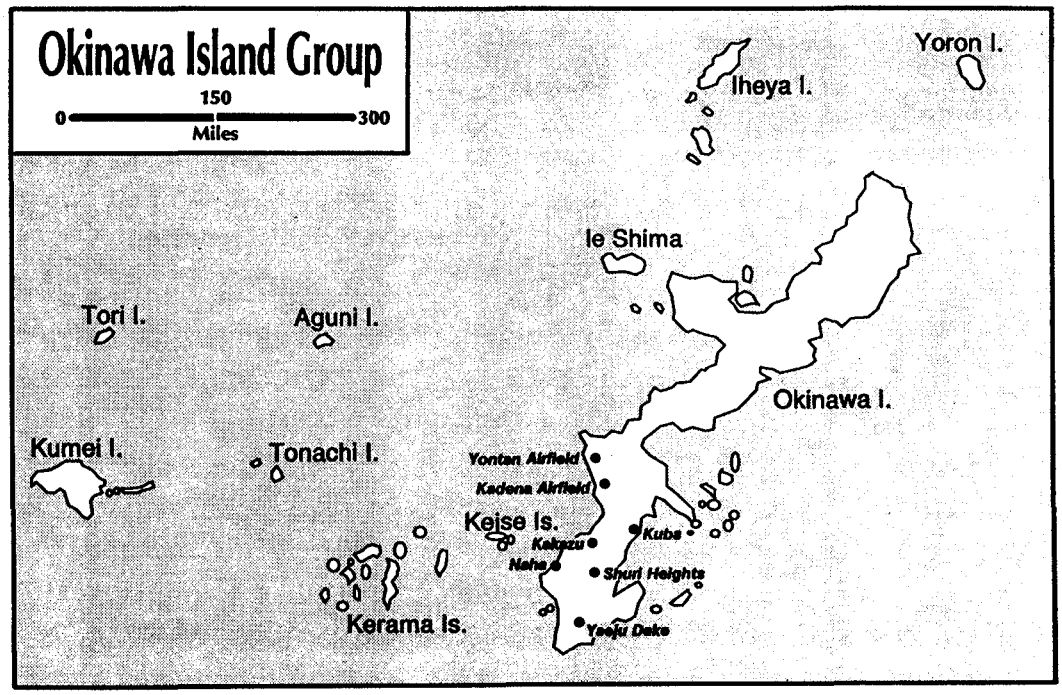
Cave Warfare on Okinawa

by Dale E. Floyd

By the fall of 1944, the United States was in the final phase of its war against the Empire of Japan. The ultimate goal of American operations in the Pacific was the industrial heart of Japan, the south coast of Honshu. Throughout most of 1944, the Americans planned an invasion of Formosa, Operation CAUSEWAY, to support the attack on the Japanese home islands. When General Douglas MacArthur, Commander in Chief, Southwest Pacific Area, attacked Leyte in October rather than December, Admiral Chester Nimitz, Commander in Chief, Pacific Ocean Area, felt that the possibility of an early advance into the central Philippines opened a direct approach route north through the Ryukyus rather than by way of Formosa.

Thus was born Operation ICEBERG, the attack on the largest of the Ryukyu Islands, Okinawa. The island was within medium bomber range of Japan and, with airfield construction, could sustain a force of 780 bombers. Good fleet



Okinawa Island Group

anchorages were available in the Okinawa island group, and from these air and naval bases the Americans could attack the home islands and support the invasion of Kyushu and finally Honshu.

Okinawa is 69 miles long and from 2 to 18 miles wide, comprising a total area of 485 square miles. With a subtropical climate, Okinawa's temperatures range from 60°F to 83°F, and high humidity makes it oppressive during the monsoon season from May to November. This rough, generally mountainous coral island has two types of terrain. The northern part, roughly two-thirds of the island, is generally rocky with a high ridge running its length covered with forests and heavy undergrowth. The southern one-third of the island, where most of the people live and practically all cultivation occurs, comprises rolling hills dotted with deep ravines and sharp limestone ridges.

American knowledge of the terrain and enemy situation was acquired over a period of months and with some difficulty. While limited information was gathered from old publications and captured documents, the bulk of the data came from aerial photos. The engineers constructed models of particular objectives based on intelligence and reconnaissance work, including a highly accurate one of the Mount Shuri/Shuri Castle area, that would be the most heavily defended real estate in Okinawa. With cloud cover hindering full coverage, the 1:25,000 scale target map had incomplete detail, especially in the south.

