numerous others." Not only were these targets available, but "Guerrilla intelligence enabled

us to hit a target when results would prove most advantageous."

Strikes in close support of the guerrilla troops in this area were not so successful as those against troops and installations in the city. The main Japanese position was a ridge which was most difficult to identify from the air. One pilot who had bailed out was taken into the front lines where he could see the ridge clearly. "We pointed it out on contour maps. We showed him photos. However, the next time he flew over he still could not find it." The guerrillas had no artillery and no smoke shells for their few mortars, so they could not mark this target. Finally,

The method we used was to drop one bomb on what the pilot thought was the target. We were safe in this as far as our troops were concerned . . . but . . . [the first bomb] invariably hit a mile east of the crucial peak From that hit we directed the next strike to the target with some success. The hardest target to hit seems to be a ridge where there are other ridges nearby."

Cebu City was heavily defended by light antiaircraft weapons, so one task of the air support team was to keep the gun positions plotted in order that pilots could be told how to avoid them. Even so, four planes were shot down over the target between 22 February and 13 March. One pilot went down with his plane and was lost, but two other pilots ditched off shore, where they were picked up by PBX rescue planes. The fourth pilot parachuted "into the arms of a captain of the ever-present Volunteer Guards, who fed him boiled eggs, chicken and Tuba [a fermented drink] within five minutes, then escorted him to our position."

On 13 March the team received orders from Colonel Cushing, who was on Leyte at the time, to return to Tukuran. The airfield was again threatened, this time by a force of about 1,500 Japanese.



It had been raining for three days. Cebu mud is the slickest in the world

Volunteer Guards were ordered from Luceran, eight miles away.

We decide^d to start and go as far as we could under our own power. We slid $\frac{1}{2}$ mile and bogged down

The VG's arrived in about two hours, some 500 of them. Using their backs as brakes they slid down the hills 150 strong hanging on to a long rope tied to the back end of the jeep. Going up they hitched the rope on front and pulled with one hand on the rope and the other on grass, brush, anything they could grasp, and got up somehow.

Why none of them were killed I will never know. It was impossible to hold the jeep at times and all piled up at the bottom of a slope, jeep, VG's and air support team. It is dark, and the VG's--a lot of both--that brought the radio jeep into Tuburan at 0600 --arch 14th, 12 hours and 73 (by count) river crossings later.

The Japs were four miles away and still coming.

Conditions at the field were so bad that the guerrillas were preparing to withdraw. The weather was still lowering, and no air support could get through from Leyte, but on the strip were two MAG 12 F4U's which had made emergency landings and been caught by the weather. These planes took off, strafed the Japanese until their ammunition was exhausted, then returned to the field, where they rearmed with ammunition which had been salvaged from a wrecked plane and returned to the attack. Still the situation remained critical, and the air support team pulled down two P-35's which were on their way to Mindoro after escorting transports southward. The Lightnings came through the 1,000-foot ceiling and were directed toward the enemy line. Under this new onslaught from the air the Japanese broke and ran. "The P-35's resorted to seeing Japs running in the road ahead of strafing. They were still lying in the road on



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[the] return run." That night the guerrilla troops recaptured Takuclan, and the airfield was again safe.

F4U's and whatever other planes came over Cebu looking for targets continued to strike the Japanese troops north of Tukuran during the remainder of the air support team's stay on Cebu. Something new was added, however, when two-place P-61's began to land on the strip, pick up guerrilla officers, and strafe targets they pointed out. Sometimes the commanding officer of the air support team went along and directed strikes from the air. The following quotation is from the team's log entry for 21 March:

0915, 2 P-61's, picked up guerrilla liaison and Captain Thompson A/B 101. 4 F4U's, Eganplant led, turned over to "Lancer Airborne" (Captain Thomson) who tacked them on behind element of P-61's. At this point an A-20 (origin unknown) joined up along with 2 other F4U's (origin unknown) and strafed targets directed by Capt. Medina, guerrilla liaison, in area 2 miles in front of our lines at Lugo intersection.

On 23 March, with the Japanese in the north again rendered impotent and an amphibious invasion of the Cebu City area imminent, Guerrilla Air Support Team No. 1 was withdrawn from Cebu. It had accomplished its purpose. By adding ground-controlled aircraft to the firepower of the Filipino units, it had beaten the enemy back from the airstrip which served as a supply base. At Cebu City, by directing planes against targets determined in the light of very recent intelligence, a great deal of damage to enemy troops, installations, and supplies was done at very little cost.

The team had some recommendations regarding future such operations. They found their jungle equipment and rations satisfactory. The health of all members of the team had remained good throughout their stay in Cebu. They suggested that two jeeps be sent along in the future; the second

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could serve as a spare power plant for radio equipment and would be of great use for hauling water and supplies to the operating post, "the site usually bears a good radio site but a poor camp site." This second jeep could carry an SCR-624 and power plant in its trailer; this radio set as a field equipment would be a big advantage because, broken down into its component parts, it could be carried by merrillas to high points inaccessible to the jeep-mounted AN/VRC-1.

Needless to say, the team noted that smoke shells for target marking and smoke grenades for marking the front lines would have facilitated air support operations. However, when pilots carried gridded photographs corresponding to those held by the controller, briefing on station was usually successful, "even on city targets of one particular house in a block of many." All types of arrangement were successful when accurately placed, but napalm seemed to have been best for most of the targets on Cebu. The importance of good communications was again emphasized--two instances of support planes inflicting casualties on friendly units resulted from misunderstandings due to garbled transmission or poor reception.⁶

Air Support in Palawan, Zamboanga, and the Sulu Archipelago

The first major operation of Eighth Army in the Victor Operations, as the liberation of the southern Philippines was called, was the seizure of Palawan. Bases on this island, which forms a bridge between Luzon and Borneo, would facilitate air support of future operations and simplify the air blockade of the South China Sea. The Japanese garrison was known to be small, so one RCT of the 41st Infantry Division was considered to be large enough for the combat landing force.

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The Thirteenth Air Force was the assault air force for the Palawan operation, but both the preparatory missions and those in support of the landing force were actually carried out by Fifth Air Force units. The pre-invasion bombardment may have contributed to the Japanese decision to withdraw from the Puerto Princesa area, but otherwise there was little good to be said about it--"none of the assigned targets was hit and many were not located where indicated by intelligence dataThe town of Puerto Princesa was bombed, though our Air Support Plan explicitly ordered otherwise."⁷

The air support for the amphibious phase of the operation was carried out in the manner which had become routine for SWPA forces. A Thirteenth Air Force officer was installed aboard the flagship as commander support aircraft (CSA), and all support aircraft reported to him when arriving on station. Requests were relayed to CSA, after troops went ashore, by Guerrilla Air Support Team No. 2, which accompanied the landing force. The team was divided as an officer and one enlisted man with a portable radio went with each battalion, and the party's commanding officer remained with regimental headquarters. CSA controlled air support through the normal support air request (SAR) and support air direction (SAD) nets; the last-named had both a VHF and an IIF channel since both fighters and A-20's were to fly support missions.

Actually, the landing on 23 February was unopposed and no air support was necessary. Flights of eight A-20's reported in to CSA every 90 minutes until noon but were sent against small boats and suspected enemy positions in the interior. At noon CSA ordered the A-20's to remain at base on ground alert; he could do this without taking undue risk, because fighter

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cover reported on station with bombs and therefore could be called upon if a need for ground support developed suddenly.⁸

Before the operation began, there was some confusion as to which agency was to control close support on Palawan after the assault phase had ended, but the Fifth Air Force support aircraft party (SAP) which had been alerted was withdrawn, and Guerrilla Air Support Team No. 2 was given the assignment. The team commander reported to the deputy commander of the 41st Infantry Division on 16 February and was nonplussed to learn that the division, as well as his party, lacked a copy of the air support plan. During the next few days, while equipment was put in order, a frantic effort was made to get these plans and gridded photographs of the objective area. An incomplete version of the plan and some photographs (which proved to be unsatisfactory) were obtained from the Navy just before embarkation.

As already noted, the team was broken up in order to provide air liaison parties with the invading battalions, and the commander remained with regimental headquarters. It was fortunate that little or no support was needed, since, reported the commander, "the men and vehicles of the various battalions had been put ashore at different places. None of my officers saw their jeeps for the entire day." The commander was able to contact CSA on D-day, but was unable to make any contact on the air support net, and it was over this circuit that he would send his requests for support when the Navy had departed. Contact was made, however, before the team assumed control of air support from CSA on D plus 2.⁹

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Except for abortive attempts to secure photographic coverage of northern Palawan for the ground forces and an unsuccessful fight against communications difficulties which finally were found to result from the party having been assigned the wrong frequency, the men of the team had little to do on Palawan. One air support mission was all that the infantry needed. This strike, against a hill north of Puerto Princesa, was made by 11 P-38's on 7 March. Although the target was marked with smoke and an L-4 led the fighters in, the 1,000-lb. and napalm bombs missed the target. The unharmed Japanese repulsed an infantry attack which followed the air strike, but that night they retired from the field.¹⁰

Zamboanga is technically a peninsula jutting out toward Borneo from Mindanao, but since there are no overland communications with the remainder of Mindanao, it may for all military purposes be considered an island. It was the next objective of Eighth Army. The operation could be supported by B-25's from Palawan and B-24's from Leyte or Morotai, but if the shorter-range F4U's were to be used, an airfield nearer the scene of operations was needed. This field was available on the northern part of the peninsula, at Dipolog, in guerrilla hands. Therefore a squadron of Corsairs was flown into Dipolog with enough supplies to remain in operation during the critical phase of the landings at Zamboanga. Beginning on 8 March, two companies of infantry from the 24th Infantry Division were flown into Dipolog, which was even then under attack, to strengthen the guerrilla defenses.

