

# U.S. Army Observes 75<sup>th</sup> Anniversary of Armored Force

Part 1 of 2

See also: [Armored Force key dates](#)

The Army's armored force was officially "born" July 10, 1940, quietly revolutionizing modern methods of war. Before armored warfare, American troops had limited ability to speedily and decisively maneuver to and penetrate the enemy's defensive lines.

## World War I

Before World War I, horse-mounted cavalry performed what is now the tank's role: maneuvering and breaking through enemy infantry to attack lines of communication and means of support in the rear. The entrance of machineguns and closed fronts on the battlefield made cavalry too vulnerable for this task, while armor was ideal for it.

Modern armored warfare began with the need to break the stalemates forced on commanders on the Western Front caused by the effectiveness of entrenched defensive infantry armed with machineguns (trench warfare). Any sort of advance was interminably slow and caused unacceptable, massive casualties. The tank's development, then, was motivated by the need to return maneuver to warfare, and the only way to do so was to protect Soldiers from small-arms fire as they were moving.

The United States established its Tank Corps in 1918 using French Renault FT light tanks and British Mark V and Mark V heavy tanks. Some officers like GEN Dwight D. Eisenhower and GEN George S. Patton Jr. emerged from the Great War as avid proponents of continuing and developing an American Armored Force.



Figure 1. LTC George S. Patton Jr., 1<sup>st</sup> Tank Battalion, and a French Renault FT tank, Summer 1918. (Photo by U.S. Army Signal Corps, World War I Signal Corps Photograph Collection, <http://www.army.mil/images/2007/04/22/3578/army.mil-2007-03-28-152527.jpg>)

## Interwar years: 1920s-1930s

After World War I, Congress restructured the Army based on a review of its wartime actions. The National Defense Act of 1920 defined the Army's organization and operation throughout the interwar period, and it abolished the separate Tank Corps. The tank's wartime infantry-support role suggested its alignment with the dismounted branch. Therefore, the infantry received exclusive responsibility for developing new tank designs and the related training and doctrine. While the 1920s would witness significant innovation in tank usage by other nations,

American tank development occurred within the relatively narrow confines of the infantry's mission of seizing and holding ground.

The infantry developed the tank as one of several support weapons for the rifleman. In particular, it sought the close integration of tanks and infantry at the small-unit level. This capability suited infantry needs and constituted an important role for the tank. In the early 1920s, COL Samuel Rockenbach – who led the tank force in World War I – supported efforts to build a more powerful and reliable medium tank. However, prototype models tended to be too heavy, and the desired balance of firepower, mobility and protection proved beyond the technology available. This failure, coupled with the Army's interest in fighting a war of maneuver rather than in trenches, shifted tank-design emphasis to light, fast tanks that leveraged major advances in suspension, track and engines.

British experimentation with the use of tanks in multiple roles finally prompted similar testing in the United States. Between 1928 and 1931, the Army created two experimental units that mixed tanks with other combat and support elements – the Experimental Mechanized Force at Fort George G. Meade, MD, in 1928, and the Mechanized Force at Fort Eustis, VA, in 1930. Each one comprised a motley collection of vehicles and weapons with limited tactical value. However, the experience these organizations acquired prompted Army-wide discussion of new roles and tactical organizations for the tank. The notion of a separate mechanized arm emerged, but in the absence of more funding and personnel, the Army could only create such a force by diverting resources from the existing combat arms. This course of action met with resistance that intensified with the Great Depression's onset and with congressional unwillingness to increase military spending.

The impasse between creating a new mechanized arm and resourcing was resolved in 1931 by Army Chief of Staff GEN Douglas MacArthur. In a new mechanization policy, he directed the combat arms to pursue separate mechanization efforts using their own resources. No longer would each combat arm face the specter of losing funding and personnel to a rival organization. This decentralization proved less efficient than the centralized mechanized programs of Germany and Russia, but MacArthur's policy ensured that the Army would adopt mechanization rather than be threatened by it.

The new mechanization policy had little effect on infantry tank development, but it permitted the Cavalry to begin experimenting with tank usage. Throughout the 1920s, the mounted arm had to limit its interest in motor vehicles to armored cars, which proved mechanically fragile and road-bound. In 1931, however, the Cavalry established the 7<sup>th</sup> Cavalry Brigade (Mechanized). Initially little more than a paper organization, the brigade included 1<sup>st</sup> Cavalry Regiment (Mechanized). This unit exchanged its horses for vehicles and relocated from the Texas border to Fort Knox, KY, in 1933. Knox was one of the largest installations in the United States, but other than summer training by National Guardsmen and Reservists, it lay unused. With 1<sup>st</sup> Cavalry's arrival, Fort Knox began its long association with mechanized development.

The 1<sup>st</sup> Cavalry initially served as a tactical laboratory to help determine the optimal organization, doctrine and materiel for a Cavalry organization built around vehicles. Through maneuver participation, field exercises and analysis, its personnel evolved the unit into a flexible organization, capable of performing the full range of Cavalry missions. By the mid-1930s, the regiment had been joined at Fort Knox by 13<sup>th</sup> Cavalry Regiment (Mechanized) and attachments of artillery and engineers. Collectively, these forces transformed 7<sup>th</sup> Cavalry Brigade (Mechanized) from a paper organization into a powerful combined-arms force. Tanks assigned to this unit received the designation "combat cars." This nomenclature change ensured that the mechanized cavalry adhered to the letter of the National Defense Act of 1920 and left the infantry's exclusive responsibility for tanks unaltered.

