TRIPLE A

Battling their way across the European and Pacific theaters of war, AAA units were an integral part of the combat arms team

by Lt. Col. (Ret.) Thomas E. Christianson

The 200th Coast Artillery defends Clark Field against attacking Japanese aircraft. (Illustration by John Paul Jones).

Ten hours after Japanese planes dived on battleship row at Pearl Harbor, American soldiers and airmen strolled to lunch at Clark Field in the Philippines. Members of the 200th Coast Artillery lounged near their three-inch and 37mm antiaircraft guns, eating their lunch in the noonday sun. Someone noticed a string of planes coming in fast from the northwest. Some took pictures of the approach-ing "Navy aircraft."

Reality took hold in seconds, as tinfoil-like objects, dropping from the planes, exploded with deadly precision on the rows of neatly parked aircraft on the runway. Men of the 200th immediately began shooting at the enemy formations streaking past. For some, it was their first live-fire "exercise." Somehow this was too real, a far cry from hours spent practicing on wooden models, boxes and broomsticks that resembled guns, back in the States.

Though America was certainly at war, our nation and air defenders were not prepared. The challenges ahead were enormous. The obstacles were not only a determined enemy but outmoded thinking by senior military leaders who ignored the theories and admonitions of Emilio Dou-het and Billy Mitchell in the'20s and'30s. The fruit of that neglect now lay rotting on the bottom of Pearl Harbor and along the runways of Clark Field.

World War I witnessed the birth pangs of aerial warfare. Army leaders gave the air defense mission to the Coast Artillery because it was the only branch that practiced the art of firing at moving targets. However, air defense's success in the Great War was limited by the crude technol-ogy of the time. Most of the infantry-oriented military lead-ers who dominated the key Army staff positions following the war thought of air power as a trendy but insignificant aberration in the minds of radicals like Douhet and Mitch-ell. To them, the latter's demonstration of air power sinking a battleship seemed nothing more than grandstanding for the press.

That the antiaircraft artillery was a stepchild of the Coast Artillery did not help matters. Col. E. Paul Semmens asserts in his book, *The Hammer of Hell*, that by the 1930s "Coastal Artil-

lery men were separated mentally and physically from the rest of the Army." They were not accepted partners in any combined arms packages under discussion and develop-ment.

Though Command and General Staff College students talked about the importance of defending forward maneuver units from air attack, most agreed with the Infantry School's 1933 proclamation that front-line units could provide most of the air defense themselves, without "special troops" (antiaircraft artillery). Besides, as was pointed out, Coastal Artillery men did not understand the way regular infantry units maneuvered, and air defenders generally lacked initiative. Most "real Army men" called the Coast Artillery "the Red Comforter Corps."

Within such an environment, recommendations by three successive Coast Artillery chiefs that antiaircraft artillery units be made organic to the division went unheeded. These prejudices were further strengthened by the most important single reality - lack of resources. Demobilization following the massive war effort meant that priority for personnel resources would be allocated to the maneuver units. Incredible fiscal constraints during the late twenties and early thirties, when America languished in the depths of the Great Depression, meant that development of expensive new air defense guns was on "permanent hold."

The inertia in air defense weapons development can only be brought into proper perspective in light of the quantum improvements in aircraft technology during the same period. Airplanes continued to set new speed records, doubling them between 1920 and 1939. Fire control devices for air defense systems could not keep pace. By 1933 the main air defense weapon system, the three-inch AAA gun, was obsolete. In January of that year, Adolf Hitler came to power.

During the Spanish Civil War of 1936-39 the Germans, Italians and Russians used Spain as a "national training center." Uneasy American military leaders and congress-men began to call for improvements to antiaircraft systems. As Americans today are stirred by television images of the war in Bosnia, Americans in the 1930s reacted strongly to artist Pablo Picasso's powerful painting "Guernica," which depicted the German bombing and total destruction of a small Spanish town. Public pressure did much to free Con-gress' purse strings. By the end of the decade, appropriations for the Coast Artillery (Antiaircraft) had increased 12 times over the annual average for the previous 17 years.

The War Department had repeatedly rejected the Coast Artillery's recommendation for organic divisional air defense. The air defense mission centered on protection of the corps rear area. For this reason, and because the Coast Artillery was the most technically advanced branch in the Army, the budgetary increases of the late '30s were steered to the development of a new 90mm M-1 gun to replace the obsolete three-inch gun. The new gun fired to an altitude approaching 40,000 feet, a tremendous improvement over its predecessor, and was guided by a director that computed altitude and direction of an acquired target. Production of the 90mm began in earnest in 1940. Unfortunately, there was no time to put the gun through extensive field and ma-neuver tests that might have demonstrated its most serious shortcomings: lack of mobility and long emplacement times. The Battle of Kasserine Pass would too clearly point out these problems. German antitank use of their 88mm flak cannon, particularly by Rommel, would later influence further changes to the 90mm. The original 90mm M-1 gun could not fire in the depressed mode below zero degrees, sometimes essential in antitank combat. The new 90mm M-2 that would be fielded in 1943 corrected these deficien-cies and added four road wheels to increase mobility.

American military observers watched in awe as Hitler's legions swept into Poland in September 1939, and then were stunned by the fall of France in May of 1940. Borrowing largely from foreign thinkers like Fuller, Liddell Hart and 11Lckechevsky, German General Heinz Guderian had forged a combined arms package that maximized the principles of war - mass,

maneuver and offense. The extensive use of close air support in the form of Stuka dive bombers and ME-109 fighters was an integral part of the German doctrine. Luftwaffe op-erations were closely tied to maneuver ground troops. It was ob-vious that antiaircraft units would have to be deployed in the forward area, as German doctrine called for air attacks to rup-ture defensive lines in the way that artillery had done for centu-ries. German aircraft were called in by Luftwaffe liaison officers al division level to break and elimi-nate strongpoints, and German aircraft were used to fight the deep battle, attacking command and control centers and logistics depots.

The Germans also demonstrated the importance of divi-sional antiaircraft artillery. The most critical point in the battle for France was the crossing at the Meuse River. Resistance was heavy as German units fought their way across and stnrgglcd to build pontoon bridges for the hundreds of panzer and motor-ized infantry bottlenecked for 39 miles to the rear. ‘llte British and French quickly recognized that attacking the lucrative target could halt the German spear-head. Within a day a massive air attack of more than 100 planes attacked the bridge-head. But the Germans were not caught sleeping; Guderian ordered all vehicles off the road to make way for divisional air defense weapons. Some arrived just minutes before the attack. French and English bombers flew into a wall of steel. More than 40 percent of their planes were destroyed, while damage to the pontoon bridges was negligible. German units continued to cross and within days swept across France.

Although the Germans gave the world clear lessons with their blitzkrieg successes, American military leaders were slow to act. In early 1941 Chief of Staff George C. Marshall directed the Operations Division at the Pentagon to study the creation of mobile antiaircraft and anti-tank units, but the man he had chosen to create the American Army of World War II, Gen. Leslie J. McNair, was less than enthu-siastic about the forward role of antiaircraft artillery.

McNair epitomized the prejudices of the Army prior to the war and largely ignored the German approach to ma-neuver warfare. McNair wanted an Army based on 10,000-man light infantry divisions. Armor, anti-armor and air defense units would be posted at corps and used forward as the situation dictated. His was largely a reactive philosophy, certainly defense oriented and based on World War I experiences. He firmly believed that air defense artillery needed to be concentrated in the corps rear and that the protection of forward combat units would most likely be an exception rather than the rule. Hew clung to this belief in spite of German doctrine. McNair demonstrated his opinion—and that of many other military leaders—about the Coast Artillery and antiaircraft artillerymen when he warned commanders to keep the AAA men away from the infantry so as not to diminish the infantry’s fighting spirit.

Notwithstanding McNair’s problems with the antiaircraft artillery, the German air threat created an urgent need for short-range weapons to complement the 90mm M-1, about to be fielded. By 1939, 50-caliber automatic weapons battalions were part of the AAA regiment. The following year, one study admitted that these antiaircraft units might be capable of protecting point targets in the division rear.