The 41st Infantry Division, less one regimental combat team (RCT) still engaged on Palawan, furnished the landing force. For control of air support, one SAP was provided by Fifth Air Force, but most of the

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actual control of planes in close support was to be exerted by Marine air liaison parties. Thirteenth Air Force provided a CSA who, using communications and personnel provided by a naval air support control unit (ASCU), would control air support from the flagship Rocky Mount during the assault phase.¹¹

Air support of the landings on 5 March was provided by 47 B-24's and 73 A-20's provided by Fifth Air Force, and by 26 Thirteenth Air Force B-25's from Morotai. Marine Corsairs provided combat air patrol (CAP), and some of the fighters also carried bombs and made strikes in support of the ground troops. The B-24's endangered the success of the operation when, apparently because of mistake, briefly, they failed to check in with CSA before dropping their bombs. Some of the 1,000-lb. missiles hit within friendly lines but fortunately caused no casualties. Two large A-20 formations made parafrag and strafing attacks on the main Japanese defensive positions and air alert flights of B-25's and A-20's bombed special targets assigned by CSA. Before control was turned over to the 22d SAP at 1100 on 11 March, 15 troops support missions had been flown, 6 of them in response to requests from the men ashore. Flight leaders acted as air coordinators over Zamboanga, but an air observer in an SB-24 was aloft over the beaches on D-day.¹²

San Roque airfield was captured on the afternoon of 11 March, and work was immediately begun to prepare it to receive aircraft. MAG's 12 and 32 (the latter having concluded operations on Luzon) were to base their respective F4U's and SED's on San Roque, now renamed Foret Field,

and the first Corsairs arrived on 15 March, to be followed by MAG 32 on 25 March. Col. Clayton Jerome, commander of MAG 32, was placed in command of all aircraft based on Zamboanga, known collectively as MAGSZAMEO.

The Japanese retreated only so far as the foothills overlooking Zamboanga and the airfield, and from prepared positions they kept the troops on the coastal plain below under mortar and artillery fire. Until the Marine units could operate from Morot Field, Thirteenth Air Force B-25's and B-24's joined the F4U's from Dipolog in supporting the slow-moving advance against the Japanese positions. Some of the B-24 attacks were close support, against near-by targets designated by the ground controller and marked by artillery smoke shells.

The marines provided each regiment of the 41st Infantry Division with an air liaison party and after the arrival of the F4U's at Morot Field these parties requested missions direct from MAGSZAMEO without going through the SAF at division headquarters, then directed the strikes as they came over. During March, most of the targets were less than five miles from the airfield, so the pilots soon became highly familiar with the terrain, a situation which always added to the effectiveness of close support. The Eighth Army action report on the operation stated that "The close air support rendered by Marine Air Groups 12 and 32 on ZAMBOANGA was of the very highest quality. On several strikes the aircraft bombed and strafed within 300 yards of our troops in difficult terrain." When these close support strikes were coordinated with an infantry advance, the planes bombed, then made strafing attacks, mixing in dummy runs which held the enemy down while the infantry inched forward.

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When found by our troops, most of the Japanese were hiding deep in their foxholes and dugouts to escape strafing. They were eliminated easily with hand grenades, demolition charges, and flamethrowers." The 41st Division found also that napalm attacks on the crests of ridges drove the enemy into shelters on the reverse slopes, a fact which often enabled the Infantry to seize the crest without opposition.¹³

Constant pounding of the enemy's positions by air and artillery, constant pressure by the infantry on his front, and harassing of his rear by guerrillas finally wore him out, though not until the 41st Infantry Division's third RCT had been brought from Palawan. The Japanese were still strong enough to mount a determined, though unsuccessful, counterattack on 5 April, but that was the final gasp. By the end of the month they were broken up into small pockets. Many of them remained on the peninsula until the end of the war, but after April they offered no hazard to Allied operations.¹⁴

While heavy fighting continued in and around Zamboanga, 41st Division troops were moving down the island chain of the Sulu Archipelago. They invaded Basilan Island on 16 March, and overran it without opposition. Sanga Sanga, in the Tawitawi Group, fell without resistance on 2 April, and only slight opposition was encountered on adjacent Pongao Island. Landings on Jolo Island, made 5 April, were also unopposed, but here the Japanese garrison, which had taken up positions in the hills, was to put up a bitter fight before the island could be secured.

Army planes provided the preliminary bombardment for these operations, but direct support of the ground troops was carried out by Marine aircraft

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from Zamboanga. Therefore, in accordance with JFA doctrine that CSA should be of the same service as the planes furnishing most of the support, a Marine officer acted as CSA aboard the flagship, and Marine air liaison parties went ashore with the assault troops. SB's and FB's were on air alert to support all these landings, but only on Jolo was close support necessary.

Although resistance was encountered at several points on Jolo, it was at Mount Pahio that the Japanese made their main stand. This hill was prepared for defense with trenches, dugouts, and pillboxes, arranged in depth and in such fashion that they offered one another mutual protection. In addition to normal infantry weapons, the 100 or more Japanese troops had the firepower of 15 twin-mounted 20-mm. dual-purpose guns sited so as to command all approaches to the hill.¹⁵

Eighth Army's comment on air support at Mount Pahio is worth citing: 16

The attack on MOUNT PAHIO affords a classic example of close air support bombing.

The Japanese had developed the defensive potentialities of the area over a period of months. Intrenchments, protective casemates, caverns, and automatic gun positions blanketed PAHIO's slopes.

Open, grassy approaches, crisscrossed by bands of automatic fire, made frontal infantry assault suicidal. To make matters worse, the artillery fire in support of the troops assaulting MOUNT PAHIO proved ineffectual because of the steep ravines which surrounded, neutralizing the fire.

From aerial reconnaissance it appeared that the area would be ideally suited to bombing missions. However, the terrain features proved to be so rugged that it required almost vertical bombing to be effective.

Air support was requested and given by the MORET FIELD Marine Air Groups. The poor state of repair of the strip delayed the strike one day, but the effect of the bombing on the final day was disastrous to the Japanese. Their weapons were destroyed, their caverns were sealed, and 230 Japanese were slain. The surviving enemy forces were so completely demoralized that our troops were able to seize the position promptly.

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Capture of the Southern Visayas

While the 11th Infantry Division was taking Zamboanga and the Subic Bay area, the 40th Infantry and Americal Divisions were beginning the liberation of the southern Visayas. Americal Division was charged with the capture of Cebu, Bohol, and Negros Oriental; and 40th Division was to take Panay and Negros Occidental.

So that support aircraft parties might be available for these and other operations, the 7th Tactical Air Communications Squadron, which had been attached to Fifth Air Force for the early operations on Luzon, was returned to Thirteenth Air Force on 10 March 1945 and strengthened by the addition of ten more officers. Fifth Air Force refused to release the squadron's personnel until a command decision to that effect was made by FEAF.¹⁷

Fifth Air Force . . . indiscriminately shifted personnel and equipment of this squadron all over Luzon . . . without notifying some rear headquarters and with no published orders. This resulted in three officers not being located until late in April, one enlisted man did not return until May, while two officers were returned to the United States due to combat fatigue.

Enough men were recovered, however, to assign the 28th SAP (formerly the 14th) to the Americal Division and the 29th SAP (formerly the 15th) to 40th Division, while others were assigned to Eighth Army and the divisions to be used in the Invasion of Mindanao.¹⁸

Two regiments of the 40th Division landed at Tigauan, on the south coast of Panay and west of Iliolo City, at 0900 on 18 March. Two flights of Fifth Air Force A-20's were on hand to support the landing, but no opposition was encountered near the beaches, so the planes were directed



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to targets in the Iloilo area. The Japanese garrison fled from Iloilo, which was taken on the 20th. Several strongpoints held up the infantry for an hour or so during the course of the advance on the 19th and 20th, but the defenders were invariably dispersed by infantry supported by tanks and artillery. The support aircraft which reported in, 30 A-20's and 4 F4U's on the 19th, 24 F4U's and 12 A-20's on the 20th, and four P-61's on the 21st, were sent against targets well in advance of the ground troops.

Little organized resistance was encountered on Panay at any time, and practically none after 20 March. The Japanese scattered into the interior, where their numbers were reduced by patrols and guerrillas. As of 26 March, 659 of the estimated 2,500 enemy on the island had been killed as against a loss of 9 killed and 33 wounded in the ranks of the 40th Division. One battalion was left on the island to aid guerrillas in mopping up while the remainder of the division proceeded to Negros.¹⁹

Negros, like many of the Philippine Islands, has a chain of mountains running down its center. Thus, it is physically as well as politically divided into Negros Occidental and Oriental. Troops of the 40th Division went ashore on Negros, near Pulandan on the northwest coast, at 0930 on 29 March. A platoon which had landed ahead of the main body had already seized the vital bridge across the Bato River, which enabled the division to capture Bacolod on 30 March, the same day that Pontevedra fell in the south. The Japanese retreated to prepared positions in the interior, and scattered sniper fire was the only opposition encountered along the coast. F4U's from Leyte and Samar provided defensive cover, and Fifth Air Force A-20's were on air alert for close support. Some

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70 A-20's reported in to CSA or, after command had passed ashore, to 29th SAP, and were given targets, but all these strikes were made against points far removed from the advancing ground forces.²⁰

Though the Japanese on Negros had abandoned the coast, they were far from ready to give up. Retreating to prepared fortifications in the rugged interior east of Bacolod and Talisay, they awaited the American forces. The 503d Parachute RCT was brought in to aid the two regiments of the 40th Division in reducing these positions. B-24's, P-38's, F4U's, and P-61's flew more than 200 sorties against the enemy lines from 4 through April, preparing for the infantry attack which began on the 9th.

