Cognitive Lesson Objective:
- Know the evolution of airpower and the significance of key people, events, doctrinal changes, and weapon systems through the end of WWI.

Cognitive Samples of Behavior:
- Describe the U.S. Army’s initial reaction to the Wright Brothers’ heavier-than-air flying machine.
- Recognize the accomplishments of early American aviators Benny Foulois, Billy Mitchell, and Eddie Rickenbacker.
- Describe the significant characteristics of airpower doctrine as advocated by Douhet, Trenchard, and Gorrell.
- State lessons learned from the success of the St. Mihiel and Meuse-Argonne Offensives and their impact on doctrine.

Affective Lesson Objectives:
- Value to the importance of airpower and airpower advancements through WWI.

Affective Sample of Behavior:
- Discuss the importance of airpower and airpower advancements.
THE GENESIS OF AMERICAN AIR POWER

Americans took to the skies at an early date. Benjamin Franklin considered the possibility of using balloons in warfare in 1783, only days after the first successful hot-air balloon flights in France. John Sherburne, frustrated by the Army’s ineffectiveness during the Seminole War of 1840, proposed using balloons for observation above the wilderness that hid the adversary. John Wise, dismayed by the prospects of a long and costly siege of Veracruz during the Mexican War, suggested using balloons in 1846 for bombing defending forces, three years before Austria actually did so against Venice.

John LaMountain and Thaddeus Lowe successfully launched manned reconnaissance balloons in support of Union operations during the American Civil War. In late June 1861 Lowe’s map of Confederate positions in Falls Church, Virginia, was the first significant contribution of manned flight to American warfare. Although the Union lost the battle at Bull Run in July, a flight by Lowe on 21 July allowed him to report that the Confederates were not advancing on Washington. He was thus able to help prevent panic following the defeat. In September he demonstrated the balloon’s potential when he directed artillery fire at Confederate positions. He went on to establish the first US “Air Force,” the Balloon Service of the Army of the Potomac, although weather, technological limitations, bungling, and military opposition prevented further development and exploitation.

His Civil War experience convinced Brigadier General Adolphus Greely of the Army Signal Corps that the balloon’s capabilities had been unrealized. As part of a special section formed in 1892, his one balloon directed artillery fire during the Battle of San Juan Hill in the Spanish- American War and reported the presence of the Spanish fleet at Santiago de Cuba Harbor. This limited success with lighter-than-air balloons (enemy ground fire destroyed the section’s balloon in Cuba) encouraged Greely and the Army to give Samuel Langley, Secretary of the Smithsonian Institution, $50,000 in 1898 to build a powered heavier-than-air flying machine. The spectacular failures of Langley’s Aerodrome launched over the Potomac River on 7 October and 8 December 1903, soured Army opinions on the practicality of flight for several years. When Orville and Wilbur Wright succeeded in the world’s first powered, heavier-than-air, controlled flight on 17 December 1903, the Signal Corps expressed no interest. Establishing the Aeronautical Division of the Signal Corps on 1 August 1907, the Army ignored the Wrights and their achievement. It preferred experimenting with the steerable airship or dirigible, then being perfected in Europe. The
desertion of a private cost the Aeronautical Division half of its enlisted strength, but did not prevent the Army from ordering its first nontethered airship, Dirigible No. 1, for $6,750 in 1908.

The Wrights’ successes came to the attention of others, however, and President Theodore Roosevelt directed the Army to entertain bids for an aircraft in late 1907. Meanwhile, intrepid airmen pressed on. Lieutenant Frank Lahm became the first officer to fly in an aircraft in early September 1908. Not even the death of Lieutenant Thomas Selfridge, America’s first military aviation fatality, killed in what the New York Times called a “wreck of bloodstained wood, wire, and canvas,” could stop the advance of military aviation.

On 2 August 1909, the Army awarded the Wrights $25,000 for delivering Aeroplane No. 1, and a $5,000 bonus for exceeding specifications. The Aeronautical Division now had one aircraft, but no pilots, ground crews, or training establishment. Wilbur Wright taught Lieutenants Frank Lahm, Benjamin Foulois, and Frederic Humphreys to fly. (He included Humphreys as a passenger on the world’s first night flight.) Scarce resources soon reduced America’s air force to one pilot (Foulois) flying one much-damaged, much-repaired aircraft.

This was America’s air force until Congress approved $125,000 in 1911 for its expansion, despite the objection of one member: “Why all this fuss about airplanes for the Army? I thought we already had one.” Early Army flyers began stretching aviation’s limits in Wright and Curtiss aircraft with bomb-dropping, photography, and strafing. The first unit, 1st Aero Squadron, was formed on 8 December 1913. These achievements convinced Congress to give the Army’s air force official status on 18 July 1914 as the Aviation Section, Signal Corps, which absorbed the Aeronautical Division and its 1 squadron, 6 combat aircraft, 19 officers, and 101 enlisted men.