The effectiveness of the Stuka dive bomber in close air support operations prompted developers to search for addi-tional gun systems. An intermediate gun, the 37mm Brown-ing, first tested in 1924, was accepted, then replaced by the British Bofors 40mm, which the United States was already producing for the British under the Lend-Lease Act. The Antiaircraft Artillery School at Camp Davis, N.C., suggested that the 40mm would be excellent at protecting point targets.

By 1940, the creation of separate battalions that could be attached to divisions was approved. This event occurred over the vehement objection of the Coast Artillery, again giving ammunition to those who didn’t consider Coast Artillery troops combat soldiers. The Coast

Artillery School did not publish doctrine on separate battalions until late 1943. This resulted in continued confusion throughout the war, as relationships varied depending on each division. Theoretically these air defense units were under the divisional commander's operational control but not part of his permanent organization. Later, during the fluid situation that followed the breakout from Normandy, this lack of doctrinal base resulted in confusion. Most units established their own doctrine based on their combat experiences.

As the AAA men reacted to the threat in Europe and the Pacific with new and untested weapons systems and a doctrinal vacuum, they suffered from the military biases of leaders like McNair. They now had the enormous task of fielding units and training the men who would man those new systems.

In 1939 there were only nine AAA regiments; by the end of 1942, there were 154 battalions. This was but one part of the total mobilization that briefly preceded, and then fol-lowed, Pearl Harbor. Admirable though this mobilization achievement was, the units that were activated and counted combat capable were in some respects a paper force that would suffer both from lack of training and lack of equipment. Many units received equipment just prior to deployment, and many soldiers fired their first rounds at enemy aircraft strafing their positions. How was this possible?

The architect for training and fielding of antiaircraft artillery units, Maj. Gen. Joseph A Green, became Chief of Coast Artillery in 1940. Green's mission was to expand the number of anti-aircraft units by 500 percent within 30 months. This required the construction of training centers, the development of antiaircraft training programs and the requi-site equipment for training and fielding the hundreds of AAA battalions that would fight in the Pacific, Africa and Europe. Green's greatest challenge was to locate, assign and organize a cadre of experienced officers and noncommissioned officers to train, and then head, the activating units.

Green approached these challenges with uncommon vigor, recognizing that with a nation at war, his constant enemy would always be time. He needed to get units to the field quickly. Within 19 months, seven antiaircraft training centers were established: Fort Bliss and Camp Hulen in Texas, Camp Haan in California, Camp Stewart in Georgia, Camp Davis in North Carolina, Fort Sheridan in Illinois and Camp Edwards in Massachusetts. Eventually Green's training centers had the capability to train up to 76 battalions simultaneously.

In March 1942, Green was selected to command the Antiaircraft Artillery Command, now separate from the old Coast Artillery. Green's headquarters was in Richmond, Va., and he reported to the Army Ground Forces commander, McNair. Green's staff wrote the antiaircraft programs of instruction, formulated doctrine and recommended weapons research and development. With few experienced NCOs and officers, Green's training task was formidable. Ideally, one-third of the cadre of trainers would come from the old Coast Artillery tactical units already in place. Though some of the key NCOs had a wealth of experience, with 10 to 20 years time in grade, many NCOs had joined in 1939 and 1940. Often the NCOs and officers had only a few more months of Army experience than the recruits they were charged to train.

Green's new units always suffered from a lack of experienced officers. This quickly became a training priority. The Officer Candidate School at Camp Davis provided the antiaircraft artillery officers for the new units. The 12-week course, required of all officers assigned to AAA units, stressed the new Army equipment and familiarization with guns, automatic weapons and searchlights. Although familiarization gave them a little knowledge, it did not result in technical proficiency. Later, based on input from the field, officers would concentrate on a single weapons system to spend more time on the limited training equipment. Tactics, doctrine and leadership were not part of the course. The Officer Candidate School produced more than 25,000 antiaircraft junior officers during the war.

The senior officers in charge of training recruits and activating battalions were often National Guardsmen or Army Reservists. It was the norm for the battalion commander to command with no prior antiaircraft experience and no tacti-cal or doctrinal manuals to assist him in preparing himself or his staff to fight. These officers were assigned not because of their air defense knowledge, but rather because of their overall Army experience; it was hoped that they would prove to have the acumen for training the thousands of raw re-cruits pouring into the mobilization stations.

In late 1940 more than 100 National Guard companies were converted to Antiaircraft Artillery. They would form the nucleus that would result in the first 20 regiments and 10 separate battalions cycled through Green's new training centers. Though they were not experienced air defenders, their common soldier skills knowledge made the transition to active military antiaircraft units much easier. The officers and NCOs quickly adapted the training programs developed by Green's staff, though they suffered from a lack of training equipment. The training battalions were often reduced to one 37mm gun per battalion, as the 40mm Bofors was still not available in sufficient quantity and was reserved for units that were to deploy. Units seldom fired, and firing at real aerial targets was almost unheard of. Crew drills were sometimes conducted on plywood box models.

The Army Ground Forces training plan was ideally a 12-week program. The first four weeks consisted of basic training, while the final eight weeks were dedicated to equipment and unit training. Units were seldom filled when training began, and were sometimes activated at 50 percent of their au-thorized strength. This meant that recruits con-tinued to arrive to fill the unit in the middle, or even at the end, of the training cycle. If a recruit missed training it was up to the cadre to get him up to speed. Commanders often complained to Green that this plan made no sense. Green was sympathetic and recommended to the Army Ground Forces Command that the cycle be extended to allow for make-up training. Again, the problem was time. America was at war, and the rush to deploy units to the Pacific, as well as the proposed invasion of North Africa, precluded changes to the original training plan.

It should be emphasized that, with just a few exceptions, combined arms training was nonexistent. Junior officers had no idea how to support an armor and infantry unit, nor did they expect to do so. Defense of point targets like bridges, corps rear supply points and ports was generally considered a likely antiaircraft mission. Most units did go to the field; many, in fact, lived in the field while the AAA centers were under construction and barracks space was at a premium. Field skills had to be honed in that brief 12 weeks. Field training almost always meant hours of march-ing with pack and weapon; however, this varied according to the commander and his cadre of officers and NCOs. It was common for one unit to march 15 miles a day while another unit at the same training center never marched except on parade. Standards in all training varied greatly. Green rec-ognized this problem and, in June 1942, created inspection teams to certify units after inspecting both individual and collective training.

Though the training shortcomings and lack of equipment seem obvious today, we must remember that the mobilization of hundreds of thousands of soldiers had occurred literally overnight. Our Allies were barely holding on. With England on its knees, Russia poised on the brink of collapse and the Japanese empire spreading across the Pacific from China to Australia, the United States had to take the pressure off and offer some real combat contributions. Today we might think it criminal to send troops into combat as poorly trained as those we sent forward in 1942, but the situation at that time demanded haste. Although most Americans believed that the eventual outcome of the war was not in doubt, they understood that it would be a tremendous struggle that would have a horrific cost. The American public was mobilized in every way, mustering the resources, spirit and the sure determination to see it through.

Combat Operations: North Africa and Mediterranean

American forces landed on the beaches of North Africa on Nov. 8, 1942. Operation Torch was a success, as Vichy French forces quickly capitulated. The. few enemy air attacks caused little damage. However, as American forces moved inland, enemy air activity increased. Attacks on forward air bases were particularly frequent. The Luftwaffe at this time was still a potent force that caused the Allies great concern. Immediately following the assault phase of Operation Torch, the G-3 of the Allied force headquarters headed an Antiaircraft and Coastal Defense Committee to work out the roles and missions of air defense among the Naval, Army Air Force and Army Antiaircraft forces.

Gen. Jimmy Doolittle, Twelfth Air Force commander, and other senior Army Air Force officers insisted that all air defense weapons, including antiaircraft guns, come under Army Air Force command. The Army Air Force petitioned Washington, arguing that, to organize the defense and ensure safety for all crews, all air defense operations should be placed under a single command, the Twelfth Air Force. The Army countered that this might mean that the maneuver forces and the forward logistics bases that served them would be without adequate assets. The Pentagon sided with the ground forces, and antiaircraft assets remained under control of the ground force commander.

