The development of American Armor 1917-1940

THE WORLD WAR I EXPERIENCE

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Walter Millis, in his book Arms and Men, declares, "The one great, determining factor which shaped the course of the Second World War was not, as is so often said and generally believed, independent air power. It was the mechanization of the ground battlefield with automotive transport, with the 'tactical' airplane and above all with the tank." Panzer divisions spearheaded the German attacks into Poland, France, and Russia. The Germans, Italians, and British employed tanks widely in the North African campaigns of 1940, 1941 and 1942. Armor played an important role in the Russian counteroffensive which began after the German defeats at Stalingrad, Moscow, and Leningrad. And American armored divisions led the way to the Rhine and the Elbe following the Normandy landing. But American armor did not just emerge in 1944. The United States Army had been developing tanks and doctrine for mechanized warfare since World War I.

Throughout the period examined in this series of articles, American armor developed in three interrelated areas: equipment, organization, and doctrine. Slow moving tanks could not perform the mobile missions envisaged by the mechanized cavalry leaders in the late thirties. On the other hand, slow tanks were acceptable for supporting infantry assaults. Tanks organized into companies for supporting infantry battalions were not capable of accomplishing the same missions as a mechanized force composed of tanks and supported by other arms. Obviously then, armor doctrine depended upon, and was a result of, the type of tanks available and the organization of the tank units. To determine how and why American armor developed in the manner it did, it is necessary to focus on each of three elements: equipment, organization, and doctrine.
When the United States entered World War I, in April 1917, tanks had yet to prove their capabilities. Following the Battle of the Somme in 1916, the Allies had employed tanks with disappointing results. Because of their poor performance, the American Military Mission in Paris declared tanks a failure. In view of this, the General Organization Project for the American Army in France ignored organizing a tank service. But upon arriving in France in June 1917, General John J. Pershing detailed a number of committees to study the tactics and organization of the French and British armies.

Reporting to the Infantry Operations Section of Colonel C. B. Baker's commission, Lieutenant Colonel Hugh A. Parker discussed the employment of large numbers of light and medium tanks in conjunction with tactical air power and motorized infantry. Unfortunately, World War I tanks proved incapable of fulfilling the mobile role envisaged by Parker.

Another board appointed by Pershing, which considered the use of tanks, consisted of Colonel Fox Conner, Colonel Frank Parker, and Lieutenant Colonel Clarence C. Williams. The salient point of their report contrasted sharply with the Military Mission's report. It concluded, "The tank is considered a factor which is destined to become an important element in this war." This board considered the French Renault and the British Mark VI satisfactory models for use by American troops. Finally, they recommended the organization of a separate tank service under the command of a single chief who reported directly to General Pershing. During the war American tank development generally followed their recommendations.

Despite these preliminary studies much preparation remained before an American tank unit would enter combat. Procurement of tanks proved to be the most difficult task. Based on the early studies and approved by Pershing on 23 September 1917, the Project for the Overseas Tank Corps outlined the organization of five heavy tank battalions of 375 British Mark VIIs and twenty light tank battalions composed of 1500 Renaults. As we shall see, this program proved too ambitious and the stress and strain of war prevented its completion.

In late November AEF headquarters (GHQ) deemed additional information necessary before the formation of a Tank Corps. Therefore, Pershing ordered Majors Alden and Drain of the Ordnance Department, Captain George S. Patton, the commander designate of the light tank service, and Lieutenant Elgin Braine, Patton's assistant, to study the design, construction, and use of tanks. After observing French tank training and production these officers submitted their reports to GHQ in early December. Based on the reports and on Pershing's recommendations, the Chief of Staff ordered the organization of the American Tank Corps in December 1917. A Quartermaster officer with over twenty years service in the Cavalry, Samuel D. Rockenbach, whom Pershing described as having "special qualifications," became Brigadier General and Chief of the Tank Corps in France.

As Chief of the Corps Rockenbach was responsible for training, organizing, and equipping AEF tank units. A number of problems relative to desirable tank types, organization, and tactics confronted Rockenbach when he reported to GHQ on 23 December 1917.