Orville Wright’s first flight in 1903 had lasted twelve seconds; by 1916 flights of four-hours duration had become possible. This progress was soon tested. Brigadier General John Pershing pursued Pancho Villa in Mexico from 1916 to 1917 to bring the Mexican revolutionary to justice for attacking an American border town, Columbus, New Mexico. Captain Benjamin Foulois, with ten pilots and eight aircraft of the 1st Aero Squadron, struggled against winds, storms, and high mountains to locate Villa; but a series of disasters, some comic, some tragic, stood in vivid contrast to aerial achievements on the Western Front of the Great War in Europe that had begun two years earlier.
TRIAL AND ERROR IN WORLD WAR I

The potential of the airplane was proved in World War I when its use in critical reconnaissance halted the initial German offensive against Paris. It was not used to harass troops or drop bombs until two months into the war. On the basis of an aviator’s report that the German Army had a large gap in its lines and was attempting to swing wide and west around the British Army, British commander Sir John French refused requests from the French to link up his Army with their forces to the east. At the resulting battle of Mons southwest of Brussels on 23 August 1914, the British slowed the overall German advance, forcing it to swing east of Paris. The Allies, on the basis of a British aviator’s report of the move, stopped the Germans at the battle of the Marne from 6 to 9 September. The Germans, on the basis of one of their aviator’s observation of the Allies’ concentration, retreated behind the Aisne River. These actions, spurred by aerial observation, forced the combatants into fixed positions and initiated four years of trench warfare.

When American aircrews arrived in France three years later to join the conflict, they found mile after mile of fetid trenches protected by machine guns, barbed wire, and massed artillery. The airplane’s primary roles remained reconnaissance and observation over the trenches of both sides, into which were poured men, supplies, and equipment in huge quantities easily seen from the air. Thousands of aviators fought and died for control of the skies above armies locked in death struggles below.

In 1914 the US Army’s Aviation Section of the Signal Corps had five air squadrons and three being formed. By 6 April 1917, when the United States declared war on Germany, it had 56 pilots and fewer than 250 aircraft, all obsolete. Congress appropriated $54.25 million in May and June 1917 for “military aeronautics” to create a total of 13 American squadrons for the war effort. However, French Premier Alexandre Ribot’s telegraphed message to President Woodrow Wilson in late May revealed that the United States did not yet comprehend the scale of the war. Ribot recommended that the Allies would need an American air force of 4,500 aircraft, 5,000 pilots, and 50,000 mechanics by 1918 to achieve victory. Trainer aircraft and spare parts would increase America’s contribution to over 40,000 aircraft—this from a country that had produced only a few hundred, both civilian and military, from 1903 to 1916.

An outpouring of patriotism accompanied the declaration of war in the United States. Talk of “darkening the skies over Germany with clouds of US aircraft” stiffened Allied resolve. It also appealed to the American people. Congress supported their sentiments when it approved $640 million on 24 July 1917, the largest lump sum ever appropriated by that body to that time, for a program to raise 354 combat squadrons.

President Wilson immediately created the Aircraft Production Board under Howard Coffin to administer an expansion, but the United States had no aircraft industry, only several shops that hand-built an occasional aircraft, and no body of trained workers. The spruce industry, critical to aircraft construction, attempted to meet the enormous demand under government supervision. A production record that approached a national disaster forced
Wilson on 21 May 1918, to establish a Bureau of Aircraft Production under John Ryan and a separate Division of Military Aeronautics under Major General William Kenly. The division would be responsible for training and operations and would replace the Aviation Section of the Signal Corps. Perhaps as an indication of the Army’s attitude toward the new air weapon, the two agencies remained without a single overall chief. Not until four months before the end of the war did Wilson appoint Ryan Director of the Air Service and Second Assistant Secretary of War in a late attempt to coordinate the two agencies.

American aircraft production fell far short of its goals despite President Wilson’s initiatives. In June 1917 a mission led by Major Raynal Bolling to investigate conditions on the Western Front, decided that America’s greatest contribution to the war besides its Airmen would be its raw materials from which the Allies could produce the necessary aircraft in Europe, rather than in the United States. This time-saving approach was not particularly popular, given American chauvinism at the time. The United States would build engines, trainer aircraft, and British-designed DH-4 bombers. It would buy combat aircraft from France (4,881), Britain (258), and Italy (59).

American industry managed to turn out 11,754 aircraft, mostly trainers, before the end of the war—a significant accomplishment. Detroit produced 15,572 Liberty engines, big 12-cylinder in-line liquid-cooled power plants of 400 horsepower that were more efficient than other wartime engines. The Army set up ground schools at 8 universities, 27 primary flying schools in the United States, and 16 advanced training schools in Europe. On Armistice Day the Air Service had nearly 183,000 personnel filling 185 squadrons. One of the first American Airmen to reach France was Major William “Billy” Mitchell, who studied British and French aerial techniques and recommended the establishment of two air forces, one to support ground forces and another to launch independent strategic attacks against the sources of German strength. A dearth of aircraft and aircrews prevented the development of the latter effort, and the 1917 Bolling mission had given the idea lowest priority. American Expeditionary Force commander, General John Pershing, created a divided tactical aerial force, with, first, Brigadier General William Kenly, then Benjamin Foulois, and, finally, Mason Patrick as Chief of Air Service, American Expeditionary Force, and Mitchell as Air Commander, Zone of Advance. A less-than-clear chain of command insured a collision between Foulois and Mitchell, but Pershing wanted Mitchell in charge of combat operations.