In December 1942 there was an argument on how and where to deploy AAA assets. Decisions were made only to be changed after the next large German raid. When the Germans bombed the port of Algiers in early December, Gen. Eisenhower immediately charged a joint Twelfth Air Force, Navy, British and Army Antiaircraft committee to determine the allocation of assets. The ground forces were represented by Col. Aaron Bradshaw, who recommended the increased assignment of antiaircraft assets to the forward corps. His recommendation was overruled by the Air Force, Navy and British, who feared port facilities might be damaged and entire operations postponed if the Luftwaffe broke their logistics capability.

Eisenhower became increasingly inclined to redistribute more antiaircraft assets forward to the corps as reports of Luftwaffe strafing and bombing attacks on forward units became more and more frequent. Rommel's known priorities included the destruction or forward artillery and command posts. In a memo to the Pentagon, dated Dec. 19, 1942, Eisenhower proposed that an antiaircraft artillery unit be made an organic part of every division, corps and army. But McNair did not agree, reiterating that pooling those assets at the corps was more than adequate. He also was convinced that there were more than enough AAA units in theater to protect the forward units. What he didn't understand was that the majority of AAA units were required to protect the ports. This issue was not resolved until after the February battle of Kasserine Pass.

American forces struck rapidly across Northwest Africa following their brief fight with the Vichy French. Hampered only by the terrain and a poor supply system, unable to keep up with the front lines, Eisenhower hoped to quickly pinch off Rommel's Afrika Korps by linking up with British General Montgomery approaching from the east. Woefully untrained and unprepared though the Americans were, the quick capitulation of the Vichy French lulled many GIs into believing that their next battle would be equally swift and easy. By late December Eisenhower's drive to the east was brought to a halt, stopped by German resistance, bad weather, sporadic Luftwaffe attacks and terrible roads. Mired down in the snow and mud, they dug in to wait out the winter, replenish supplies and prepare for a spring offensive.

German Field Marshall Erwin Rommel, the fabled "Desert Fox," had other plans. He realized that with the recent fall of the German 6th Army at Stalingrad, Hitler's priority would never be North Africa. Somehow he needed to strike by seizing the initiative to prevent the U.S. and British forces from joining. In a classic Napoleonic economy of force operation, he intended to

leave a small screening force to face Montgomery on the Mareth line in South Tunisia, then strike and destroy the green Americans with the bulk of his seasoned veterans of the Afrika Korps. He would also use two new well-equipped Panzer divisions, the 21st and 10th, under the command of Col. Gen. Von Arnim. Once he had destroyed the Americans, he would shift back and deal with Montgomery. There was tremendous risk involved, but it was just this type of risk that Rommel relished, and his gambler's instinct had brought him success in the past.

The fighting around Sidi-Bou Zid, Sbeita, and in the mountain passes, known collectively as Kasserine Pass, was both bloody and costly to the Americans. The green Americans had met the "first team," Rommel's Afrika Korps, and had suffered accordingly. About 9,000 Allied forces, most of them Americans, had been killed or captured. The Germans captured or destroyed more than 200 tanks and 100 self-propelled guns. In the final analysis, Rommel was forced to withdraw, suffering himself from a ruptured chain of command and Von Arnim's failure to cooperate in a timely manner. Aided by ULTRA (the Allies top secret decoding machine), the Allies realized the Germans held the southern Mareth Line with just a token force and began to move. Rommel was forced to withdraw to meet Montgomery's threat. Rommel had won a tactical victory at Kas-serine, but had not achieved his operational or strategic objectives. The Americans, on the other hand, had now gone through their "National Training Center experience," but at a bloody cost. There were immediate changes in commanders, with new leaders, George Patton among them, moving up. The American Army learned much from Kasserine. Lessons for the poorly trained, poorly deployed air defenders were now most clear.

The struggle for allocation and deployment of AAA assets continued throughout the battle itself. In early February 1943 more than 75 percent of U.S. antiaircraft units were deployed in the rear, with less than 25 percent forward to cover maneuver units. Col. James E. Harriman, the III Corps commander's antiaircraft officer, had a problem common to all air defendersn, not enough AAA to cover everything. Prior to his attack at Faid Pass, Rommel had directed numerous Luftwaffe attacks on the allied forward supply center at Tebessu. Youks-les-Bain and Le Covif were also pounded by the Luftwaffe. The Twelfth Air Force, whose airfields were under constant Luftwaffe attack, insisted that more antiaircraft be assigned to the rear, pushing the issue in Eisenhower's Antiaircraft Artillery and Coast Defense Committee. This remained an interservice political issue under constant review. Harriman's dilemma resulted in scant assets deployed forward. When the Kasserine campaign opened, Harriman had a meager one-and-a-half automatic weapons battalions and one 90mm AAA gun battalion directly assigned to the II Corps. Adjustments would be made as the battle unfolded, but it was often a case of too little, too late.

To anyone familiar with their doctrine and their successes in Poland, France and North Africa, the German method of attack was predictable. Their armored forces moved forward along with motorized infantry. Artillery fire and engineer support organic to their divisions was well coordinated and effective. Most significant, though, was the extensive use of close air support for maneuver forces, provided by the Luftwaffe. As ME-109 fighters provided cover, Stuka dive bombers could operate with near impunity against front-line American troops. Hit by this veteran enemy force, the American ranks began first to fall back, then to break, as aircraft machine gunned retreating columns. American sol-diers simply broke ranks and ran. Whole companies surrendered en masse.

American Maj. Gen. Lloyd R. Fredendall ordered counterattacks from his bunker 70 miles in the rear. As American columns reorganized and moved forward at Dizbel Hamra, 12 enemy fighters and nine bombers broke up the counterattacking force. An hour later another German air attack finished off the force. U.S. Army antiaircraft had not been included in the task force;

in fact, no one would have considered it. After Kasserine they would.

It should not be inferred that all Americans, or all AAA soldiers, did not fight. They did fight, sometimes well. Members of the 443rd Coast Artillery, defending a field artillery battalion, engaged and destroyed several Stukas and drove off the rest. The cost was heavy, though, as the G-3 situation report for Feb. 14 reported 19 of 31 AAA systems destroyed or captured. Confusion hampered all efforts at resistance. Most infantry and armor units would break and move to the rear without notifying the few antiaircraft units around them. Coordination among the units did not exist, and no doctrine or technical SOP had ever covered working with air defense units.

At one point in the battle, Harriman ordered some 90mm guns forward to shore up crumbling defenses and fire in the much needed antitank role. Unfortunately, the unit was never able to contribute due to the extraordinary time needed to emplace. The huge outriggers made movement painfully slow, and emplacement sometimes took hours, depending on the terrain. This was completely unsatisfactory when reacting to a fluid battlefield dominated by Rommel's mobile Panzer units. Eventually most of the 90mm guns were withdrawn from the front and relegated to airfield defense.

One significant doctrinal problems that emerged from the battle of Kasserine Pass was the lack of coordination between Army Air Force and antiaircraft artillery. The sad truth is, more American planes fell to friendly fire than did German planes to our defenses. The fruit of interservice politics and rivalry was unnecessary fratricide. Many antiaircraft artillerymen had never before seen friendly aircraft, let alone German aircraft. Flash card training, though helpful, was never institutionalized. The 443rd Coast Artillery, which performed superbly protecting artillery from Stuka aircraft, also engaged and damaged seven friendly aircraft, five of them beyond repair. Another unit shot up five double-fuselage P-38s, a design unique to the Allies. The infantry undoubtedly contributed to the high fratricide rate. These mistakes were perhaps understandable: after continued pounding by the Luftwaffe, any airplane was first con-sidered hostile and was engaged. Further, AAA soldiers believed in early engagement to protect themselves and to allow for a longer coverage of the target. Incredibly, AAA gun crews did not have binoculars or designated observers. The situation became so bad that antiaircraft units finally were ordered not to fire at any aircraft until after the aircraft attacked. Obviously, this order prevented the antiaircraft artillery from performing its mission.

