



Tanks proved useful in the early Pacific battles at Guadalcanal, despite little treatment of armor use in doctrinal manuals of the time.

In Close Country:

World War II American Armor Tactics In the Jungles of the Southwest Pacific

by Kevin C. Holzimmer

According to Russell F. Weigley, two distinct traditions shaped the pre-World War II American army. On one hand, officers of the interwar period in many ways resembled their nineteenth-century predecessors who protected the Western frontier against Indian warriors. The army “was a border constabulary for policing unruly Indians and Mexicans,” he argues. “The U.S. Army of 1940 had not yet completed the transition that would have made it an appropriate instrument of its country’s claims to world power.” The mission of patrolling the Western frontier transformed the military into a fighting force designed primarily for mobility. “The history of the frontier,” he continues, “was that of the horse soldier in blue or khaki forever challenged by the quicksilver elusiveness of Mexican ir-

regulars or the Indian light cavalry of the Plains.”¹

On the other hand, Weigley continues, the Army also had fought the American Civil War, a European-style war that possessed its own unique characteristics. Through four years of bloody conflict, the Army learned the lesson of applying overwhelming power against its enemies. The “memory of the Civil War suggested that the primary military value is sheer power: General U.S. Grant’s great blue army corps smothering the gray legions of Robert E. Lee under the weight of their weapons and numbers.”²

These two traditions pulled the Army in opposite directions. An army prepared to apply overwhelming power against its foes is not necessarily one

designed for mobility. Similarly, a mobile army is generally not able to generate vast quantities of power: “[T]he American army’s principal inheritances from its past were also conflicting legacies, which might put the Army at cross-purposes with itself as it began in 1940 to prepare for European war.”³

While these two heritages propelled the Army down different paths, they nevertheless shared one fundamental assumption: both were shaped by the ability to operate in open country. In other words, geographical considerations deeply influenced the frontier army. Operations on the wide-open spaces of the Plains placed a premium on mobility. Similarly, the application of sheer power required open country as well. Overwhelming power fre-

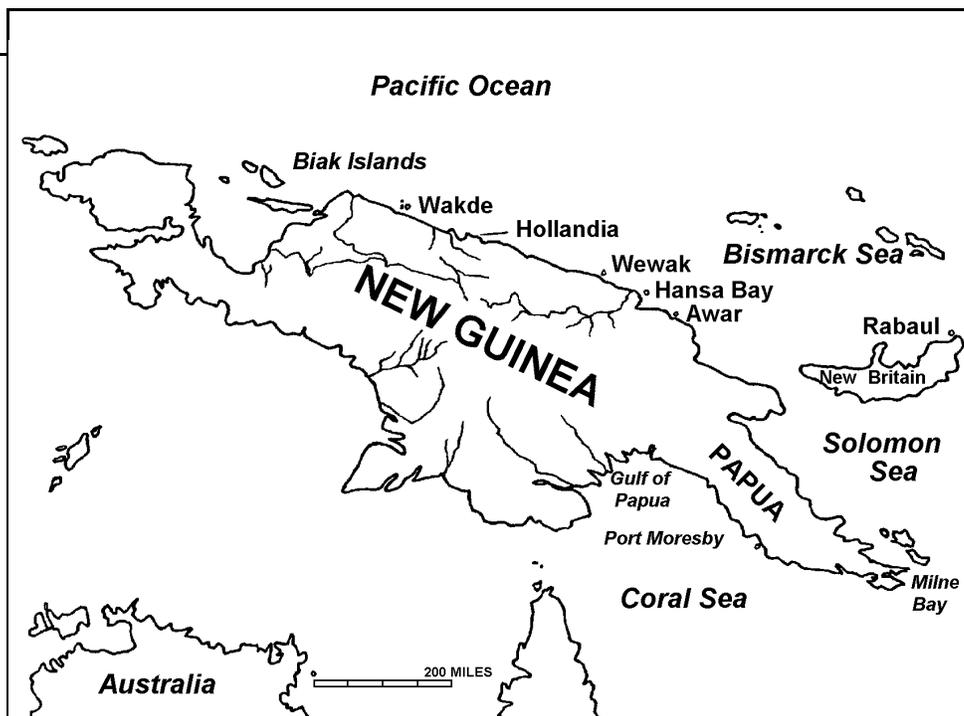
quently required heavy equipment; heavy equipment needed relatively open country. Throughout history, irregular forces often have avoided American power by staying away from open spaces. In the Second Seminole War, for instance, the Seminoles generally refused to face the Americans in open conventional battles. Instead, the Florida swamps became the Seminoles' ally. As Weigley writes, General Winfield Scott's "heavy columns of slow-moving troops and much impedimenta marching noisily through the Florida hammocks merely served to scatter the Seminoles, so that Scott's blows landed in air."⁴

Thus while preparing for either a war of mobility, one of overwhelming power, or a combination of these, American military leaders on the verge of World War II all assumed a future war would take place in open country. Virtually no advanced planning had anticipated any other alternative, such as the jungle terrain of the Southwest Pacific Area (SWPA), where the majority of American land forces would meet the forces of Imperial Japan. How then did the U.S. Army, particularly armored forces, operate under such circumstances? In what ways, if any, did prewar doctrine influence jungle operations? This essay will examine how the Army used its armored forces in the SWPA, commanded by General Douglas MacArthur.