Cavalry doctrine envisioned mounted elements operating in small groups dispersed over a broad frontage. To offset the vulnerability of small numbers of tanks operating alone, they were supported by troopers, engineers and mortar teams. Continued experimentation and field exercises led to the integrated action of these elements and the beginnings of modern American combined-arms tactical doctrine. Rapid movement of these teams reinforced Cavalry emphasis on outmaneuvering the enemy rather than engaging in sustained and costly firefights. Hence, mobility and speed became critical attributes. In armored-vehicle design, the mechanized cavalry consistently opted for speed and mobility over firepower and armor protection. Organizational and tactical concepts that slowed operational tempo were discarded.

In its efforts to coordinate the actions of multiple fast-moving combined-arms teams, 7<sup>th</sup> Cavalry Brigade

(Mechanized) revolutionized command-and-control procedures. Visual signals and wire-based communications proved too slow to facilitate rapid decision-making and sustain the high operational tempo desired. Therefore the mechanized cavalry embraced widespread radio usage. It established radio nets that conformed to a unit's tactical organization and abandoned the Army's rigid emphasis on encoded transmissions. Before a mission began, key participants were briefed on the overall objectives and their specific tasks. When operations began, subordinate leaders received short radio messages sent in the clear to update them on changing conditions. While these transmissions might be intercepted, mechanized-cavalry personnel believed that rapid communication, coupled with fast action, outweighed potential security risks. Moreover, the cryptic nature of radio traffic provided a degree of signal security, since an opponent lacked the context of the mission order. The pioneering efforts of 7<sup>th</sup> Cavalry Brigade (Mechanized) at Fort Knox marked the introduction of mission-type orders and fragmentary orders into the Army.

In maneuvers and field exercises, the mechanized cavalry discovered it could increase its battlefield effectiveness by altering the composition of its combined-arms teams to meet changing tactical conditions. The 7<sup>th</sup> Cavalry Brigade (Mechanized) and its subordinate regiments rarely operated as a single mass. Instead, they operated as a collection of combat teams, each one organized according to its objective, expected enemy resistance and terrain. The composition of these teams changed according to the tactical situation and gave the mechanized cavalry a high degree of organizational flexibility. Task organization marked a departure from the Army's traditional reliance on rigid tactical groupings and marked the foundation for the later World War II-era combat command.

By comparison, in the Soviet Union during the early 1930s, Red Army and German officers collaborated in developing tanks based on second-generation vehicles using turreted main weapons, and experimented with different chassis configurations and drive trains. One important acquisition for the Red Army turned out to be the purchase of a T3 chassis from U.S. designer J. Walter Christie, which served as the basis of the Soviet BT series of fast tanks.

A development taking place shortly before World War II that influenced Soviet armored doctrine and tank design for a decade was the creation of the T-34. Developed on the Christie suspension chassis and using sloped armor for the first time, the T-34 proved a shock to the German forces in World War II with its excellent combination of mobility, protection and firepower. Using wide tracks, the T-34 was also able to negotiate terrain in difficult weather conditions, something that persistently dogged the German designs.

## **Chaffee's influence**

A principal player in U.S. tank development was MG Adna R. Chaffee Jr.,<sup>1</sup> an outspoken advocate of mechanization in the interwar years. He served on the American Expeditionary Forces staff in World War I. In 1927, Chaffee became a staff officer in the G-3 Section of the War Department General Staff, where he became immersed in the study of tanks and that year predicted mechanized armies would dominate the next war. Through a personal friendship with the American military attaché to Britain, he acquired accurate information regarding the latest British mechanized developments. In the 1930s, he became closely associated with mechanized-cavalry development, commanding 1<sup>st</sup> Cavalry and later 7<sup>th</sup> Cavalry Brigade (Mechanized). In 1940, he became the first chief of the Armored Force, shaping the nature of American future armored doctrine before his death in 1941.

Chaffee helped develop appropriate training, equipment and doctrine during the late 1920s through the 1930s. Assigned to 1<sup>st</sup> Cavalry Division in 1931, he continued to develop and experiment with armored forces. Chaffee trained 1<sup>st</sup> Cav for the Fort Riley Maneuvers in 1934. In the maneuvers to Allegan, MI, in August 1936, 1<sup>st</sup> Cavalry traveled 400 miles in two days. Under COL Bruce Palmer, 1<sup>st</sup> Cavalry fought the Red Team against the Blue Team for the first time in a division-level maneuver.<sup>2</sup>

In 1938, Chaffee assumed command of the reorganized 7<sup>th</sup> Cavalry Brigade, the Army's only armored force. Chaffee battled continuously during the prewar years for suitable equipment and establishment of armored divisions. With the collapse of the French army in June 1940, Chaffee's 1927 predictions of the importance of armored forces in modern warfare were confirmed.

