

As Dr. Edward Drea notes in his study of operations on New Guinea during World War II, "the jungle [is] not just wooded terrain writ large."¹ The jungle environment has unique implications for all types of units, and *FM 90-5 Jungle Operations* identifies several factors that affect the use of artillery. These include the facts that heavy vegetation degrades the effects of all types of munitions, ground observation is limited, and an all-around defense is often required.

In the Pacific Theater during World War II, American artillerymen recognized these considerations and developed techniques to adapt to the challenges of the jungle. Of particular note were the actions of the artillery supporting the 1st Cavalry Division on the Admiralty Islands: the 37th and 43d Infantry Divisions on New Georgia and the 112th Cavalry and 126th Infantry Regiments on New Guinea.

Nearly all units had to learn the hard way that artillery fires failed to penetrate heavy jungle vegetation the way they did lesser types of foliage. For the 1st Squadron, 5th Cavalry Regiment, 1st Cavalry Division, this experience was gained in tough jungle fighting from 14 to 24 March 1944, around Hill 260 on Los Negros Island, part of the Admiralty chain.

Fuzes and Firepower

The 1st Cavalry Division Artillery consisted of two 75-mm pack howitzer battalions and two 105-mm howitzer battalions. On 21 March, a patrol from C Troop, 5th Cavalry encountered an enemy strongpoint in a cane patch 700 yards west of Hill 260. The patrol pulled back and called for a 75-mm artillery mission on the target. Once the artillery lifted, the patrol moved forward but was quickly halted by machinegun and rifle fire.

Major Fred Irby, who served as the squadron S2/S3, noted that "The thick cane served as excellent overhead protection for the Japanese foxholes" and that "without a direct hit, the light caliber 75-mm howitzers had no effect on the well-protected enemy."²

WWII: Artillery in a Jungle Environment

by Captain Kevin J. Dougherty, IN

To help alleviate this common jungle condition, FM 90-5 suggests that "alternative fuze action is normally required to achieve effective results." The manual specifies that "delay fuzes give better effects in heavy vegetation." These fuzes will penetrate the thick canopies, triggering in the treetops but detonating the round in the air at a lower level.³

Irby supports this claim stating, "The artillery fired delay fuze so that the projectiles would penetrate heavy overhead foliage and burst closer to the ground."⁴

In some cases, however, even delay fuzes were not enough to make up for the 75-mm's lack of punch. On 23 March 1944, the 1st Squadron, 8th Cavalry Regiment, 1st Cavalry Division attacked the Japanese positions around Old Rossun on Manus Island, just west of Los Negros Island. Although delay fuzes reduced tree bursts to just 10 percent, the 75-mm shells "did not have a sufficient penetrating effect to reach the entrenched bunkers through the heavy jungle growth." When the cavalrymen attacked, the "Japanese came out of their holes, quickly set up their automatic weapons with supporting snipers and poured fire upon our troops."⁵

Recognizing this reality, FM 90-5 states that in some cases, heavy jungle growth will simply require "more firepower."⁶ Irby's observations support this conclusion; he "believed that the heavier 105-mm will produce much better results in the jungle and with fewer rounds [than the 75-mms]."⁷ Others agreed, and in October 1944, the 82d Field Artillery Battalion received 105-mm howitzers to replace its 75-mms.⁸

In some situations, however, more firepower was not an option. Herculean transportation efforts had resulted in just one 105-mm howitzer, six Australian 25-pounders and three Australian 3.7-inch howitzers being available as the 126th

Infantry Regiment prepared to seize Buna Village on the Papuan Peninsula of New Guinea on 6 December 1942.⁹ Like the 1st Cavalry, the 126th Infantry's experience was that "artillery and mortar concentrations preceding earlier attacks had not succeeded in knocking out the Japanese defenses."¹⁰ Because the firepower condition could not be changed, new tactics were required,

Jungle Tactics

In this regard, the 126th Infantry made two adjustments. First, extra care was taken to ensure the accuracy of what little fires were available, and second, attack plans were based on realistic capabilities and limitations of indirect fire in the jungle.

On the first count, the 126th Infantry learned to use its low caliber systems, such as mortars, against only those targets identified as accurately as possible.¹⁰ The 126th Infantry had learned that the thick jungle, reinforced by especially strong Japanese bunkers, made broad area fires ineffective.