Early Doctrine

The last edition of the official document of Army doctrine — FM 100-5 *Field Service Regulations: Operations* — before American participation in the Second World War appeared in 1941. *Operations* covered all the different types of warfare that American planners envisioned, from urban to mountain warfare. It even included a section that explored the various dimensions of jungle combat.

Not surprisingly, the chapter devoted to jungle operations began with a consideration of geography and the restrictions it placed on operations. Parallels were drawn between jungle terrain and the more familiar wooded terrain: "Movements are restricted. There are few roads or trails available; often trails must be slashed as movement progresses. Direction is hard to maintain.



Control and maneuver are difficult. Ground observation is limited to short distances, sometimes to only a few feet." In addition to these already formidable obstacles, jungle terrain added other handicaps such as heat, heavy rains, insects, and unhealthy conditions. In short, geographical factors dominated Army thinking about jungle operations. With this in mind, the Army, of course, still had to devise sound doctrine to minimize the effects of such conditions.⁵

Prewar planners acknowledged that normal operations needed dramatic alteration in jungle or "close" country. They deemed the old concepts concerning maneuver and firepower inappropriate in the jungle: "Jungle warfare is characterized by close fighting. Artillery and other supporting weapons have only limited application. The grenade, submachine gun, semiautomatic rifle, bayonet, and machete are the weapons best suited to operations in the jungle." Prewar planners believed that the terrain mitigated against the use of combined arms. Instead, they anticipated that the infantry would bear the brunt of the fighting. The U.S. War Department's 1941 pamphlet *Jungle Warfare* simply stated that: "Support of infantry by other arms will frequently be impracticable or impossible."⁶

Armored formations were categorically denied a significant role in jungle terrain. "Mechanized units will have little or no combat value in the jungle itself," *Jungle Warfare* stated. "They

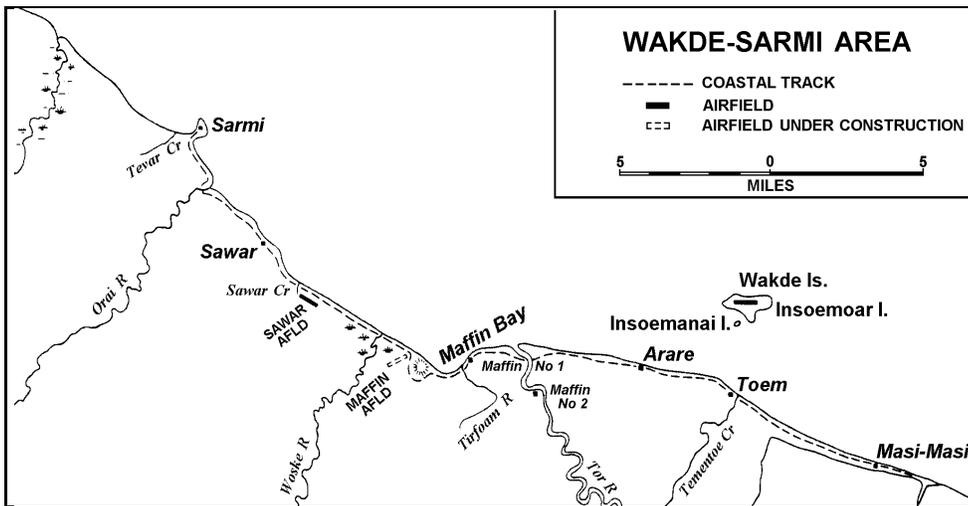
Map 1.

The island of New Guinea, a steppingstone toward MacArthur's reconquest of the Philippines. Wakde is on the island's north coast.

can be effectively employed on sabanas or other open areas and against native villages."⁷ Many Army planners maintained that tanks had almost no place on jungle-covered battlefields, even though the War Department had conducted promising exercises in the 1920s during which tanks proved their value in the jungles of Panama.⁸ They continued to believe that the geography of such places as the Pacific islands would not allow tanks to either maneuver or utilize their firepower. However, the realities of combat revealed serious flaws in prewar armor doctrine. As the war progressed, tanks would not only win a place beside infantry, they would prove to be an essential component of the American SWPA victory in World War II. Indeed, tanks became a vital part of a combined-arms synthesis that defeated the forces of Imperial Japan.

Tactical Realities

Despite doctrinal preconceptions, American infantrymen quickly discovered the value of the tank in jungle operations. The utility of mechanized units became quite apparent when G.I.s faced the formidable defensive prowess



Map 2.