In the August 1939 Plattsburg Maneuvers, the largest American peacetime exercise to date, 1<sup>st</sup> and 13<sup>th</sup> Cavalry Regiments engaged in mock combat between two corps. The brigade leaders refined Cavalry doctrine, with tracked vehicles traveling at night, without lights, to take the major road center of Peru by surprise. Unlike the

British use of a mechanized force to support infantry, 7<sup>th</sup> Cavalry Brigade at Plattsburg followed the German example by preserving the separate organizational integrity of the mechanized force.<sup>3</sup>

Chaffee commanded 7<sup>th</sup> Cavalry Brigade (Mechanized) during the First Army Maneuvers of 1939. This event demonstrated how a fast-moving mechanized force could decisively influence a battle. The critical action occurred when the unit conducted a 60-mile night roadmarch under blacked-out conditions to launch a dawn flanking attack. The brigade burst into the rear area of the opposing force, creating enough mayhem to trigger the end of the maneuvers.

“Chaffee certainly helped turn military opinion to support a strong armor force; his decade of quiet and consistent leadership paid off in the Louisiana Maneuvers of 1940 and the founding of the American armor force in July of that same year,” wrote John Cranston in his article, “German and British Experimentation in 1920s-30s Inspired Emergence of U.S. Armor Force” (*ARMOR*, March-April 1995 edition). “However, Chaffee’s work in the 1930s, including successively expanded maneuvers, in many ways built on foundations laid earlier in Germany from 1918 until 1926 and, to a lesser extent, in mechanized maneuvers held in England after that time through 1938. Chaffee’s outstanding achievements by 1940 may well have evolved because of his knowledge of European precedents. Throughout combined-arms exercises, he preserved the integrity of the mechanized and later of the armor force.”

The 7<sup>th</sup> Cavalry Brigade went on to fight in the corps-level Louisiana Maneuvers of 1940, which were the largest peacetime maneuvers conducted in the United States up to that time. Together with the recently arrived 6<sup>th</sup> Infantry Regiment (Mechanized), the brigade was attached to IX Corps. A provisional tank brigade from Fort Benning, GA, was attached to IV Corps. The two brigades fought first against each other and then on the same side, with mechanized brigades emerging as clear winners in the maneuvers. IV Corps employed the “triangular” division concept with three regiments per division.<sup>4</sup>

Within days of the end of First Army Maneuvers, Germany invaded Poland. The Nazis’ high-profile use of combined-arms formations served to vindicate the tactical ideas 7<sup>th</sup> Cavalry Brigade (Mechanized) had developed and spurred efforts to expand that unit into a mechanized division. Increasing the Army’s mechanized might, however, suffered from lack of funds and materiel. Only small numbers of new combat vehicles were produced before 1939. Numerically, the most significant vehicle in the Army’s inventory remained the Mark VIII heavy tank and an American version of the FT-17, both dating from World War I and obsolete. However, the interwar years did witness steady improvements in the reliability and durability of tracks, engines and suspension systems. By 1939, the prospect of another war in Europe led the Army to order the production of more than 300 M2A4 light tanks equipped with 37mm guns. For mechanization, this action signaled the end of the Great Depression’s lean years.

## **Patton’s contributions**

Another U.S. Army figure with foresight included Patton; in the interwar period, Patton<sup>5</sup> was also a central figure in the development of armored-warfare doctrine in the U.S. Army. Patton began his interest in tanks during World War I while in hospital for jaundice. There he met COL Fox Conner, who encouraged him to work with tanks in lieu of infantry. In 1917, Patton was assigned to establish the American Expeditionary Forces’ Light Tank School and trained tank crews to operate in support of infantry, promoting the Armored Force’s acceptance among reluctant infantry officers. Patton commanded American-crewed Renault FT tanks at the Battle of Saint-Mihiel.

After the war, Patton was given temporary duty in Washington, DC, in 1919 to serve on a committee writing a manual on tank operations. During this time, he came to believe that tanks should be used not as infantry support but rather as an independent fighting force. Patton advocated the M1919 tank design Christie had created, a project shelved due to financial considerations. With Christie, Eisenhower, Chaffee and a handful of other officers, Patton pushed for more development of armored warfare in the interwar era.

Patton was transferred in May 1927 to the Office of the Chief of Cavalry in Washington, DC, where he began to develop the concepts of mechanized warfare. A short-lived experiment to merge infantry, cavalry and artillery into a combined-arms force was cancelled after the U.S. Congress removed funding.

During maneuvers Third Army conducted in 1940, Patton served as an umpire, where he met Chaffee, and the two formulated recommendations to develop an armored force. When Chaffee was named commander of this force and created 1<sup>st</sup> and 2<sup>nd</sup> Armored Divisions, he named Patton commander of 2<sup>nd</sup> Armored Brigade, 2<sup>nd</sup> Armored Division. The division was one of few organized as a heavy formation with a large number of tanks, and Patton was in charge of its training.

As Chaffee stepped down from command of I Armored Corps, Patton became the most prominent figure in U.S. Armor doctrine, staging a high-profile mass exercise driving 1,000 tanks and vehicles from Columbus, GA, to Panama City, FL, and back in December 1940 – and again with his entire division of 1,300 vehicles the next month. Patton earned a pilot's license, and during these maneuvers he observed the movements of his vehicles from the air to find ways to deploy them effectively in combat.

