



# **The First Wings of War**

## **Air Force Reserve in World War I**

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### **Special Study**

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# THE FIRST WINGS OF WAR: AIR FORCE RESERVE IN WORLD WAR I

## Background

The First World War, referred to at the time as the Great War, erupted after Serbian nationalist Gavrilo Princip assassinated Archduke Franz Ferdinand of Austria on 28 June 1914. A complex series of alliances between the Austro-Hungarian Empire, Great Britain, the German Empire, France, Japan, and Russia virtually assured that Princip's act in Sarajevo had far reaching consequences.<sup>1</sup> These entangling alliances resulted in full-scale war on 4 August 1914 when German forces invaded Belgium, spurring Great Britain to declare war on Germany.<sup>2</sup>

The United States of America officially remained neutral throughout much of the conflict. Even as fighting on the Western Front bogged down into trench warfare, many in the US desired to avoid entanglement in the war. German submarine attacks in the Atlantic, particularly the sinking of the *RMS Lusitania* on 7 May 1915, strengthened calls for US involvement.<sup>3</sup> However, few Americans wanted to join the carnage then underway overseas. President Woodrow Wilson even won the presidential election of 1916 using the slogan "He Kept Us Out of War."<sup>4</sup> However, Germany's attempt to enlist Mexico to attack the US proved to be too much for many Americans and Congress. The US declared war on Germany on 6 April 1917. Within months, US military personnel began to arrive in France to assist the effort to defeat the German Empire and its allies.

## Introduction

On 18 July 1914, the Aviation Section, U.S. Signal Corps replaced the Aeronautical Division as the U.S. Army's branch of military aviation after the United States Congress passed Public Law 143, 38 Stat. 514. On that day, the Aviation Section had 19 officers and 101 enlisted men. The start of World War I the following month spurred some in the US to take action. As a result, in December 1914, the Aviation Section had grown to 44 officers, 224 enlisted men, and 23 aircraft. However, despite the frightening reality of a war in Europe, many in the US, including many the US military, did not fully appreciate the gravity of the situation facing them. As a result, the US military remained woefully underequipped and largely unprepared for war. Granted, the Aviation Section doubled after the start of the conflict but even that jump in numbers paled in comparison to the size of the air forces fielded by Germany, Great Britain, France, Russia, and other powers fighting in Europe. Worse yet, the Aviation Section had no reserve or National Guard officers or enlisted men who could quickly enter the fight.<sup>5</sup>

Congress solved this problem with the National Defense Act of 1916, which created the nation's first air reserve program. The War Department knew it would be impossible to maintain sufficient strength in aviators and skilled technicians in the peacetime Army. The Air Reserve Program provided the needed hedge in case of war. The Officer's Reserve Corps and the Organized Reserve Corps added more than 2,200 officer and enlisted positions to the Signal Corps' Aviation Section. By the end of 1916, joining as a Reserve aviator proved to be popular, but hiring and training moved slowly. Flying training schools were established in Florida,

Virginia, Illinois, and Tennessee. However, they were unable to keep up with the rapidly expanding Aviation Section. In June 1916, the First Reserve Aero Squadron, which still exists today as the 26th Space Aggressor Squadron, had 26 officer pilots and 12 Flying Sergeants trained and volunteering for the punitive campaign against Pancho Villa in Mexico.

The effort to prepare the Aviation Section for World War I was fraught with difficulties. However, a concerned group of men stood up to do what they could to prepare themselves and their nation for war. When Congress declared war on Germany in April 1917, the total number of military aviators was under 200. In November 1918, that number had jumped to 9,000. Some of these first air Reservists, particularly Major Raynal Bolling who led the “Bolling Mission” to Europe, played an instrumental part in procuring the aircraft and equipment US aviators used during the war. Some, like Major Hiram Bingham, helped establish the training curriculum that US aviators followed throughout the conflict. Others, such as Captain Phillip Carroll, played a key role in building up the first US training bases in France. Finally, Reservists such as Captain Douglas Campbell, Lieutenant Frank Luke, and Lieutenant Charles D’Olive earned the coveted title of “ace” as a result of their daring exploits in the cockpits of some of the worlds most advanced aircraft. The United States’ expeditionary Air Service succeeded in large part because of the skill and ability of the 11,300 reserve officer pilots.

## **The Beginnings of Military Aviation in the United States**

During the 19th and early 20th century, the predecessors of the United States Air Force Airmen ascended in gas filled balloons. During the Civil War, the US Army operated a balloon corps for observation purposes between June 1861 and June 1863. The balloons operated under the jurisdiction of the Topographical Engineers for most of that time. The corps disbanded in 1863 because higher command within the US Army doubted its value. Thereafter, Aeronautics in the Army remained dormant until 1892 when Congress appropriated the funds to develop a balloon section in the Signal Corps. When the Spanish-American War began the Signal Corps sent three officers, 24 enlisted personnel, and the necessary equipment to support one balloon to Cuba. During the Battle of San Juan Hill, the balloon detachment spotted another route to the front which relieved traffic on the main road and made a dual approach possible. In 1900, the government provided the dollars to build a balloon house and the supporting buildings at Fort Myer, Virginia. The Signal Corps organized a new balloon detachment at Fort Myer in May 1902.<sup>6</sup>

The following year, in 17 December 1903, at a windy spot called Kill Devil Hill on the Outer Banks of North Carolina, an event occurred that would change the course of the Twentieth Century. Nevertheless, Wilbur and Orville Wright’s achievement of the first self-powered flight in the history of the world went almost unnoticed at the time. Some who had heard of it still doubted human flight was possible.<sup>7</sup>

