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# AIR DEFENSE TRENDS

US ARMY  
AIR DEFENSE SCHOOL  
Fort Bliss, Texas 79916

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 Fort Bliss, Texas 79916

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*Air Defense Trends is an instructional aid of the United States Army Air Defense School; it is published when sufficient material of an instructional nature can be gathered.*



# Vulcan in Vietnam

*Captain John S. Wilson  
US Army, Deceased*

*Editor's Note:*

*In November 1968 the First Vulcan Combat Evaluation Test Team was formed at Fort Bliss and sent to Vietnam to test the suitability of Vulcan for ground support. The author volunteered for duty with the test team knowing the dangers that would be encountered since he had only recently returned from duty in Vietnam as an M42 platoon leader—wearing the Bronze Star with V Device and the Purple Heart with Oak Leaf Cluster. Impressed by the fury of combat, he wrote this article describing the ferocity of enemy attack and the still greater ferocity of our forward area weapons response—the Vulcan in particular. During a rocket attack on Long Binh Base Camp on 23 February 1969 Captain Wilson was killed. He has been recommended for posthumous award of the Distinguished Service Cross and the Legion of Merit.*

The small convoy of seven armored personnel carriers made its way carefully along the narrow jungle road. The men of A Troop, 11th Armored Cavalry Regiment, scanned the dense, tangled jungle for signs of enemy activity. Viet Cong and North Vietnamese regulars had been reported operating in the area. The possibility of ambush was a constant threat along the road.



*A Vulcan beats the brush at Binh Long Province outpost in Vietnam.*

Suddenly, without warning, the jungle exploded in a hail of small arms fire. Within seconds, rocket gunners found their marks. Two of the trapped vehicles lay burning in the road. The North Vietnamese continued to pour intense fire into the convoy, inflicting heavy casualties on the men of A Troop. Another deadly enemy ambush was on the verge of success when a strange sounding roar of cannon fire erupted from the beleaguered convoy. An APC-mounted Vulcan air defense gun system attached to the convoy from the First Vulcan Combat Test Team had opened fire on the North Vietnamese. The air defense artillerymen manning the gun continued to bring accurate, deadly fire on the attackers until the ambush was broken and the enemy was routed. Air defense artillerymen had saved another American convoy.

Since 1966, air defense artillerymen have been distinguishing themselves in close combat with the enemy. Operating with frontline infantry, armor, and mechanized infantry troops, the artillerymen who man the twin 40-mm M42 "Duster" and the multiple machinegun M55 "quad-fifties" have made an outstanding contribution to the American effort in Vietnam. The fighting spirit born with the Coast Artillery in the War of 1812 (brought to maturity through the Civil War, World War I, World War II, and Korean conflict) has been reborn on the battlefields of Vietnam. After being buried for over a decade in the concrete of Hawk and Nike Hercules sites throughout the world, forward area weapons have again become an important, integral part of air defense artillery.

The rebirth began in the fall of 1966 when the first of three air defense automatic weapons battalions landed in Vietnam. M42's and M55's were recalled from the National Guard. Units were formed and received months of intensive training at Fort Bliss prior to oversea employment. The first battalion to arrive in Vietnam was the 1st Battalion (AW) (SP), 44th Artillery, with Battery G (.50 cal MG), 65th Artillery, attached. In the 3 years it has been in combat, the Battalion has become one of the most decorated artillery units in history. Along with its sister battalions, 5th Battalion (AW) (SP), 2d Artillery, and 4th Battalion (AW) (SP), 60th Artillery, it has proved that forward area air defense weapons have an important part to play in the modern field army.

The story of the 1st of the 44th is typical of the three battalions now operating in Vietnam. Names and places differ, but their missions and the combat roles they have fulfilled are similar. Upon its arrival in Vietnam, the 1st of the 44th was assigned to support the 3d Marine Division in the northern I Corps area. The Battalion established its headquarters at Dong Ha Combat Base near the junction of National Highway I and Route 9, approximately 10 miles south of the Demilitarized Zone. The enemy air threat which the Battalion had been sent to counter did not develop. The unit therefore was assigned the primary mission of direct support of ground troops. Fire units were deployed throughout northern I Corps, from Phu Bai in the south to Geolinh and Conthien in the north and Khe Sanh in the west.