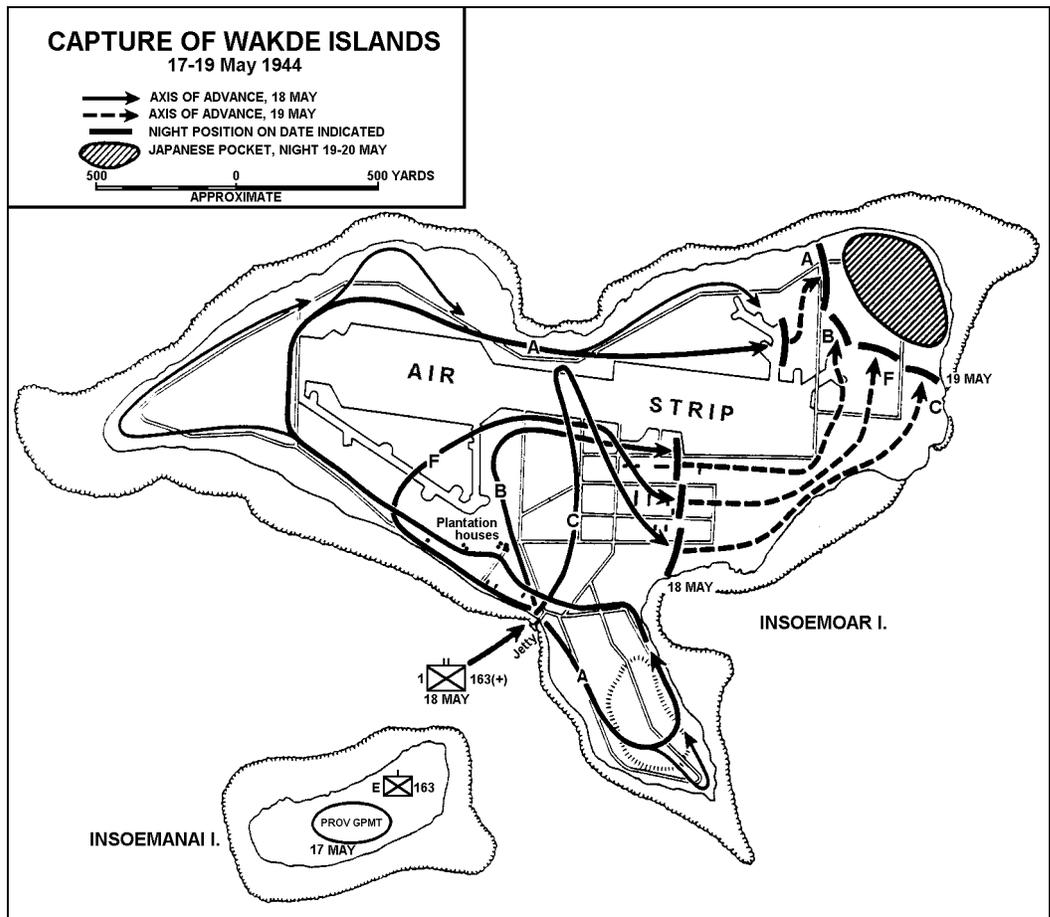
Three airfields, two operating and another under construction, were objectives in the Wakde-Sarmi area.

In order to fulfill his famous pledge, he planned to proceed along the northern coast of north-east and Dutch New Guinea, a route that would eventually lead to Leyte. MacArthur used American forces primarily to secure airfields, which in turn would provide air support for future American military operations.

The Wakde-Sarmi area was one of many such ventures on the northern edge of New Guinea. This area refers to a region that is covered with dense jungle and low-lying swamps but yet contained three airfields, all within 15 miles of one another. (Map 2) Located near the New Guinea mainland, across from the village of Arare, is Wakde Island, which had one of the three airdromes in the area. Actually, Wakde refers to two islands: Insoemoar and In-

of the Japanese. In many cases, the Japanese had up to two years to prepare for the expected American counteroffensives. Central to Japanese defensive tactics was the field fortification. According to the U.S. War Department's 1944 edition of its *Handbook on Japanese Military Forces*: "The Japanese defense of small islands is characterized by the extensive use of field fortifications. The bunkers and pillbox-emplaced machine guns are the backbone of defensive fire. These fortifications have been developed from small installations, composed of a single layer of palm logs and sand bags and large enough for only a few men, into massive structures 6 to 8 feet thick, housing more than a squad. Palm logs are giving way to reinforced concrete and completely enclosed steel structures." Not only did these strongpoints protect the small islands of the central Pacific Ocean, they also became obstacles to American units operating throughout New Guinea and the Philippines.

Of the many individual battles between the armies of America and Japan, the Wakde-Sarmi campaign highlights the way in which tanks were utilized in the SWPA. This battle was one of several that propelled American forces along the northern coast of New Guinea on their way to recapture the Philippine Islands. (Map 1) MacArthur's desire to return to the Philippine Islands dominated SWPA strategy.



Map 3.