Some Americans had already acquired combat experience in France, serving with French and British squadrons before the United States entered the war. Among the most famous were members of the Lafayette Escadrille, including Norman Prince (five victories) and Raoul Lufbery (seventeen victories). These veterans transferred to the Air Service and provided the cadre for new squadrons arriving from the United States. After advanced training, American squadrons joined French and British units for combat experience. Only when American ground units were ready for combat did Air Service squadrons join American armies. Flying French SPAD and Nieuport fighters and French Breguet and British DH-4 bombers, all-American units under American command began
operations in March and April 1918. Lieutenants Alan Winslow and Douglas Campbell gained America’s first aerial victories on 14 April 1918, in French Nieuport fighters armed with British Vickers machine guns.

The United States may have been slow in developing aerial weapons, but its ground commanders quickly put them to use. Airmen flew infantry contact patrols, attempting to find isolated units and reporting their location and needs to higher headquarters. Of these missions, the 50th Aero Squadron’s search for the “Lost Battalion” in the Meuse-Argonne during the offensive of September and October 1918 is perhaps the most famous. Two Airmen, pilot Harold Goettler and observer Erwin Bleckley flew several missions at low altitude, purposely attracting German fire to find out at least where the “Lost Battalion” was not. They paid with their lives but helped their squadron narrow its search. For their heroism, Goettler and Bleckley won two of the four Medals of Honor awarded to American Airmen during the war. The other two went to Eddie Rickenbacker and Frank Luke for aerial combat.

Reconnaissance missions to determine the disposition and make-up of enemy forces were critical and were usually carried out by aircraft flying east at low altitude until shot at. Allied ground troops, for example, needed to know about German activity at the Valleroy railroad yard during the battle of St. Mihiel or, best of all, that the “convoy of enemy horse-drawn vehicles [was] in retreat along the road to Thiaucourt.”

Airman Gill Wilson wrote spiritedly of such missions in the following lines:

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Pilots get the credit
But the gunner rings the bell
When we go to bomb the columns
On the road to Aix-la-Pelle!
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The pilots of each side, attempting to prevent their counterparts from conducting tactical reconnaissance, engaged in fierce air-to-air combat in aerial “dogfights” that evoked images of medieval warfare and its code of chivalry. The men in the trenches welcomed these solitary knights of the skies who were willing to take on the heavily-defended German observation balloons and the artillery fire they controlled that was aimed at anything that moved. More often than not, life was short in World War I and American aviators lived it valiantly. Frank Luke spent only seventeen days in combat and claimed four aircraft and fourteen balloons, the most dangerous of all aerial targets. Shot down at age 21, he died resisting capture behind German lines. The United States awarded him a Medal of Honor and named an air base after him. Raoul Lufbery claimed seventeen victories before jumping from his own burning aircraft without a parachute. But more died in crashes brought on by malfunctioning aircraft than in combat.

Low-level flight in close support of the infantry was exceedingly dangerous as it involved strafing and bombing over enemy positions. The 96th Aero Squadron flew twelve day bombardment aircraft in three missions against ground targets the first day of the St. Mihiel offensive on 12 September 1918. The next day it mustered only four aircraft ready
for duty. Casualty rates of 50 percent or higher were not unusual. When Brigadier General Billy Mitchell had his way, targets were farther to the rear and included rail centers and bridges. One of his officers, Lieutenant Colonel Edgar Gorrell, developed a plan to bomb Germany’s “manufacturing centers, commercial centers, and lines of communication.” General Pershing approved the plan, but opposition from other ground commanders and insufficient aircraft thwarted America’s nascent testing of strategic bombing.

As an American air force, the First Air Brigade (strengthened by French units) in June 1918 fought superior German forces during the battle of Chateau-Thierry, a bloody initiation to full-scale combat for most American pilots. Mitchell, however, learned the lessons of massing air power in the battle area and of seizing the offensive. This experience served him well at St. Mihiel in September. With nearly 100 squadrons amounting to nearly 1,500 aircraft under his control, Mitchell organized two forces, one to provide escorted reconnaissance and the other to serve as an independent striking force. With superior numbers, mostly French, Mitchell’s Airmen seized the initiative, gained air superiority, attacked enemy ground forces, and interdicted supplies flowing to the German front lines. In the final action of the war, during the Meuse-Argonne offensive in September and October, Mitchell concentrated a largely American force to establish air superiority in support of American ground operations.