As the Battalion began ground operations, field commanders realized that the high rate of fire and the ready mobility of the M42's and M55's made them extremely flexible systems. Since a scarcity of armored combat vehicles existed in I Corps, M42's were first employed as armor. Although the Battalion's organization and equipment were not designed for armor-type missions, the air defense artillerymen met the challenge. Supported units quickly learned the value of forward area weapons as time and time again air defense firepower neutralized enemy bunkers and troop concentrations. Air defense artillerymen distinguished themselves on numerous occasions and were decorated along with men in the other combat arms.

As the war progressed, combat experience dictated methods of employment which took full advantage of the weapon's capabilities. M55's were mounted on 2½-ton trucks to further increase their mobility. Convoy escort and perimeter defense became primary missions for the "quad-fifties." M42's were also employed in these roles. In addition, missions of search and destroy, road security, night ambush support, and direct troop support were assigned. Weapons were even mounted on barges for riverine patrol. In all cases, regardless of the mission, the air defense artillerymen demonstrated ability to fight effectively in combat. Their courage, determination, and technical competence have made forward area weapons a respected part of air defense artillery.

While the M42's and M55's continued to perform a valuable ground mission in the Republic of Vietnam, the need for low-altitude air defense for forward combat units in the field army became an increasing concern of commanders at all levels. The acquisition of modern high-speed aircraft by Communist nations created a threat for which the field army had no defense. The Hawk system was determined to be incapable of effectively intercepting and destroying enemy aircraft during extremely low-level attacks on troops and installations. It also appeared that the combat proven M42 and M55 systems would be relatively ineffective against the supersonic air threat. New systems were required. The Air Defense Board tested a number of proposed forward area weapons and eventually decided upon the XM163 Vulcan gun system and the XM48 Chaparral guided missile system.

Vulcan is the latest gun system to join the air defense inventory. It consists of a 20-mm, Gatling-gun type of cannon mounted on a modified M113 tracked vehicle chassis. With the turn of a dial on the control panel, the Vulcan gunner can select a 10-, 30-, 60-, or 100-round shot burst at a rate of 3,000 rounds per minute. He can also select continuous fire at a rate of 1,000 rounds per minute. Utilizing a linkless feed system, Vulcan carries 1,200 rounds ready to fire and an additional 800 rounds ready to load. In the air defense role the system uses a computerized, solid-state, range-only radar to down aircraft at ranges up to 1,500 meters. In the ground role, a 6-power tank scope allows the gunner to place effective fire out to approximately 3,000 meters. Using indirect fire techniques, the Vulcan system is capable of a maximum range of 4,500 meters. For night firing each fire unit is equipped with a 7-power, crew-served, night-vision scope which allows the gunner to place effective fire on targets that would normally defy detection. In addition to the self-propelled Vulcan, there is a towed version for attachment to airborne and airmobile divisions.

With the advent of the new Vulcan and Chaparral systems, air defense artillery assumes a new dimension in combat. In the future, air defense artillerymen will continue to develop the fighting spirit which was reborn in Vietnam with the "Dusters" and the "quad-fifties." To a greater degree than ever before, air defense artillerymen will fight side by side with the infantry, armor, and field artillery. It was in this spirit that on 11 November 1968 five Vulcans, designated the First Vulcan Combat Test Team, deployed to Vietnam for 120 days of combat testing to determine their capability in the ground support role. The Army Materiel Command test was evaluated by the Army Concept Team in Vietnam. A main objective was to determine whether the Vulcan would be an adequate replacement for the M42 and M55 systems. The test plan called for the Vulcan to be attached to the 5th Battalion (AW) (SP), 2d Artillery. All types of missions, including perimeter security, convoy security, search and destroy, road outposting, riverine patrol, and mine sweeps were assigned in the 1st Infantry Division, 9th Infantry Division, and 25th Infantry Division tactical areas of operation within the Third Tactical Corps. According to initial reports from the combat zone, Vulcan is a spectacular success.



*Vulcan blasting the enemy from his hiding place.*

With the development of Chaparral and Vulcan and the continued success of the M42's and M55's in Vietnam, it appears that the future of air defense artillery will be strongly influenced by its forward area weapons. Concrete sites, revolving radars, and humming generators will no doubt continue to be identifying characteristics of air defense, but they will no longer dominate the air defense scene. Modern trends in forward area weapons have given the Army's newest branch an entirely new complexion. Air defense artillery again takes a place in the field with the combat soldier.

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