More Than Technology

By Major Judson Cook

Much discussion goes on in the profession of arms about whether the technological developments and capabilities available to U.S. armed forces constitute a revolution in military affairs. The ability to dominate information warfare, the use of unmanned aerial vehicles to gather intelligence, and a tactical and strategic internet supported by satellite communications certainly change how we plan to fight wars. However, history has shown that technological developments alone are not adequate to achieve decisive victory.

In very recent history—28 January to 6 February 1997—the U.S. Army simulated a future conflict involving the U.S. military. Personnel in the "Army After Next" program, a research group at Training and Doctrine Command, organized the war game to examine warfighting issues possible within the next 25 years.

In this war game, friendly (Blue) forces were surprised when, at the outset of the battle, the opponents (Red) destroyed their satellites. Blue forces relied on the satellites to provide the intelligence platforms and digital communications links needed to facilitate command and control and track logistics flow. The strikes against satellites confounded the Blue leadership because their war plans were based on an assumption of information dominance. While the attack destroyed most of both the Blue and the Red satellites, Red was willing to sacrifice their satellites because Blue was more dependent upon them and, therefore, had most to lose from their destruction. One observer reported that the strike against satellites took the war back to the 1950s in terms of technology. [1]

Rationale

Nations focus on developing new technologies and improving war machines that increase their ability to directly destroy the opposing force. Superior killing systems are important, but they are not the only basis for winning wars. Regardless of technological advances in warfare, sooner or later combat becomes close-up—a man-against-man struggle for survival. This has been true in warfare from the first conflict through the last and is not likely to change. The following example typifies this maxim by showing how technology cannot replace the human dimension of war.

Pacific Theater, World War II

In the Pacific theater in World War II, the United States understood the importance of technology but recognized that machines were merely a means for achieving a strategic end. In the 1930s, Japan and the United States (in the U.S. "Orange Plan") envisioned similar war plans. The two nations anticipated an initial Japanese conquest of the islands in the western Pacific, a U.S. effort to fight its way across the ocean toward Japan, and that the end of the war would result from a fleet-against-fleet battle.[2] The United States therefore developed machinery and weapons to assist in this great naval battle.

As the war in the Pacific developed, the United States equipped itself with modern aircraft carriers, bombers, submarines, and destroyers to pursue a strategy designed to cut off the Japanese from critical resources, devastate the Japanese economy's ability to produce war machines, and demoralize the Japanese population, thereby causing their government to collapse. In 1941, Japan had more naval power available than the United States—they had 63 submarines and 10 carriers, while the U.S. had 56 submarines and two carriers. By 1942, Japan increased its carrier fleet to 11 (with 550 aircraft)[3], but by 1943 the U.S. increased its naval presence to 600 warships with 1,941 carrier-based aircraft.[4] Although both nations developed technologically advanced fleets, a great naval battle between the opposing fleets did not decide the outcome of the war.

The Japanese used their modern weapons to deliver the first blow. In December 1941, Japanese naval vessels and aircraft struck a surprise attack against the U.S. fleet at Pearl Harbor. Following that attack, the Japanese enjoyed a 6-month winning spree as they expanded their base of operations from Japan into the Pacific Ocean. Because the Pacific is so vast, both countries found it necessary to gain operating and logistical support bases for their great fleets on various islands.

Land warfare in the Pacific was born of the need to maintain these forward operating and logistics bases. From December 1941 to April 1942, the Japanese gained control of Malaya, the Philippines, Singapore, and Bataan. The Japanese influence spread over the Pacific as powerful U.S. military leaders were forced to withdraw. The United States found itself on the losing side of a war for control of the Pacific. Millet and Maslowski offer a great summary of the U.S. perspective on the Pacific. They write:

After the Allied rout in Burma in May 1942, General Joseph W. Stilwell

spoke of the disaster in his theater, but his words applied to the entire American experience in the first six months of World War II:

"I claim we got a hell of a beating...and it is humiliating as hell." [5]

The United States resorted to a ground campaign partly to gain operating and logistics bases and partly to gain respect. Regardless of the reasons for the island-hopping campaigns across the Pacific, the United States committed itself to waging battle against an enemy prepared to fight to the death. Because of the distance of these island outposts from Japan (and later due to successful U.S. submarine attacks against Japan's merchant marine), the Japanese land forces were cut off and lacked resources. With their backs against the wall, the Japanese fought to retain their territory.

U.S. military leaders could not and did not rely solely on technology to achieve their strategic goals against Japan. The battle for Iwo Jima, which lasted for a month in 1945, was typical of the fierce fighting that occurred in the Pacific. The capture of this island, valued as a base for crippled B-29 bombers returning from runs against the Japanese, cost the U.S. forces 26,000 casualties, of which 6,000 were deaths. U.S. Marines fought against an invisible enemy entrenched in caves and bunkers equipped with machine guns. U.S. forces used flame throwers, grenades, and explosives to route them from their hiding places. Thus, the United States employed troops on the ground who were engaged in close, direct combat. Their intent was to gain territory that would enable the United States to pursue its strategic bombing campaign against Japan. U.S. ground forces fought the Japanese to gain safe airfields for the 25,000 air-crewmen (flying 2,400 B-29s) who made emergency landings on Iwo Jima from March to August 1945.[6]

In the 2 1/2-month battle for Okinawa in 1945, the Americans had close air support and more artillery than the Japanese, who again were dug into a system of caves and bunkers. Even with their technological advantages, the Americans had to mount an infantry assault to overcome the Japanese. As at Iwo Jima, the fighting caused heavy casualties (100,000 Japanese soldiers and 40,000 U.S. soldiers killed). [7] The Americans were beginning to learn a lesson we would have to relearn in the Korean Conflict and the Vietnam War:

...you may fly over a land forever; you may bomb it, atomize it, pulverize it, and wipe it clean of life—but if you desire to defend it, protect it, keep it for civilization, you must do this on the ground, the way the Roman legions did, by putting your young men into the mud.[8]

The point is that even as nations develop technology and improve weapons systems, they must understand that war requires the commitment of ground soldiers who are willing to die to defeat their enemy. Advanced weapons systems alone have never won a victory.