Patton's impact on armored warfare and leadership were substantial, with the U.S. Army adopting many of his aggressive strategies for its training programs following his death in 1945. The first American tank designed after the war became the M46 Patton.

## **Interwar years: 1940s**

On May 10, 1940, German armored formations spearheaded an invasion of France, triggering that country's surrender within six weeks. This conquest shocked the American Army, which had held the French military in high regard. However, through the efforts of the American military attaché staff in Berlin, headed by MAJ Truman Smith from 1935-1939, the U.S. Army possessed considerable information regarding the organization and operation of the German panzer division. After France's defeat, German armored trends became the standard of comparison for American mechanized development. The absence of American armored divisions and corps fueled interest in merging mechanized cavalry and infantry tank development under a single organization.

The War Department responded by establishing the Armored Force July 10, 1940, as a "service test" to centralize mechanized development. This organization bore responsibility for building a credible American armored capability. Fort Knox, home of the mechanized cavalry, became the location of the Armored Force's headquarters. Infantry tank units and 7<sup>th</sup> Cavalry Brigade (Mechanized) merged to form the 1<sup>st</sup> and 2<sup>nd</sup> Armored Divisions and the separate 70<sup>th</sup> Tank Battalion.

The newly fledged Armored Force reflected the mechanized cavalry's influence. Chaffee was selected as the first chief of the Armored Force, and other officers with Cavalry or mechanized-cavalry backgrounds served in key command positions. Consequently, the Armored Force stressed maneuver and speed in its operations. Armored divisions would envelop the enemy and engage soft targets in his rear rather than engage in deliberate assaults upon his strongest positions. Tank-vs.-tank combat was to be avoided if possible since it wasted armored resources in costly firefights. The Armored Force also assumed responsibility for organizing and training separate tank battalions for infantry support, though its initial focus lay on the more powerful armored divisions and corps.

## **Enter Devers**

Following Chaffee's death, MG Jacob L. Devers assumed command of the Armor Center at Fort Knox and became chief of the Armored Force in August 1941. Under Devers, doctrine evolved into a combined-arms operational force consisting of primarily infantry, artillery and tanks, with tanks being the major maneuver component. Under this doctrine, U.S. tank crews of both armored divisions and General Headquarters (GHQ) tank battalions were taught to fight tanks in tank-on-tank engagements.

At this time a new medium tank was beginning to come off the production line: the [M3 Grant](#). But Devers lobbied, sometimes against the views of his superiors, for a still more heavily armored and better-armed medium tank, the M4 Sherman. Devers played an important role in the M4's design, development and manufacturing, particularly its engine and armament. The Detroit Tank Arsenal began turning out Shermans in Fall 1941. The reliable, versatile, low-cost M4 and its variants would prove to be the most-produced tank in the U.S. Army during World War II.



**Figure 3. Crew from the M4 tank “Eternity” (7<sup>th</sup> Army) check their vehicle after landing at Red Beach 2 on July 10, 1943, during the Allied invasion of Sicily. The first Sherman in U.S. service, the M4A1, appeared in the North Africa Campaign. (Photo by Signal Corps (Osborne), <http://www.army.mil/cmh-pg/photos/WWII/ErlyYrs/WW2-ErlyYrs.htm>)**

Devers’ command was responsible for training some 225,000 soldiers. At the beginning of 1942, two armored divisions were operational, five were in training and two more scheduled to be activated in February. All seven of those armored divisions were activated in 1942. (Army planners called for the eventual formation of 16 armored divisions and 54 tank battalions.) Activity at Knox therefore accelerated. The Armored Forces’ Replacement Training Center gave arriving soldiers 12 (later 17) weeks of training before they were sent on to armor units. The Armored Force School provided advanced individual training in specific areas such as gunnery, field tactics, communications and maintenance. The Armored Force Officer Candidate School prepared selectees to serve as commissioned officers in Armor. With so many men undergoing training, existing bases were overwhelmed. Devers had to oversee a massive construction of barracks, facilities and infrastructure, particularly at Fort Knox.

A large maneuver area where soldiers could train for desert warfare was also sorely needed. Devers sent Patton, then commander of I Armored Corps (which included 2<sup>nd</sup> Armored Division), to set up the Desert Training Center in the California-Arizona Mojave Desert.

Devers was an articulate proponent of the Army’s emerging tactical doctrine of combined arms: infantry-artillery-armor-close air support. At his direction an updated, comprehensive (460 pages) **Armored Force Field Manual: Tactics and Technique** FM 17-10 was written, published and distributed in March 1942. Under a new table of organization and equipment (TO&E) he proposed, armored divisions were downsized. For all but the 2<sup>nd</sup> and 3<sup>rd</sup> Armored Divisions, the number of regiments was cut from six to three: two tank and one armored infantry. In a first, at Devers’ insistence, a flight of light aircraft to be used for artillery spotting, recon and liaison was included in the new TO&E for each division.

Devers’ conceptualization of combined arms caused friction between him and GEN George C. Marshall’s chief of staff, LTG Leslie J. McNair, who commanded GHQ and was in tactical charge of all U.S. ground forces. GHQ, however, specifically did not control the semi-autonomous Armored Force, which was considered provisional and would not become a full branch until 1950. In March 1942, when Marshall ordered a major reorganization of Army headquarters, McNair was named commander of a new component, Army Ground Forces (AGF), which replaced GHQ. Relations between GHQ/AGF and the Armored Force were distant, with lines of authority and responsibility often unclear.