Yet, within a dozen years or so, top military brass fighting the Great War in Europe came to consider one aviator to be worth a battalion of infantry. It was documented that thousands of lives were saved by lone airmen sighting advancing armies where politicians said they weren’t supposed to be. According to author Emil R. Salvini, “The sky was now the precious ‘high ground’ generals had sought from the time man first went to war.”<sup>8</sup>

The Signal Corps expressed increased interest in balloons, dirigibles, and the Wright Brothers airplane during the summer of 1907.<sup>9</sup> On 1 August 1907, the Chief Signal Officer, Brigadier General James Allen signed Office Memorandum No. 6 which established the Aeronautical Division of his office. The memo stated: "This division will have charge of all matters pertaining to military ballooning, air machines, and all kindred subjects."<sup>10</sup> "Thus," as Major General Foulois wrote in his memoirs, "the United States Air Force was born." Before the end of 1907, the Aeronautical Division issued specification number 46 for a heavier-than-air flying machine. One of the requirements was that the machine be easily and quickly assembled and disassembled for "transportation on army wagons."<sup>11</sup>

On 9 September 1908, the Wright Brothers brought a 1908 Wright Flyer to Fort Myer, Virginia, for flight trials. During the Wright's time at Fort Meyer, Lieutenant Frank Lahm became the first US military aviator to fly in a powered airplane when he accompanied Orville on the second trial flight of the day, a flight which lasted for six minutes and 24 seconds. The Wrights continued the trials at Fort Myer until 17 September 1908, when the Wright Flyer crashed after the propeller splintered during the flight. Army Lieutenant Thomas E. Selfridge, who accompanied Orville on the flight, died from the head trauma that he sustained during the crash. Selfridge's death resulted in all subsequent military aviators wearing leather "helmets" similar to those used by football players of the period.<sup>12</sup>

The accident at Fort Myer did not derail the US military's newfound interest in aviation. To their credit, the accident did not discourage the Wright Brothers either. In fact, the accident persuaded Orville to push the Wright Flyer to the edge of its capabilities so that he could prove to the US Army that their aircraft was safe and capable. In the weeks following the accident, Orville broke several aviation records in his quest to redeem himself in the eyes of the US Army.<sup>13</sup>

On 30 July 1909, Orville Wright successfully completed the last of several tests of their entry in the heavier-than-air contest. First Lieutenant Benjamin Foulois flew as passenger on this flight. The US Army subsequently listed the aircraft, referred to as Aeroplane No. 1, in its official inventory on 2 August 1909.<sup>14</sup>

## **Evolution of the US Reserves**

The development of military aviation was not the only difficulty facing the US Army during the early 1900s. The challenge of expanding the relatively small numbers of peacetime military defense forces at the outbreak of hostilities became a significant problem for the US military. In the past, the US Army dealt with the situation by deploying a minimally trained and equipped local militia supplemented by professionally trained regular armies during times of emergency.<sup>15</sup> In actuality, essentially raw recruits damaged previously constituted regular and militia regiments when thrust into their ranks. Many nations largely resolved the issue by the second decade of the Twentieth Century by supplementing their standing armies with reserve forces in excess of their traditional militias. For example Great Britain's reserves numbered 215,000; France had 3 million; Germany 4.7 million; and Russia 5.4 million. As an emerging world power, the US needed a well-trained reserve force of citizen-soldiers to meet its obligations to protect its own shores and national interests around the world.<sup>16</sup>

Until World War I, with the exception of the somewhat less-than-successful Union Civil War draft law, the United States had fought all its wars by supplementing militia soldiers and active-duty personnel with volunteers. With the onset of the Spanish-American War in 1898, the volunteer system of 1861 repeated itself. Some of the volunteers displayed a similar lack of discipline, equipment, and organization.<sup>17</sup> To address these shortcomings, Congress enacted a series of measures between 1903 and 1916 that laid the foundation for citizen reserve components as they exist today.<sup>18</sup>

With the support of forward-looking thinkers like President Theodore Roosevelt, who served as a volunteer during the Spanish-American War, and Secretary of War Elihu Root, Congress passed The Dick Act of 1903.<sup>19</sup> The legislation, Public Law 57-33, sponsored by Ohio Congressman and National Guard Major General Charles W. Dick, outlined the concept of a universal militia as having two elements. The first element contained the National Guard—the uniformed active militia of the several states and territories. Secondly, the act defined the Reserve militia as all able bodied male citizens between 18 and 45. This law provided federal military stores, arms, and equipment to the militias, provided they complete 24 drills and at least a 5 day summer camp every year.<sup>20</sup>

On 23 April 1908, Congress passed an act providing for, among other things, the commissioning of medical school graduates into a Medical Reserve Corps.<sup>21</sup> Upon acceptance into the Reserve, these new doctors became first lieutenants. According to Brigadier General Hal C. Pattison, one time Army Chief of Military History, “The act of Congress on that date which created the Medical Reserve Corps, for the first time in Army history, provided for the establishment of a reservoir of trained officer personnel in a reserve status.” By the end of June 1909, 364 physicians had volunteered for the Medical Reserve Corps.<sup>22</sup>

One of the staunchest believers in military preparedness and the role of the citizen-soldier in national defense, Major General Leonard Wood, became the US Army Chief of Staff on 22 April 1910. By that time, General Wood already had a long and distinguished career. After graduating from Harvard Medical School in 1884, Wood sought and obtained a rare appointment to the US Army Medical Corps. Assigned to the American frontier in 1886, Wood participated in the campaign against the Apache leader Geronimo for which he later received the Congressional Medal of Honor. With his friend Theodore Roosevelt, Wood helped to organize, and then commanded, the 1st US Volunteer Cavalry (the Rough Riders) at the start of the Spanish-American War. After the war, the US Army appointed Wood military governor in Cuba and later the Philippines. During this period, he was controversially promoted from captain to Brigadier on 4 February 1901. Two and a half years he was promoted to Major General.<sup>23</sup>