On the positive side, many isolated platoons of antiaircraft contributed to the battle by protecting units from air attack and providing ground support fire for the infantry. This was the beginning of a change in the antiaircraft deployment philosophy. The infantry, armor and artillery wanted AAA units with them. In Sicily and then in Italy, artillery units would not move without antiaircraft artillery. One of the rising stars after Kasserine, General Patton, recommended after that debacle that anantiaircraft artillery group be assigned to division and a AAA brigade to corps. The challenge to become a part of the combined arms team was cast.

The performance of antiaircraft artillery at Kasserine Pass was no better or worse than the rest of the Army at Kasserine. The recipe for disaster had been mixed months before. Untrained troops on new equipment, with rudimentary field skills and lacking doctrine on how to fight, did poorly. Coordination not only with Army Air Forces but also with the armor, infantry and artillery units they protected was lacking. Lessons learned at Kasserine caused an almost immediate reaction. In a report to the Army Ground Forces Command, written before Kasserine, Maj. George Croker commented on needed improvements in training, emphasizing that AAA should learn more infantry, armor and artillery tactics. Officers needed to be able to move quickly with the units they defended. Croker also stressed the need to conduct live fire exercises prior to deployment.

A Bofors gun crew from the 434th Antiaircraft Artillery (Automatic Weapons) Battalion stands by as U.S. bombers pound Cassino. (Illustration by John Paul Jones)

The fratricide problem was discussed at length but never satisfactorily solved. The Army Air Force continued to insist on centralized control (their control) of all antiaircraft artillery. The Air Corps would coordinate their close air support with the corps but no lower. Often the word never reached the trigger-puller in the forward area. American aircraft would often receive friendly fire while returning from missions. The Army ground commanders held firm in their resistance to Air Corps requests on centralization, fearing that maneuver units would never be protected adequately if the Army Air Force controlled assets. This remained a point of contention throughout the war. To prevent fratricide, local SOPS came up with innovative methods, including having friendly aircraft rock their wings upon returning, painting aircraft noses different colors and dropping smoke. These measures helped but were never standardized.

Though more AAA units would be assigned forward in the future, the ports and airfield defenses were never neglected. They continued to receive periodic Luftwaffe attention, and were defended by a combination of antiaircraft guns, 90mm and 40mm, searchlight battalions and barrage balloons. In darkness, the ports were defended exclusively by antiaircraft. Port and airfield defense continued in importance in North Africa, Sicily and, finally, in Italy.

European Theater of Operations

The landings at Salerno, and, later, even more significantly at Anzio, where Americans lingered on the beach, made antiaircraft artillery an integral part of the operation. Despite Italy's prompt surrender, Hitler's decision to commit crack German divisions to the southern front eliminated any possibility of a cheap Allied victory on the peninsula. The battles of the Volturno and Rapido Rivers and Monte Casino lay ahead on the long, hard road to Rome, but as Luft-waffe assets diminished, reductions in AAA were possible. This was particularly important in light of the pending invasion of Europe. In April 1944, and again in June, the Mediterranean Antiaircraft Artillery Committee approved tran-fer of numerous AAA units to England. By January 1945 only two gun battalions and three automaticweapons battalions operated with the U.S. Fifth Army in Italy. Even though Italy was a sideshow, the scorecard for antiaircraft artillery was impressive. In two years in Italy, U.S. Army Air Forces claimed 125 enemy aircraft

destroyed and 31 probably destroyed. U.S. Army AAA during the same period destroyed 1,127 enemy aircraft and 253 probably destroyed. American antiaircraft artillerymcn had certainly learned how to shoot.

The Army and the antiaircraft artillcrymcn that landed on the Normandy beaches June 6, 1944, were very different from those that met Rommel in February 1943. Soldiers now received much better training in the States prior to deploy-ment overseas. The training cycle had been extended from 12 to 22 weeks. Most units had participated as part of a combined arms package in the Louisiana or Tennessee Ma-neuvers. Units no longer trained on plywood or cardboard weapons facsimiles; ammunition and equipment for train-ing were plentiful. Aircraft recognition was emphasized, and equipment maintenance was an integral part of the training plan. Mobility wasgiven high priority. The shortcomings that had hindered operations in North Africa had been identified, and training fixes were in place.

Innovative equipment modifications had also taken place. The cumbersome 90mm gun had been modified to cut down drastically on its emplacement time and to significant-ly increase its mobility. Quadruple.50-caliber machine guns on trailers were the standard. Col. Charles G. (Pat) Patter-son, Omar Bradley's First Army Antiaircraft Artillery Offi-cer, took the initiative, over the objections of senior officers, and bolted Quad .50s to 700 excess half-tracks he had scrounged. The mobility offered by the half-tracks would pay handsome dividends later, when they cam-paigned in Europe.

American antiaircraft units in England trained under the aegis of Patterson and the commander of the First Army's 49th AAA Brigade, Brig. Gen. E. W. (Big Ed) Tinlberlake. Patterson and Timberlake stressed combat mobility. They borrowed combat-proven British procedures for reconnaissance and occupation of positions. AAA units stationed in the nine British camps assigned to them had plenty of time and adequate maneuver areas to perfect the skills that would become so important once they reached the conti-nent. Throughout the training, an aggressive spirit and ini-tiative permeated down to the lowest ranks, and would become the hallmark of antiaircraft units operating in Europe.

Each task force that landed in Normandy was assigned one antiaircraft group, consisting of one mobile gun battal-ion, one mobile 41hnm battalion and one self-propelled au-tomatic weapons battalion. An additional provisional ma-chine gun battalion was assigned to the first two groups, two balloon batteries were added at Omaha Beach and one bal-loon battery was added at Utah Beach. Big Ed Timberlake, the 49th's commander, arrived on the beach al about 1700 hours on D-Day to help organize corps and divisional AAA units as they arrived.

The AAA units that hit the beach on D-Day did not find the skies full of German planes. Hiitler had made a strategic decision that violated German maneuver doctrine, moving almost all fighters to the rear for defense of the Reich against Allied bombing attacks. Thus GI gunners saw very few enemy aircraft at the Normandy beaches. However, AAA men contributed greatly to the overall effort. Quad .50 machine gunners helped suppress enemy resistance, and leaders like Timberlake led by example, moving soldiers off the beach and encouraging them to close with and kill the enemy.

Antiaircraft artillerymen provided essential protection to the beaches and portable ports during the buildup phase from June 7 to June 30, 1944. The Germans realized that if they could destroy the Allied buildup, they could contain and then counterattack the Allied forces. Thus they flew more than 650 sorties. Antiaircraft artillery claimed 96 kills and numerous probables. The Luftwaffe failed to destroy the logistics necessary for the next part of the Allied Euro-pean campaign.

In the breakout that followed weeks of hedgerow fighting in Normandy, antiaircraft units made an impressive show-ing, shooting down 58 German aircraft during the most critical

Battery A, 197th AAA (Automatic Weapons) Battalion, came ashore in the Easy Red sector of Omaha Beach on June 6, 1944. The antiaircraft artillerymen backed their M-16 halftracks onto the fire-swept shale to deliver fire against enemy strongpoints on the bluffs overlooking the invasion beaches. (John Paul Jones)

phase of the European campaign. The months of training that Patterson and Timberlake had engineered in England paid off as U.S. armor, artillery and infantry units broke out and swept across France. Antiaircraft units not only stayed with their supported units, but also provided an offensive punch when needed. The new 90mm gun proved to be as deadly an antitank weapon as its German counterpart, the famed 88. Infantry units loved the Quad.50, which they used to spray tree lines with armor-piercing rounds before mov-ing forward in an assault. During this time the AAA units overcame much of the old prejudice against the Coast Artil-lery, and became an integral part of the combined arms team.