This friction helped delay development of the M26 Pershing heavy tank.<sup>6</sup> From mid-1943 to mid-1944, development of the 90mm uparmored T26 prototype continued to proceed slowly due to disagreements about the

Army's future tank needs. Tank historians such as Richard P. Hunnicutt, George Forty and Steven Zaloga have generally agreed that the main cause of the delay in the M26's production was AGF's opposition to the tank. The details of what exactly happened during this time vary by historian, but all agree that in September-October 1943, a series of heated discussions occurred over the issue of beginning production of the T26E1, which Devers advocated. Zaloga, in particular, identified several specific factors that led both to the delay of the M26 program and limited improvements in the M4's firepower.<sup>7</sup>

The Ordnance Department favored developing its own project, naturally: the 76mm gun, electrical-transmission T23. Theater commanders generally favored a 76mm-gun medium tank such as the T23 and were against the heavy 90mm gun tank Devers liked. However, most commanders were unaware of the testing done at Fort Knox of the T23, which had demonstrated reliability problems in the electrical transmission. Also, the new 76mm M1A1 gun approved for the M4 Sherman seemed to address concerns about firepower against German tanks, but all debaters were unaware of the 76mm gun's inadequacy against the Panther tank's frontal armor.

McNair<sup>8</sup> had agreed to production of the 76mm M4 Sherman, and he strongly opposed the T26E1's production. In Fall 1943, he wrote Devers, responding to Devers' advocacy of the T26E1, and pointed out the theater commanders' opinion: "There has been no call from any theater for a 90mm tank gun. ... There can be no basis for the T26 tank other than the conception of a tank versus tank duel – which is believed unsound and unnecessary. Both British and American battle experience has demonstrated that the anti-tank gun in suitable number and disposed properly is the master of the tank. Any attempt to armor and gun tanks so as to outmatch anti-tank guns is foredoomed to failure. ... There is no indication that the 76mm anti-tank gun is inadequate against the German Mark VI (Tiger) tank."

Devers pressed on with his advocacy for the T26, going over McNair's head to Marshall, and on Dec. 16, 1943, Marshall overruled McNair and authorized the production of 250 T26E1 tanks. Then, in late December 1943, Devers was transferred to the Mediterranean, where he eventually led the invasion of Southern France with 6<sup>th</sup> Army Group. In his absence, further attempts were made to derail the T26 program, but continued support from Marshall and Eisenhower kept the production order alive. Testing and production of the T26E1 proceeded slowly, however, and the T26E1 did not begin full production until November 1944. These production models were designated as the T26E3. According to Hunnicutt, the Ordnance Department had requested production of 500 each of the T23, T25E1 and T26E1 in October 1943 and continued to press for production of 1,000 tanks.

## Louisiana Maneuvers

At the time Devers took command of Fort Knox, the Armored Force had just two operational armored divisions: the 1<sup>st</sup> at Fort Polk, LA, and the 2<sup>nd</sup> at Knox. Both participated in the large-scale two-phase corps-vs.-corps GHQ 1941 Maneuvers. These wargames, the Louisiana Maneuvers, were held in Louisiana and the Carolinas. Despite some successes, the maneuvers revealed armored-unit and equipment operational deficiencies, plus a general lack of combat readiness. In particular, post-maneuver reports showed a vulnerability of U.S. tanks to anti-tank fire.

This bolstered McNair's philosophy.<sup>8</sup> Devers differed, countering that the number of tank kills credited to anti-tank gunners was unrealistic and biased. McNair continued to push for an independent tank-destroyer (TD) force. Devers argued that the best weapon against a tank was a better tank. Nevertheless, in November 1941, Marshall authorized creation of the TD force. (Battlefield experience would prove that Devers was right. In combat, TDs were mainly used as mobile artillery support. At the end of the war, the TD force was disbanded.)

Patton's exploits, meanwhile, supported the proponents who said the Armored Force lent speed and agility. Patton led 2<sup>nd</sup> Armored Division during the Tennessee Maneuvers in June 1941 and executed 48 hours' worth of planned objectives in only nine. During the September 1941 Louisiana Maneuvers, his division executed a 400-mile end run around the Red Army and "captured" Shreveport, LA. During the October-November 1941 Carolina Maneuvers, Patton's division captured Hugh Drum, commander of the opposing army.

After the Louisiana Maneuvers, the Army expected to have a period of "remedial training" to fix problems. The Japanese attack on Pearl Harbor Dec. 7, 1941, shattered those expectations and plunged a not-fully-prepared United States into the war.

## World War II

Following the invasion of Poland and the outbreak of World War II in Europe in 1939, the U.S. military entered a period of major mobilization and a way-finding among men, machines, training, structure and doctrine – for instance, in the division’s emergence. The Armored Force grew during the course of the war from its initial two to 16 armored divisions. Much of this expansion occurred in 1941 and 1942, years in which the Armored Force worked to establish an effective training base under Devers and develop optimal organizations for mounted units. The division became the primary focus of this attention. It became the largest American armored formation fielded in World War II, despite early interest in creating an armored corps. The division underwent continuous modification until the establishment of a permanent structure in September 1943. Basic components included three armored battalions, three armored-infantry battalions, three artillery battalions, one engineer battalion, one reconnaissance battalion, one medical battalion and one maintenance battalion.