Having served as a leader of both regular US Army and volunteer troops, Wood became interested in preparing the citizen soldier to blend in with the active forces. As early as 1902, General Wood attended military maneuvers in Germany.<sup>24</sup> By 1911, Wood had made three trips to Europe where he observed the great European powers training their armies for war. He concluded that war was inevitable and that there was a need for greater preparedness in the United States military.<sup>25</sup>

As Lieutenant Colonel Robert Sperberg wrote, General Wood “meant to breathe life into a citizen reserve.” A logical place to begin to train an army capable of fighting a major modern war seemed to be with the National Guard. But when Attorney General George W. Wickersham decided in 1912 that militia service outside the US was unconstitutional, Wood was forced to find a reserve elsewhere, something he already wanted to do.<sup>26</sup>

The Army Appropriations Act of 24 August 1912 created the first federal military reserve outside of the Medical Department.<sup>27</sup> Under the new program, an enlisted man could elect to transfer to the Reserve after three years of active duty. Unfortunately, no provision was made for paying these volunteers except in times of war. Therefore, it is not surprising that after two years only sixteen enlisted soldiers had joined the Reserve.<sup>28</sup>

Meanwhile, the US Navy developed a program featuring two-month training cruises on battleships for college students. The students incurred no enlistment obligation, but became familiarized with life at sea. Lieutenant Henry T. Bull, a professor of military history at Cornell University, suggested a similar program for the army to promote an expanded Reserve force. General Wood supported Bull’s proposal.<sup>29</sup> Volunteers with no obligation to enlist would be assigned to regular army units for summer camps of several weeks duration. The object of the camps, as Wood wrote to the country’s college and university presidents, was to increase the number of trained Reservists “by a class of men from whom, in time of a national emergency, a large proportion of the commissioned officers will probably be drawn...”<sup>30</sup>

The first two of these summer camps took place in the summer of 1913 at Gettysburg, Pennsylvania, and Monterrey, California. The camp at Gettysburg made use of the tents and equipment already set up there for veterans attending the fiftieth anniversary of the Civil War battle. The active-duty US Army conducted training, cooking, and maintenance at both camps. Students experienced four weeks of infantry, cavalry, artillery, corps of engineers, and signal corps training that culminated in a battery of tests. They concluded training with a weeklong continuous military maneuver hiking sometimes fifteen miles a day, skirmishing with blank rounds, learning camp sanitation, and how to read a topographic map. The men typically returned to camp tired and sore. Gettysburg camp commander Major James H. McRae stated in his report on the 1913 camp, “They worked hard, were quick and eager to learn, and maintained their interest and enthusiasm to the end.”<sup>31</sup>

In his annual report, General Wood argued that “In view of the great success of these camps, the War Department has decided to repeat them during the ensuing year.”<sup>32</sup> Of the 159 trainees who attended the camps in 1913, 84 received reserve commissions and served in the First World War.<sup>33</sup> Interest in the camps grew over the next few years so that by the summer of 1915 the number of students attending had grown to some one thousand men.<sup>34</sup>

On 22 April 1914, Major General Wood relinquished the office of chief of staff and within three months became commander of the Eastern Department of the US Army headquartered on Governor’s Island, New York. From this position the general was able to continue to direct the students’ instruction camps and influence public opinion.<sup>35</sup> Two years later, with Woods cooperation, members of the Aero Club of America set up a civilian flying school on Governor’s Island.<sup>36</sup>

Despite the success of the summer camps, the view from the active-duty US Army in the field was less sanguine. There was a real possibility of invasion from Mexico at that time. The US Army's 8th Brigade remained stationed in El Paso on border patrol in 1914. Its commander, Brigadier General John J. Pershing, addressed his concerns regarding preparedness at the time to Wood: "Here we sit with all our troops on a peace footing waiting for actual hostilities to begin, when we will rush thousands of green and untrained recruits into the ranks of the regular army."<sup>37</sup>

On 18 July 1914, as tensions increased throughout Europe following Gavrilo Princip's assassination of Archduke Franz Ferdinand of Austria on 28 June 1914, the Aeronautics Division, US Signal Corps, officially became the Aviation Section, US Signal Corps, after President Woodrow Wilson signed Public Law 143. The law stated:

There is hereby created, an aviation section, which shall be a part of the Signal Corps of the Army, and which shall be, and is hereby, charged with the duty of operating or supervising the operation of all military aircraft, including balloons and aeroplanes, all appliances pertaining to said craft, and signaling apparatus of any kind when installed on said craft; also with the duty of training officers and enlisted men in matters pertaining to military aviation."<sup>38</sup>

At the time of its creation, the Aviation Section contained just 19 officers, 101 enlisted men, and seven aircraft.