Fighting in the Pilar-Negritos area continued heavy throughout April as the Japanese slowly yielded ground. From 40 to 90 planes were over the lines each day until late in the month when the enemy once more began to withdraw. Most sorties were flown by F4U's, but all available types of fighters and some bombers--A-20's, B-25's, B-24's, and even one PB4Y--participated. Many of these aircraft reported in to the SAP on Negros after carrying out escort missions, or after being weathered out of other targets.

At the end of April the Japanese, greatly weakened by losses in men and supplies, retreated to the southwest and took up another position on and about Hill 3355. The enemy's previous losses were "offset to some extent by the better defensive terrain Hiding in the hills . . . [the Japanese] were able to set up ambushes at the top of steep ridges, or around sharp turns on the trail."²¹ Air support was important in this type of fighting, and some 700 F4U, P-38, and A-20 sorties were flown at Negros during May, though some of these sorties were in support of the Americal Division in Negros Oriental. The Hill 3355 positions were

broken on 26 May, and the disorganized Japanese scattered through the interior.²²

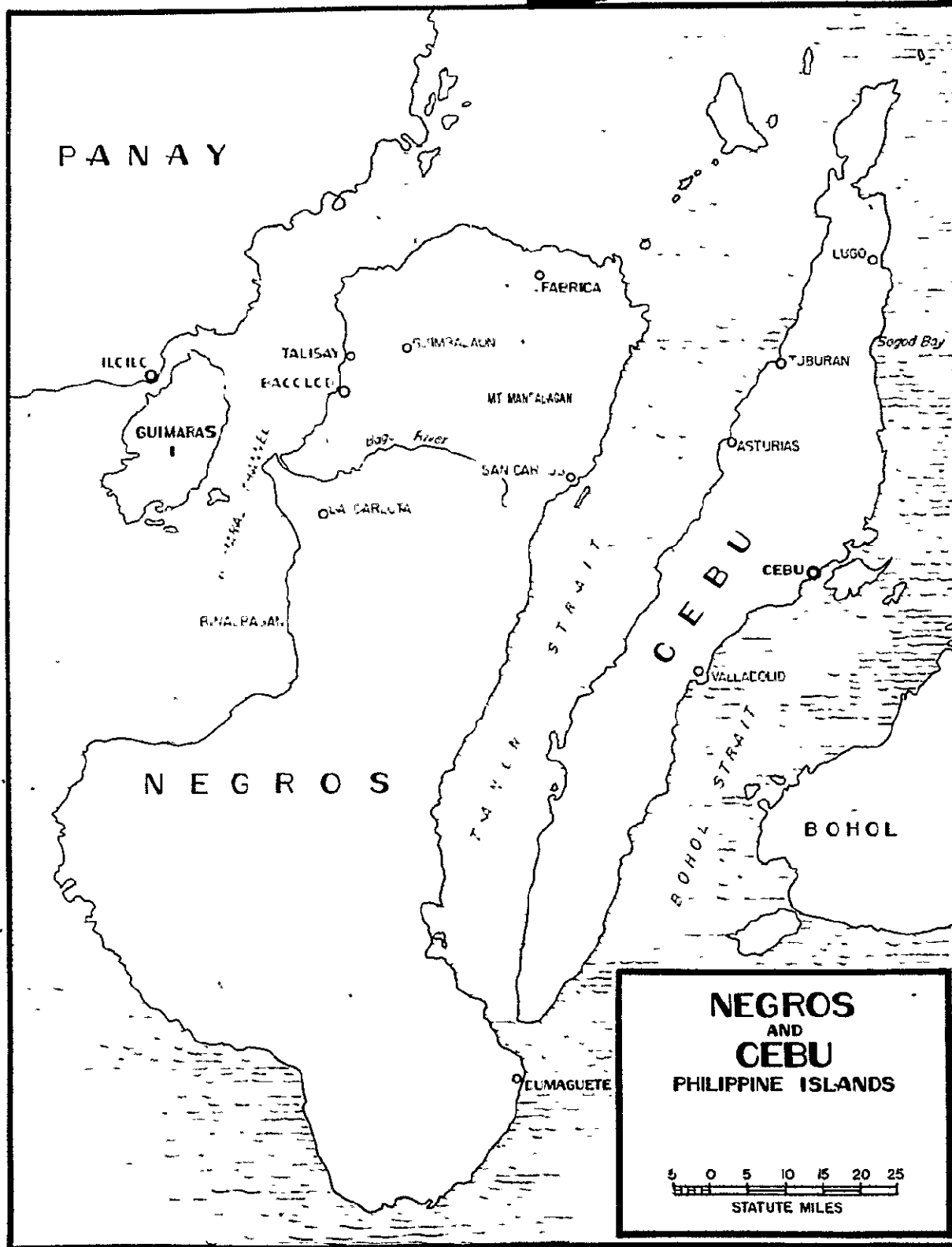
The 29th SAP had served the 10th Division throughout the Negros action and was highly commended by the division commander. The ground commander's gratification was not reciprocated, however. The narrative report of the SAP contains one of the few expressions in SWPA records of the old air-ground conflict over close support:²³

On Negros, air support under the direction of the 29th Support Aircraft Party came into its own and furnished a great amount of valuable assistance to the 10th Infantry Division. As on previous operations, it took about a month to educate the ground commanders that the Air Force still commanded the aircraft. After they ceased their meddling, the full force of air power was brought to their assistance. Ground commanders still desire to have aircraft units assigned to their command and under their direct control, and there is always this attitude to overcome when a . . . Party joins a ground force unit. Until the ground forces are fully impressed that they can only request aircraft to support them, and cannot order a mission as they can with artillery or infantry. . . there will always be danger of friction.

No other SAF records any such friction, though the commander of the 43d Infantry Division on Luzon implied the existence of a similar disagreement with his supporting unit.*

Almost all the close support strikes on Negros were directed by forward observer teams in the front lines, but on occasion the SAF at the division command post could see the target well enough to handle the strike from that point. Ordinarily, the forward observer teams were made up of SAF personnel, but the control of strikes may sometimes have been turned over to one of the 592d Joint Assault Signal Company (JASCO) air liaison parties (ALP's) which were attached to the division.²⁴

* See above, pp. 291-92.



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In the meantime, on 26 April the 164th Regiment, Americal Division landed near Dumaguete in Negros Oriental. These troops were accompanied by ALP's of the 592d JASCO which sent requests for air support to the 23th SAP on Cebu for transmittal to Thirteenth Air Force. The Japanese offered no serious resistance on the coastal plain, and Dumaguete fell the same day. As the regiment moved inland, however, positions of the same nature as those met with in northwestern Negros, though not so well-manned, were encountered near the headwaters of Ulog and Ticala Creeks. Air strikes were needed to break resistance in this area. On 7 May, for example, 12 P-33's dropped napalm on a ridge which had beaten off infantry assaults for two days. After the air attack and an artillery and mortar barrage, the ground troops took the hill without additional casualties. Each action pushed the Japanese deeper into the interior until by mid-June they were scattered in the Cuernos de Negros region.²⁵

Though the close of the campaign in the Northern Visayas was officially proclaimed on 20 June, the Japanese refused to admit defeat. On Negros, several thousand of the enemy remained alive, and many of them came together east of Mount Mandalagan in Negros Occidental. The 503d Parachute Infantry was given the job of breaking up this concentration, and five men of the 23th SAP, which had concluded its work on Cebu, acted as SAP for the regiment. B-24's were used to support this ground effort, and the heavies flew more than 200 sorties between 11 July and 6 August.

The B-24's were flying close support during these four weeks, so they required very careful direction. This was most difficult for the small SAP to accomplish, especially since the spark plugs in the jeep which mounted the AN/VIC-1 were turned out and the port's SCR-193 set would not receive. Emergency repairs kept the jeep set working for

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20 crucial minutes during the first strike on 11 July. The party commander then secured at Fabrica a VHF-equipped L-5 and an A-24 (SBD), and by using these two aircraft a workable system of directing the heavy bombers in close support was devised.

As the bomber formation made its turn at the initial point, the A-24, flying at a higher altitude, dropped a smoke bomb set to explode over the target at the B-24 formation's altitude. The lead bombardier could aim at this smoke until near enough the target to begin his actual bomb run. When the latter point was reached, the L-5, flying just above the trees, dropped a string of smoke grenades along the near edge of the target area at right angles to the bomb run. The lead bombardier, bombing from 4 to 5,000 feet, could aim at the line of smoke and trail bombs through the target.

On 26 March, after the 40th Division had invaded Panay but before it went ashore on Negros, the Americal Division made an amphibious landing five miles south of Cebu City on the west coast of Cebu. The Japanese as usual failed to oppose the landing, but air support was present in large quantities in case beach opposition should develop. Cebu City was captured on 27 March, the near-by Lahar airfield fell on the 28th, while air alert B-24's supported the operation. Just inland from the airfield, the Americal Division infantrymen ran into the main Japanese defensive positions, and in this area heavy fighting, requiring much air support, was to continue past the middle of April.