There were still problems with the Army Air Forces and the issue of fratricide. Patterson tried to remedy the situa-tion by placing a AAA man in the IX Air Force's headquar-ters. Com-mand and control of AAA units remained within the Army chain of command, but Air Force requests to hold fire were usually honored. Eisenhower's headquarters established antiair-craft zones to manage the airspace. These zones included an inner artillery zone, an unre-stricted area and a gun-defended area. Aircraft were forbidden to fly in the inner zone, and AAA gunners were free to fire at all aircraft. In unrestricted areas, aircraft had to be positively identified as hostile before gunners could fire. The gun defended areas were a compromise: sometimes fighters were given precedence, sometimes guns were. Zones could be estab-lished after a 96-hour notice. By the end of August, the Air Force complained that there were too many inner zones, claiming that their bombers had to fly long, circuitous routes to avoid friendly AAA fire. Corridors were estab-lished as an interim solution, with varying success. Fighter control centers did try to pass information to AAA units about flights, but the system broke down when planes did not return on schedule or did not fly in the proper corridors. Though antiaircraft units had improved immeasurably since Kasserine Pass, the recognition

symbols between aircraft and antiaircraft had never been standardized, and fratricide remained a problem. It was not a one-way street, however; ground troops and AAA units were frequently strafed by U.S. aircraft, despite using yellow smoke and other signals. One division commander ordered his attached AAA unit to engage all aircraft, including and especially friendlies!

Just one week after D-Day, on June 13, 1944, Hitler launched his top secret Wunderwaffen (miracle weapon), the V-1 (Vergeltungswaffen, vengeance weapon). London, the primary target, suffered hundreds of V-1 attacks until March 29, 1945. Then, with the Allied capture of Antwerp, Belgium, this important logistics center became the favorite target. American AAA men provided half the assets defend-ing London and almost all of those defending Antwerp. This early cruise missile type of defense, considering the relative-ly crude technology of the age, is one of the greatest achievements by antiaircraft in the Second World War.

The V-1 was an automatically-controlled, jet-propelled, pilotless monoplane carrying nearly a ton of high explosives. It could attain speeds of three to four hundred miles per hour, and had a range of up to 250 miles. It generally traveled in a straight line, but could be set to make one 45-degree turn. The V-1 was often called the buzz bomb be-cause of the strange sound it made in flight.

The V-1 attacks occurred in three distinct phases. The first phase lasted from June 13 until Sept. 5. Launches were made from the coast of France, directed mainly at London, and Hitler personally approved all attacks. The Commander in Chief West, Field Marshal Von Rundstedt, tried to obtain the Fuehrer's permission for an attack on the ports of Southampton and Portsmouth to destroy Allied troop concentra-tions on their way to the continent. Three such raids were actually conducted without Hitler's approval, and the 60 to 80 V-1s that were launched achieved considerable success. However, when this was reported to Hitler, he ordered that the responsible officer be reprimanded. He adamantly in-sisted that the V-1s were vengeance weapons, to be used only on population centers.

The Allies reacted quickly to the V-1 menace. They estab-lished a "gun belt" midway between the coast and London, made up of 192 British and American 3.7-inch and 90mm guns, 40mm and 20mm automatic weapons, and 480 barrage balloons. Another belt of 192 40mm guns and 368 20mm guns ran along the coast. London itself had a barrage bal-loon cover of more than 1,700 balloons. Within three weeks, the first belt grew to include 376 guns. The British early warning system was excellent, giving advance warnings of all V-1s to eight antiaircraft operations rooms throughout southern England. These centers then sent warnings to each individual fire unit.

During the first few weeks, problems with airspace management hindered AAA effectiveness. There were too many RAF aircraft inside the zone, and guns could not fire at the V-1s. During this period, the RAF destroyed three times as many enemy V-Is as did the AAA. On July 14, a decision was made to move the main belt of defense to the coast so the guns could achieve early engagement, preferably destroying the V-1s over water to keep the falling debris away from populated areas. Accordingly, 376 mobile AAA guns and 526 automatic weapons, with crews and support troops numbering over 23,000, moved to the coast; 8,000 trucks and 9,000 service troops assisted. Gun crews were ready for action in the new location within five days. The new defense had a forward and a rear fighter zone, with a gun zone in between. The results were predictably outstanding, as the effectiveness went from just 17 percent to 74 percent of targets shot down. The Allies continued to add more firepower, and by Aug. 7 employed 529 90mm AAA guns, 892 40mm guns and 405 20mm automatic weapons.

Upgrades in air defense technology and ordnance con-tributed greatly to the high kill ratios. The American SCR-584 radar and the new M-9 director, combined with the remote-controlled automatic loading guns, greatly im-proved accuracy to the point that the average

expenditure per kill was 156 rounds. The single most important innova-tion, however, was the use of the proximity fuze. A sensing mechanism in each round set off a charge, causing the round to explode as it neared the target. These rounds proved five times more effective than conventional ordnance. Security required firing only over the sea, and the round was not authorized for use on the continent until months later, because Allied leaders did not want the secret to fall into German hands.

The second major period of V-1 attacks on London lasted from September 1944 until the middle of January 1945. As the Germans lost their launching areas on the French coast, they developed the means to launch V-Is by aircraft. They also changed their approach from the south to the east, so the Allied gun belt was adjusted accordingly. Allied gunners knocked down more than 230 percent of the V-is, and there was little damage to London. The third and last phase of the attack on London commenced in March 1945. Missiles were launched from Holland and AAA gunners destroyed 92 of 158 V-Is launched.

The capture of Antwerp. Belgium, in late 1944 gave the Allies the capability to conduct sustained operation along the entire European front. The Allied offensive had ground to a halt; despite the tremendous effort of the Red Ball Express (the non-stop truck convoys that ferried supplies from the ports to the fighting front), forward units seemed always short of ammunition and fuel. Antwerp, an excellent port facility, changed all that. The Germans immediately recognized its importance to the Allies, so they sought to destroy the port with a V-1 air offensive. Later, Antwerp would be the objective of the German Ardennes offensive, which Americans called the Battle of the Bulge.

On Oct. 24, 1944, Germans began their V-1 campaign against Antwerp. This air attack was continuous until March 30,1945. During that time the Germans launched thousands of missiles against the city. Only 211 of these reached their targets! The tremendous success that AAA men had achieved in defending London now continued around Antwerp. However,

A U.S. 90mm gun blasts away at an encroaching V-1 "buzz bomb." Antiaircraft artillerymen destroyed moe than 1,766 V-1s launched against the vital Port of Antwerp. (John Paul Jones)

problems relating to airfields in the defense zone degraded operations in the early days, as had been the case in England. An inner artillery zone was set up immediately, but the Allied Air Forces largely ignored the zones. From Nov. 26 to Dec. 11, 1944, more than 325 aircraft vio-lated the zone. After several were shot down bv friendly fire, the violations quickly decreased.

More than 208 90mm guns equipped with the proximity fuze, 128 3.7-inch British guns and 188 automatic weapons, manned by some 18,000 AAA soldiers, participated in the defense. Planners were able to decipher avenues of ap-proach and weight the defense accordingly. There were so many V-Is launched that fire control became necessary. If it was determined that a particular buzz bomb was not going to strike a vital area, it was not engaged. These were called Hankers. Priority of fire went to those V-Is that posed a threat to the vital port area. By December 1944, more than 87 percent of the V-Is were engaged and destroyed. Of the hundreds launched, only 13 reached their targets! For the entire period of the Antwerp defense, antiaircraft artillerymen destroyed more than 1,766 of the 2,523 V-Is launched.

The military significance of the successful defense of Ant-werp cannot be overemphasized. British Field Marshall Montgomery put it best in a personal letter of commenda-tion to American Brig. Gen. C. H. Armstrong, commander of the 50th AAA Brigade, written on April 12,1945: “Success of the defense kept in full operation the main supply base for the 12th and 21st Army Groups, has profoundly influenced the present battle, and made the success of present operations possible.”