(Please reference the “Focus On: St. Mihiel and an Aerial Armada” article following the paragraph below for more detailed understanding of the St. Mihiel and Meuse-Argonne offensives.)

By Armistice Day, on 11 November 1918, the Air Service had prepared and sent 45 squadrons to fight under Mitchell, with 140 more organizing in the United States. In supporting the war the Air Service had about 750 American-piloted aircraft in France, or about 10 percent of all Allied forces. 71 Americans became aces, downing 5 or more enemy aircraft, led by Eddie Rickenbacker with 26 victories. His success paled compared with Manfred von Richthofen’s (German) with 80 kills, Rend Fonck’s (French) with 75, and Edward Mannock’s (British) with 73, but few claimed as many as quickly as the American. The launching of 150 bombing attacks and the claiming of 756 enemy aircraft and 76 balloons in 7 months of combat and the losses of 289 aircraft, 48 balloons, and 237 crewmen did not turn the tide of war but were portentous of things to come. The airplane had entered combat, and by eliminating the element of surprise through observation and reconnaissance, it had helped Allied forces to victory on the Western Front.
Focus On: Leadership

THE WRIGHT BROTHERS—

WILBUR (1867-1912) AND ORVILLE (1871-1948)

- Fathers of flight
- Invented airplane (1903); first sustained flight (1905)
- Advocated airplane’s military utility (US Army, 1909)
- Established first US civilian flying school

The world’s most famous inventive partners, the Wright Brothers, were born four years apart -- Wilbur on April 16, 1867, near Millville, Ind., and Orville on Aug. 19, 1871, in Dayton, Ohio, to Milton and Susan Wright.

As youngsters, Wilbur and Orville had their interest in flying sparked by a toy helicopter-like top their father gave them. Neither graduated from high school or attended college, but they had a thirst for knowledge and an entrepreneurial spirit. The brothers began to refer to themselves as “The Wright Brothers" when they started a printing firm at the ages of 22 and 18. Before writing the Smithsonian Institute for information on aeronautical research in 1899, the brothers owned a bicycle shop that repaired and made bicycles. In 1900, Wilbur also wrote to French-born gliding pioneer Octave Chanute who recommended that the Wright Brothers study gliding tests carried out by a number of researchers.

Of all the early aviators, Wilbur alone recognized the need to control a flying machine in its three axes of motion: pitch, roll and yaw. His solution to the problem of control was "wing warping".

In August 1900, Wilbur built his first glider. He then contacted the U.S. Weather Bureau for information on windy regions of the country. He chose a remote sandy area off the coast of North Carolina named Kitty Hawk, where winds averaged 13 mph. He and Orville journeyed to Kitty Hawk where they tested the 1900 glider, and subsequent 1902 glider.

Having designed a propeller with the same principles they used to design their wings, Wilbur and Orville built their own four-cylinder, 12-horsepower engine. The 1903 Flyer was constructed in sections in the back room of their cycle shop in Dayton, and shipped to Kitty Hawk. On Dec.14, 1903, Wilbur won a coin toss and made the first attempt to fly the machine. He stalled it on take-off, causing some minor damage. The plane was repaired, and Orville made the next attempt on December 17. At 10:35 a.m., he made the first heavier-than-air, machine powered flight in the world. In a flight lasting only 12 seconds and covering just 120 feet, the Wright Brothers opened the era of aviation.
News of the Wrights’ feat was met with early skepticism, especially from the United States government who had already funded a number of failed flying experiments. Yet, while Wilbur set sail for Europe to promote the Wright Flyer overseas, Orville headed to Washington, D.C. to advocate the airplane’s military utility and to demonstrate their flying machine in hopes of winning government and army contracts. In July 1909, Orville completed demonstration flights for the U.S. Army, and the Wright brothers would later be awarded the government contract for the first military aircraft, selling the plane for $30,000.

The Wright brothers’ extraordinary success continued to led to contracts not just with the United States government but in Europe as well, and they soon became wealthy business owners. Seven years after the Wright brothers successfully completed their historic first powered heavier-than-air flight, they found themselves in Montgomery, Alabama where they established the first civilian flying school in the United States.

Wilbur died on May 30, 1912 of typhoid fever. Orville was awarded the Collier Trophy in 1913 for a device that balanced airplanes automatically. He sold the Wright Company and retired in 1915. However, he continued working on aeronautical developments at his own company, the Wright Aeronautical Laboratory. He died Jan. 30, 1948. The Kill Devil Hill National Monument at Kitty Hawk is now the Wright Brothers National Monument.
Focus On: Leadership

CAPTAIN EDDIE RICKENBACKER

- He had 26 confirmed aerial victories while engaging in 134 dog-fights during World War I.
- He was the last witness for the defense in the court-martial of Gen Billy Mitchell in 1925.