Control of air support during the first two days of the operation was exerted by a Thirteenth Air Force CSA, aided by a naval ASCU, aboard

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the flagship Spencer. An air observer aloft over the beachhead in a B-24 contributed to air support by locating targets. On D-day the supporting B-24's struck predetermined targets, but the air alert flights of B-25's and the F4U's which reported in to CSA at the end of their patrols were directed in the main against Japanese motor transport and troop concentrations in the hills overlooking Lahug airfield. Because of their greater maneuverability, the F4U's proved much more effective than B-25's at low altitude attack in the rugged terrain. The 28th SAP, which had come ashore early because the Americal Division was not originally provided with JASCO ALP's, took over control of air support on the morning of 23 March.

During the operations against the Japanese in the hills back of Cebu City, about 1,500 scheduled sorties were flown by Allied aircraft, and several hundred other sorties reported in to the SAP on Cebu for secondary targets. B-25's provided an air alert during the first eight days and contributed, in all, about 175 sorties. B-24's, with some 165 sorties, were also active, but most of the support was given by F4U's of MAG 14, which began sending over flights at hourly intervals on 4 April and which contributed as many as 82 sorties in a single day.

Many of the strikes against the Japanese defenses were directed by an air coordinator who circled over the battlefield in a B-24. An artillery observer performed this duty for the first two days (without directing aircraft), but thereafter a rated observer of the 592d JASCO took over. In this instance the functions of air coordinator and air observer were merging. On at least two occasions, these orbiting B-24's were shot up by Japanese ground fire and forced to return to base.

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Despite all worries during the first 12 days of the operation, the Americal Division complained on 6 April that it was not getting sufficient air support. The bottleneck lay in forward observer teams, and five of these belonging to 592d JASCO were sent to Cebu. Only two of these parties proved able to operate, but the air support received between 7 and 13 April increased to 560 sorties, of which B-24's provided 112. The B-24's dropped 1,000-lb. bombs and started landslides which, it was believed, must have buried many Japanese in their caves.

Most of the air effort was directed against the main enemy defensive area, which measured only 3,000 by 4,000 yards. Artillery and naval gunfire also pounded this area, and the infantry kept the defenders under constant pressure. With such support, frontal attack would no doubt have dispersed the Japanese, since they had no hope of reinforcement and were subject to constant attrition, but it was evident that such a course would lead to heavy casualties for the attacking elements. Therefore a regiment was sent on a long march into the interior and brought into position to strike the Japanese from the rear. This blow ended the battle for all practical purposes, though mopping up continued for the rest of the war, and occasional air support by P-38's and F4U's continued until the end of May.²⁸

Mindanao

The campaign on Mindanao, second largest island in the Philippines, differed from those on Negros and Cebu in that the island the Japanese sought to defend was large enough to permit great freedom of maneuver.

The first phase of the action was devoted to splitting the enemy into separate pockets, and only when this had been accomplished were the isolated groups destroyed.

Air support during the campaign was provided largely by Marine SED's, SB2C's, F4U's, and PBJ's under MAGSALAO. During the campaign they operated from Moret Field, on Zamboanga, and Malabang Airfield, later named Titcomb Field, on Mindanao proper. Before the end of the fighting, the 18th Fighter Group was based on Zamboanga, under operational control of MAGSALAO. While these P-38's were to be used mainly for support of operations in Borneo, they were still available for use on Mindanao when needed. Should additional support be desirable, Thirtieth Air Force could be called upon, but this was seldom necessary.²⁹

Although there were four amphibious operations during the Mindanao campaign, none of them met with any opposition. The first and most important landing was made on the west coast in the Parang-Malabang area on 17 April. Originally all of X Corps (the 24th and 31st Infantry Divisions) was scheduled to go ashore at Malabang, but guerrillas, aided by air support directed by Marine air liaison parties and Thirtieth Air Force Guerrilla Air Support Team No. 2, had secured control of the Malabang beaches before the invasion force arrived. Part of the assault troops were therefore landed farther to the south than originally planned, near Parang. Marine planes had been landing at Malabang airfield for several days before the infantry came ashore.

On 10 May, the 108th RCT of the 31st Division landed near Agusan in Macajalar Bay, and on 23 June the 155th RCT landed in Butuan Bay. The final landing, really part of mopping-up operations, came on 12 July,

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when a mixed force consisting of a battalion of infantry, antiaircraft personnel acting as infantry, a field artillery battalion, and Filipino forces, landed at Sarangani Bay. Here too guerrillas held the beaches when the assault troops went ashore.

Since no opposition was encountered in getting ashore, and since in most cases beach bombardment would have harmed friendly guerrilla units, there were no air attacks in direct support of these landings. However, MAGSALAYO and/or Thirteenth Air Force did provide air alert support planes. When these planes reported in, they were sent against known targets in the interior or, more effectively, on road sweeps of the areas occupied by the enemy. The usual command and communications systems for amphibious operations were in effect, with either a Marine Corps or Thirteenth Air Force officer acting as CSA. Over Malabang an air observer was aloft in a B-24; at Macajalar Bay he was transported in a Marine PBJ. Flight leaders served as air coordinators in all these landings.³⁰

Control of support aircraft during the Mindanao campaign was exerted by SAP's, Marine air liaison parties, JASCO forward observer teams, and, in the case of guerrilla support, a Thirteenth Air Force guerrilla air support team. In general, however, the 26th SAF with X Corps, 25th SAF with 24th Division, 30th SAF with 31st Division, and 31st SAF with the 103th RCT acted as coordinating and requesting agencies while actual strike control was performed by Marine or JASCO parties in the front lines. The 32d SAF was sent to the Sarangani Bay area in July, but arrived too late to take any active part.

Requests went from the ground units through ALF's to the division SAF, then direct to MAGSALAYO, unless Thirteenth Air Force planes were

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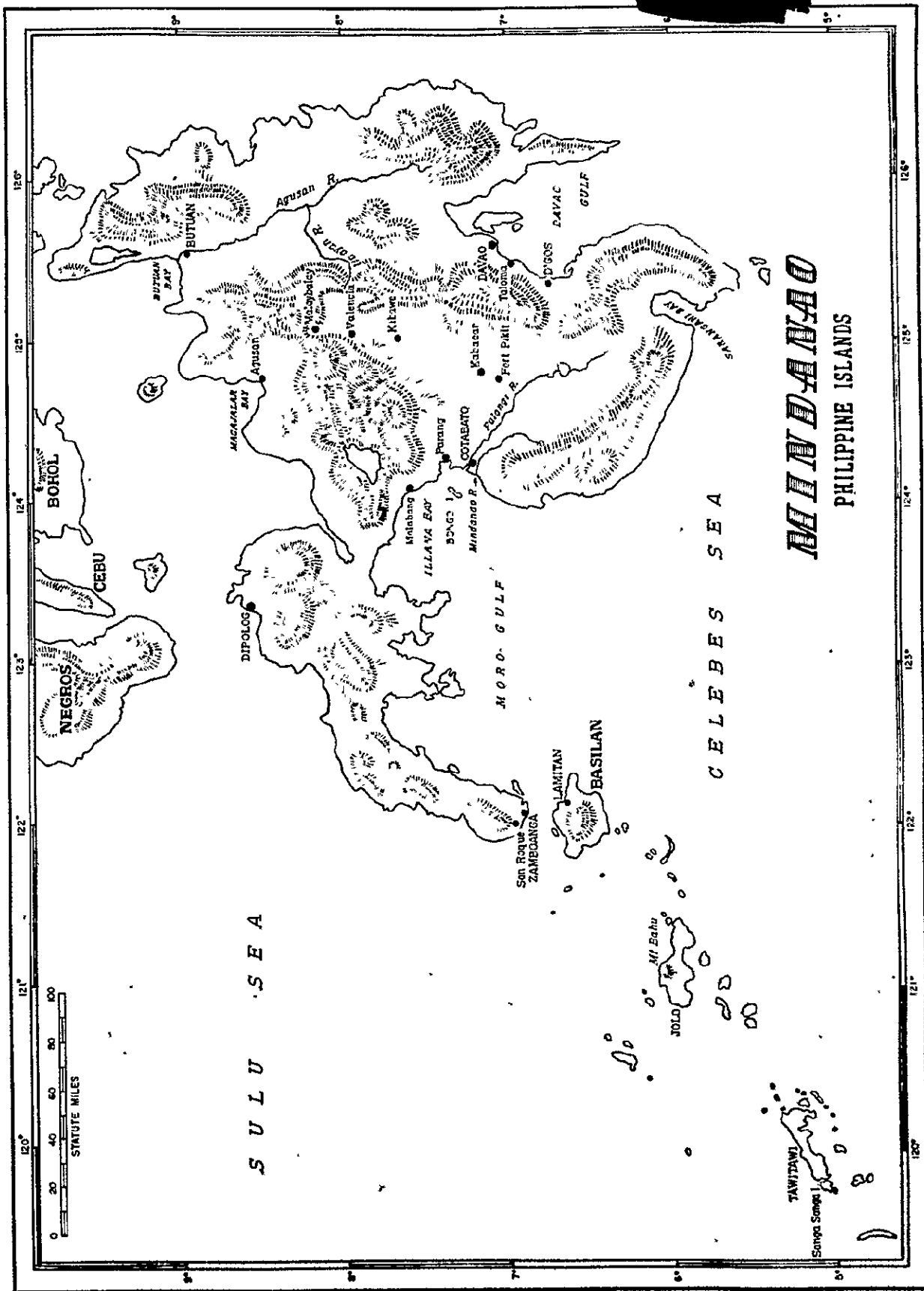
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decided. In the latter case, the request was sent to Thirtieth Air Force or XIII Fighter Command. The SAF at corps headquarters monitored requests and could break in to reject them if necessary. Communication with planes in the air was mainly by VHF, though HF frequencies were necessary for talking to some models of SFD. Only occasionally were planes requested for a particular strike; ordinarily the SAF asked for a certain number of aircraft to report during the next day, with separate flights coming in at different times. Under this system, which amounted to an air alert, each flight could be assigned to a target as it reported in to the controller. Such a system atoned for the slowness of air support request procedure over Victor Air Support Net, the HF circuit used for this purpose.