Antiaircraft artillerymen, moving with maneuver units in late 1944, also enjoyed great success. For example, the Luft-waffe launched 100 aircraft against the U.S. First Army on Dec. 3, 1944. U.S. gunners knocked down 41 of those. For the antiaircraft artillery, there was no better way to bind themselves to their infantry, armor and artillery comrades. They were now an accepted member of the combined arms team, a relationship they cemented forever during the Battle of the Bulge.

Hitler launched his massive counterattack against the Allies on Dec. 16,1944. The Germans who struck were combat veterans of the eastern front, freshly equipped units of the elite Waffen S.S. This was a last-ditch effort to relieve pres-sure in the west, and the attacks were carried out with the furor and determination that the situation dictated. Some of the Allied units they hit, like the 28th Infantry Division that had been recently mauled in the Huertgen Forest, were bur-rowed in the rough terrain of the Ardennes to recover. Oth-er Allied units were brand new divisions that had never seen combat. Allied planners believed that the terrain was too difficult to conduct major operations, but their short-sightedness overlooked the fact that the major German attack against France in 1940 had followed a similar axis.

The Germans achieved a surprise attack out of the fog and snow. American lines were quickly ruptured and chaos became the rule, with hundreds of Americans cut off and hundreds more surrendering or streaming to the rear. The battle degenerated into scores of isolated fights conducted by brave men who were determined to stop the Germans and buy time for their leaders to stabilize the line. Antiaircraft artillerymen rose to the occasion and distinguished themselves in countless operations.

The situation report at Headquarters, First Army, was bleak. S.S. Panzer Grenadiers of Kampfgruppe Peiper (the soldiers responsible for the infamous Malmedy massacre) spearheaded the German attack. First Army’s antiaircraft officer, Patterson, recognized the urgency of the situation and directed all available 90mm guns to the front to help stem the German tide. What these AAA men achieved can-not be overstated. At a small town called Stoumont, two 90mm guns from Battery C, 143rd AAA, reached a road junction, emplaced and waited. They had arrived from the States just two days earlier. Peiper’s Panzers emerged from the fog

and came under fire. The 90s scored again and again. As the German attack faltered, Peiper moved forward to assess the situation. To his amazement, his Tigers were withdrawing.

This story was repeated frequently, as antiaircraft artil-lerymen fought desperately, often while their infantry com-rades fled to the rear. In the 28th Division sector, German Volksgrenadier infantrymen brought the 107th Field Artil-lery Battalion under fire. The men of the 107th had begun to stagger to the rear when two of the 447th AAAs half-tracks raced down the road directly toward the Germans, spraying them with fire and rallying the field artillery troops behind them.

The spirit of the AAA soldiers is exemplified by the hero-ism of Lt. Col. Sandy MacGrain, commander of the 413th AAA Battalion. MacGrain's unit was engaged, cut off and then sur-rounded during fighting on Elsenborn Ridge. He was wounded while trying to reach Battery C, which had been isolated by the German attack. MacGrain was eva-cuated and put on a hos-pital train headed to the rear. When the train stopped to pick up more wounded, MacGrain jumped from the train and made his way back to his unit. The 413th then destroyed six Ger-man tanks and broke up several infantry assaults.

Antiaircraft artillerymen contributed immeasurably to slowly halting, and then counterat-tacking, the Germans in the Ardennes. The weather during this period precluded either friendly or enemy air activity. When the skies cleared on New Years Day 1945, the Germans launched the most extensive single-day attack of the entire European Theater. Nine hundred ME-109s, FW-190s and JU-88s were thrown against the Allies. No one had ever seen so much air activity at one time, as the Luftwaffe generally conserved its aircraft to fight against Allied bombers. During that morning 16 Anglo-American airfields were suddenly attacked by Ger-man bombers flying below 200 feet. More than 250 Allied aircraft, almost all of them parked on runways, were de-stroyed or damaged. The attack lasted just three hours and was heaviest in the U.S. Third Army area.

Only a few of the German fighters fell to Allied aircraft. Most were shot down by AAA. Losses sustained by the al-ready short Luftwaffe were disastrous. AAA gunners claimed 363 planes destroyed and another 102 probably de-stroyed. This was the Germans' last signifi-cant aerial offensive of the war. Parenthetically, German antiaircraft shot down another 90 to 100 of their own aircraft that were returning from bombing attacks. German pilots had failed to alert them about the air offensive.

As the Battle of the Bulge brought respect from their combined arms brethren to the AAA, the defense of the Remagen Bridge in March 1945 won them world acclaim and directly shortened the war in Europe. On the afternoon of March 7, elements of the 9th Armored Division found, to their amazement, that the Ludendorf Railway Bridge across the Rhine was intact. As the first GIs crossed the bridge, retreating Germans detonated explosive charges in an at-tempt to destroy the span. The bridge heaved into the air but did not fall, and Combat Command B of the 9th Armored soon had elements across.

Gen. Omar Bradley, First Army commander, decided to exploit this bridgehead and gave orders to rush units forward to reinforce elements poised to withstand the expected German counterattack. The 482nd Automatic Weapons (Self-Propelled) Battalion was the first AAA unit to arrive at the bridge, around 2030 hours on March 7. Their commander, Lt. Coil. Vincent Lupinicci, contacted his division commander, then called corps and pleaded for all AAA assets to be rushed immediately to the bridge. As other antiaircraft artillerymen surged toward the bridge, elements of Lupinicci's battalion arrived. A tank destroyer that had blocked access to the bridge was removed and the air defenders moved across. It was 0300 hours on March 8, 1945. The thirteenth vehicle across was a Quad.50 half-track. The same morning, MacGrain's 901nm Gun Battalion joined the defense. As hundreds of vehicles and thousands of men

An M-15 halftrack engages a German Stuka dive bomber above the Bridge at Remagen, the only Rhine bridge captured intact. (John Paul Jones)

converged, racing toward the bridge, two AAA groups from the V and VII Corps moved toward Re-magen. By now roads were clogged, and negotiations with Military Police became the norm as the antiaircraft artillery units pleaded for road precedence.

Finally, on the afternoon of March 8, the Luftwaffe came calling. Eight Stuka dive bombers went in to finish the job that demolition had left undone. None survived the wall of steel that rose to greet them. Enemy artillery continued to fire at the bridge throughout the first days. The 482nd suf-fered greatly in the attack, losing 10 fire units. The Americans continued to build their defense. By March 14, the gun defenses totaled 64 90mm guns; 128 M-51 Quad.50s (trail-er); 100 M-16 Quad .50s (self-propelled half-tracks); 216 40mm guns; 24 M-15 35mm guns; and 140.50 caliber ma-chine guns.

German attacks continued even after the bridge collapsed on March 16. By that time, engineers had erected a pontoon bridge to carry thousands of GIs to the opposite bank. More than 400 German aircraft participated in the attacks. On one day, 67 new ME-262 jets led the German assault, but no bombs struck the bridge. More than 140 German aircraft were de-stroyed, and another 59 were probably destroyed.

By March 17 an inner artillery zone was declared. The number of air defense systems was so great that an umbrella barrage system was set up during the night. Once an airplane was detected, each gunner filled his sector of the sky with steel. The volume of fire was so intense that no Luftwaffe pilot was able to penetrate it.

After three weeks the Luftwaffe gave up their futile attacks on the bridge and abandoned hopes of halting the flow of troops and supplies across the Rhine. The U.S. First Army G-3

had earlier estimated that a combat crossing of the river could cost the Allies 100,OW men. Remagen changed that. Antiaircraft artillerymen played a key role at Remagen from the first hours, ensuring that the bridge would carry thousands of GIs into Germany, where just weeks later they would deal the final blow. Germany surren-dered the first week of May 1945.

No one called the AAA the "Red Comforter Corps" any longer. The men at Remagen would have scoffed at the operations conducted at Kasserine Pass two years earlier. When the war ended, antiaircraft artillery was an integral part of every maneuver operation. Though doctrine was sometimes fuzzy and local in approach, air defenders were looked upon as vital, contributing partners in the war effort. 'their courage and determination were matched only by their ingenuity and flexibility. The aggressively mobile AAA moved with, fought with and protected the U.S. Army.