The division’s size reflected the Armored Force’s emphasis on organizational flexibility and deployability. Deliberate efforts were made to keep the formation from becoming too bulky or unmanageable. To facilitate command and control, the new division dispensed with rigid brigade and regimental headquarters. Instead, it relied on subordinate combat commands that possessed a permanent staff but no fixed troop assignments. They were assigned units according to their mission, and their composition changed with the tactical situation or the division commander’s intent. Each combat command in turn organized its assets with up to four task forces, similarly flexible in their structure and operation.

Exploitation of the combat-command concept initially suffered from a shortage of officers familiar with combined-arms operations and comfortable with the absence of organizational rigidity. Armor-officer training therefore focused on fundamentals to ensure a basic competency level. Standard combat-command organizations and solutions for “typical” tactical situations provided essential guidance, but too often they became rigidly applied in combat theaters. A deeper understanding of combined-arms operations and the utility of the combat-command structure tended to occur only as a result of combat experience. The Army did not truly possess a combined-arms culture when it entered the war, but it recognized the importance of combined-arms action by war’s end.

The division’s rite of passage came when, in August 1942, LTG Dwight D. Eisenhower was named commander-in-chief Allied Force Headquarters to lead the Operation Torch landings – planned for late Fall – and 1<sup>st</sup> and 2<sup>nd</sup> Armored Divisions were assigned to the operation. Increased pressure was on Devers to push more armored units through the pipeline even faster. Despite obstacles such as lack of personnel trained in critical military occupational specialties and a persistent shortage of tank engines, the Armored Force chief succeeded in getting divisions and battalions to their ports of embarkation on time, and American and British forces went ashore at Casablanca, Oran and Algiers Nov. 8, 1942, as Operation Torch was launched.

Training shortfalls also showed up as the Armored Force’s focus on developing and fielding armored divisions resulted in less attention devoted to the separate tank battalions intended for infantry support. These armored units were not permanently assigned to infantry formations and had few opportunities to train with riflemen. Many tank battalions were broken into company teams and assigned to support different infantry units. Tank-infantry coordination thus became a battalion and company commander’s problem, made worse by the early lack of doctrine for the operation of tanks in urban and complex terrain. In the Normandy hedgerows, for example, the close terrain reduced engagement ranges and forced the employment of tanks in small groups rarely larger than a company and more often a platoon’s or section’s size.

Mechanized cavalry served in large numbers in World War II, but their nature and composition differed from the general-purpose organization represented by the interwar 7<sup>th</sup> Cavalry Brigade (Mechanized). Instead, mechanized-cavalry groups and squadrons provided reconnaissance at the corps and division levels. These units were optimized for stealthy reconnaissance and lacked combat power. These characteristics reflected their Cavalry alignment. The Armored Force assumed responsibility for mounted-maneuver combat actions, leaving reconnaissance as the primary function for mechanized-cavalry units. Unfortunately, once deployed, mechanized-cavalry units were often thrust into a much broader range of missions, requiring considerable improvisation. Mechanized-cavalry units included a collection of armored cars, light tanks, jeeps and half-tracks. These platforms generally proved weak in armor protection and anti-tank capability, although they performed effectively against non-tank targets. Despite their light nature, mechanized-cavalry organizations proved versatile and served in every major campaign from the Normandy landings to the conquest of Germany.



The United States, however, entered World War II with some faulty philosophy. The defense establishment believed that conventional tanks which could take on enemy Panthers and Tigers toe to toe wouldn't have the speed and mobility to avoid being flanked and bypassed, and therefore would not have the chance to fight. U.S. defense planners also calculated U.S. interests would be better served by large numbers of "battleworthy" (reliable) medium tanks rather than a smaller number of "unreliable" heavy tanks. As mentioned, production of heavy-tank designs such as the M26 Pershing therefore slowed, and resources were concentrated on mass-producing the M4 Sherman and TDs such as the M18 Hellcat. (See preceding section on the dust-up between Devers and McNair.) Since the Sherman medium tank would be inferior to enemy heavy tanks, they would have to avoid tank-vs.-tank combat as much as possible, leaving enemy tanks to the TDs.



**Figure 4. An M26 Pershing T26E3 from Company A, 14<sup>th</sup> Tank Battalion, is transported aboard a pontoon ferry across the Rhine at Remagen March 12, 1945. The ferry was built by 1<sup>st</sup> Engineer Heavy Pontoon Battalion. (U.S. Army Signal Corps photo)**

In actual combat, however, the Germans were unable and unwilling to fight in the fast, free-flowing manner to which the U.S. forces were tuned to counter. Against the defensive and ambush tactics the Germans actually used, McNair's doctrine led to U.S. tanks having weaker guns and less armor protection than their German counterparts, and in the narrow confines of much of the terrain in Normandy, they could not avoid one-on-one encounters with German tanks.