Capt. Edward Vernon Rickenbacker was the American “Ace of Aces” in World War I. Born in Columbus, Ohio, in 1890; he gained fame as a race car driver before joining the service. He started in the U. S. Army as a chauffeur to U.S. Army Gen. John J. Pershing.

He enlisted in the Signal Enlisted Reserve Corps at New York City and entered active duty the same day, May 25, 1917. After arriving in France, he was transferred to the U.S. Air Service and sent to Tours to learn to fly where he remained until October 1917. He was then honorably discharged to accept a commission as a first lieutenant in the Signal Officers Reserve Corps. After receiving his commission he was made engineering officer at the U.S. flying school at Issoudun because of his unusual knowledge of gasoline engines.

When the first group of newly-trained U.S. pilots prepared to leave for the Front, Rickenbacker requested to go with them. His request was approved by Maj. Carl Spaatz and Rickenbacker was assigned to the 94th Aero Squadron, the famous “Hat in the Ring” squadron, named because of their insignia.

Almost immediately he demonstrated his exceptional combat ability and by the end of the war, he was the nation’s leading ace with 26 confirmed victories (22 aircraft and 4 balloons), despite the fact that through most of June, July and August 1918, he had not been permitted to fly combat missions because of severe ear infections and was a patient at the American Red Cross hospital. He was personally chosen by Gen. Billy Mitchell to assume command of the 94th Aero Squadron the day before the Meuse-Argonne offensive began.

On Sept. 25, 1918, he was patrolling over the lines near Billy, France. He spotted five German Fokkers which were protecting two Halberstadts. He dived on them, shooting down one of the Fokkers, he then attacked one of the Halberstadts, shooting it down also. In his dedication to victory in the air, Rickenbacker disregarded the odds of seven to one against him.

On Nov. 6, 1930, President Herbert Hoover awarded the Medal of Honor to Rickenbacker for his bravery above and beyond the call of duty for the attack near Billy. His citation reads: “For conspicuous gallantry and intrepidity above and beyond the call of duty in action against the enemy near Billy, France, September 25, 1918. While on a voluntary patrol over the lines, Lieutenant Rickenbacker attacked 7 enemy planes (5 type
Fokker, protecting 2 type Halberstadt). Disregarding the odds against him, he dived on them and shot down 1 of the Fokkers out of control. He then attacked 1 of the Halberstadts and sent it down also.”

His other decorations included eight Distinguished Service Crosses, World War I Victory Medal with battle clasps for Champaigne-Marne, Aisne-Marne, St. Mihiel, Meuse-Argonne and Oise-Aisne Offensives and Defensive Sector. The French awarded him their Legion of Honor (chevalier) under decree of the President of France and two French War Crosses (Croix de Guerre with Palm).

On his return home, he was assigned to the Air Service Depot at Garden City, N.Y. and later to the Division of Military Aeronautics in Washington, D.C. His tour of active duty was terminated in January 1919. He went back into the automobile business by working for General Motors, and eventually came to control Eastern Airlines. He was also appointed as a specialist with the Officers Reserve Corps as a colonel until May 20, 1934, when five-year term expired.

He died July 23, 1973. He is buried at Greenlawn Cemetery in Columbus, Ohio. The now-closed Rickenbacker Air Force Base, Ohio, was named in his honor.
Focus On:

ST. MIHIEL AND AN AERIAL ARMADA

World War I ended on 18 August 1918 with the failed final German push at the Marne. The Kaiser’s chancellor later remarked, “On the 18th even the most optimistic among us knew that all was lost.” It is doubly tragic then, that combat continued for another 90 days. Those last three months would prove to be among the bloodiest of the war—for both sides.

By mid-August more than a million American doughboys had reached the front lines, and General John J. Pershing was plotting an assault on the formidable St. Mihiel salient. In their retreat the Germans themselves tried to straighten the line, fully aware that it would be more defensible than the horseshoe shaped bulge they now held. As Pershing and the other Allied generals plotted an offensive that would throw more than a half-million doughboys against the salient, Colonel Billy Mitchell was quick to lay out his own blueprints for the aerial side of the battle.

The St. Mihiel Offensive was more than the greatest success of Colonel Mitchell’s distinguished career; it was perhaps, his finest moment as a politician/commander. It was the one time that he tempered his strong will and firm beliefs with a taciturn diplomacy that kept the long meetings from turning hostile. With the confidence of General Pershing, the glowing support of First Army commander General Hunter Liggett (one of the few who truly appreciated air power), and the sympathy of the air-minded French, Colonel Mitchell got the chance he wanted.

The first week of September was filled with secret movements, Colonel Mitchell’s Airmen moving forward to advance aerodromes from which their commander would direct the first-ever, united aerial attack on an enemy force. The armada included American, French, and British aircraft—both fighters and bombers—all at the direction of a single commander. Mitchell would coordinate the effort with the commanders on the ground leading the infantry advance, another historical first overshadowed perhaps only by the sheer number of aircraft involved—nearly 1,500 in all. It was the largest aerial armada in history.