The two main parts of the Mindanao campaign were the drive of the 24th Division across the island from the west coast to Digos, which fell on 24 April, then north to Davao, and the 31st Division's push up Sayre Highway from Kabacan through Malaybalay to a junction with the 108th RCT driving south from Agusan. Air support was given to subsidiary operations, and to guerrillas, but the main effort was in support of these two drives.

The 31st Infantry Division offensive, both in the north and in the south, moved so fast that close-in air support was not needed. Since this was the case, support aircraft were directed down the trails and roads ahead of the advancing columns, striking predetermined targets and targets of opportunity. On 19 June, for example, 1,500 to 3,000 Japanese, moving in groups of 50 to 100, were discovered in the Umayan valley. When this news came to Corps headquarters, the 26th SAF diverted all available planes



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to these lucrative targets. During the day some 180 sorties were flown to the Umayan valley area, most strikes being directed to targets by L-5's which hovered over the enemy parties. The slaughter continued for three days, though weather protected the enemy part of the time. There were no other instances of such lucrative targets persisting over so long a period, but the frequent road sweeps prevented enemy daylight movement except in desperate circumstances.

Sometimes the Japanese stood and fought the 31st Division, and when this happened, sustained close support was delivered. The Colgan Woods, between Kibawe and Valencia, where the division was held up for a week, may be taken as an example. Here the Japanese attempted a new defensive tactic; instead of making their stand on commanding ground which would give them an advantage over opposing ground forces but leave them exposed to precision air attack, they dug foxholes, mutually supporting and connected by tunnels--and so well camouflaged that many American soldiers were shot from directly underneath--in the shelter of dense woods. Pinpoint air strikes were impossible under such circumstances, but saturation bombing of the area eventually drove the defenders out.

Effective support was also given the 103th PCT. The American advance first met heavy resistance on the afternoon of 14 May, and heavy air strikes were brought to bear the next morning. The Japanese resisted stoutly, and not only repulsed the infantry attack but also knocked out the 31st SAP's observation post and radio gear with artillery fire. Continued air strikes silenced the artillery, permitting the infantry to deploy to the flanks. On the 10th, still heavily supported by dive bombers, the regiment completed its envelopment of the enemy positions

and continued its drive to the south. The 31st Division and 103th RCT met north of Malaybalay on 23 May.

After the junction, the division concentrated on mop-up operations in the Kibawe area and continued to receive air support when needed. By the official close of the campaign on 30 June, 218 missions, or more than 1,100 sorties, had been flown in support of the 31st Infantry Division. Only 8% sorties carried napalm, but more than 500 tons of demolition and fragmentation bombs were dropped. All of the missions were controlled by SAF's, forward observer teams, Marine air liaison parties, or by an observer aloft in an L-5. Even after the official close of the campaign, air support was needed in the Umayan valley and Kibawe areas, and nine missions made up of about 130 SED, SB2C, and F4U sorties were flown during July.³²

The 24th Infantry Division, which provided the assault troops at Malabang, reverted to American Civil War tactics and moved inland to Fort Pikit and Kabakan by means of gunboats on the Mindanao River. This advance, which cut the Japanese forces in twain by seizure of the important road junction at Kabakan, was supported by flights of air alert B-25's controlled from aboard the gunboats.

The drive of the 24th Division from Kabakan to Digos was so swift that the Japanese had no opportunity to offer serious resistance. Close support was not needed, but daylight road sweeps and night heckling of the enemy by PEJ's aided the ground forces. The Japanese offered some resistance at Digos, on the east coast, but this was quickly overcome with the help of air strikes. On 4 May the division took the city of Davao, but the Japanese remained in the adjacent hills and had to be driven back

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.if the port was to be useful.

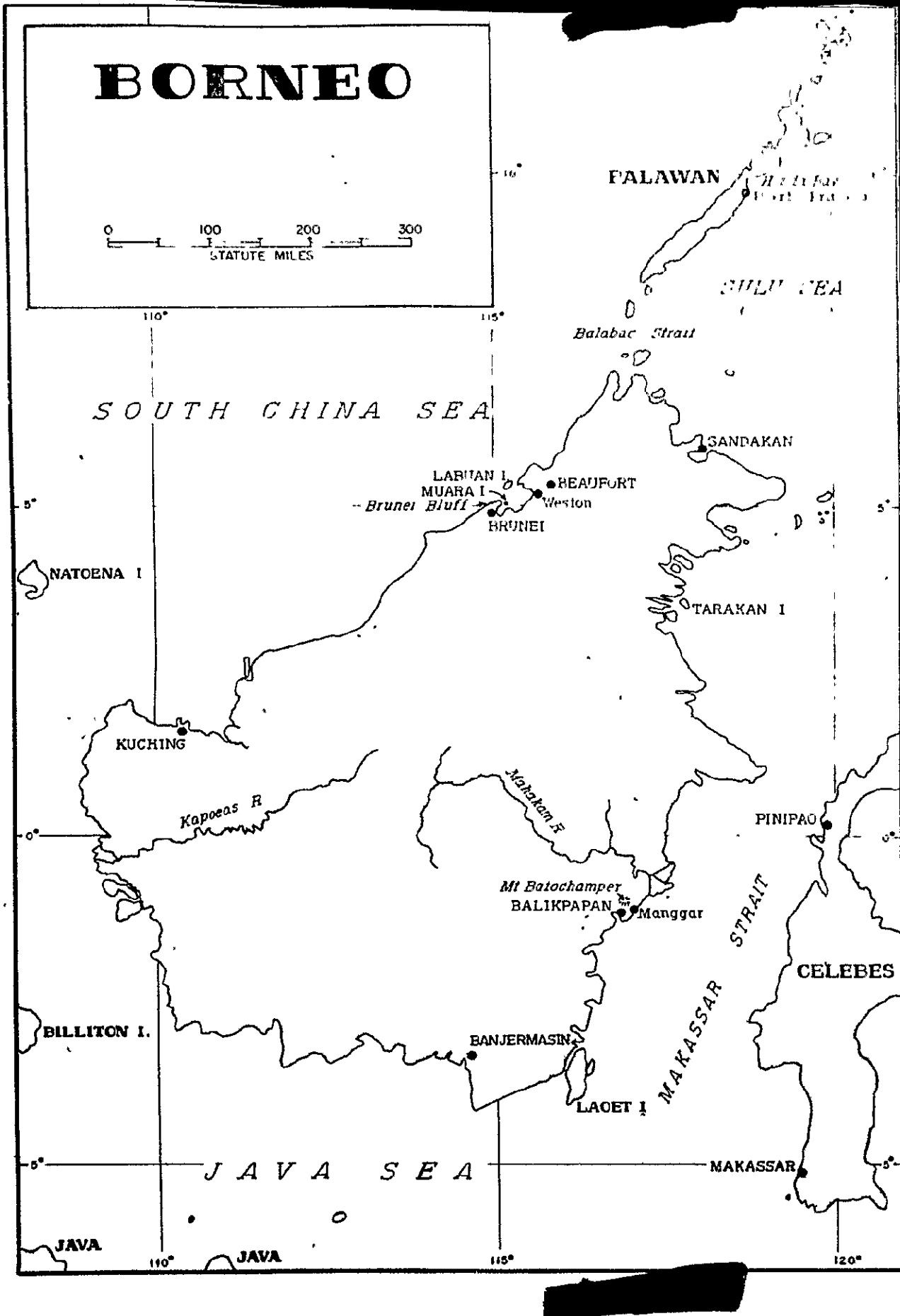
The hardest fighting of the Mindanao campaign took place near Davao, where Japanese strongpoints near the village of Guma and on Hill 550 offered bitter opposition. Air support was an essential component of American firepower during these battles; during May, whenever weather did not interfere, a flight of aircraft reported in to the 25th SAP every hour on the hour. All told, the SAP reported 3,350 sorties in support of the division, using 193 tons of napalm and more than 1,500 tons of bombs. Although misplaced bombs caused the loss of 32 men, the commanding general of the division felt that "No other division in the Pacific area has had such complete and cooperative air coverage." 33

The casualties of the 24th Division, which amounted to 425 killed and 2,003 wounded, would undoubtedly have been much higher still without the effective air support it received. Some of the more stubborn positions in the Davao area were subjected to a week or more of bombing and artillery fire before the infantry advanced. On 23 May, when the struggle was at its height, 125 sorties dropped 52 tons of bombs and 10 tons of napalm on 27 different targets. Even after the official end of the campaign on 30 June, air strikes continued against Japanese troops along the Kibawe-Talomo trail. 34

Close Support in the Borneo Campaign

The plans for the invasion of British and Dutch Borneo (OBOE) envisaged an operation by Australian ground troops supported in the main by the Royal Australian Air Force (RAAF). Australian planes, in fact, furnished considerable support, but because of delays in establishing

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airfields in Borneo, most of the support effort had to be furnished by Thirteenth Air Force. Heavy bombers could support all three landings-- at Tarakan, Brunei Bay, and Balikpapan--from Palawan and Morotai, and B-25's, though operating at long range, could furnish support from Palawan. For fighter cover and close support, the 347th Fighter Group moved into Sanga Sanga and the 18th Fighter Group into Zamboanga.