It was in the south that Lieutenant General Mitsuru Ushijima, Japanese 32d Army commander, decided to make his stand. As a beach defense would subject his troops to murderous American naval gunfire and a defense in the north would not deprive the Americans of the airfields and harbors of the south, Ushijima determined that the best use of the force available to him was a defense of southern Okinawa.

Southern Okinawa, south of Kuba on the east coast, was ideally suited for defense. The soft limestone ridges included numerous caves with natural cover and concealment. The Okinawans had converted some of the caves into burial tombs.

The Japanese, already known as tenacious fighters, would maximize their capabilities by establishing a strongpoint

defense utilizing cave warfare. Lieutenant General Isamu Cho, General Ushijima's chief of staff who was one of Japan's foremost experts on strongpoint defense, took overall charge of the defensive operations. Japanese unit commanders from brigade to company level determined the location and design of defenses in their own sector while subordinates oversaw actual construction at particular sites. Reserve units set up antiaircraft defenses.

In August 1944, the Japanese began in earnest to construct their defenses. Besides their own men, commanders used Okinawa home guards, called Boeitai; attached labor personnel; and local village conscriptees, including school children, to do the work. In adapting the defense to the terrain, the Japanese built blockhouses and pillboxes into the hills and fortified the natural caves, even the tombs.

Some of the hundreds of fortified caves were more than one-story high. Practically every cave had multiple exits and tunnels connecting to other caves. For the first time in the Pacific war, the Japanese had adequate artillery and mortars that they thoroughly integrated into the defenses. The size of cave exits varied but most were small, even as little as two feet square, to escape detection because they doubled as weapons embrasures and to provide as little space as possible for the entry of enemy artillery shells.

Although the Japanese generally lacked concrete and steel for cave lining, some of the latter was available for covering entrances. Logs often shored up the caves. Once inside the small entrances, the caves opened up into larger spaces, often comprising more than one room. Some caves had separate rooms for various purposes including barracks, mess, ammunition storage, and radio transmission.

The main defensive positions were on the reverse slopes. All of the defenses, including the ordnance, were cleverly camouflaged. After the construction work ceased, the Japanese placed mines and booby traps in their defenses.

Although few enemy minefields existed, the Americans did discover effective ones at crucial tank approach points such as road junctions, turnoffs, and defiles. The Japanese used a newly developed mine on Okinawa—an antipersonnel fragmentation mine that the rocky terrain made difficult to detect. They also dug ditches and created tank traps covered

by supporting fire. From the time an American tank entered an avenue of approach, it was under constant attack from direct and indirect fire.

Manning the defenses was the Japanese 32d Army. Its infantry strength consisted of the 62d and 24th Divisions, the 44th Independent Mixed Brigade, and some converted naval units. A tank regiment, four machine gun battalions, and four artillery regiments supplemented the divisional units. The artillerymen, veterans of several campaigns, were considered among the best in the Japanese army. Conscripted Okinawans and the Boeitai were forced to serve with the army. At the time of the American attack, the 32d Army strength was over 100,000 men.

On 1 April 1945, Easter Sunday and April Fool's Day, the American Tenth Army assaulted the island of Okinawa. The Tenth Army consisted of two corps: the XXIV Corps had three Army divisions, the 7th, 77th, and 96th, and the III Amphibious Corps had three Marine divisions, the 1st, 2d, and 6th. Operation ICEBERG required an attack directly across the island to capture the two airfields and split the enemy force. Then, while the Marines held in the north, XXIV Corps would attack and overrun Japanese defenses in the south. Once that was accomplished, they would attack the Japanese forces in the north.

The Japanese expected the Americans to use the good west coast beaches and immediately strike out for the nearby airfields, Yontan and Kadena. A week before, the American 77th Division had seized the Kerama Islands as a fleet anchorage and the Keise Islands as an offshore artillery platform for the Okinawa beach assault. Thus, the Japanese did not defend the beaches and the Americans quickly seized the two airfields and cut the island in half. By 3 April, it was clear to Lieutenant General Simon B. Buckner, Jr., Commanding General, Tenth Army, that there were few Japanese in the north. In a change of plans, he sent the Marines there while at the same time he pushed the XXIV Corps south toward the main Japanese defenses.

While the Japanese high command was determined to hold Okinawa and intended to use bomb-laden planes guided to naval targets by suicide pilots, the navy's Kamikaze Corps, General Ushijima was more realistic and decided that the

best he could do was to hold out for as long as possible and inflict maximum casualties. He made his stand on strongly fortified, concentric defense lines constructed in the south around the Shuri Heights high ground. In accordance with Japanese defense doctrine, each position protected its own location as well as an adjacent one; the key was mutual support through coordinated fire.