Mitchell was proud of his Airmen, men who loved him and would fly through hell for him. Now he called upon them to accomplish what had never been done before. These were a rare breed of fighting men, brash young cowboys like Frank Luke from Arizona, daring race drivers like Eddie Rickenbacker, West Point graduates like Major Carl Tooey Spaatz, efficient squadron commanders who had sat in a cockpit and traded bullets with the Flying Circus like Harold Hartney. With the addition of the British air assets, even the legendary Sir Hugh “Boom” Trenchard would fly his pilots at the direction of Colonel Mitchell. It was a defining moment in military history, perhaps the exact moment in time for which Billy Mitchell was born...until the weather intervened.
During the weeks of preparation Colonel Mitchell averaged only three hours of sleep each night. He read reports of the day’s activities when night fell until 0200, rested his eyes briefly, and then arose to personally observe practice maneuvers and preparations at 0500. Running on sheer adrenaline, Mitchell was in no mood to hear news on 11 September that the generals wanted to postpone the anticipated next-day launch of the St. Mihiel Offensive because of the rain and the fog that had set in early. The previous day Colonel Mitchell had flown over the German lines with his French friend Paul Armenguad as an observer, and witnessed lines of enemy infantry pulling back in retreat. The enemy was anticipating an offensive push against the salient and were withdrawing quickly.

As promptly as news of the postponement reached Colonel Mitchell he headed for Pershing’s Headquarters, where a meeting of the generals was already in progress. Colonel Mitchell was the youngest, and lowest ranking man in a room that was about to decide the fate of his moment in time.

“Pretty bad weather we’re facing,” stated an engineering officer. Around the room heads nodded in ascent...engineers usually knew what could and could not be accomplished.

“What’s the weather got to do with it?”, snapped Colonel Mitchell.

“The rain always holds up our light railways that we use to get ammunition to our artillery. That goes for our water supply too. I think it’s best if we hold off on this thing for a few days.” Again heads nodded in agreement around the table, and Colonel Mitchell could see his moment slipping away.

Earnestly, but with a patience and uncharacteristic demeanor for the man “Boom” Trenchard had once said would go far if he could “break his habit of trying to convert opponents by killing them,” Colonel Mitchell pleaded his case. He told of his flights over the salient, of witnessing columns of German soldiers in full retreat. He predicted that the battle for the St. Mihiel salient wouldn’t be much of a battle.

“We must jump the Germans now!”, he admonished. “I’ve seen their movement to the rear with my own eyes. Forget the artillery if it means delay. If we advance fast, the artillery would probably shoot a lot of our own men anyway.”

Colonel Mitchell’s words seemed to fall on deaf ears, and around the room all eyes were on the engineering officer who was calling for a postponement. Colonel Mitchell had lost his most important debate with everyone in the room...except for the one man that mattered. General Pershing looked up at his staff and pronounced:

“We will attack, without delay!”

American pilots had indeed been fair-weather fliers prior to the St. Mihiel Offensive. With the decision to proceed on 12 September, the brave young men took to the air in spite of the fog and the rain.
Colonel Mitchell organized his assets into two attack brigades of 400 or more planes each, one assigned to attack the right side of the salient while the other penetrated to the enemy rear to cut off all communication and supply. It was an impressive air show that inspired men on the ground and amazed even the airmen themselves. Pilot Kenneth Littauer spoke of the massive formation and said: “I didn’t believe my eyes, because we’d never seen such a thing before. I happened to be standing on the air field when this damned thing started to go over. Then it went and it went...it was awfully impressive.”

The ground war was over on the first day, and the air war became almost nonexistent. Colonel Mitchell’s pilots swept the skies over the Western Front clean almost immediately, and then patrolled them continuously to demonstrate their mastery of the heavens. In just three days, the combined forces took back a formidable enemy redoubt that had been held for four years, captured 16,000 Germans, 443 artillery pieces, and created a new threat to the enemy stronghold at Metz. General Pershing couldn’t have been more pleased and wrote Colonel Mitchell stating:

Colonel Mitchell was elated, not so much in the praise but in the validation of everything he had argued for over the previous year. At last he was convinced that his Air Service would be recognized for what it was, the powerful war-winning military arm of the future. Colonel Mitchell himself was a hero in France, both among his own men and among the populace. His favor with General Pershing was evident in October when he received promotion to the temporary rank of Brigadier General. (Temporary promotions such as this during wartime had a long history in the Army, and it was expected that after the war Mitchell would return to his earlier rank of Colonel. When the return to his permanent rank occurred a few years later it was misinterpreted by many as a disciplinary move. In fact, Brigadier General Mitchell maintained his rank much longer than most other officers who received temporary promotions during the war.)