A closer look at the campaign to seize the Wakde Islands.

soemanai. Insoemanai is the smaller of the two, measuring just 750 yards across, while the larger is approximately 1,500 yards across. The airstrip covered much of Insoemoar, which made it a natural target for MacArthur's push to the Philippines. The rest of the island was covered with coral sand, except in the western part where there are some small, rough, limestone hills. The island also contained an abandoned coconut plantation. In all, Insoemoar Island represented one type of "close country" for the American soldiers who fought there.¹⁰

Leading MacArthur's drive was Lieutenant General Walter Krueger, commanding the Sixth United States Army.¹¹ Krueger planned to land the Wakde-Sarmi task force, codenamed Tornado Task Force (TTF), in the vicinity of Arare on 17 May 1944, with the 163d Regimental Combat Team (RCT) of the 41st Division. The 3d Battalion had the task of hitting the beaches first and quickly securing the western flank of the planned perimeter at the Tor River, while the 1st Battalion was to unload last and prepare for its assault on Wakde Island the next day.¹²

After a preinvasion bombardment, TTF landed unopposed and quickly organized defensive positions near Arare and on the Tor River. In addition to establishing the beachhead, Company E moved to Insoemanai. The small island was quickly secured with no Japanese resistance. H hour for the assault on Insoemoar was set for 0900 of 18 May. The invasion force consisted of Companies A, B, and C of the 1st Battalion and Company F of the 2d Battalion. These four rifle companies would benefit from the support of four M4 Sherman tanks¹³ of the 603d Tank Company. The landing site was near a small jetty on the southern edge of the island, one of only a few suitable beaches on the whole island.¹⁴

Whereas the Japanese offered no resistance on the New Guinea mainland or on Insoemanai, they were not so passive on Insoemoar. On the larger island, they had prepared approximately a hundred bunkers, many of which were well camouflaged, while others were dug deep into the ground and presented low silhouettes. As the official historian of the New Guinea campaign states: "The majority of the many bunkers were mutually supporting, but, on the other hand, some had been built

with no apparent relationship to others." In all, the defenses on Insoemoar presented a deadly challenge for the invading American force.¹⁵

Shortly after the landings began at 0845 on 18 May, the soldiers of the 1st Battalion discovered for themselves the tenacity of the Japanese defense. Enemy soldiers near the beach opened up with machine guns as the first waves approached the landing site, but all four companies reached the island by 0925. Two of the four Shermans were not so successful. One tank had electrical trouble and another fell into seven feet of water as it attempted to land. Nevertheless, Companies B and F quickly established positions by 0930.¹⁶

With the beachhead secured, Company A started in the direction of the airstrip. It soon faced a bunker 200 yards east of the landing site, which the Americans quickly destroyed with hand grenades at 0946. (Map 3) The company then pushed down the southeastern portion of Insoemoar, clearing it of enemy resistance an hour later.¹⁷

Company C, meanwhile, advanced straight ahead approximately 250 yards, at which point it ran into a carefully prepared Japanese defensive position. In addition to the various bunkers, the natural terrain contributed to the Japanese defense. Surrounding the pillboxes was the dense underbrush of a neglected coconut plantation. Facing such a dangerous situation, Company C's commanding officer, First Lieutenant Floyd R. Stanfield, called for tank support. The two M4s left the beachhead area and headed toward Company C's position, arriving by 1010. For the attack, Stanfield assigned one platoon to each tank, which moved abreast fifty yards apart. With their 75-mm main guns, the Shermans fired at each bunker from between twenty-five to two-hundred yards away. One round was usually sufficient to deal with any Japanese strongpoint. Consequently, the tanks methodically and carefully destroyed all the enemy bunkers. For its part, the infantry protected the tanks from enemy raiders by following the tanks in a skirmish line and firing into likely enemy hideouts. This type of attack took place even though the unit received its only tank-infantry training the day before. Despite inexperience in these types of combined-arms tactics, the soldiers of Company C were able to progress to the southern edge of the airstrip by 1045.¹⁸

As the reinforced Company C pushed its offensive, Company F cleared a number of snipers from the coconut-plantation buildings, which were located approximately 500 yards south of the airfield. At the same time, Company B moved out of the beachhead and reached the southern edge of the airstrip on Company F's immediate right. The two companies, however, did not advance for very long. Enemy resistance halted the troops of both B and F on the edge of the airstrip. With the southeastern tip of the island cleared, Company A and the two Shermans (operating with Company C) were sent forward to support Company F. By 1110, the tanks were assisting Company F after first returning to the beachhead to replenish ammunition.¹⁹

After engaging enemy targets with Company F, the two tanks again ran dangerously low on ammunition and again had to return to the beachhead shortly after 1200. Meanwhile, Company C's forward progress ground to a snail's pace due to machine gun fire. Without tank support, it had not been able to push across the south side of the airstrip. Consequently, the M4s were ordered back to Company C as soon as they finished assisting Company F. Until the arrival of the tanks, Company C remained on the edge of the airfield. Approximately one-half hour after establishing their positions, Stanfield realized that the Japanese fire had died down. Shortly thereafter, he sent a patrol across the airstrip, and when it reported no opposition, he prepared the rest of the company to follow across the strip under cover of mortar fire.²⁰