The 96th Division reached the first Japanese defense line, Kakazu Ridge, by 8 April. The next day, in a surprise attack without artillery support, the 383d Infantry Regiment made a frontal assault. It seized the forward slope and reached but could not hold the ridge line. The reverse slope defense system of pillboxes, tunnels, and caves with machine guns, mortars,

Japanese caves and dugouts honeycomb a hillside on the banks of the Bisha Gawa River.

and artillery covering all avenues of approach was too strong for a direct infantry attack. This attack taught the Americans that the key to success was an attack on the reverse slope defenses while a large force engaged and prevented the forward slope defenders from providing any support.

The next attack on the Kakazu Ridge line was corps-size with the 7th and 27th Divisions added to the 96th. From 18 to 24 April, these XXIV Corps units supported by 29 artillery battalions plus air strikes and naval gunfire fought the Japanese along this initial defense line. The 102d

Engineer Combat Battalion built a foot bridge, two Bailey bridges, and a ponton bridge to place the 27th Division in position for an attack. The 7th Division, even though supported by the first use of armored flame throwers of the 713th Tank Battalion, was unable to dislodge the Japanese from reverse slope positions along Skyline Ridge. By 20 April, only the 27th Division was in position to attack into the rear of the Japanese defense line; the 7th and 96th Divisions would have to continue the frontal attacks.

The rear of the Kakazu Ridge was the 27th Division's target. The 102d Engineers sealed Japanese caves along the forward slopes of the Pinnacles, depriving the reverse slope defenders of covering fire. On 24 April, the Japanese began an orderly withdrawal from the outer Shuri defense as their line was penetrated and the strongpoints battered.

American veterans of the Pacific war recognized the techniques and tactics of the Japanese defense: intricate and elaborate underground positions, and full use of cover and concealment soundly based on a reverse slope concept. They had experienced it all the way from Guadalcanal to Leyte. But on Okinawa, the Japanese used all their experience to produce the strongest defense the Americans confronted in the Pacific war.

An armored flame thrower tank from the 7th Infantry Division, Tenth Army, attacks Japanese cave defenses on Hill 178, 21 April 1945.

As the Americans reviewed the campaign, they realized that the enormous amounts of heavy explosives used did deny the Japanese freedom of movement above ground but did not have much of an effect on underground positions. Something else was needed, and the solution proved to be the tank–infantry team supported by armored flame throwers, artillery, and engineer demolition squads. The tactics involved a highly coordinated effort by all members of the team. As the artillery battered a position to force the defenders back into a tunnel, tanks took up direct fire positions while the infantry protected the tanks from Japanese infantry attack. Flame-thrower tanks were used to destroy many positions, but where the terrain was not suitable for armor, the engineers used a portable flame thrower with a range of 40 yards.

The need to destroy Japanese positions completely to preclude their reuse and heavy infantry casualties made the use of engineers as demolition squads necessary. An engineer squad of 6 to 12 men assisted infantry units up to battalion size and usually camped near the infantry headquarters to be readily available.

The demolition squad's initial responsibility was to clear the area of mines as the tank–infantry team approached the objective. Upon nearing the target, one engineer with a charge and a phosphorus grenade took the lead while several others followed with spare satchels, the usual weapon employed by the demolition squads. A standard charge weighing 24 pounds was fused by an engineer special blasting cap and had either a waterproof fuse lighter or a 15-second delay igniter. While the infantry provided covering fire, the lead engineer threw the phosphorus grenade into the cave to blind the defenders and then, to gain maximum effect, delivered the satchel charge as far as possible into the position.

For large positions, the engineers often resorted to pumping gasoline from trucks into the openings and igniting it with tracer bullets or phosphorus grenades; the 13th Engineers, 7th Division, used a 1,000-gallon water distributer and 200 to 300 feet of hose to pump gasoline into caves. In a three-week period, the 77th Division's 302d Engineer Combat Battalion (ECB) destroyed 925 Japanese defensive works using an average of 3,500 pounds of explosives per day. The 302d Battalion expended a total of 65 tons of explosives

during the entire campaign on Okinawa and the nearby islands. General Buckner called this the "blowtorch and corkscrew" method; the blowtorch was the liquid flame and the corkscrew was the explosive.

When possible, the demolition squad obtained a foothold above a cave opening and attacked down the hill in what were termed "straddle attacks." This method denied the defenders direct fire against the attackers. In all instances, mutual supporting defensive fire had to be silenced before the demolition squads could go into action. The tanks and infantry waged the battle, but frequently it was the flame and demolition that destroyed the position.