Procurement of tanks was particularly important and proved most difficult. Throughout 1917 and early 1918 American officials in France expected that the AEF would be largely equipped with tanks produced in the United States. On 22 January 1918 the Americans and British agreed to produce jointly 1500 Mark VIII heavy tanks. Component parts were to be manufactured in the United States and in England. The tanks themselves would be assembled at
a factory in France. But the German 1918 offensive and the competition of the American aviation program for Liberty engines disrupted the successful completion of this agreement; both drained resources destined for tank production. Because the Anglo-American agreement provided only for heavy tanks, light tanks had to be built in the United States.

In February the War Department cabled GHQ that 100 American-built Renault light tanks would arrive in France by April; three hundred would be delivered in May and six hundred per month thereafter. During the spring of 1918 the War Department remained optimistic about shipments of American-built tanks to France. But lack of coordination and difficulties in procuring parts plagued production. By June 1918 it became apparent that no useful number of tanks would arrive from American factories until 1919—too late for the expected Allied offensive. But the American Tank Corps did get its tanks. The French agreed to equip fully two American battalions with Renaults. Under the proviso that it be attached to the British Expeditionary Force, Great Britain equipped one battalion with heavy tanks.

The training of tank personnel presented nearly as many problems as procurement. Training procedures for the American Tank Corps followed British policy. Commanders of the tank brigades had responsibility for training all officers, non-coms, and enlisted men in their commands. Instructors trained at French and British schools would assist the commanders with unit training. To insure uniformity of doctrine the unit commanders would lead in combat the troops they trained. GHQ established schools on a permanent basis for training instructors and reinforcements. For training unit personnel each brigade set up temporary courses of instruction.

An officer whose name became synonymous with tanks during World War II deserves much credit for training and organizing the AEF Tank Corps. On 3 October 1917, George S. Patton requested transfer to the tank service. Within three weeks Pershing's Chief of Staff, James G. Harbord, detailed Patton to duty with tanks, directed him to organize the light tank service, and ordered him to establish a light tank school. Following detached duty with the French, Patton proceeded to the AEF schools at Langres in December 1917 and began preparations for a suitable school, training area, and tank park.

On 9 January 1918, twenty-two second lieutenants transferred from the Coast Artillery to the Tank Corps. They formed the foundation of the American tank service in France; they were the cadre. Under Patton's direction this group of officers immediately began training with the French. Instruction concentrated on basic military subjects: weapons, camouflage and map reading. Mechanical instruction followed shortly. In early February Patton went to St. Aignan to recruit enlisted men for two tank companies and a headquarters unit. He looked for men with special qualifications, such as chauffeurs, mechanics, and caterpillar tractor drivers. With the arrival of the first troops at Langres on 17 February training began in earnest. Because of the isolated environment in which tankers operated their training stressed the necessity for hard discipline, devotion to duty, and esprit de corps.

General Rockenbach had secured 10 Renaults from the French for training purposes. The tanks arrived at Langres on 23 March 1918. Patton, the only American at the schools who had even seen a tank, taught 10 men with marked ability as instructors to drive the tanks. These 10 then instructed small details from each of the companies. Unit exercises began as soon as the troops learned to drive the machines. In these exercises Patton stressed reconnaissance, gunnery, repair work, and tank-infantry cooperation. As more personnel became available the tank units at Langres expanded. By 15 August 900 men and 50 officers had been trained. They formed the 344th and 345th Light Tank Battalions of the 304th Brigade (Tank Corps).

While the light tank units trained in France, the 301st Heavy Tank Center was organized at Bovington Camp, England. In February this unit, commanded by Lieutenant Colonel Conrad S. Babcock, consisted of 58 unassigned Engineer Reserve officers, and 38 enlisted men. Early in March three companies of the 65th Engineers, trained at Camp Colt, Pennsylvania, arrived to fill out the 301st Light Tank Battalion. Training of this heavy battalion progressed along lines followed by the units in France. The original officers instructed the newly arrived engineers using borrowed British heavy tanks. On 23 August 1918, the 301st departed for the front in France. Its commander was Major Roger B. Harrison.