Pacific Theater of Operations

As the war opened for antiaircraft artillery men in the Pacific, the shortcomings in training and the lack of foresight concerning the air threat quickly became obvious. The 200th New Mexico National Guard exemplified how unprepared the Army really was. The 200th, an old cavalry unit, was converted to antiaircraft and included into Federal service in January 1941. Quartered at Logan Heights, Fort Bliss, Texas, the unit went through training for eight months prior to deployment to the Philippines. Although a few offi-cers were sent to the Coast Artillery School at Fortress Monroe, Va., the majority learned their new military occupation-al specialty on the job, albeit without real equipment. When the 200th arrived in the Philippines in September, then took up their combat positions around Clark Field in November, only a handful of soldiers had fired actual rounds in training, and most had trained on wooden facsimiles.

A month later the Japanese attacked. The weapons systems the 200th used against the first waves of enemy bombers were antiquated and generally ineffective. The Japanese soon discovered that the American three-inch rounds did not reach beyond 20,000 feet. Moreover, the ammunition, manufactured in 1932, was frequently unreliable because of its age. One soldier noted that four out of five rounds were duds. Despite inadequate training and poor equipment, the 200th fought courageously and learned quickly. They accounted for more than 86 Japanese planes destroyed.

As U.S. forces retreated from Clark Field through Manila and toward the Bataan peninsula, antiaircraft units were repeatedly tasked to hold key bridges and to defend against both air and ground attacks. Usually the air defenders were the last units to withdraw, blowing bridges in the face of the onrushing enemy. After several months in Bataan, living on greatly reduced rations and beset with illnesses, American forces on Bataan surrendered to the Japanese in April 1942.

The epic of the 200th reached its climax when the Battle of Bataan ended; the unit took part in the infamous Death March and 40 months of imprisonment. Only 900 of the 1,800 New Mexican antiaircraft artillery men who had come to the Philippines returned when the war ended. Lt. Gen. Jonathan M. Wainwright, commander of American forces in the Philippines at the time of the American surrender, later paid the 200th a lasting tribute. Remembering these brave air defenders, he said, "First to fire, and last to lay down their arms! A fitting epitaph for a valiant brigade, which died standing firmly in its appointed place, and facing the enemy."

Throughout the first Philippine campaign in 1941-1942, U.S. antiaircraft soldiers were constantly engaged in land and air defense combat. More than 2,000 Japanese sorties were directed against American defenses on the island of Luzon. Despite their limitations in training and equipment, American AAA men destroyed 173 enemy aircraft, with another 21 probably destroyed and 66 damaged.

Antiaircraft gunners of the 200th Coast Artillery engage Japanese Zeroes above Clark Field in the Phillippines. (Don Stivers)

Uncommon valor truly was common among antiaircraft artillerymen during those early days of Philippine combat. As their weapons systems were destroyed or overrun by the advancing Japanese, AAA soldiers placed themselves alongside their combat arms comrades and continued to fight. A notable example of heroism occurred during the waning hours of the American resistance on Corregidor. Capt. William Massello, commander of a searchlight battery, had managed to flee from Bataan to Corregidor when Bataan fell. His searchlights had been abandoned, but Massello was determined to find a new mission for himself and the men he had brought with him to Corregidor. Because he had experience with mortars, he convinced his commander to let him take over some 12-inch mortars that seemed to belong to no one. The Japanese systematically destroyed mortars and guns as they prepared for their final assault on Corregidor. In the last days of the campaign, Massello and his men took over some 120mm guns and fought until the very end. Badly wounded, Massello could not stand up, but refused to retire for medical assistance. He had severe injuries to his arms and legs and was bleeding profusely, but he ordered his men to prop him up against the revetment so that he could continue to direct fire. Massello is said to have fired the last shot before the American capitulation. He subsequently sur-vived the cruelties of more than three-and-a--half years in Japanese POW camps.

Within three months of Pearl Harbor, fresh AAA units boarded troop ships as part of the first wartime deployments to the Pacific. Most of them were sent to Australia, the Jap-anese having occupied nearly all the rest of the Pacific theater by that time. Units conducted training on their new equipment while they were in combat positions. Ad hoc instructor schools were set up, particularly when the new 40mm Bofors began to replace the 37mm antiaircraft gun in 1942. Australians, already familiar with the Bofors, contributed to the local production of a field manual. The guns were engaging Japanese planes even before the official publications were ready.

The importance given antiaircraft artillery coincided with the importance of forward airfields. AAAs primary mission in the Pacific was the defense of landing strips on hundreds of islands. Defense of supply installations had second priority. Because there were so many

airstrips, the AAA unit requirements were enormous. American mobilization efforts again rose to the challenge. Within one year, 187 batteries and 27,000 AAA men were sent to the Pacific.

Just as in Europe, antiaircraft artillery gunners endeared themselves to their combat arms brethren, becoming inte-gral parts of combat assault forces all over the Pacific. In Burma, antiaircraft artillerymen defended airstrips, bridges and chokepoints along the treacherous Burma Road, the all-important lifeline that kept China in the war. 'the AAA men found themselves in the middle of ground support operations in the countless amphibious operations that were the hallmark of Gen. MacArthur's island-hopping campaign.

Antiaircraft weapon systems were often used against enemy ground targets as a matter of necessity. At Milne Bay, in August 1942, the airborne 709th Automatic Weapons Bat-tery, providing airstrip defense, met and turned back an assault by Japanese marines with their .50-caliber weapons. This was the first in a series of AAA participation in key ground actions. When the famed 41st Infantry Division failed repeatedly to take Roosevelt Ridge at Nassau Bay, the 209th Antiaircraft Battalion moved forward and fired a barrage, allowing the 41st to overcome the stubborn defenders. More than once antiaircraft gums repelled enemy "ban-zai" charges, breaking up the suicide waves with antiaircraft automatic weapons fire. On one occasion in the Admiralty Islands, a Quad .50 cut down the top of a palm tree, quickly eliminating an enemy sniper's nest. The same battery re-pelled repeated Japanese night attacks against the airstrip it defended. Searchlight batteries also contributed immea-surably, illuminating the battlefield and preventing surprise Japanese night or banzai charges.

Though most antiaircraft ground operations were based on local necessity, during the second Philippine campaign AAA was purposely included in the overall ground opera-tions plan for Luzon. Maintaining close coordination with infantry forces, the 90mm antiaircraft guns fired in both the direct and indirect modes as artillery. They were especially effective against hard ground targets. After 22 days of combat, the detachment of 90s was credited with 75 caves closed, 40 pillboxes destroyed, 25 gun positions knocked out and seven machine guns destroyed. At Cebu, a detachment of 40mm Bofors knocked out 71 pillboxes, 29 machine guns and three mortars. The in-fantry commander credited the AAA with the ground vic-tory.

As MacArthur's island-hopping campaign matured, AAA became an integral part of every operation. Each new amphibious operation became another force pro-jection exercise. Antiaircraft artillery provided key air de-fense during the initial assault and lodgement phases of operations. TYoop and supply ships made easy targets for Japanese aircraft, so air defense of the beach and port areas was essential for success.

The mission of the antiair-craft artillery was clear: "Assist in the antiaircraft defense while afloat and upon landing provide antiaircraft defense for landing beaches, airstrips, beached craft, bridges, troop concentrations, supply installations and other vital installations." Additional missions included "anti-mechanized defense, assault on pillboxes and anti-small boat defense." Though each amphibious operation differed in some respects, general guidelines were used to plan the AAA deployment. Antiaircraft machine guns landed first, with the initial assault prior to the beaching of LSTh. Gun systems were often wrestled ashore by hand. Next ashore were the 40mm Bofors units, usually attached to the infantry assault units, with a battery of AAA attached to each infantry battalion landing team. These units usually reverted to division or corps control, as part of the lodge-ment beach air defense, once the assault landing phase was successful. Then 40mm towed units were brought in, as needed, to augment the integrated defense as the self-propelled units moved inland. Finally, the 90mm guns landed along with their associated radars. This provided the defense with some early warning capability. The 90s and their radars were to be in place by dark of D-Day (day one of an assault). The AAA buildup was rapid: planners recog-nized the danger of air attack against the

large concentra-tion of follow-on ships, troops, vehicles and supplies.