Following his tremendous success in the St. Mihiel Offensive, Brigadier General Mitchell committed his forces to a nearly independent role in the Argonne Offensive. His fighter pilots flew daily and, as Brigadier General Mitchell reported, “There is nothing to beat them in the world!” Meanwhile he pursued his theories of tactical bombing, raining tons of explosives on German bridges, airdromes, railroads and supply depots. The psychological impact of the Air Service’s supremacy on the German morale demonstrated just one more powerful advantage of a massive air force.
Brigadier General Mitchell’s men further endeared themselves to the weary infantrymen by continuing to coordinate their efforts with the ground war. Big two-seat DeHavillands dropped supplies to beleaguered units and pursuit airplanes flew low over infantrymen to shield them from German airplanes. As the advance turned into a rout, the quick pace could lead to confusion and dangerous situations. Once, Brigadier General Mitchell became aware of a large congestion of trucks at a village crossroads that could have become instantly susceptible to a damaging attack from the German Air Force. Without pause he sent a flight of 320 Allied aircraft to patrol the area and protect the forces on the ground until the traffic jam could be cleared.

Ever looking to the future, in late October Brigadier General Mitchell came to General Pershing with a bold new idea. The Allied advance would certainly slow with the onset of winter, but an Allied offensive was already being planned for the spring of 1919 to finish the job started at St. Mihiel and at last end the war. Brigadier General Mitchell’s idea was preposterous at the time to all who heard it, yet General Pershing gave it an attentive ear. He had learned that when Brigadier General Mitchell saw the future, he had a habit of making it come to pass. Brigadier General Mitchell’s new concept was never employed because the war ended long before anyone would have believed possible the previous summer, and there would be no spring offensive necessary.

Brigadier General Mitchell’s last great scheme of World War I is of note, however, despite the fact that he would not see it employed in his lifetime.

In the fall of 1918 there were a few big Handley-Page airplanes in the Allied arsenal that were capable of carrying a dozen or more men. Brigadier General Mitchell hoped to build up this part of his command throughout the winter so forces could fly deep into Germany to drop American soldiers behind enemy lines by parachute during the spring offensive that never came. It was indeed a preposterous idea, but now when Billy Mitchell had an idea, nobody ruled it out.
Focus On: Leadership

SIR HUGH MONTAGUE TRENCHARD

- Commissioner of the London metropolitan police from 1931 to 1935.
- He learned to fly at age 40.
- Trenchard and Billy Mitchell were contemporaries that shared many similar views.
- Created a baronet in 1919, a baron in 1930, a viscount in 1936, and was made Knight Commander of the Bath in 1918.

Hugh Trenchard was well along in his military career when he learned to fly at age 40. He fought much of World War I as the head of the Royal Flying Corps in France and was firm in his vision of aviation as an auxiliary to the army. At first, Trenchard opposed the creation of an independent air force, and he even opposed the idea of strategic bombing. He was, however, a firm believer in offensive operations for air forces. Like ground commanders of the time, he believed in the massed offensive as the key to victory. Only in Trenchard’s case, this idea of mass involved aircraft in the air.

Unfortunately, the Royal Flying Corps suffered substantial losses as a result of his commitment to the massed offensive. Nonetheless, Trenchard ended up in command of the Independent Air Force in France in 1918, which was created in response to the German bombing of London. A considerable portion of the Independent Air Force’s efforts was in support of the Allied armies, and the war ended before the Independent Air Force could conduct much strategic bombing.

When he returned to the United Kingdom, Trenchard was appointed as Chief of the Air Staff of the Royal Air Force, or RAF. Soon after, he became an advocate of strategic bombing. He remained in his post for the first decade of the RAF’s existence. Trenchard had an influence on the initial founding of many of the RAF’s ideas and institutions. Trenchard’s ideas were at the center of RAF doctrine manuals and they were embedded in the curriculum at the RAF Staff College.

Trenchard’s theories on airpower have had a lasting effect on airpower employment. The major premise of his theory was his belief that during war, victory could be achieved by bombing enemy vital centers and thus breaking the enemy’s will to fight. Trenchard’s theories regarding airpower had a significant impact on many nations during this time. Trenchard and Billy Mitchell were contemporaries that shared many similar views, yet Mitchell often pointed to the Royal Flying Corps as a model for independent airpower.
Focus On: Leadership

GUILIO DOUHET

- Regarded as one of the first military strategists to recognize the predominant role aerial warfare would play in twentieth-century battle.
- Known as the father of airpower, Douhet’s theories are still popular among modern military aviators.
- Court-martialed and imprisoned for a year during World War I.
- Published *Command of the Air* in 1921.

Guilio Douhet was born in Italy in 1869. He came from a military family, and he served as a professional artillery officer in the Italian Army. Although not a pilot, he was appointed as the commander of Italy’s first aviation battalion. During World War I, Douhet was so critical of the leadership of the Italian High Army Command that he was court-martialed and imprisoned for a year. However, his criticisms were validated in 1917 in the disastrous Battle of Caporetto, in which Italians suffered over 300,000 casualties and lost most of their trench artillery.