Fortunately Patton, for one, knew how to fight his tanks as the United States fielded them. Patton's strategy with his army favored speed and aggressive offensive action. Patton's Third Army typically employed forward scout units to determine enemy strength and positions. Self-propelled artillery moved with the spearhead units and was sited well forward. Light aircraft such as the Piper L-4 Cub served as artillery spotters and provided airborne reconnaissance. Once the enemy was located, the armored infantry would attack, using tanks as infantry support. Other armored units would then break through enemy lines and exploit any subsequent breach, constantly pressuring withdrawing German forces to prevent them from regrouping and reforming a cohesive defensive line. U.S. armor advanced using reconnaissance by fire, and the .50 caliber M2 Browning heavy machinegun proved effective in this duty, often flushing out and killing German *panzerfaust* teams waiting in ambush as well as breaking up German infantry assaults against the armored infantry.

An example of the success of Patton's strategy was the fighting around Arracourt in September 1944. The battle was part of the Lorraine Campaign, in which the German LVIII Panzer Corps mounted a series of counterattacks to stem the avalanche of Allied troops that had poured across France following their breakout from the Normandy beachhead. The principal fighting involved elements of 4<sup>th</sup> Armored Division led by LTC Creighton Abrams. The flexible organization and combined-arms nature of this formation permitted it to attach and detach units as

necessary to meet enemy threats. This flexibility allowed U.S. forces to employ combined-arms teams to outmaneuver and outfight German forces equipped with superior tanks whose frontal armor could not be penetrated easily by American tank guns. The 4<sup>th</sup> Armored Division shifted forces as much as eight to 10 kilometers to meet German probes. American forces also launched local attacks wherever possible against flanks and weak points, thereby retaining the element of surprise. The battle concluded with the repulse of the German attack and the destruction of two entire panzer brigades at a cost in materiel of only 21 American tanks.



**Figure 5. M4 Shermans at the Battle of Arracourt. (U.S. Army Signal Corps photo)**

When the war ended, armored organizations had demonstrated their value in every theater in which American forces fought. The armored division constituted a powerful, mobile combined-arms mix. Its organizational flexibility, combat power, high operational tempo and command arrangement ensured it a place in the postwar Army. The tank was considered the optimum anti-tank system, and its versatility led to the abolition of specialized TD units and the emergence of the main battle tank (MBT) concept. Conversely, the mechanized-cavalry experience revealed a universal desire for more effective reconnaissance organizations and equipment that would ultimately result in the creation of the armored-cavalry regiment and more robust divisional Cavalry squadrons.

## **Post-World War II: 1950s-1960s**

The years immediately after World War II were marked by efforts to analyze the wartime experience and incorporate lessons-learned into mounted maneuver training, organization, materiel and doctrine. In 1946, Fort Knox hosted the first annual conference dedicated to Armor issues. Future development, however, hinged on the creation of a permanent Armor Branch. The Armored Force had been created by the Army leadership in World War II as a “service test” to permit the rapid creation of the mechanized forces considered necessary for the war effort, but the organization lacked the legal foundation of the other combat arms. Hence, Army leaders now focused upon the creation of a permanent branch, its impact and whether it would include the Cavalry.

The Army Organization Act resolved the branch question in 1950. Under this legislation, a single Armor Branch emerged to govern both tank and cavalry development. A separate Cavalry Branch ceased to exist. A single command now bore responsibility for the development of armored formations, separate tank battalions and cavalry units. The branch’s birthdate became Dec. 12, 1776, to reflect its combined Cavalry and Armor heritage.

The years following the end of World War II provided a different type of challenge for mounted-maneuver organizations. In Europe, the Army found itself responsible for governing a large section of Germany and Austria. The war-induced chaos in these areas, coupled with a potentially hostile population, generated the need for a means of providing security and maintaining order. To assist in these tasks, the Army created the Constabulary in July 1946. The creation of a Constabulary School modeled on the Armored School at Fort Knox helped immerse Soldiers in German language, culture and the legal responsibilities associated with their duties. By 1948 a reorganized German police force began to assume many of the functions the Constabulary initially conducted.

The onset of the Cold War and the growing threat of Soviet aggression triggered a change in the Constabulary’s mission and organization. A number of Constabulary units were restructured to form the Army’s first armored-cavalry regiments. The Constabulary continued to support major law-enforcement activities, but it also began to increase its combat capability through the acquisition of medium tanks and increased tactical training. These changes reflected a growing desire for more combat power in Germany to protect Central Europe from Soviet

aggression.

*Adapted from U.S. Army Armor School Pamphlet 360-2, **This is Armor**, and other sources.*

**Next edition: Part 2 of the Armored Force history.**

## Further reference

U.S. Army Armor School Pamphlet 360-2, ***This is Armor***.

Armor Museum Director Len Dyer discusses tank development in “Tank Talk” on Fort Benning TV, <https://www.youtube.com/watch?v=tSXR72MUruM>.

The Sheridan tank dedication on Eubanks Field July 10, 2015 is featured at [https://www.youtube.com/watch?v=kZf3L\\_5pXfl](https://www.youtube.com/watch?v=kZf3L_5pXfl).

More historical articles can be found in the “Armor” section of e**ARMOR**’s heritage page, <http://www.benning.army.mil/armor/eARMOR/Heritage.html>.