Company A, meanwhile, advanced along the northwest portion of the island. Its progress slowed, however, due to three Japanese bunkers on its right flank. The two tanks, once they received fresh stocks of ammunition, were ordered to assist Company A. As they proceeded to Company A's position, one of the tanks was disabled. The remaining tank, however, knocked out the enemy strongpoints by 1300. In the process, twenty Japanese defenders were killed. Even though the bunkers no longer presented an obstacle, enemy resistance had not been completely extinguished. In fact, small groups of Japanese soldiers hidden in foxholes attacked the company and its tank with hand grenades and bayonets. To combat such Japanese tactics, Captain

Richard J. Satran, commander of Company A, deployed a squad of infantry on each side of the tank. In this effective formation, the automatic riflemen could kill or disperse the enemy soldiers before they could damage the tank.²¹

By 1330, all of the companies of the 1st Battalion were on the move again. Company A had pushed its attack around the west end of the island. Meanwhile, Company C crossed the airstrip against little opposition, and Company F had advanced as far as the southern edge of the airstrip but was receiving sniper and machine gun fire. As a result of the Japanese resistance earlier in the day, and Company F's difficulties, the 1st Battalion commander, Major Leonard F. Wing, decided to reorganize his forces as well as devise a new plan of attack to finally secure the northeastern section of the island, where the bulk of enemy troops were now located. Actually, his plan was just a variation of the one his battalion had been employing. He wanted Company A to proceed on the northern edge of the island, while Companies B and C pushed to the northeast from their positions just to the south of the airstrip. Company F was to act as battalion reserve. In order to ensure the success of his new offensive, Wing requested two additional tanks from the mainland. The attack began at 1530 but ran into heavy Japanese opposition. By 1630, the tank commander notified Wing that his tanks had exhausted their ammunition supply and would need to return to the beachhead for fresh supplies. With night approaching, his tanks out of ammunition, and no sign that the Japanese were weakening, Wing decided to dig in for the night at approximately 1720. Companies A, B, F, and C, therefore, formed a line and consolidated their positions to seal off the northeast area of the island.²²

During the night, regimental headquarters conceived a plan to finally defeat the Japanese and allow American engineers to complete their work on the airstrip. At 0640 of 19 May 1944, Lieutenant Colonel Walter R. Rankin, the executive officer of the 163d Infantry, radioed Wing and ordered that Company C, with the three tanks, would spearhead the new offensive by pushing east, north, and then along the southeastern shore into Japanese lines. Company A was ordered to hold its position, while Companies F and B were

to support Company C in rolling up the Japanese's left flank.²³

Once the three tanks reached Company C at 0915, the attack was ready to proceed, but not before a pocket of Japanese soldiers behind American lines destroyed four 6x6s, two trailers, and two ¼-ton trucks, all belonging to American engineers. The offensive finally got under way by 0945 with the tanks in the lead. However, like the previous day's offensives, it came under heavy defensive fire from enemy soldiers who used fallen coconut trees, bunkers, bomb craters, coral caves, heavy brush, and demolished buildings as cover. The tanks quickly fired at each enemy position, while American infantrymen, in turn, fired on fleeing enemy soldiers. Despite such formidable resistance, Company C reported at 1045 that its soldiers were neutralizing the enemy positions and slowly advancing due to the coordinated tank-infantry attack.²⁴

At the same time, Company B moved forward and also confronted strong Japanese resistance. Consequently, two tanks were transferred from Company C to Company B. Using similar tactics to those of Company C, the commander of Company B assigned one rifle platoon to each tank while the third platoon was held in reserve. The M4s drove through the brush, firing their machine guns at any possible location that could provide cover for Japanese soldiers, while the riflemen provided close-in support for the tanks. Even with these successful tactics, the Americans faced slow going before finally reaching their objective at 1400. Company F also pushed forward with one tank under heavy opposition but maintained its pace with Companies B and C.

Wing ordered Company A to move forward until it was on Company B's left flank. With all four companies advancing, the last of the organized Japanese defenses in the northeastern quadrant of Insoemoar was broken in the early evening hours. Throughout the morning of the 20th, Wing's men cleared the northeast section of the island of the remaining scattered pockets of Japanese resistance and then moved to the mainland in the afternoon. Engineering units, who started working on the western section of the airfield on the 19th, were able to begin repairs on the whole airstrip on the 20th. Eventually, the airdrome on Insoemoar pro-

vided a base for which Allied Air Forces could support MacArthur's drive toward the Philippines.²⁵

Lessons Learned

While prewar planning foresaw no important role for armor in the jungles of SWPA or any other Pacific Theater, American soldiers discovered the necessity of tank support for their numerous offensives against the skillful defensive tactics of the Japanese Army even before the Wakde-Sarmi campaign. Captain Richard J. Satran, commander of Company A wrote: "The success of the recent operations on Wakde... has opened up a new and unexplored field for tank warfare in the Southwest Pacific Area." What the men of the 163d realized was that armor relieved riflemen of the dangerous task of closing with Japanese defenses and destroying them with such weapons as hand grenades. Consequently, tanks provided attacks with both speed and momentum. Without armored support, infantry attacks often became bogged down or stopped altogether. In the case of the battle for Insoemoar, the two tanks were simply not sufficient during the first day of fighting. "The tanks broke the stalemate on the beach," the historian of the 41st Infantry Division, William F. McCartney, writes, "but it was impossible to keep the entire line moving with only two of them."²⁶ Through such campaigns, American units developed their own tank tactics. Over time, the Americans formulated certain key principles of armored warfare in a jungle environment.