On the second count, instead of conducting a general assault after the preparation, the 126th Infantry began sending

out patrols. The 126th Infantry no longer expected to encounter a neutralized enemy and began to realize that, in the jungle, artillery would not have uniform effects across the entire front. The patrols would locate enemy weaknesses caused by the preparation, and then the 126th Infantry would advance by infiltration through those weaknesses.¹⁰

These new tactics were successful because they recognized the effect the jungle has on indirect fire. The Papuan Campaign proved that, using the new tactics, "the artillery could go into the jungle with the infantry and, what was more, could be used effectively in jungle terrain."¹¹

Smoke and Sound

But the jungle's thick vegetation not only degrades the effects of fires, it also greatly limits ground observation. In August 1943, the 37th Infantry Division was one of the XIV Corps units trying to seize Munda Point on the island of New Georgia. The dense foliage made it difficult to determine the locations of friendly units,

and there were many complaints of fires landing across unit boundaries. The situation became so bad that several artillery preparations had to be canceled because of uncertainty about the 148th Infantry Regiment's location.

Major General Oscar Griswald, the New Georgia Occupation Force commander, had done his best to improve the situation. He ordered frontline battalions to mark their flanks each day with white panels measuring 25 feet long by six feet wide. The plan was to photograph these markers from the air. The problem was that the jungle was so thick there simply were no clearings large enough to permit the panels to be spread out.

With the failure of this large-scale measure to identify friendly locations, units developed means of addressing the problem on a more local basis. Flares, smoke pots and even flame throwers were used to mark flanks, but these could be seen only by those soldiers in the immediate vicinity.¹² The 43d Infantry Division did make some limited inroads into solving the problem by using smoke and sound to adjust fires.

Generally, unit locations were so inaccurately plotted that many times infantry units were actually located by artillery fire. The procedure was for a round of smoke to be called for in front of the

estimated position. All observers, both artillery and infantry, were to watch for it. Following each sensing of smoke, subsequent rounds were fired progressively closer to friendly lines. The location of the front was determined by the plot of the last round.

If the smoke rounds could not be observed but were determined to be in a safe location, batteries frequently fired a volley of high-explosive rounds that were sensed by sound. Observers found this procedure to be particularly difficult as the sound reverberated in the jungle and seemed to come from false directions and distances. The sounds differed with the conditions: day and night, rainy and clear weather and ground or air burst. These factors often made infantry commanders feel that fires were landing much closer to them than they actually were.¹³

FM 90-5 recognizes that "Jungle foliage will often require that artillery marking rounds be sensed by sound,"¹⁴ but, because of the difficulties just discussed; it suggests limiting this technique for use "in severe cases" only.¹⁵

OP Tree

As the Allied island hopping continued to Bougainville, forward observers (FOs) were becoming increasingly innovative in dealing with the observation limitations. One such example can be found on Hill 260, an hourglass-shaped feature with two rises, North Knob and South Knob, at each end. The key point on South Knob was a 150-foot high tree, nicknamed observation post, or "OPTree," in which the Americans had built an observation platform. From this vantage point, artillery and mortar observers could see the Torokina River, the East-West Trail that crossed it and Hills 250 and 600 to the northeast. If the Japanese gained control of South Knob and OP Tree, they could observe Hills 608 and 309 in the American Division's sector and the corps rear area between them.¹⁶

The importance of this observation post is demonstrated by the heavy fighting to control it. The Americans occupied Hill 260 with about 80 men, including FOs and a reinforced platoon from G Company, 182d Infantry. On 10 March, the position came under attack from Japanese mortars, machineguns and rifles.¹⁷ After three days of fighting, the Japanese won control of Hill 260.

Although counterattacks failed, the Americans were not about to let the valu-

able position remain in Japanese hands. The 182d Infantry's Cannon Company even put its 75-mm pack howitzers on Hill 309 and tried to knock down OP Tree with direct fire. As a result of such efforts, OP Tree fell on 17 March at 1900. More than 10,000 105-mm rounds were fired on South Knob. The Americans counted 560 enemy dead and suffered 98 killed, 24 missing, and 581 wounded themselves.¹⁸ Such monumental effort for a single tree surely demonstrates the value of observation in the jungle.

Unfortunately, tree platforms only solve the observation problems in static conditions. What was needed was a means of achieving height without losing mobility. The answer was aerial observation. Thus, FM 90-5 states that "all available air assets proficient in observed fire procedures, to include USAF, should be used when priorities and level of risk/advantage are favorable."¹⁹

Observation from the Air

Again Major Irby found this statement to be true at Los Negros. On 14 March 1944, the 1st Squadron, 5th Cavalry began an attack to clear the Japanese from around Hill 260. The attack was supported by the 82d Field Artillery Battalion. The 82d's commander, Major Harry Lambert, flew in a Cub plane to act as the aerial observer. The vegetation was so thick that even from the air Lambert could not see the friendly troops.