## Notes

<sup>1</sup> Chaffee was called the “Father of the Armored Force” for his role in developing the Army’s tank forces. Commissioned a lieutenant of Cavalry in 1906 after graduating from the US. Military Academy, he won recognition as the “Army’s finest horseman.” The M24 Chaffee light tank was later named after him. He died Aug. 22, 1941, of cancer in Boston. Chaffee’s associates admired his persistence in the face of a lack of organizational and financial support he and other tank-warfare enthusiasts received in the 1930s. Especially see retired MG Robert W. Grow, ***The Ten Lean Years: from the Mechanized Force (1930) to the Armored Force*** (1940). Manuscript in Patton Museum Collection, Fort Knox, KY. For a description of Chaffee, see Mildred Gillie, ***Forging the Thunderbolt*** (Harrisburg, PA, The Military Service Publishing Company, 1947). Gillie worked with the now-missing Chaffee Papers.

<sup>2</sup> COL Bruce Palmer, “Mechanized Cavalry in the Second Army Maneuvers,” ***Cavalry Journal***, November-December 1936.

<sup>3</sup> Gillie.

<sup>4</sup> Ibid.

<sup>5</sup> Patton is perhaps best known for his leadership of Third U.S. Army in France and Germany following the Allied invasion of Normandy in 1944. Patton led Third Army in a highly successful, rapid armored drive across France. He led the relief of beleaguered U.S. troops at Bastogne during the Battle of the Bulge and advanced his army into Nazi Germany by the end of the war. Patton was commissioned a second lieutenant in the Cavalry June 11, 1909.

<sup>6</sup> The M26 Pershing was the culmination of a series of tank prototypes that began with the T20 in 1942. The M26 was a significant design departure from the previous line of U.S. Army tanks that had ended with the M4 Sherman. A number of design features were tested in the various prototypes, some of which were experimental dead ends, but many design features became permanent characteristics of modern U.S. Army tanks. The prototype series began as a medium-tank upgrade of the M4 Sherman and ended as the U.S. Army’s first operational heavy tank, according to R.P. Hunnicutt in his book ***Pershing, A History of the Medium Tank T20 Series*** (Feist Publications, 1996). After the initial prototypes were built in early 1943, an additional 250 T23 tanks were produced from May-December 1943. These were the first tanks in the U.S. Army with the 76mm M1A1 gun to go into production, according to Hunnicutt. However, the T23 would have required that the Army adopt an entirely separate line of training, repair and maintenance, and so was rejected for combat operations. The T25 and T26 lines of tanks came into being in the midst of the U.S. Army’s heated internal debate in mid-1943 to early 1944 over the need for tanks with greater firepower and armor. A 90mm gun mounted in a massive new turret was installed in both series. The T26 series was given more frontal hull armor, with the glacis plate increased to four inches (10 centimeters). This increased the weight of the T26 series to more than 40 short tons (36 tonnes) and decreased its mobility and durability, as the engine and powertrain were not improved to compensate for the weight gain. Chrysler built a single prototype of a T26 turret mounted on an M4A3 chassis in Summer 1944 but did not progress into production. See also George Forty, ***United States Tanks of World War II*** (Blandford Press, 1983). According to Forty, the Ordnance Department recommended that 1,500 of the T26E1 be built. The Armored Force recommended only 500. Although the AGF rejected the tank’s 90mm version and wanted it to be built with the 76mm gun instead, somehow Ordnance managed to get production of the T26E1 started in November 1944.

<sup>7</sup> Steven J. Zaloga, ***Armored Thunderbolt***, Stackpole Books, 2008.

<sup>8</sup> In addition to infantry, artillery and close air support, the U.S. combined-arms team included engineers, and the tank component was supplemented by the TD concept. McNair is most closely identified with proponenty of TDs/anti-tank weapons. Having studied early German successes, McNair had come to believe U.S. forces would be faced with fast-moving enemy forces

who would seek to bypass, isolate and reduce U.S. forces in a replay of the Fall of France. To counter the enemy blitzkrieg, McNair sought to improve the organic anti-tank strength of U.S. infantry divisions by attaching towed anti-tank guns and equipping the infantry with hand-held bazookas. To stem the flood of marauding panzers, fast-moving, powerfully armed TD battalions were created to be held back and used in the counterattack.

## **Acronym Quick-Scan**

**AC** – Active Component

**ACAV** – Armored Cavalry Assault Vehicle

**ACR** – armored Cavalry regiment

**AGF** – Army Ground Forces

**AGS** – Armored Gun System

**ARNG** – Army National Guard

**BCT** – brigade combat team

**BMP** – *boyeva mashina pekhoty*

**CFV** – Cavalry Fighting Vehicle

**COIN** – counterinsurgency

**FBCB2** – Force XXI Battle Command Brigade and Below

**FCS** – Future Combat System

**GHQ** – General Headquarters

**IED** – improvised explosive device

**MBT** – main battle tank

**MCoE** – Maneuver Center of Excellence

**MGS** – Mobile Gun System

**NATO** – North Atlantic Treaty Organization

**NTC** – National Training Center

**RC** – Reserve Component

**RPG** – rocket-propelled grenade

**RSTA** – reconnaissance, surveillance and target acquisition

**SAM** – surface-to-air

**SBCT** – Stryker brigade combat team

**TD** – tank destroyer

**TO&E** – table of organization and equipment

**TOW** – tube-launched, optically tracked, wire-guided