First, tanks were used, one veteran observed, primarily against "definitely located centers of resistance holding up the infantry advance." As in the Wakde-Sarmi operation, tanks were utilized to reduce not only carefully planned Japanese strongpoints such as bunkers and pillboxes, but makeshift centers of resistance such as foxholes as well.²⁷

Second, American officers found it absolutely necessary to thoroughly familiarize not only themselves but also their units with the terrain and the mission objectives. Due to the nature of the jungle environment, armored and infantry units could easily become disoriented and lost. Consequently, as one wartime report stated: "Early reconnaissance by infantry, tank, artillery,

Continued on Page 30

engineer, and communication officers is essential.”²⁸

Lastly, and perhaps most importantly, commanders quickly discovered that tanks could not close with their targets unassisted. The Japanese would easily knock out tanks that were not escorted by infantry. Each Japanese rifle company trained certain individuals as tank-killers, all of whom were armed with tank mines and smoke hand grenades. These tank-fighters were instructed to attack an American tank via the tank weapon's dead spaces. Once they had closed with the tank, these specially trained Japanese soldiers would then employ a variety of techniques to knock out the vehicle. They would often use antitank mines, damage the tank's main gun, or damage the rotating mechanism.²⁹

Commanders had to rely on a combined-arms team — including artillery, engineers, air support, and, most importantly, tanks and infantry — to overcome such determined antitank resistance. According to the U.S. War Department: “Close cooperation and coordination with the infantry was essential for success. It was found best to assign a certain number of infantrymen to furnish close support for each tank closely to exploit their success.” Throughout the Wakde-Sarmi campaign, infantry were vital in preventing Japanese soldiers from getting close to the M4s. When fighting the Japanese in the mountainous terrain of northern Luzon, Captain Peter Marusek of the 775th Tank Battalion, observed that: “A thorough understanding between tank and infantry units is a prime necessity. Every possible effort should be made for coordinated teamwork between the two arms.”³⁰

Teamwork involved numerous elements. In addition to providing local security, infantry also designated targets for the tanks. Due to the thick vegetation and undergrowth of a jungle environment, as well as enemy camouflage, tanks could rarely identify and locate enemy positions. Infantry squad leaders, therefore, experimented with a number of different methods to signify targets. Often times, they would use tracer fire or smoke grenades for close targets and rifle grenades for ones farther away.³¹

Despite the need for close cooperation between tanks and infantry, a constant problem had always been com-

munication. EE8A telephone units were utilized to maintain a constant flow of information between infantry to tank. “For communication between tanks and infantry a reel of field wire was enclosed in a box and mounted on the rear of the tank,” an officer reported. “A field phone was attached to one end of the wire and installed in the tank while the other end of the wire dragged free behind the tank. Each infantry squad carried an EE-8 field phone to hook on the wire. A switch and a light operated by the ringer circuit were installed in the tank. This system worked, though a number of reel boxes were damaged and infantrymen sometimes had to expose themselves to connect their phones.”³²

Quickly, the Army leadership changed its doctrine to fit the realities of armored combat in a jungle environment. Although some officers clung to their prewar beliefs,³³ most confessed that tanks did indeed have a role to play in the war against Japan. Tanks provided much-needed firepower against Japanese fixed positions throughout the SWPA, from Buna to Luzon, and most official wartime statements reflected this attitude. Nevertheless, there was no standard tactical principle that governed every situation. Rather, commanders formulated tactics to suit particular situations or ones that they found particularly successful over time. This was certainly the case during the Wakde-Sarmi battle. Lieutenant Stanfield of Company C, for instance, deployed one platoon behind each tank in a skirmish line, while Captain Satran placed one squad on each side of his tanks. According to a report of the 13th Armored Group, which operated on Luzon, “Tactics and size of force used varies with almost every situation.” The transcendent principle was flexibility, not a rigid prefabricated doctrine.³⁴

Conclusion

Many prewar Army leaders stressed the primacy of the infantryman in jungle combat, but tanks played a critical role in the American defeat of Japan as the soldiers of the 1st Battalion of the 163d RCT knew so well. Yet it was not a victory for prewar American doctrine. Rather, the credit goes to those who actually conducted the many campaigns across the thousands of miles of ocean. Over time, American soldiers forged infantry, armor, artillery, air power, and engineering units into an effective

combined-arms team. This team effort worked methodically against prepared Japanese defensive positions such as bunkers and caves.³⁵

In many respects, the experience of Americans in SWPA reflected those in other theaters. In an important new book, Michael Dale Doubler has emphasized the degree to which G.I.s in the European Theater of Operations learned from the “schoolhouse of war” and created their own combined-arms effort to defeat the Germans.³⁶

Although devising a combined-arms synthesis in the heat of combat was not the only factor that forged an American victory, it proved to be an important contributor. With a successful naval campaign, superior industrial capabilities, a military strategy that often emphasized concentrating forces on a single point, America won the war against Japan for many different reasons. Infantry-tank combined arms warfare was a single factor in a larger combined effort on a national and even international scale.