On 5 August 1914, within a month after Wilson signed Public Law 143, Lieutenant Colonel Samuel Reber, issued Signal Corps Aviation School General Order number 10, which outlined the Aviation Section's basic organization. The re-organized Aviation Section contained the Signal Corps Aviation School, commanded by Captain Arthur S. Cowan; the 1st Aero Squadron, commanded by Captain Benjamin D. Foulois; the 1st Company, 1st Aero Squadron, commanded by Captain Harold C. Geiger; and the 2nd Company, 1st Aero Squadron, commanded by Captain Lewis E. Goodier. Several months later, in December 1914, the Aviation Section swelled to 44 officers, 224 enlisted men, and 23 aircraft.<sup>39</sup>

The support that the Aviation Section received did not necessarily indicate a dramatic shift in thinking on the part of the US government or the American people. Some areas of American public opinion were indifferent or even hostile to the idea of military preparedness or a military build-up. However, many attitudes and opinions changed on 7 May 1915 when a German U-boat sank the Cunard ocean liner *Lusitania*. Casualties aboard the *Lusitania* included 1,195 of the 1,969 passengers and crew aboard. Of this number, 94 were children. Also among the dead were 124 Americans.<sup>40</sup>

Within three days of the sinking of the *Lusitania*, fellow New York City law partners Grenville Clark and Elihu Root, Jr. (son Elihu Root, Sr., former US Secretary of War), with the support of Theodore Roosevelt, Jr. and twelve others, met to begin planning what turned into the so-called business men's camps held at Plattsburg, New York. The idea was Clark's. What he had in mind was a military training camp for lawyers and businessmen in their late twenties and thirties along the same lines as those camps held previously for college students. Major General

Wood encouraged the group. He also arranged for the adult camp to be held from 8 August 1915 to 6 September 1915. The War Department included the businessmen's camp in the official order authorizing the other camps held that summer.<sup>41</sup> The 1,200 men assembled at Plattsburg proved to be just as enthusiastic as the students.<sup>42</sup>

One element participating in the 1915 Plattsburg camp was a new motorized machine gun company from the New York National Guard commanded by Captain Raynal C. Bolling. Bolling was a Harvard Law School graduate and General Solicitor of the United States Steel Corporation.<sup>43</sup> Many of the 70 officers and men in his company were "businessmen" as the camp planners had imagined. Bolling obtained 15 vehicles for the expedition including trucks and an armored Cadillac car. The Army, Navy, and National Guard supplied the machine guns and General Wood supplied a gunnery and tactics expert.<sup>44</sup>

In the horse powered Army of that day "Bolling's idea bristled with novelties..."<sup>45</sup> If the guns and vehicles were not "novelties" enough, Bolling had arranged for an airplane with professional aviator in case anyone wanted to learn to fly. The motorized convoy made history as it rolled out of the armory in New York on its way to Plattsburg.<sup>46</sup> Nevertheless, no one could imagine then that they were taking the first steps toward what eventually became the Air Force Reserve.

Just over six months after the end of the first Plattsburg camp, tensions finally erupted on the border with Mexico. On 19 March 1916, Mexican leader Francisco "Pancho" Villa invaded US soil when he attacked the town of Columbus, New Mexico.<sup>47</sup> Villa's strike resulted in the death of nine civilians and eight members of the army's 13th Cavalry Regiment then stationed in Columbus. The Secretary of War ordered Brigadier General Pershing to command an expedition into Mexico to capture "Villa and his bandits." Pershing's boss, Major General Frederick N. Funston, commander of the Army's Southern Department added: "You are instructed to make all practicable use of the aeroplanes at San Antonio, Texas, for observation."<sup>48</sup>

The "aeroplanes at San Antonio" referred to the 1st Aero Squadron stationed at Fort Sam Houston, Texas. Captain Benjamin D. Foulois commanded the 1st Aero Squadron [not to be confused with the 1st Reserve Aero Squadron discussed below]. Foulois was a thirty-six year old former enlisted man in the Aviation Section of the signal Corps with 17 years military service and more flying time than any other military pilot. His unit, consisting of fifteen other pilots and eight airplanes, comprised the entire active air arm of the US military establishment. Captain Foulois received orders directing his squadron "to proceed by rail to Columbus, New Mexico," just three days after the raid.<sup>49</sup>



**1<sup>st</sup> Aero Squadron in Mexico (Photo: AFHRA)**

## **The National Defense Act of 1916**

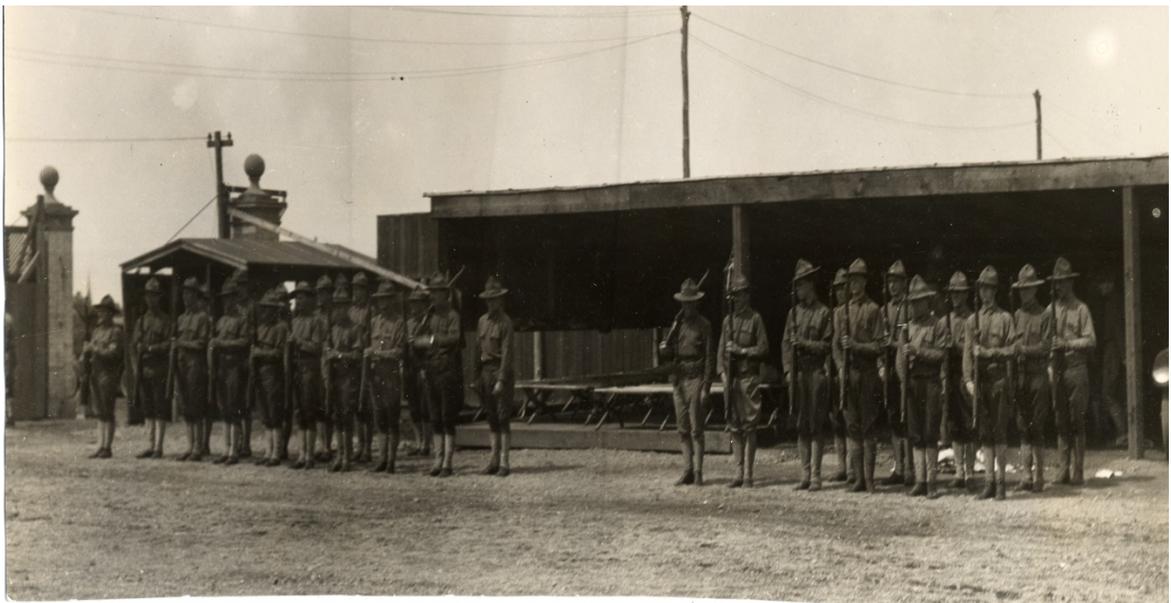
Two months after the Villa attack, Congress passed the National Defense Act (NDA) of 1916 in response, at least in part, to the war raging in Europe. President Woodrow Wilson signed the NDA into law on 3 June 1916. The comprehensive legislation defined the roles and missions of the active-duty US Army, the National Guard, and the Reserves. It also placed the Reserve Officer Training Corps (ROTC) and the Plattsburg idea of summer training on a firm basis.<sup>50</sup> The 1916 Defense Act may have never happened without the Mexican troubles.<sup>51</sup> In the words of erstwhile Chief of Military History, Brigadier General Hal C. Pattison, “the National Defense Act of 1916 is viewed as providing for the immediate ancestor of our reserve system in its present form.”<sup>52</sup>