Prelanding bombardment of Tarakan, the first Borneo objective, was delivered by B-24's of both Thirteenth Air Force and RAAF, but most of the preliminary effort was concentrated upon Japanese airfields on Borneo. B-25's laid a smoke screen to protect underwater demolition teams on D minus 1 (30 April). Preliminary strikes, as well as support strikes during the assault phase, were directed by an Army CSA aboard the flagship Rocky Mount.

On D-day the planned P-24 effort over the beaches was reduced by bad weather in the Tarakan area, but two formations of Liberators succeeded in bombing target areas indicated by the air support map, and one of these actually put its bombs on the landing beaches. A group of P-38's, striking from Palawan, was forced to cancel its effort due to the combination of a runway accident, bad weather, and poor liaison. As had become almost habitual in S.W.P.A., the assault troops went ashore against negligible resistance but ran into prepared defensive positions before the end of the day. CSA was able to use only 10 of the 39 direct support aircraft which reported in after H-hour in addition to two B-25's which sprayed the area with DYT.

The naval attack force commander retained command of the operation until 1700 on 3 May, by which time Japanese resistance had shown itself

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stronger than expected. Though only 16 B-25's were utilized, they attacked 5 close support targets on 2 May, and on 3 May 19 of the Mitchells bombed and strafed 9 targets. The objectives were artillery positions and machine-gun nests, which required only a few attacking aircraft. Sixteen of the 17 direct support missions put on during the first 3 days were in response to requests from the Australian troops ashore; the one remaining mission originated with CSA. An RAAF air support section^{*} ashore at Tarakan assumed control of support aircraft on 3 May when the Rocky Mount left the area.³⁵

This air support section encountered considerable difficulty. It depended for its communications upon the RAAF First Tactical Air Force (TAF) which had set up its command post away from ground force headquarters. First TAF's primary interest was in beginning operations from Tarakan airfield. Since the air support section's main concern, securing air support for the ground force, necessitated constant liaison with the ground commander, much confusion ensued. A more reliable plan of failure was issued to the air support section a set of codes which Thirteenth Air Force was not equipped to decipher. This thoughtless error, which was to be made again at French Bay, resulted in considerable loss of air support. Still another source of troubles were the totally unsatisfactory radio sets provided for the AL's with the ground forces. Fortunately ground forces commander was successfully able to transmit requests from the front lines to the air support section. All of these difficulties were eventually

* An Australian air support section was operable by an S&P.

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surmounted, and understandable requests were soon flowing to Thirteenth Air Force over the OPOE Air Support Net. This continuous wave (CW) circuit included, besides Tarakan, Thirteenth Air Force at Leyte, VIII Fighter Command at Palawan, IIGSZA EO at Forst Field, and Advanced Headquarters RAAF Command at Morotai.³⁶

RAAF planes were scheduled to take over ground support in Borneo when the airfield at Tarakan had been put into condition, but the field was not ready until late in June, and even then could accommodate only a limited number of aircraft. So, credit for missions by RAAF Liberators from Morotai and a short period when bombers were operating from Sanga Sanga, Thirteenth Air Force bore the burden of support of the Australian troops until after the invasion of Balikpapan, in July. Considerable support was needed, especially at Tarakan, because the Japanese offered desperate resistance. They withdrew into an area of narrow, heavily wooded ridges, 150 to 250 feet high and often less than 10 feet wide at the top. They had carefully prepared ridges for defense by constructing laterally connected tunnels from one side of a ridge to another, timbered, and with entrances camouflaged and protected by bunkers. The defenders could retire into the tunnel or to reverse slopes when under bombardment, then return quickly to their positions when the infantry began to advance.

Artillery fire and low altitude attacks by B-25's, which provided air alert during the first week of the campaign, had little effect on these positions. The best results were secured by dropping 500-lb. and 1,000-lb. bombs from medium altitude, and increased effectiveness was achieved by

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Immediately following such a strike with F-31's carrying napalm. The ground forces were thereafter almost always able to overrun the target area, and the Jap entrymen usually found the surviving defenders cowering in their tunnels, where grenades and flame throwers could destroy them.

From 4 to 11 May, requests from Tarakan were given first priority, and thereafter the response was still generous. The main reason for the rather frequent failure of support planes to make their appearance was the prevailing bad weather, and the only outright refusals of requests from Tarakan were due to commitment of aircraft to other Borneo targets. A scarcity of napalm and delayed-action fuzes restricted the kinds of strike which could be made, but a request was nearly always answered in some fashion. Including the 70-odd P-51 sorties, the Australians at Tarakan were supported by approximately 230 P-51's, 200 B-24's, and 236 B-25's from 1 May through 12 June.

Although Thirteenth Air Force at first insisted that its heavy bombers allow at least 1,000 yards as a safety factor, bombs were dropping well within 500 yards of friendly troops before the battle ended. There were instances of the Australians completing the capture of an enemy position within 45 minutes of the time the last bomb fell. Such close support was possible because the ground troops could take shelter behind the knife-edge ridges, where they were endangered only if a bomb struck behind them. One P-38 did drop a napalm tank amid the Australians; fortunately it was a dud.

By early June, enemy resistance had begun to crumble. At the end of the month the Japanese were split into small parties, and when RAAF fighters in limited numbers began operating from Tarakan strip, their

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main ground support activity was strafing these enemy groups as they attempted to escape to the mainland. The Australians gave much of the credit for the outcome to air support, especially that given by the B-24's. They averred that high as their casualties had been with air support, they would have been much higher without it.³⁷

Planning for the Brunei Bay operation OBOE SIX had assumed that RAAF planes from Tarakan would be available. A group of Beaufighters was moved into Sanga Sanga several days before the landing, and these attack planes contributed to the preliminary bombardment and to close support through D plus 4, but then they had to return to Morotai in order to make room at Sanga Sanga for P-38's needed against the next OBOE objective, Balikpapan. RAAF B-24's from Morotai took part in the preliminary and D-day bombardments, but close support at Brunei, as at Tarakan, was given in the main by Thirteenth Air Force until 20 June, when RAAF fighters began operating from Labuan Island in Brunei Bay. Not nearly so much support was needed at Brunei as at Tarakan.³⁸

Troops were to go ashore on three beaches in the Brunei Bay area - Labuan Island, Brunei Bluff, and Muara Island. Since the first of these objectives was well removed from the other two, two CSA's were set up, an Australian officer aboard the Rocky Mount for the northern area (Labuan Island), and a Thirteenth Air Force officer aboard the cruiser Nashville for the southern sector. Each CSA had both Australian and American personnel on their staffs, and both were aided by a naval ASCU. For three days before the landings, the group aboard the Nashville had controlled the preparatory bombardment as advance CSA.

Ashore, an Australian air support party, a small organization neither so large as the American SAP nor so small as a conventional ALP*, was attached to each of the two brigades, and an ALP was attached to each battalion. An air support section was to have over-all control of air support after the naval force withdrew and was to act as CSA ashore during the assault phase, but due to communications difficulties it was unable to make contact with the air support parties. Each of the air support parties therefore communicated directly with the CSA afloat in its sector until the departure of the naval attack forces on D plus 3 (13 June). Thereafter, since the Beaufighters left Sanga Sanga on D plus 4, the air support section communicated its requests to Thirteenth Air Force or XIII Fighter Command.

Included in the preparatory strikes were several missions in support of the underwater demolition teams clearing obstacles from the beaches. All preparatory strikes were required to obtain clearance from CSA before dropping their bombs, and a violation of this requirement on 8 June resulted in a B-24 formation hitting a beach where an underwater demolition team was at work, killing one man and wounding three others. Despite this incident, the preliminary bombardment was highly successful, and the target area was so thoroughly saturated that few fixed defenses remained when the troops went ashore.

On the morning of 10 June 1945 before the landings, 61 B-24's of the RAAF and Thirteenth Air Force spread 100-lb. fragmentation bombs over defense areas just behind the beaches. They were joined by 25 P-38's,

* An apt comparison would be between the air support party and the SAP with a division and between the air support section and the SAP with a corps.

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which struck predetermined precision targets. During the remainder of the day, four squadrons of B-25's, reporting one squadron at a time at two-hour intervals, provided an air alert. Earlier strikes and naval bombardment, however, had so weakened the defenses that the AIF's made no requests for close support. CSA sent the air alert squadrons against targets outside the immediate battle area; most such targets had been pointed out by an Australian air observer orbiting over the area in an RAAF B-24.³⁹

The ground fighting after the landing in Brunei Bay was not nearly so heavy as at Tarakan. The Japanese did offer a brisk resistance on Labuan Island, where a pocket held out until 18 June. Air alert Beau-fighters and B-25's were over the area during most of the daylight hours on 11, 12, and 13 June. On Labuan and at the approaches to the port of Brunei they executed close support strikes which were regarded by the ground forces as highly effective, but more often the aircraft were directed against targets well behind the front lines. No strikes at all were made on 14 June, presumably because of bad weather, but B-25's returned every day thereafter through the 20th. Landings at Weston, farther up the coast, and the drive toward Beaufort received support during this period.