The Tenth Army included all of these attack methods in the tactics of an Army-size assault on the Shuri defense system. Since the northern operations were over, the Marines and the 77th Division came south. Then, with the III Amphibious Corps on the right and the XXIV Corps on the left, the Tenth Army planned an attack to double envelope the final Shuri line.

As the Americans were getting into position, the Japanese counterattacked on 4 May. When General Ushijima realized that the Americans were not going to conduct an amphibious operation in the south, he moved the 44th Independent Mixed Brigade and the 24th Division into the Shuri area. With that additional strength, he chanced an attack to try to push the Americans off the island. By 8 May, he knew he had failed, and on 11 May, the Americans resumed the offensive.

In the center of the line, the 77th Division and the 1st Marine Division had slow going in frontal assaults on strong Japanese positions. The 77th Division brought all available fire to bear on limited objectives, seized forward slopes to clear reverse slope covering fire, and expended huge amounts of gasoline and napalm to seal Japanese defensive positions as it fought south along Route 5 through hills given American names such as Chocolate Drop and Flattop. The 1st Marine Division attacked the Shuri Heights and, in spite of the fortified caves, made steady progress by concentrating on one specific objective at a time. The Marines called it "processing." By 21 May, both divisions were ready to break into the final Shuri position.

The enemy flanks were now the key to success for the Americans. On the right, the 6th Marine Division had a difficult fight taking two flanking hills before they could get tanks into the rear of Sugar Loaf Hill and reduce the Japanese reverse slope positions. The seizure of Sugar Loaf opened the way into the rear of the Shuri defenses from the right.

When the 96th Division took Conical Hill on the left flank, the Shuri rear area was open to attack. By 21 May, the possibility of a double envelopment of Shuri existed. Then the rains came.

General Ushijima knew his position was untenable so, under cover of the rain, he began his withdrawal from the Shuri defense system on 22 May. By 31 May, the Americans occupied Shuri, but the Japanese made good the escape of some of their force to a final defense position on the southern tip of the island.

The Americans continued the drive south and by 9 June were in position to attack the final Japanese defenses—the Yaeju Dake Escarpment. The terrain there was good for armor. The tank–infantry teams and the demolition squads were more experienced and the Japanese artillery was depleted. But some of the largest cave defensive positions were in the area. It took the Americans three weeks to reduce the Yaeju Dake. No wonder that in one month of fighting on Okinawa, the combat engineers in the three regimental zones destroyed 1,000 Japanese caves, pillboxes, bunkers, and defensive positions. Organized resistance was declared over on 21 June.

The Okinawa campaign proved to be expensive in men and materiel. In the final days, four general officers were killed. On 18 June, General Simon B. Buckner, Jr., was killed by artillery fire, and the next day Brigadier General Claudius M. Easley, assistant commander of the 96th Division, was killed by machine-gun fire. On 22 June, Lieutenant Generals Ushijima and Isamu Cho committed suicide.

American divisions formed a skirmish line on 23 June across the island and began moving south in a final mop-up. The Army either dug out or sealed the remaining Japanese in caves, pillboxes, and tombs. On 26 June, the 321st Engineer Combat Battalion of the 96th Division used 1,700 gallons of gasoline and 300 pounds of dynamite to seal a cave which

reportedly served as the headquarters of the Japanese 24th Division. Finally, on 2 July 1945, Lieutenant General Joseph W. Stilwell, the new commander of the Tenth Army, declared the Okinawa campaign over.

On Okinawa, the engineers played a major combat role in addition to their normal supply and construction duties. Some engineer units had significant losses: the 302d Engineer Combat Battalion sustained 20 percent casualties in one three-week period. Of the total force on Okinawa when the fighting ended, approximately 31,400, or 18.6 percent, were engineer troops. The victory on Okinawa was made possible by the combat accomplishments of the engineers.

Sources for Further Reading

Good full-length studies of the Okinawa campaign include the official U.S. Army history, Roy E. Appleman, James M. Burns, Russell A. Gugeler, and John Stevens, *The War in the Pacific; Okinawa: The Last Battle*, in the *United States Army in World War II* series (Washington, DC: The Government Printing Office, 1948).

Karl C. Dod, *The Technical Services; The Corps of Engineers: The War Against Japan*, in the *United States Army in World War II* series (Washington, DC: The Government Printing Office, 1966), and Leigh C. Fairbank, Jr., "Division Engineers: Part IV, Ryukyus Islands (Continued)," *Military Engineer*, 39, July 1947, 294–99, address the Army engineers' participation in the campaign.