In July 1916, President Woodrow Wilson authorized a total of 296 officers for the Aviation Section, Signal Officers Reserve Corps and 2,000 enlisted men for the Signal Enlisted Reserve Corps.<sup>53</sup> Civilians who met the basic requirements enlisted as sergeants in Aviation Section, Signal Enlisted Reserve Corps, and were assigned to active-duty so that they could complete their training and earn a commission. To facilitate that process, Wilson also authorized the Aviation Section to use civilian flying schools for preliminary flight training, since the military had very few aviation schools. On 14 November 1916, the first group of Signal Enlisted Reserve Corps members arrived at the Curtiss School in Newport News, Virginia, to begin flight training.<sup>54</sup>

## The 1st Reserve Aero Squadron<sup>55</sup>

The 1915 Plattsburg camp had a profound effect on Captain Raynal C. Bolling, the commander of the motorized machine gun company from the New York National Guard. While the “lure of machine guns” was indeed novel, it was the airplane that satisfied a personal goal to be prepared for military service and his “passion for adventure.”<sup>56</sup>

But where the large issue was so serious and where those who saw it were so few, mere personal effort in preparation could not content Bolling. Having had a glimpse of the wonderful possibilities of military aviation and realizing how little had been done by our government, he began to make plans for the training of pilots to be available in time of war. The Plattsburg venture had encouraged him to believe that he could lead as well as learn; he had never been afraid of assuming responsibility; and accordingly without delay he took steps toward the formation of an Aero Company of the New York National Guard. It was a virgin field, and Bolling, a novice, had to start from the beginning. He must gain support for his project in several quarters, he must recruit prospective fliers, he must raise a considerable amount of money, he must establish contact with the National Guard authorities.<sup>57</sup>



**1<sup>st</sup> Reserve Aero Squadron (Photo: NMUSAF)**

On 25 April 1916, Captain Bolling presented a report after the 1st Aero Company of the New York National Guard had completed its initial six months of training. The period covered was 1 November 1915 to 25 April 1916. During that time the unit raised monies from private contributions to purchase five aircraft. The company’s physical location was Hampstead Field, Mineola, New York where they built five hangars to house the aircraft. The pilots accomplished 355 flights totaling 3,859 minutes amounting to 3,800 miles.<sup>58</sup>



**Captain Raynal C. Bolling (Photo: NMUSAF)**

Less than three months later, President Wilson mobilized the National Guard due to Poncho Villa's raid on Columbus, New Mexico. On 23 June 1916, Bolling went to Mineola to commence training his civilian pilots in the 1st Aero Company.<sup>59</sup> Recruiting grew the unit by fifty per cent from 30 to 45 members. What emerged that summer was the first army flight school for citizen airmen in history.<sup>60</sup> At the same time on Governor's Island in New York Harbor another group of civilians participated in aviation training. The Governor's Island Training Corps was organized by Philip A. Carroll, who was one of the original fifteen professionals advocating the businessmen's camps at Plattsburg. Although the Governor's Island school did not have official status, Wood provided regular army flying instructors.<sup>61</sup>

After complimenting Carroll and Bolling in a letter for their valuable work during that summer of 1916, General Wood wrote that it was unfortunate that aviation was attached to the Signal Corps. "It must eventually be an independent corps," Wood predicted. Over thirty years later this prediction came true with the regular and reserve aviation forces in the US Air Force.<sup>62</sup>

Despite some progress made during the summer of 1916, Captain Bolling was less than satisfied with the support the 1st Aero Company received from the state of New York. Bolling recalled that "We had no tents, no uniforms, no blankets, nor other equipment," Bolling stated in a preparedness promotion speech at a dinner in New York City that November. "We had to use

## Raynal Bolling



Born in Hot Springs, Arkansas, on 1 September 1877, Raynal C. Bolling attended Harvard College and graduated with the class of 1900. Continuing in Harvard Law School, Bolling was active in the Harvard debating club, was an enthusiastic oarsman on the Harvard rowing crew, and an avid runner. Following a short tenure in a New York law firm, the United States Steel Corporation hired Bolling as assistant to its General Solicitor in 1903 and General Solicitor in 1913.

In 1915, Bolling organized and commanded the Motor Machine Gun Company that attended the military training camp at Plattsburg that year. He and other members of his National Guard unit formed the 1st Aero Company, New York National Guard. Then Bolling was appointed to command the new 1st Reserve Aero Squadron, Aviation Section, Signal Corps, on 26 May 1917.