Australian P-40's, which had flown their first strike over the Brunei area on 15 June, were able to begin sustained operations from Labuan on the 18th. On the 20th, First TAF assumed entire responsibility for close support in the area. Little support was needed after this date, however. Spitfires and P-40's, sometimes led to their targets

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by Wirraways or Austers, were quite capable of supporting normal operations such as the landings at Seria and Lutong. The Thirteenth Air Force made a final contribution on 8 and 9 July when B-25's unable to strike their primary targets attacked as directed by the air support section at Brunei.⁴⁰

The last of the OBOE operations was the invasion of Balikpapan on 1 July. Balikpapan, the greatest oil center of the short-lived Japanese empire and a prime strategic target in SWPA, had more antiaircraft defenses than any other target in SWPA. The pre-landing air bombardment consequently had to knock out antiaircraft installations before being able to attack defensive positions which might prove to be obstacles to the landing force.

Though not strictly close support (some strikes did support the activity of underwater demolition teams), the pre-D-day bombardment at Balikpapan is worthy of attention, because it largely decided the outcome of the battle before the troops ever went ashore. CSA advanced, an RAAF squadron leader, began controlling flights over the target area on D minus 16, 15 June. An officer and party of 7th Tactical Air Communications Squadron, Thirteenth Air Force, assisted him. Some 30 B-24's dropped fragmentation bombs on antiaircraft positions that day, adding to the damage done by earlier, uncontrolled, missions. All told, some 327 B-24 sorties attacked the antiaircraft guns while other strikes no doubt destroyed some gun positions located near other targets. Between 12 and 30 June, 1,218 sorties by B-24's, 287 by B-25's, and 167 by P-38's had greatly reduced the capacity of the Japanese to resist the eventual landings. Two Fifth Air Force B-24 groups joined the Thirteenth Air Force and RAAF to make this total possible.⁴¹

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The condition of the Tarakan airfield, which, although to a limited extent operational, could not base Beaufighters for support at Balikpapan, plagued this battle as it had others in Borneo. The almost constant weather front between Sanga Sanga and Balikpapan, which made it most difficult to provide fighter cover from the former base, was another obstacle. As will be seen, the first problem was solved by the use of B-24's for air alert close support; the second necessitated the use of three escort carriers (CVE's) withdrawn from Okinawa.⁴²

More than 50 B-24's bombed pre-briefed targets at Balikpapan before the troops went ashore; these bombs, together with those dropped by P-38's, were the final blow in reducing the defense of the beaches to token resistance. CSA directed flights of air alert B-24's, and one strike by dive bombers from the CVE's, during the remainder of the day. The latter strike, mounted with misgiving because the Marine and Navy pilots aboard the escort carriers were completely inexperienced in close support, caused casualties to Australian troops. Planes from the carriers made one other support strike, but this time against a target far in front of friendly troops.

While B-25's from Palawan could and did make strikes at Balikpapan, such strikes were at extreme range for the Mitchells, which could not wait in the target area for a target to be assigned. The heavier B-24's, on the other hand, could remain on station for a full two hours.

Balikpapan thus demonstrated that heavy bombers made reliable, though hardly economical, air alert support aircraft, but it also proved that the lumbering heavy bomber was unsuited to air observer work over a target

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defended by antiaircraft guns. No less than three RAAF Liberators were shot down between 9 and 11 July. The slow B-24 was especially vulnerable when engaged in this work because it was frequently necessary to fly below 1,000 feet in order to make reliable observations. After the third bomber was lost, a TBF was used for air observer work until RAAF Austers became available.⁴³

When the Australians began to expand the beachhead at Balikpapan on 2 July, they found that most of the enemy garrison had fled into the jungle, leaving hundreds of land mines behind. Serious resistance was encountered in only two areas--Mount Bato Champar and in the vicinity of Manggar airfield. To strike these areas of resistance, and minor ones as they developed, 214 B-24 sorties reported in to CSA or, after 4 July, the air support section, from 2 through 9 July. The bombers arrived six at a time and usually made their bomb runs one by one. Fifty P-38's and 55 B-25's aided the Liberators. By 10 July only scattered opposition was being met, and RAAF planes based at Manggar were ready to take over close support. All reports agreed that the heavy bombers had acquitted themselves well in their air alert role.⁴⁴

Communications, Liaison and Control

The system of liaison, communications, and control used for air support of operations in the southern Philippines and Borneo has already been referred to. An over-all analysis is in order, however, because there were so many variations as to invite confusion.

Air support communications could as always be divided into two parts--the one used for requesting support, the other for controlling it. Requests, of course, usually originated with the ground forces to be supported,

though in amphibious landings they might originate with the CSA. From the requesting ground unit, whether battalion, regiment, or division, the request went by means of an ALP, whether JASCO or organic, to some AAF or RAAF agency at the directing headquarters. Usually this agency was a SAP at division headquarters, but in these campaigns it was sometimes a guerrilla air support team, a Marine air liaison party, or an Australian air support section. Whatever the agency, when it received the request it coordinated it with the ground forces headquarters to which attached and, unless the request was there disapproved, transmitted it to the executing agency. This executing agency might be Thirteenth Air Force, XIII Fighter Command, MAGSZAMBO, RAAF Command, or the RAAF First Tactical Air Force.

Two radio nets were used for the transmission of air support requests. The VICTOR Air Support Net included all Thirteenth Air Force SAP's, guerrilla air support teams, and, sometimes, Marine air liaison parties attached to ground forces headquarters. These were the requesting agencies, though the SAP's attached to corps or Eighth Army headquarters seldom if ever made requests, but monitored the net to secure information and broke in only if coordination or rejection of the requested action was necessary. The VICTOR Net also included Thirteenth Air Force, XIII Fighter Command, XIII Bomber Command, and MAGSZAMBO. Fighter Command and MAGSZAMBO were usually the executing agencies, and frequently requests could be addressed to them directly, though Thirteenth Air Force monitored the net and could reject such a request.

Operations in Borneo necessitated the establishment of the OBOE Air Support Net. Included as requesting agencies on this circuit were the air support sections at Tarakan, Brunei Bay, and Balikpapan (and the CSA's at each of these places during the amphibious assault). The receiving stations were First TAF at Tarakan; Advanced Headquarters, RAAF Command at Morotai; Thirteenth Air Force; XIII Fighter and Bomber Commands; and MAGSZAMEO. Advanced Headquarters, RAAF Command was the agency of final decision in the OBOE Net, as Thirteenth Air Force was in the VICTOR Net.

Both of these were high frequency CW circuits; that is to say, messages were sent by wireless telegraphy rather than by voice. Such messages were for security reasons always coded. Sometimes this led to confusion, as in the Tarakan and Brunei operations, when Thirteenth Air Force and Australian units used different codes.

Direction of support aircraft was always by voice and usually on a VHF frequency. Parties to these communications were CSA (advanced, afloat, and ashore) in the case of amphibious operations, SAP's, forward observer teams, Marine air liaison parties, guerrilla air support teams, JASCO forward observer teams, air coordinators, and the support aircraft. Communications of this sort might consist merely of the flight leader reporting his intention of attacking a particular target and the control agency's permission to go ahead, or they might consist of a rather complete briefing followed by corrections in detail as the strike was in progress.⁴⁵

Liaison, as always, was a dual function--air forces representation with the ground forces and vice versa. The former was in the main accomplished by the SAP officers attached to RCT's, divisions, corps, and

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army headquarters. These officers, in addition to their function of requesting and controlling aircraft, advised the ground commanders on air matters. As a participant with the ground unit's G-3 for air in the division or corps air section, the SAP officer was for all practical purposes a part of the ground commander's staff. Guerrilla air support teams provided liaison between Thirteenth Air Force and the guerrilla units to which they were attached; and the Marine air liaison parties, though their main function was control, also served as liaison between the supported ground units and MAGSZAMBO. In the OBOE operations, each air support section was provided with at least one Thirteenth Air Force liaison officer while that organization was giving support.

For ground liaison with air units, Eighth Army had created an air-ground information center (AGIC) as a part of the Army G-3 section. The AGIC, usually presided over by an AAF officer, had two functions. It took part in planning, advising the ground commander on the air support needed and the utilization of the support available. The AGIC also sent ground liaison teams (GLT's), composed of one officer and one enlisted man, to various air unit headquarters. For the Palawan and Zamboanga operations, for example, GLT's were attached to Thirteenth Air Force, XIII Fighter Command, and MAG's 12, 14, and 32. The GLT's were to represent the ground forces and to supply the air unit with information on ground forces activity. Thus the GLT had an important part to play in the briefing of pilots for close support strikes. Before the Borneo campaign began, the Australian ground forces, which had kept liaison officers with Fifth Air Force units until mid-1944, sent them to Thirteenth Air Force and subordinate units which would be rendering them air

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support.

Most air support strikes were controlled from the ground by one of the many control agencies.* During amphibious operations, strikes might be controlled by CSA (advanced, afloat, or ashore) or by an air coordinator. In the southern Philippines and Borneo strikes were frequently directed by liaison officer airborne in a VHF-equipped liaison-type aircraft. In the Visayas, and over Balikpapan, strikes were directed from the air observer's B-24, though the observers in these instances were not, as was normally the case, ground forces officers. In the Visayas this function was carried out by rated officers of Marine JASCO's, and over Balikpapan by RAAF personnel trained in army cooperation work. The air observer's functions in SWPA were becoming almost equal in scope with those of the earlier air coordinator, whose few additional duties were being carried out by flight leaders.

Control techniques were much the same with all agencies. The support aircraft were directed to the target by oral instructions, usually with reference to photographs and maps held by both parties or landmarks easily seen from the air. To make identification more certain, these oral directions were supplemented by visual signals to mark the target. The airborne controller had an advantage in that he could point out the target by making a "pass" at it with his aircraft, by firing tracers if his plane was armed, or, in the case of a liaison plane, by dropping a smoke grenade.