During the war the tactical doctrine for employment of tanks changed very little. From the time of Ernest D. Swinton's pronouncements on the use of tanks in 1915 until the Armistice tanks remained infantry close support weapons. Several factors contributed to this continuity. Mechanically, tanks remained primitive. They were slow; they were me-
chanically unreliable; they were easily put out of action. If tanks had difficulty accomplishing their primary mission of infantry support, it was difficult to envisage them fulfilling a more independent role as they did in later years. However, tanks carried out a valuable function in the system of trench warfare. Infantry needed a close support weapon to neutralize hostile machine guns and to break through the barbed wire. Perhaps the most important reason that tank doctrine changed very little was because it evolved in a static warfare situation.

American tanks in battle, while not a failure, were something less than spectacular. Only three battalions, the 301st Heavy Tank Battalion and the 344th and 345th Light Tank Battalions, saw action. Mechanical breakdowns, heavy casualties, insufficient numbers of machines, poor liaison with the infantry, and use over difficult terrain hindered the performance of the American Tank Corps in France.

On 5 September 1918, Lieutenant Colonel Patton received orders attaching the 304th Brigade to the IVth Army Corps for operations against the St. Mihiel Salient. Assigned to the 1st and 42nd Divisions, the tanks’ mission was to assist the infantry in attacking the southern edge of the salient. Because of the difficult terrain, the operations order called for the 345th to follow the 42nd Division until it passed the Tranchee d’Houblons. From this point
the tanks would lead the foot troops in an attack on the towns of Essey and Pannes. Despite heavy shell fire and deep mud the battalion carried out the plan. The tanks of the 345th overcame several machinegun positions, destroyed a battalion of German artillery, and captured 30 enemy soldiers.

Operating with the 1st Division, the 344th Battalion succeeded in cutting the barbed wire and engaging a number of machineguns in the vicinity of the Bois de Rate. A gasoline shortage hampered tank operations on 13 September, the second day of the battle; the tanks had consumed more fuel than anticipated because of muddy ground. The tankers spent 14 September attempting to reestablish contact with the infantry. On that day an eight tank patrol from the 344th attacked, without infantry support, and dispersed a battalion of German infantry near Woel. This was the final tank action in the St. Mihiel operation.

Although a lack of serious resistance at St. Mihiel did not provide an opportunity to demonstrate the full offensive value of tanks, the tankers did give valuable aid to the infantry. Furthermore, the Americans gained much worthwhile experience in the use of tanks over difficult terrain. During the four-day battle, the 304th Brigade lost two tanks destroyed by shell fire, 22 ditched, and 14 because of mechanical difficulties. The brigade suffered 14 casualties among its personnel; but only two of these occurred among troops inside a tank.

The Meuse-Argonne offensive, beginning on 26 September, was the largest American operation of the war. In the initial phase the two American light tank battalions operated with I Army Corps. Originally the 344th was to support the corps' advance on the front extending from Vanquois to La Harasse. Upon reaching the First Army objective, the 345th would "leap frog" the 344th and continue to support the attack so far as possible.

Serious resistance, especially along the edge of the Argonne Forest, necessitated the use of both battalions by the end of the first day of the offensive. Heavy machinegun fire provided most of the resistance, particularly near Varennes. Although the tanks reached Varennes at 0930 on 26 September, the infantry did not arrive until 1330. While getting tanks forward and rallying disorganized troops, the brigade commander, Colonel Patton, was wounded. Major Sereno Brett replaced Patton and led the brigade for the remainder of the campaign.

On 27 and 28 September the American tanks answered requests for assistance from the infantry.

Dummy tank used for machinegun training. Rockers simulated tank movement.

Although coordination was poor, small groups of tanks assisted infantry squads and platoons to reduce enemy strong points. On the 28th tanks entered and captured Apremont five times before the infantry advanced, consolidated, and exploited this success. From 29 September until 4 October 89 American tanks supported the attack of the 1st and the 28th Divisions.