Ordered to Washington, D.C., in late May 1917, then Major Bolling worked on the details of a draft Aviation bill with Major Benjamin Foulois that resulted in an unprecedented appropriation of \$640,000,000 for the US Air Service. The next month, Bolling headed a mission “to England, France and Italy to arrange a joint program for the construction of airplanes and engines and all other industrial aspects of the aeronautical situation.”

Members of “the Bolling Mission” landed in England on 17 June 1917. They also traveled to France and Italy. Bolling’s recommendations in his report of the results of his mission were that French manufacturers would supply the needs of the A.E.F. for aircraft at least for the first twelve months.

In November 1917, Colonel Bolling met with General Pershing. During this meeting, Pershing appointed Bolling as the American representative on the committee that dealt with allied aeronautical equipment. The following spring, Bolling became the Chief of the Air Service for the US II Corps. Bolling visited British Royal Flying Corps aerodromes to prepare for his new assignment. On the return trip, Bolling and his driver, Private Paul Holder, found themselves in the midst of German troops. While trying to protect both himself and Holder, Bolling was shot dead by German soldiers.

private funds to pay for our rations,” he went on to say. “However, we made the best of it.”<sup>63</sup> Bolling’s conclusion after this experience was that “National Guard aviation units are not and never will be practicable.”<sup>64</sup>

The company never made it to Mexico. Nevertheless, the Army began to pay its bills in August 1916. Three months later, on 2 November 1916, the unit was mustered out of federal service.<sup>65</sup> By this point, Bolling meant to dissolve the aero company. This was achieved the following spring “after much consultation and correspondence.”<sup>66</sup> In the meantime the National Defense Act of 1916 had established the Signal Corps Reserve with the mandate to recruit and train members of the Aviation Section, Signal Officers and Enlisted Reserve Corps. The act provided the main ingredient lacking in previous legislation—funding. Nearly a million dollars was available for training the Reserve Corps when called to active duty for training.<sup>67</sup>

Congress declared war on Germany in April 1917. Later that month, the magazine of the Aero Club of America published the following:

On April 27, the War Department issued the following order: “The following officers of the Aviation Section, S.O.R.C. [Signal Officer Reserve Corps] to active duty at Governors Island, N.Y., for duty in connection with the organization of the 1st Reserve Aero Squadron, Signal Corps; Major Raynal C. Bolling, Capt. Phillip A. Carroll, Capt. James E. Miller, 1st Lieutenant Daniel R. Noyes, 1st Lieutenant Frederick L. Blakeman, 1st Lieutenant Charles Reed, 1st Lieutenant Hobart A.H. Baker, and 1st Lieutenant Edwin E. Post Jr.”<sup>68</sup>

During the waning days of April 1917 the nation’s most experienced active duty aviator Benjamin Foulois and its most knowledgeable reserve aviator Raynal Bolling worked on the draft bill for organizing military aviation to fight the war. This resulted in an act appropriating 640,000,000 for training, production, and maintenance.<sup>69</sup>

The 1st Aero Company of the New York National Guard inactivated on 23 May 1917.<sup>70</sup> Most of the former members of the former 1st Aero Company joined the 1st Reserve Aero Squadron, Aviation Section, US Signal Corps. The unit activated on 26 May 1917 under the command of Major Bolling.<sup>71</sup> Many of the men from the Governor’s Island group under Captain Philip A. Carroll also joined the squadron.<sup>72</sup>

## **Creating the Signal Enlisted and Officer Reserve Corps, Aviation Section, Signal Corps**

The activation of the 1<sup>st</sup> Reserve Aero Squadron occurred as the Aviation Section struggled to expand. When the US declared war with Germany in April 1917, Chief Signal Officer, Major General George O. Squier had to work tirelessly to expand the meager Aviation Section under his command. In order to help him achieve his objective, Squier sought out individuals who had the requisite skills to build a successful force. One such man was Connecticut National Guard Captain Hiram Bingham.

Bingham, a Yale professor, archaeologist, and adventurer of some renown, also had an intense interest in aviation. Having successfully completed the Curtiss flight school in Miami, Florida, the Aero Club of America qualified Bingham as an aviator on 30 April 1917. On 1 May 1917, Bingham received a telegram from General Squier asking him to report to headquarters Aviation Section, Signal Corps, Washington D.C. to assist in selecting and training aviators. As Bingham wrote later, "Needless to say, I took the next train." Upon arrival General Squier explained that he had selected Captain Bingham because of his experience in the military, his exploration skills, his familiarity with flying, and his ability to teach. Squier then assigned Bingham to a task force of the National Advisory Committee on Aeronautics that traveled to the Royal Flying Corps ground school at Toronto, Canada, to observe how would-be military aviators might be trained in the US.<sup>73</sup>

Bingham led the group made up of representatives from the Universities of California, Texas, Illinois, Ohio State, Cornell, and the Massachusetts Institute of Technology, to the University of Toronto, School of Military Aeronautics. The Royal Flying Corps in Canada conducted training at Camp Borden, some seventy-five miles outside Toronto. Camp Borden was at that time the largest flying field not in Europe. Major Oliver D. Filley, the camp commander, was an American who had joined the British forces early in the war and was a veteran aviator of the western front. In Major Filley's philosophy, "the pilot is more like the knight of old, or the modern cavalry officer; he must first of all be (to quote the hackneyed phrase) an officer and a gentleman." What's more, the Major believed polo players and football quarter backs made excellent pilots."<sup>74</sup>

Bingham and the other Americans on the committee formed the opinion that pilot candidates must have the "right stuff" to be considered for training. Trainees must be "fellows of quick, clear intelligence, mentally acute and physically fit." The Signal Corps, Aviation Section should eliminate the unfit as fast as possible to avoid wasting on them "the most expensive education in the world." The idea was to eliminate undesirables at the relatively inexpensive ground school stage before they moved on to actual flight training.