Another related point is that a technologically or materially inferior enemy can fight on terms that negate the superior force's advantage. By 1945, when the battles at Iwo Jima and Okinawa were fought, the U.S. submarine campaign against the Japanese merchant fleet and strategic bombings on the Japanese mainland left Japanese ground forces wanting for supplies, materiel, and reinforcements. Yet, to be decisive, the United States resorted to close ground combat—the very form of warfare that the enemy was most capable of waging. The same argument held true for the U.S. action in Vietnam. Similarly, in the futuristic war game described above, the Red force evened the playing field by crippling the Blue force's informational advantage.

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The Lesson

U.S. military forces should continue to develop technology and improve weapons systems. Engineer modernization efforts focus on systems that improve enemy and friendly situational awareness, development of digitized terrain systems, and development of intelligent mine systems. These systems enhance engineer support to the maneuver commander, make engineer contributions to combined arms operations relevant into the 21st century, and increase the lethality of the U.S. Army. But as we develop these systems, we must realize that they are merely a means to an end. We must maintain enough vision to recognize that overdependence on dominating the battlefield via technology has failed in the past. The human dimension in combat must remain paramount.

We should not develop a force based mainly on the assumption that we can achieve perfect intelligence and flawless situation awareness. As we learned in the 1997 Army After Next war game, our assumptions may prove invalid. Our adversaries may mimic our technology, develop a countermeasure that defeats it, or resort to a form of warfare that renders it useless. In the end, battles and wars are won because of the will and determination of young people willing to fight against an equally determined enemy. It would be an error to convince ourselves and our nation otherwise.

(Continued on page 15)

aged between 7 and 8 minutes. It took less than one second to drive a single picket.

The speed of the automatic picket pounder is only one of its benefits. It can also drive pickets in almost any type of terrain. When we had to build obstacles over broken terrain and on hard, compacted tank trails, the automatic picket pounder was extremely helpful. We did not put pickets across tank trails in the past, because we could not drive the pickets to the necessary depth with a manual driver. Even with the automatic picket pounder, soldiers had to increase the time the device operated and pull down on its handles to get the pickets into the ground.

On extremely rocky terrain, we only had to move the pickets around until we could wedge them between the rocks. Now that the picket crew was no longer exhausted from the endless pounding with the manual driver, they placed the pickets in deeper than normal, making it difficult to remove them. With the manual driver, we normally used 6-foot pickets and drove them an average of 6 to 8 inches deep. The average depth for the automatic picket pounder was 12 to 14 inches. The picket pounder ensured that there were no gaps in the obstacles and that the obstacles would not come out easily even in rough terrain.

Disadvantages

On the minus side, the hoses that connect the automatic picket pounder to the compressor seemed to catch on every creosote bush in the desert as we moved across the obstacle frontage. The hose would then pull back on the 55-pound driver that the soldier carried. After constructing obstacles for several kilometers, this became very irritating. To overcome the problem, we constructed a boom to hold the device and route the hose up and over the boom to keep it off the ground.

Another problem with the picket driver was that it drove the pickets too deep! When we policed the battlefield the day after a battle, it was hard to get the pickets out of the ground. We tried pulling them out using straps attached to a 5-ton dump truck, but the straps could not withstand the pressure without breaking. Then we tried using the winches on the 5-ton dump truck and the HMMWV and found that steel cables worked well in removing the pickets. In the future, we will not set the pickets so deep that we cannot remove them.

Conclusion

In light of our experience, we recommend units consider locally procuring picket pounders if auxilary power units are available. We also suggest that the Engineer School include hydraulic picket pounders as SEE attachments.

The automatic picket pounder has allowed us to increase the emplacement speed and effectiveness of obstacles. Its ability to drive pickets in all terrain and to any depth without exhausting the soldiers was a great benefit to the OPFOR. The post driver proved its usefulness during the Advanced Warfighting Experiment and will continue to be an integral part of OPFOR obstacle emplacement.

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(Continued from page 13)

Endnotes

[1] Sean D.Naylor, "Hidden Soft Spot in Satellite Might," The Army Times, 10 March 1997, pages 20-21.

[2] Russell F. Weigley, *The American Way of War, A History of United States Military Strategy and Policy*, Bloomington, Indiana, Indiana University Press, 1977, page 246.

[3] John H. Bradley and Jack W. Dice, "Waltzing Matilda: The Early Carrier War" *The Second World War: Asia and the Pacific*, West Point, New York, Department of History, 1977, pages 161-195. Excerpt reprinted in U.S. Army Command and General Staff College, *The Evolution of Modern Warfare Syllabus/Book of Readings, Terms II and III*, Fort Leavenworth, Kansas, USACGSC, 1966, pages 332-366.

[4]Allan R. Millet and Peter Maslowski, *For the Common Defense, A Military History of the United States of America*, New York, The Free Press, 1984, page 433.

[5] Ibid, page 401.

[6] Larry H. Addington, *The Patterns of War Since the Eighteenth Century*, 2d edition, Bloomington, Indiana, Indiana University Press, 1994, page 260.

[7] Millet and Maslowski, page 464.

[8] T. R. Fehrenbach, *This Kind of War: A Study in Unpreparedness*, 1994, Fort Leavenworth, Kansas, The U.S. Army Command and General Staff College Press, pages 426-433.

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