To correct this condition, the units marked their positions with red flares. Seeing the pyrotechnics, Lambert instructed the battery to fire a marking round well to the front. Subsequent missions

brought the fire back toward the ground observer until he could determine the point of burst and make the necessary corrections.²⁰

The 43d Infantry Division had used similar procedures on New Guinea—evidence of the validity of FM 90-5's statement that in the jungle, "adjustment is frequently conducted using creeping techniques."²¹ Using this sequence, Lambert and the FOs brought accurate fires to within 50 yards of the advancing companies.²²

All-Around Defense

Such heroics, however, are moot if the artillery cannot defend itself long enough to fire. Excellent cover and concealment make attack possible from any direction in the jungle. Therefore, FM 90-5 states units "must be prepared for all-around defense."²³ This usually equates to some sort of perimeter defense, and, for the artillery, FM 90-5 recommends a star formation.²⁴

The 181st Field Artillery Battalion was very sensitive to these considerations around Aitape on New Guinea in April and May of 1944. To obtain all-around security, the artillerymen positioned their batteries in diamond shaped formations. All howitzers were dug in, and protective cover was added for both ammunition and crews.²⁵ In this way, the 181st constructed a survivable and mutually supporting defense.

Summary

The Pacific jungles presented a formidable challenge to American artillerymen in World War II. They responded to the

thick vegetation's degrading effects on their fires by adjusting munitions, fuzes and tactics. They overcame limited observation by elevating themselves to where they could see. Sometimes this meant climbing a tree; other times it meant boarding an airplane. If these options were unavailable, battle-wise veterans resorted to the old stand-bys of creeping fires and sensing by sound. Finally, ever mindful of the all-around threat, the artillerymen prepared defenses with the security and thoroughness that the jungle demanded. Such measures made the artillery a valuable member of the combined arms team in the Pacific.

Since World War II, American artillerymen have found themselves in the

jungles of Vietnam and Panama. With significant portions of Latin America, Africa and Southeast Asia covered by jungle, it's likely they'll be called upon to serve in this challenging environment again. To prepare for such an eventuality, today's artillerymen would be well-advised to study the lessons learned by their World War II predecessors in the Pacific.

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Association's History Writing Contest with this article. He has placed in the past three History Writing Contests, to include winning it in 1993. Currently, he's Chief of the Special Tactics Branch of the Doctrine Division at the Infantry School, Fort Benning, Georgia, where his previous assignment was as a Small Group Instructor for the Infantry Officer Advanced Course. Other assignments include Rifle Platoon and Scout Platoon Observer/Controller at the Joint Readiness Training Center, Fort Chaffee, Arkansas, and Commander of B Company, 5th Battalion, 502d Infantry in the Berlin Brigade, Germany. Captain Dougherty has been published in *Field Artillery*, *Infantry*, *Army Trainer* and *RD&A* magazines.

Notes:

1. Dr. Edward Drea, "Defending the Driniumor: Covering Force Operations in New Guinea, 1944" (Fort Leavenworth: Combat Studies Institute; Command and General Staff College, February 1984), 137.
2. Major Fred Irby, "Thw Operations of the 1st Squadron, 5th Cavalry (1st Cavalry Division, Dismounted) in the vicinity of Hill 260, Los Nogros Island, the Admiralty Islands. 14-24 March 1944" (Fort Benning: Academic Department, the Infantry School, AIOC No. 1, n.d), 17.
3. *FM 90-5 Jungle Operations* (Washington, DC: Headquarters, Department of the Army, 16 August 1982), 6-16.
4. Irby, 13.
5. *The Admiralties: Operations of the 1st Cavalry Division (29 February-18 May 1944)* (Washington, DC: War Department. Historical Division, 1945), 111.
6. FM 90-5, 6-16.
7. Irby, 20-21.
8. Colonel Rex Chandler, "First Cavalry Division Artillery Combat Operations." *The 1st Cavalry Division in World War II* (Tokyo: Toppan Printing Co LTD. 1947), 200.
9. *Papuan Campaign: the Buna-Sananda Operation (16 November 1942-23 January 1943)* (Washington, DC: War Department, Historical Division. 1945). 32.
10. *Papuan Campaign*, 42.
11. Samuel Milner, *Victory in Papua* (Washington, DC: Chief of Military History, 1957), 377.
12. Milner, 161-163.
13. Brigadier General Harold Barker, *History of the 43d Division Artillery, World War II. 1941-1945* (Providence: John F. Greene. Co, 1960), 80.
14. FM 90-5, B-3.
15. *Ibid.*, 6-17.
16. Milner, 364-365.
17. *Ibid.*, 365-366.
18. *Ibid.*, 372.
19. FM 90-5, 6-17.
20. Irby, 20.
21. FM 90-5, 6-16.
22. Irby, 11.
23. FM 90-5, 5-18.
24. *Ibid.*, 6-18.
25. Drea, 37.