The American committee decided it could not do better than adopt the Royal Flying Corps curriculum they had observed in Canada for the American program of instruction. The tour of inspection ended 11 May 1917. The six entities represented on the Toronto trip began ground school training ten days later on 21 May 1917.<sup>75</sup> By June 1917, the US Schools of Military Aeronautics added two more ground schools at Princeton University and the Georgia School of Technology.<sup>76</sup>

Bingham returned to Washington on 13 May 1917, and became the Director of the US Schools of Military Aeronautics. By then, the city had become much more "warlike" compared to when he left. About six months later someone on the General Staff authorized the wearing of wings on uniforms of officers in the Aviation Section of the Signal Corps. Nevertheless, they were still required to wear cavalry spurs when wearing boots. "It is a queer sense of humor that requires a field officer," wrote Bingham, "who in the course of his duties suddenly is called upon to mount his winged steed, to divest himself of his spurs and put them in his pocket for safety." At some point, this archaic uniform regulation was suspended for aviators actively engaged in

## Hiram Bingham



Bingham (1875 – 1956) was a professor at Yale University, explorer, archaeologist, aviator, and US Senator from Connecticut. On an expedition to Peru in 1911, with a local farmer for a guide, Bingham was the first to make public to the outside world the existence of the ruins of Machu Picchu, the pre-Columbian Inca site.

His autobiographical post WWI book, *An Explorer in the Air Service*, is a record of the two years after he learned to pilot a flying boat in 1917 at the Curtiss Aviation school in Miami where Glenn Curtiss himself told Bingham, “...anyone who could ride horseback and sail a boat could learn to fly.”

Bingham passed the final test for his Aero Club aviator pilot license on 30 April 1917, less than a month after the US declared war on Germany. Having previously served as a captain in the Connecticut National Guard, he applied for and received a commission in the Aviation Section of the US Signal Officer Reserve Corps.

In May 1917, Bingham reported to Washington, D.C. to join a task force of the National Advisory Committee on Aeronautics that helped determine the best way to train U.S. military aviators. The National Advisory Committee decided to adopt the British Royal Flying Corps model. Once finished with his duties on the committee, Bingham served with the Chief of the Air Service from April-August 1918. For the remainder of the conflict, from August to December 1918, Bingham, now a lieutenant colonel, served as the commander of the Third Aviation Instruction Center, Issoudun, France.

war. Even so, when Bingham returned from the war in 1919, he was shocked to find “the unfortunate aviator once more compelled to wear spurs when wearing boots.”<sup>77</sup>

## **The Bolling Mission**

Major Bolling impressed many people with whom he came in contact. Thus, Secretary of War Newton Baker selected Bolling to head a team of experts that investigated and recommended what airplanes and equipment the US government should produce. The group included Bolling, Captain V.E. Clarke, Captain E.S. Gorrell, Commander W.G. Westervelt and Lieutenant W.G. Childs of the US Navy, Mr. Howard Marmon of the Nordyke and Marmon Company, Mr. Herbert Hughes of the Packard Motor Company, Mr. C.H. Heilman of the Northway Motor Company, Mr. W.B. Hurley of the Midvale Steel Company, Mr. R.A. Vail of the Dodge Motor Company, and Mr. Stay of the Aluminum Castings Company.<sup>78</sup> Known thereafter as the “Bolling Mission,” the group prepared for travel to Europe in mid-June 1917.

On 14 Jun 1914, Bolling received a letter from Howard Coffin, chairman of the Aircraft Production Board. Coffin explained that Bolling occupied “a position of vital importance not only to this country but to the countries on the other side of the water as well.” Coffin continued, stating:

The speed with which the United States launches its aircraft program depends largely on you. Your good judgement and tact may easily bring results of the greatest international importance. I just wish to say to you that I am standing behind you in the unqualified statement that you are man best fitted for this vitally important task we have assigned you, and I know that we shall not be disappointed in the results.

This whole aircraft program is rapidly assuming such proportions that I believe you have the opportunity of your life, and you have my heartfelt wishes for your success upon personal as well as business grounds. Keep me advised of every step by cable. Get all the facts before recommending a decision....<sup>79</sup>

Commonly referred to as the Bolling Mission, the group set sail for Europe on 17 June 1917. Shortly after arriving in England on 27 June 1917, Boiling, Mr. Howard Marmon, and Major E.S. Gorrell met with British authorities to discuss the issue of royalties. The British agreed to “an even exchange of manufacturing rights” as long as the US provided the raw materials.<sup>80</sup>

The Bolling Mission departed for France on 30 June 1917. After landing at the Royal Flying Corps’ headquarters in France, Bolling headed to Paris where he tried to meet with high-level French officials. Bolling recalled that it took a few days “before we were put in touch with anyone who seemed to be in a position to take up anything promptly and vigorously. There were endless conferences which came to nothing, and one complication overlapped another.”<sup>81</sup> Frustrated, Bolling decided that his group would have to travel to Italy in order to get the full picture of Italian aviation. Thus, Bolling and his group left for Italy at the earliest opportunity.