During this period the tankers and infantrymen overcame liaison difficulties and worked well together. In this fighting the brigade suffered heavy losses in men and equipment because of accurate German artillery fire. Only 30 tanks, many of which were unfit for effective combat, because of mechanical trouble, remained in action on the morning of 5 October. The next day all American tanks withdrew to Varennes for overhaul.

It was apparent that there were insufficient tanks to reequip the entire brigade. Therefore, brigade headquarters formed a provisional company, commanded by Captain Courtney Barnard, and ordered the remainder of the 304th back to the Tank Center at Langres. From 16 October until 1 November the provisional company remained in corps reserve at Exermont. In their last action of the war several American tanks of the company participated in the general advance on 1 November in the vicinity of Landres-et-St. Georges and earned the commendation of the commanding general of the 2d Division.

Somewhat like the 344th and 345th, the 301st Heavy Tank Battalion met with only limited success.
Attached to the 2d Tank Brigade of the British Expeditionary Force and equipped with 47 British heavy tanks, the 301st assisted the American II Corps and an Australian corps in an attack on the Hindenburg Line during late September 1918. Of the 34 tanks supporting the 27th Division only ten actually became engaged in combat. Most of those disabled ran afoul of an old British minefield. Once again coordination between tanks and infantry was poor. The 2d Brigade operation report concluded, "Due to the fact that the 27th Division had never had an actual operation with tanks, the Infantry Commanders did not seem to grasp the idea of tanks cooperating with Infantry."

In conjunction with the British IX and XIII and the American II Corps, the 301st successfully attacked German positions north of Brancourt on 8 October. The tanks fought through to the final objective giving effective support to the foot troops.

Poor visibility disrupted a II Corps-301st Tank Battalion attack nine days later. Only half of the 20 tanks which started finished the operation. The final attack of the 301st occurred on 23 October when nine tanks assisted two British divisions near Bazoule. The tank commanders reported little opposition and good targets despite visibility problems and difficult terrain. All nine tanks beginning the assault rallied at its conclusion. The infantry commanders praised the work of the tanks. Following this operation the 301st remained in GHQ reserve until the end of hostilities.

Military experts disagreed as to the value of tanks during the war. Skeptics could point to the experience of the three American tank battalions and ask the enthusiasts if this was an example of the ultimate weapon. Poor liaison, mechanical breakdowns, heavy tank casualties (123 percent from all causes during the Meuse-Argonne), and their inability to operate in certain situations contributed to the pessimistic view of the value of tanks.

On the other hand, tank enthusiasts found cause for optimism in the success of mass tank attacks, such as the British assault at Amiens on 8 August 1918. Luddendorf called this the "black day" of the German Army. Sir Douglas Haig, who in 1917 called tanks "a minor factor under present conditions," said in his final report on the war, "Since the opening of our offensive in August tanks have been employed in every battle and the importance of them can scarcely be exaggerated."

The debate over the value of tanks continued for nearly two decades after the Armistice. During the early post-war years the experience of tanks from 1915 until 1918 weighed heavily on both sides of the argument.

(The next article in this series will examine developments in the immediate Post-World War I period.)

**Bibliographical Note**

*Material for this article came from a number of sources. The great bulk was derived from materials in the National Archives at Washington. Operations reports of the various tank units, a history of the 304th Brigade, and the AEF Adjutant General File were all found in Record Group (RG) 120 which contains the complete AEF records. The War College Division File (RG 165) was also helpful for information on planning. Another good source were volumes in the U. S. Army in the World War, 1917-18 series published by the Department of the Army in 1948. The volumes entitled Organization of the AEF and Reports of the Commander-in-Chief, AEF Staff Sections and Services contained reports by Rockenbach and Patton on tank activities during the war. A pamphlet published in 1918 by the War Plans Division, Instructions for the Training of the Tank Corps in France, was good for data on training. Among the secondary sources used were J. F. C. Fuller's Tanks in the Great War (1918), Arch Whitehouse's Tank (1960), and Ladislas Farago's Patton (1963). The quote from Douglas Haig came from E. W. Shepard's Tanks in the Next War published at London in 1938. T.K.N.*