After the war, when Mussolini came to power, Douhet was restored to a place of honor. He passed his remaining years writing about and speaking out for airpower. Douhet published *Command of the Air* in 1921. This book quickly became known in America through partial translations and word of mouth, but it did not appear in a published English version until 1942, twelve years after Douhet died.

Douhet’s theories on airpower have had a lasting effect on airpower employment. The major premise of Douhet’s theory was his belief that during war, a quick victory could be won by early air attack on the enemy’s vital centers, while surface forces worked to contain the enemy on the ground. Douhet differed from other prominent early theorists by proposing that civilian populations be directly targeted as part of the air campaign.
**Focus On: Leadership**

**COLONEL EDGAR S. GORRELL (1891-1945)**

- Pursued Gen Francisco “Pancho” Villa (Mexican Expedition)
- Designed first “strategical” bombing plan—framework for industrial interdiction employed during World War II
- First Air Transport Association (ATA) of America president
- Advocated aviation safety—led to creation of modern-day Federal Aviation Administration (FAA)

In 1917 the great armies of Europe remained locked in a struggle along the trenches of the western front. On the first day of the Battle of the Somme, nearly 80,000 British soldiers had been killed or wounded; similarly, the Battle of Verdun “consumed the young men of a medium-sized town” every morning and every afternoon for the 10 months it lasted. Leaders on both sides sought an alternative to the carnage of “modern” war. Edgar S. Gorrell—a virtually unknown major assigned to the technical section of the newly arrived US Air Service—emerged as one such leader.

Gorrell graduated from West Point in 1912 and then spent two years as an infantryman in Alaska before transferring to the Signal Corps, where he joined the 1st Aero Squadron, serving under Gen John J. Pershing in Mexico. On one of his flying missions in Mexico, Gorrell ran out of gas and was stranded in the desert for several days before being rescued. Upon returning to his unit, he began to criticize the poor equipment US pilots were forced to use, both in terms of actual aircraft components and the signals and communication equipment used on land. In 1917 he was promoted to captain, and in World War I he became the chief engineering officer for the Air Service and eventually the chief of staff for the Air Service, with the rank of colonel. After the war, Gorrell remained in Europe representing the United States at conferences and peace talks.

Aware of the promise of emerging aircraft technology, he initiated a study of the military situation and the potential for bombardment aviation to contribute decisively to the struggle. Using analytic techniques that would become forerunners of modern targeteering principles, Gorrell maintained that a heavy air attack on key industries supporting the German war effort could successfully impede the supply of munitions to the front.

Gorrell designed an aerial operations plan entitled “Strategical Bombardment.” Drawing heavily on ideas borrowed from British and Italian theorists and aviators, Gorrell argued that modern armies could be compared to a steel drill. The hardened steel drill bit represented an army’s formidable combat power: if the more vulnerable shank (the industrial and societal effort supporting that army) could be broken, the drill would prove useless. WWI ended before his plan could be executed. Lawrence Kuter would later
capture the irony of Gorrell’s work by characterizing it as “the earliest, clearest and least known statement of the American conception of air power.” After the war, Gorrell turned his energies to producing a lessons learned historical analysis of WWI air operations.

Under his direction, in 1919 the Air Service drafted two manuals: “Notes on the Employment of the Air Service from the General Staff Viewpoints” and “Tentative Manual for the Employment of Air Service.” Despite Gorrell’s explicit advocacy for strategic bombardment as an independent course of action, both manuals emphasized airpower’s role in support of ground operations (i.e., the Army). Nonetheless, Gorrell’s brief foray into independent airpower theory development would carry long-term implications: during the 1930s, the Air Corps Tactical School faculty rediscovered the “Gorrell Plan” and used it as the basis for a more sophisticated theory of targeting, an approach focused on incapacitating an adversary’s “industrial web.” An adaptation of Gorrell’s “strategical bombardment” concept, WWII air operations interdicted German supply lines, thereby ensuring Allied victory in Europe.

Colonel Gorrell resigned his Army commission in March 1920 and joined the automobile business. He served as the vice president of Marmon Motor Car Company until 1925. He worked his way up the corporate ladder, becoming vice president, director and general manager, and then president of the Stutz Motor Car Company of America. Despite this brief venture into the automotive field, Gorrell never completely separated himself from airpower development or the policy process that guided its employment.

As a result of the Air Mail Scandal, in 1934 he sat on the Special Committee on the Army Air Corps, also known as the Baker Board. While Gorrell and his colleagues did not advocate establishing an independent air service, they did establish the basis for eventual separation by recommending the Army establish General Headquarters Air Force, giving it responsibility for all aviation combat units within the United States.

In January 1936, Gorrell returned to his roots, re-entering the aviation world when the ATA elected him as its first president. Through this organization, he promoted safety in civil aeronautics and became a vocal advocate for the Civil Aeronautics Act of 1938, the law that provided for government control and regulation of civil aeronautics. Gorrell continued to support civil aeronautics until his death in 1945.