Notes

¹Russell F. Weigley, “Shaping the American Army of World War II: Mobility Versus Power,” *Parameters, Journal of the U.S. Army War College* 11:3 (September 1981): 14.

²*Ibid.*

³Russell F. Weigley, *Eisenhower's Lieutenants: The Campaigns of France and Germany, 1944-1945* (Bloomington: Indiana University Press, 1981), 2.

⁴Russell F. Weigley, *The American Way of War: A History of United States Military Strategy and Policy*, The Macmillan Wars of the United States, Louis Morton, general editor (New York: Macmillan Publishing Co., Inc.; London: Collier Macmillan Publishers, 1973), 67. For an expanded discussion of this topic, see John D. Waghelstein, “Preparing for the Wrong War: The United States Army and Low Intensity Conflict, 1755-1890” (Ph.D. dissertation, Temple University, 1990, Order No. DA 9107934), *passim*.

⁵U.S. War Department, FM 100-5, *Field Service Regulations: Operations* (Washington, D.C.: U.S. Government Printing Office, 1941), 235.

⁶*Ibid.*; U.S. War Department, FM 31-20, *Jungle Warfare* (Washington, D.C.: U.S. Government Printing Office, 1941), 21.

⁷FM 31-20, *Jungle Warfare*, 21-23.

⁸In regards to the Panama exercises, one participant, Captain John N. Johnson, Jr., wrote: “There are many ways in which tanks can be used in the defense of the Canal, and in nearly all cases their employment would require somewhat of a deviation from the conventional tacti-

cal use of tanks as laid down in the various manuals and teachings on the subject." John N. Johnson, Jr., "Tanks in the Jungles," *Infantry Journal* 27:3 (September 1925): 268; U.S. Army Infantry School, Army Extension Courses, Special Text No. 13, *Infantry in Special Operations*, 1937 Edition (Fort Benning Georgia: The Army Printing Plant, The Infantry School, 1937), 84.

I would like to thank Dr. Andrew J. Birtle of the U.S. Army Center of Military History for bringing the U.S. Army's use of armored units in the Panama exercises to my attention.

⁹U.S. War Department, *Handbook on Japanese Military Forces* (Washington, D.C.: U.S. Government Printing Office, 1944; reprint, Baton Rouge and London: Louisiana State University Press, 1991), 136.

¹⁰"Report on the Wakde-Biak Operation, 17 May 1944 to 2 September 1944," 6, 6th Army 106-0.3, Record Group (RG) 407, Box 2399, National Archives and Records Administration (NARA), College Park, Maryland. For an excellent account of the different varieties of jungle terrain, see Eric Bergerud, *Touched with Fire: The Land War in the South Pacific* (New York: Viking, 1996), 55-89.

¹¹Actually, MacArthur designated the Sixth Army, Alamo Force to keep it independent of Australian control.

¹²For the larger dimensions of the this campaign, see Kevin C. Holzhammer, "Walter Krueger, Douglas MacArthur, and the Pacific War: The Wakde-Sarmi Campaign as a Case Study," *The Journal of Military History* 59:4 (October 1995): 661-685, and Robert Ross Smith, *The Approach to the Philippines (United States Army in World War II: The War in the Pacific*, Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1953).

¹³American forces started the war against Japan with the M3 Stuart light tank. However, as early as the Guadalcanal campaign, Army leaders realized that the M3 was inadequate. M4 Sherman tanks were first used with the United States Marine Corps at Tarawa in November 1943. After the battle, Major General Holland M. Smith recommended that M4s replace all light tanks in future operations due to the superiority of its 75-mm main gun over the M3's 37-mm gun. See John Miller, Jr., *Guadalcanal: The First Offensive (United States Army in World War II: The War in the Pacific*, Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1949), 308-309; and R.P. Hunnicutt, *Sherman: A History of the American Medium Tank* (Novato, Calif.: Presidio Press, 1978), 187-188.

¹⁴Smith, *Approach to the Philippines*, 222.

¹⁵*Ibid.*, 223.

¹⁶163d Infantry Regiment, "Journal: Toem-Wakde Operation," 341-INF(163)-0.3, RG 407, Box 10634, NARA (hereafter cited as "163d Journal;" Smith, *Approach to the Philippines*, 225-226.

¹⁷"163d Journal;" 1st Battalion, 163d Infantry Regiment, "S-1 Journal: Summary of Wakde

and Toem," 2, 341-INF(163)-0.3, RG 407, Box 10634, NARA (hereafter cited as "1st Battalion Journal").

¹⁸"1st Battalion Journal," 2-3; Company C, 1st Battalion, 163d Infantry Regiment, "Infantry-Tank Assault Teams," 31 July 1944, 341-INF(163)-0.3, RG 407, Box 10634, NARA; Smith, *Approach to the Philippines*, 224-226.