* SAP's, forward observer teams from SAP's, JASCO forward observer teams, Marine air liaison parties, RAAF air support sections, RAAF air support parties, and guerrilla air support team.



Operational control of support aircraft over the target was, with one exception, always exercised by air commanders. During the assault phase of amphibious operations, the attack force commander controlled support aircraft, but he exercised this control through an air officer who served as CSA. The records show no instance in which an attack force commander attempted to exercise direct control, though it was in his power to do so. The opportunities for disagreement in the more than 50 amphibious operations in the southern Philippines and Borneo must have been numerous, and it speaks well for both ground and air officers that controversies seldom, if ever, occurred.

Not only did the direction of air strikes remain in the hands of air forces personnel, but, whenever practicable, strikes were controlled by officers of the service which provided the aircraft. Marine air liaison parties would thus direct Marine Corps planes, and SAP's Thirteenth Air Force planes. This rule was of necessity frequently violated in the Visayas and Mindanao, where Marine and Army formations might be over the same target at almost the same time, but it was observed elsewhere. Thus Marine officers acted as CSAs in the amphibious operations in the Sulu Archipelago when all support was rendered by SBD's and F4U's. In the Borneo operations, American planes participated under the operational control of the RAAF, but a Thirteenth Air Force officer was CSA at Brunei Bay, and the actual direction of American planes was usually carried out by American officers attached to CSA or to the air support sections.⁴⁷

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Chapter VIII

CONCLUSIONS

The war in the Pacific demonstrated that almost any bomber or fighter aircraft in use could deliver effective close support. At the beginning of the war, medium and attack bombers were favored for this type of operation, but as the need for fighters for defense against enemy aircraft declined, they took over the greater part of the close support task. Heavy bombers proved useful, however, when close support had to be conducted at long range, or when a great number of heavy bombs were needed to saturate a defended area.

Early in the Pacific struggle, light demolition bombs, fragmentation bombs, and machine guns were considered the best armament for close support strikes. These weapons continued to be used, but heavier bombs came to be preferred. In the Philippines the 1,000-pounder became a stand-by. In the Central Pacific, partly because of the lesser carrying capacity of the planes employed there, smaller bombs were used to a greater extent. Rocket fire came to complement strafing during the invasion of the Marianas, and assumed greater importance in the Central Pacific as the war went on. Napalm was an important addition to close support armament, but it was most effective when used in conjunction with fragmentation bombs, strafing, or ground fire.

Buna and Tarawa demonstrated clearly that coordination was essential to effective close support, and that good liaison was essential to coordination. Progress toward more complete liaison was continual after these early battles, eventuating in the complicated exchange of air

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and ground representatives noted in the Philippines, and in the fire support coordination center (FSCC) in the Central Pacific. The importance of the truism that close air support was most effective when coordinated closely with infantry action, artillery, and/or naval gunfire was repeatedly confirmed.

Communications were probably the most important single factor contributing to successful close support. It was no accident that close support improved as better communications became available. More powerful high frequency (HF) transmitters and receivers, available in greater numbers, simplified the requesting and coordination of support missions. Very high frequency (VHF) equipment made possible effective ground-to-air and air-to-air direction of strikes. Trained personnel made it possible to keep these communications in efficient operation.

Visual markings were also important in close support air operations. Target marking was accomplished successfully by the use of smoke, whether the shells were fired from artillery or mortars. Smoke rockets fired from aircraft and smoke grenades dropped from liaison aircraft were also successful target markers. Panels were used throughout the war for marking front lines, but when used alone they often went unseen. For observation aircraft, panels may have afforded sufficient front-line identification, but smoke grenades gave better results when it was desired to mark the lines for strike planes.

The command systems for air support in the two major Pacific theaters differed only superficially. In all amphibious operations, support aircraft were under the operational control of the naval attack force commander while in the objective area, but this control was always

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exercised through an air officer (Army, Navy, or Marine Corps) as commander support aircraft (CSA) or commander air support control unit (CASCU). In the Southwest Pacific (SWPA), where ground operations were likely to continue long after the amphibious phase was concluded, the air commander recovered operational control of support aircraft when the assault phase ended. This was not strictly true in the Central Pacific; the tactical air force (TAF) on Okinawa came under Tenth Army, but in practice TAF operated much as Fifth or Thirteenth Air Force operated in the Philippines. The direct command of aircraft was always in the hands of air officers everywhere in the Pacific.

Control of air support tended toward locally centralized control. In SWPA, the three Fifth Air Force bombardment wings, XIII Fighter Command, and Marine Air Groups, Zamboanga (MAGSZAMBO), although originally established to permit decentralized control of airpower in areas removed from air headquarters, were instruments for locally centralized control of air support. Other agencies for centralized control of air support were CASCU's, landing force air support control units (LFASCU's) FSCC's, and TAF in the Central Pacific. As air and ground operations assumed greater magnitude and coordination became more and more essential lest air support be wasted or result in harm to friendly forces, such centralization was patently necessary. It should be added that centralization of control was more important in the Central Pacific, where ground action was confined to small areas, than in the larger islands of SWPA.

Yet it was still important that decentralized control be possible, for a strike by one flight of fighters in aid of a battalion of infantry might be as important to the outcome of the battle as a strike by a hundred aircraft in support of a division or corps. In the Central Pacific, the air liaison parties (ALP's) failed to function effectively as an agency of decentralized control, though ground commanders desired them to have this duty. In this theater the air coordinator, frequently aided by the ALP's, came to be the main means of controlling small numbers of aircraft in close support. On Iwo Jima and Okinawa, forward observer teams from the LFASCU's sometimes moved into the lines to control planes engaged in close support. In SWPA, support aircraft parties and forward observer teams were more active than air coordinators in controlling support strikes.

Close support was in most instances undoubtedly effective during the Pacific war. The ground commanders, the final judges in this matter, gave an almost unanimously favorable verdict. Close support was less effective against an enemy in cave defenses than elsewhere, but even the caves were vulnerable to sustained air bombardment combined with infantry and artillery action, as was demonstrated on Luzon. There is ample evidence that close air support inflicted casualties--sometimes very heavy casualties--on enemy troops, though it seems certain that air attacks on rear areas inflicted more casualties than attacks on the front lines. But even when enemy troops were not killed by accurate front-line strikes, they were often so stunned that a closely coordinated infantry attack could overrun their positions before they could begin to resist.

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G L O S S A R Y

AA	Antiaircraft
AAF	Army Air Forces
AAFSWPA	Allied Air Forces Southwest Pacific Area
Advon	Advance echelon
AGC	Amphibious Force Flagship
AGIC	Air-Ground Information Center
ALO	Air Liaison Officer
ALP	Air Liaison Party
AN/VRC-1	Combination HF and VHF radio transmitter and receiver
ASCU	Air Support Control Unit
ASN	Air Support Net
EC-312	Receiver for SCR 193 radio set
CASCU	Commander Air Support Control Unit
CINC	Commander in Chief
CSA	Commander Support Aircraft
CTF	Commander Task Force
CTG	Commander Task Group
ComAirSols	Air Command, Solomons Islands
ComAirNorSols	Air Command, Northern Solomons
CVE	Escort Carrier
CW	Continuous wave, used to refer to wireless telegraphy as contrasted to voice radio communications.
DUKW	Amphibian Truck
FATF	First Air Task Force
FEAF	Far East Air Forces
FSCC	Fire Support Coordination Center
GLO	Ground Liaison Officer
GLT	Ground Liaison Team
HF	High Frequency
JASCO	Joint Assault Signal Company
JCS	Joint Chiefs of Staff
LCM	Landing Craft Mechanized
LFASCU	Landing Force Air Support Control Unit
LFCSA	Landing Force Commander Support Aircraft
LST	Landing Ship, Tank
LVT	Landing Vehicle, Tracked



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MAG	Marine Air Group
MAGSDAGUPAN	Marine Air Groups Dagupan, the Marine Air Groups based at Dagupan, on Luzon
MAGSZANBO	Marine Air Groups Zamboanga, the Marine Air Groups based on Zamboanga, Mindanao
M-209 Convertor	A coding and decoding device
NGF	New Guinea Force
PE-95	Power unit for charging radio batteries
POA	Pacific Ocean Areas
RAAF	Royal Australian Air Force
RCT	Regimental Combat Team
RNZAF	Royal New Zealand Air Force
SAD	Support Air Direction
SAO	Support Air Observation
SAP	Support Aircraft Party
SAR	Support Air Request
SATF	Second Air Task Force
SCR 188	Medium power portable transmitting and receiving radio designed for lower command echelons
SCR 191	Transmitter for SCR 188 and SCR 193 radio sets
SCR 193	Vehicle-mounted medium power HF radio transmitter and receiver
SCR 284	Short range portable radio used by air liaison parties
SCR 299	Long range, truck mounted, HF radio
SCR 399	Radio similar to SCR 299 but provided with a shelter
SCR 536	Hand-powered portable radio
SCR 584	Gun-laying and fighter-director radar
SCR 610	Short range VHF frequency modulated radio
SCR 624	VHF radio with remote control facilities, designed for ground to air communications
SOP	Standing Order of Procedure
SOPI	Standing Order of Procedure Instructions
SOPAC	South Pacific Area
SWPA	Southwest Pacific Area
TAF	Tactical Air Force
TATF	Third Air Task Force
TEX	Portable naval radio
USAFIP	United States Army Forces in the Philippines
VHF	Very High Frequency