Airspace management and control of antiaircraft fires required extensive coordination between the Navy, Army and Army Air Force. Initial responsibility rested with the Navy. Officially, Army AAA units remained under the operational control of the Navy until land-based planes took over fighter responsibility. In practice once the antiaircraft operations room was ashore and ready for operations, and with the approval of the attack force commander, the control passed from the Navy to the Army. This procedure was constantly refined, and after numerous island assaults, fratricide by AAA was almost nonexistent by 1944.

As noted above, the antiaircraft artillery provided key air defense to countless island airstrips and major troop and supply bases throughout the Pacific campaign. An excellent example of that contribution was the American air defense on an Indonesian island, Morotai. From Sept. 16,1944, one day after American forces landed, until Christmas, Morotai suffered unabated Japanese air attack. The Japanese were determined that the Americans not build an airstrip there to be used in offensive air operations against Luzon and the Japa-nese mainland. During this time, the Japanese pounded the island with 82 major raids involving approximately 200 aircraft. American AAA ac-counted for 37 planes destroyed. The official record illuminates the real contribution of the Morotai air defenders: “The 90mm guns performed valuable functions second only to destroying enemy raiders: (1) they caused the enemy bombers to take moderate or violent evasive action before and after bombing runs, with consequent marked reductions in effectiveness (bombs fell in the water); (2) they put up sufficient flak causing numerous raiders to turn away without dropping their bombs.” Due largely to the extensive antiaircraft artillery on Morotai, the Japanese suspended their attacks in late December.

The assault on Leyte in October 1944 was one of the largest operations undertaken in World War II. Because of the expected air threat, the Sixth Army commander as-signed one AAA group and five AAA battalions to each assault corps. The 32nd Antiaircraft Artillery Brigade was charged with control of all air defenses in the operation. Surprisingly, the Japanese did not attack on the first day of the assault. The following days, however, found Japanese fighters and bombers attacking the beachhead. During the first few days the 90s were credited with destroying nine planes and the automatic weapons battalions with 28. The Japanese continued to attack, usually at night. By Nov. 5 there were more than 199 separate attacks. Automatic weapons units killed more than 80 Japanese aircraft, while the 90s were credited with 44. Finally, in late December, the Japanese called off their futile air campaign after losing more than 251 planes to antiaircraft artillery.

Antiaircraft artillery played a key role in smashing an enemy airborne operation. The Japanese launched a 700-man paratroop operation with 40 transports and 100 fighters on Dec. 6, 1944, against the U.S.-held airstrip at San Pablo. After being ordered to weapons hold while the first wave passed by, the AAA gunners were allowed to open upon succeeding waves. One AAA battalion on the tip of Leyte shot down 19 planes. Total AAA credits were more than 60 aircraft. Despite these losses, the Japanese pressed home their attack and successfully landed 200 men. When the attackers reached the beleaguered defenses, the AAA men met them with withering fire. Those air defenders were later credited with inflicting 175 casualties.

As American forces edged closer to the Japanese mainland, Japanese resistance became more fanatical. The Japanese air campaign intensified, coupling conventional air raids with suicide, or kamikazi, at-tacks. Army air defenses on beaches assisted naval antiair-craft in countering these attacks. In April 1945 Americans launched their Ryukyus Islands campaign, centering on the capture of Okinawa. This proved to be among the bloodiest operations of the War. Antiaircraft artillery men fought as they had throughout the Pacific War.

Antiaricraft gunners engage a Japanese bomber as it attempts to crash land on an Okinawan airfield as it attempts to land on the runway and disgorge its cargo of Kimikaze troops laden with explosives. (John Paul Jones)

One of the most inspiring, yet tragic, incidents in AAA history took place during the struggle for Okinawa. Just three-and-a-half miles off the coast of Okinawa lies the tiny island of Ie Shima. The 77th Infantry Division, with its attached 90mm AAA battalion, was ordered to take the island on April 16. Though established doctrine called for the 90s to be on the beach by dark of D-Day, tough resistance pre-cluded that. However, most of the 93rd AAA personnel did land. Without their 90s, they quickly volunteered to assist the infantry, particularly by clearing minefields. Within days their own equipment caught up with them, and by April 19 the 93rd was fully operational.

Enemy air activity commenced on April 26, climaxing with a desperate attack on May 24. Sixteen Japanese planes made runs through the American fire. Ten planes plummeted to the ground. Attacks continued through the night. By morning, 18 Japanese planes had been destroyed and seven more damaged. The 93rd was credited with a record-setting one-day total of 15. Attacks continued that summer. On the night of June 24, Battery D of the 93rd suffered tragic losses when a string of 60-kilogram Japanese naval bombs exploded near the battery. One bomb found its mark with a direct hit on a gun position, killing the entire 12-man crew. The 93rd's actions are symbolic of much of the Pacific campaign. During air attacks infantry units scurried for cover and support troops hunkered down in bunkers and trenches; antiaircraft artillery men carried the fight. Many made the ultimate sacrifice.

Conclusions

As we move through the 50-year anniversary of the greatest war in our history, one cannot help but reflect upon the changes in our world. We have already passed into, and out of, the Cold War into a nuclear and computer age. The rapidity of change following World War II is

unprecedented in world history. As modern-day air defenders, we note the technological differences from our counterparts of World War II, yet we also must acknowledge that many of the issues and challenges of that era remain with us.

Certainly, air defenders today are considered important partners in the combat arms team. This has not been a natural evolution, though, as the Nike and stateside missile de-fense era threatened to turn us back into a nuclear-age Coastal Artillery. It's important to remember that divisional air defense in the post-World War II era came in the 1960s. This is not to belittle the tremendous contribution of Nike air defenders during the first, critical Cold War decades, but rather to demonstrate that our acceptance as a branch and a viable, essential combat arms partner has not been easy to gain. Therefore it is as paramount in importance today, as it was for those antiaircraft artillery men in World War 11, to demonstrate technical and tactical combat proficiency. Any lieutenant or captain who walks into an infantry, armor or artillery tactical operations center knows that he is always being evaluated and compared. The respect we earn from the more senior combat arms partners will always be based on the same competence, initiative and aggressiveness that our AAA forefathers demonstrated a half-century ago.

Today, just as in North Africa and Europe during World War II, the roles and missions issue with the Air Force sur-faces periodically. Just as in World War 11, the Air Force seeks to eliminate fratricide by strictly commanding and controlling air defenses. Air Force priorities for air defense, then and now, are different from those of an Army maneuver commander. The Army has prevailed, emphasizing the need to protect the force, which obviously goes far beyond protecting airfields, and which includes, as a major mission, giving the Army commander freedom to maneuver. This issue has been hotly debated from the time that Gen. Jimmy Doolittle brought it to the attention of Gen. George Marshall, and as recently as last year. The decision has always been the same: the air forces should be allowed to coordi-nate and control air defense operations, but the Army retains the mission of protecting the force. No one wants to repeat the bloody mistakes of Kasserine Pass.

The lessons of World War II and our new FM 11 N1-5 have much in common. We were a force projection Army on the islands of the Pacific and the beaches of Europe. We pro-vided air defense in the critical lodgment phase, then continued to protect our Army as it maneuvered. We shot down not only fixed-wing aircraft but also pilotless missiles. We demonstrated versatility in countless air and ground operations. We recognized the need for synchronization and, in the end, we always protected the Army.

Finally, we must, as air defenders, continue to fight in this age of diminishing resources to develop weapons systems and fighting doctrine. Failure to do so could condemn us, or our sons and daughters, to the fate of so many brave then who died for lack of training or because of antiquated sys-tems that could not handle the threat. We air defenders today must remember the sacrifices of those AAA men of World War 11, and we must renew our determination to succeed and our commitment to our branch, our Army and our country. Anything less, and we fail those who dedicated and sacrificed themselves for our freedom 60 years ago.