¹⁹"1st Battalion Journal," 3; "163d Journal;" Smith, *Approach to the Philippines*, 226.

²⁰"163d Journal."

²¹"163d Journal;" "1st Battalion Journal," 3; Company A, 1st Battalion, 163d Infantry Regiment, "Infantry & Tank Coordination in the Attack," 12 August 1944, 341-INF(163)-0.3, RG 407, Box 10634, NARA (hereafter cited as "Company A Report); Smith, *Approach to the Philippines*, 227.

²²Smith, *Approach to the Philippines*, 227; "163d Journal;" William F. McCartney, *The Jungleers: A History of the 41st Infantry Division* (Washington, D.C.: Infantry Journal Press, 1948; reprint, Nashville, Tennessee: The Battery Press, Inc., 1988), 98.

²³"163d Journal;" "1st Battalion Journal," 4; Smith, *Approach to the Philippines*, 228.

²⁴"163d Journal;" "1st Battalion Journal," 4; Smith, *Approach to the Philippines*, 230.

²⁵"163d Journal;" "1st Battalion Journal," 4-6; Smith, *Approach to the Philippines*, 230.

²⁶McCartney, *The Jungleers*, 97-98; "Company A Report."

²⁷Byron L. Paige, "Campaigning in the Jungle," *Military Review* 24:1 (April 1944): 33; see also Wilbur C. Strand, "The Infantry-Tank Team in Jungle Operations," *The Cavalry Journal* 55:2 (March-April 1946): 2.

²⁸U.S. Army Headquarters, European Theater of Operations (ETO), *Battle Experiences against the Japanese*, 1945, United States Army Military History Institute Library (USAMHIL), 62.

²⁹U.S. War Department, *Handbook on Japanese Military Forces*, 117. A good example of a tank attack that had no infantry support was the 172d Infantry Regiment's attack on the Munda airfield on New Georgia from 16-24 July 1943. Initially, U.S. Army infantrymen were assigned to protect U.S. Marine M3 light tanks. Neither the tankers nor the infantrymen, however, had any experience working with one another, and ultimately, the tanks, attacking on 17 July, faced Japanese defenses alone. Two of three tanks were permanently disabled by Japanese soldiers, who possessed no antitank weapons but instead used mines, flame throwers, Molotov cocktails, and TNT. See John Miller, Jr., *CARTWHEEL: The Reduction of Rabaul (United States Army in World War II: The War in the Pacific*, Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1959), 132-134.

³⁰U.S. War Department, *Combat Lessons: Rank and File in Combat, What They're Doing, How They Do It*, 9 Vols. (Washington, D.C.: Operations Division, Combat Analysis Section, 1944-1945), vol. 2, 61; Peter Marusek, "Tanks

and Infantry in Northern Luzon," *Armored Cavalry Journal* 55:4 (July-August 1946): 18.

Lieutenant Colonel Wilbur Strand, in a post-war article, testified to the importance of a well-balanced offensive formation. He dealt with, for instance, the importance of supporting artillery and engineer units to the infantry-tank team. Strand, "Infantry-Tank Team," 2-4; see also U.S. Army Ground Forces Observer Board, Pacific Ocean Area, *Reports of Observer Boards, Pacific Ocean Areas*, 11 vols., USAMHIL, vol. 10, Report D-74, "Questionnaire for Armored (Tank) Units," 43.

³¹Strand, "Infantry-Tank Team," 3.

³²U.S. Army Headquarters, ETO, *Battle Experiences against the Japanese*, 62; for the various techniques employed by other units under different circumstances in the SWPA, see Strand, "Infantry-Tank Team," 3; Marusek, "Tanks and Infantry," 19; U.S. Army Ground Forces Observer Board, *Reports*, vol. 7, Report B-203, "Standard Operating Procedures on Tank-Infantry Cooperation," 4 February 1945, 4-5.

³³For an example of those officers who did not yet learn the value of tank operations in a jungle environment, see Jack W. Rudolph, "It's All In the Books," *Military Review* 23:2 (May 1943): 8-12.

³⁴See for example U.S. War Department, FM 17-32, *Tank Company* (Washington, D.C.: U.S. Government Printing Office, 1944), 152-157; and U.S. War Department, FM 17-36, Supplement No. 1, *Employment of Tanks with Infantry: Illustrated Problems* (Washington, D.C.: U.S. Government Printing Office, 1944), 37-41; U.S. Army Ground Forces Observer Board, *Reports*, vol. 10, Report D-74, "Questionnaire for Armored (Tank) Units," 40.

³⁵Although most infantry-tank operations were against fixed defensive targets, there were tank-versus-tank battles on Biak and Luzon, for instance.

³⁶Michael D. Doubler, *Closing with the Enemy: How GIs Fought the War in Europe, 1944-1945*, Modern War Studies, Theodore A. Wilson, general editor (Lawrence, Kan.: University Press of Kansas, 1994).

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