After arriving in Italy, Bolling and his men visited aircraft factories, aviation training bases, and the Italian front lines. The Italians went out of their way to impress Bolling and

company. At Turin, the Italians held an air show that involved approximately 30 aircraft of all types being put through all sorts of aerial maneuvers. The visit proved to Bolling and his men that the Italians had the capabilities to produce the aircraft, engines, and associated equipment that the US needed on the Western Front in France.<sup>82</sup>

After arriving back in Paris following the completion of their visit to Italy, the men on the Bolling Mission went their separate ways after General Pershing informed Bolling that he needed him to help get the Air Service, AEF, up and running. Before Bolling dove headlong into his duties with the Air Service, AEF, he sent his Bolling Mission reports to the US. In a letter received by General Foulois on 15 August 1917, Bolling stated:

In our opinion these American needs may be divided into two periods: First period, from the present time to July 1, 1918. Second period, subsequent to July 1, 1918, With every confidence in the ultimate performance of the American production program our investigations of production experience over here and of the sea tonnage situation have convinced us that airplanes and engines produced in America cannot be actually delivered at the front in any great quantity prior to July 1, 1918. Subsequent to July 1, 1918, we believe that American production will not only take care of our needs, but may become a larger factor in maintaining the air forces of our Allies. In considering the period between now and July 1, 1918, due weight must be given to the experience of all foreign countries and manufacturers in the delays in airplane and engine production which were not and could not be foreseen....

After long and careful consideration of this subject, we and all others here have come to the very strong conviction that most of the airplanes and engines for American use at the front and for our training here between now and July 1, 1918, must be produced either in France or Italy where effective and successful methods of production are already in full operation. Because we consider this imperative and absolutely essential to prevent failure of our air campaign next year, an arrangement has been made with the French Government under which they are to produce for us the airplanes and engines....<sup>83</sup>

Not long after Bolling sent his message, General Pershing signed a formal contract with the French on August 30, 1917. The contract required the French to build 5,000 aircraft and 8,500 aircraft engines for the US to use during the war.

### **Bolling in the Air Service, AEF**

After the Bolling Commission finished its work, Bolling joined Billy Mitchell's staff in Paris, France. Mitchell, recently selected as the Chief, Zone of the Interior, Air Service, needed all the capable officers he could get. Then, on September 3, 1917, General Pershing established the Air Service, AEF. Pershing personally selected Bolling to serve as the Director of Air Service Supply for the Air Service, AEF. In his new position, Bolling oversaw the lines of communication for the entire Air Service Zone on the Western Front. As such, Bolling oversaw the Balloon Division, the many training schools, air depots, and the aerial photography units.<sup>84</sup>

On November 17, 1917, Brigadier General Benjamin Foulois arrived in Paris with a staff of over 100 officers. Shortly after arriving, Foulois relieved Bolling and assigned him as the chairman of the Joint Army-Navy Aircraft Committee so that he could serve as the intermediary between the U.S. military and the American companies producing aircraft and aircraft parts. Ostensibly this was done to coordinate the activities of the military and the aviation industry in procuring aircraft. During the same period, Bolling served as General Pershing's aviation representative on the Supreme War Council.

The assignment proved frustrating as his staff work and proposals were often undermined by competing interests, political in-fighting, and administrative delays. Bolling sought a combat command and was picked to become chief of air service for the US II Corps when it formed in the spring. To prepare himself he visited aerodromes of the Royal Flying Corps in the vicinity of Amiens in March 1918 to observe air operations in support of the British Expeditionary Force during the German spring offensive.

## **Training**

Training new aviators, mechanics, and other personnel proved to be a significant challenge for the Aviation Section, especially the Air Service, AEF. Bolling, perhaps better than most because of his time both the New York National Guard and the Signal Officers Reserve Corps, understood the difficulties involved in training aviators quickly. He commented:

The great development of military aviation abroad and the remarkable achievements of foreign military aviators with the machines now turned out there have led people in this country to think that military aviators can be trained and military machines perfected quickly. They nothing of the time, energy, and money expended in the results abroad under the stress of utmost necessity.<sup>85</sup>

Bolling proved to be accurate. When the US declared war on Germany, the US Air Service only had 65 trained flying officers.<sup>86</sup> A few of those men had seen active service during the Punitive Expedition in Mexico but most had no wartime experience.

Bolling became so frustrated by the immense difficulties that seemed to emerge at every turn with regard to training that he lamented:

I had one hundred and fifty of the best motor mechanics in the vicinity of New York in the First Reserve Aero Squadron at Mineola eagerly awaiting order to take them to France. With them were a lot of officer with valuable business training, every one of whom is urgently needed here. Every man and officer in that squadron would be of the greatest value right here, right now, but they are left fretting and chafing down there because of some more damned red tape.<sup>87</sup>

Fortunately for all involved, literally tens of thousands of young men volunteered to join the Signal Enlisted Reserve Corps after the U.S. declared war on Germany. Once accepted, these prospective pilots became flying cadets with a salary of \$30 per month.

After certain preliminary flights the candidates performed the Reserve Military Aviator test indicating successful completion of the flight school. This qualified them for a commission as a reserve officer. The test included the following requirements:

- (1) Climb out of a field 2,000 feet square and attain 500 feet altitude, keeping all parts of the machine inside the square during the climb.
- (2) Glides at normal angle, with motor throttled. Spirals to right and left. Change of direction in gliding.
- (3) At 1,000 feet, cut off motor and land within 200 feet of a previously designated point.
- (4) Land over an assumed obstacle 10 feet high and come to a rest within 1,500 feet of then same.
- (5) Cross-country triangular flight of 30 miles, passing over two previously designated points. Minimum altitude 2,500 feet.
- (6) Straight-away cross country flight of 30 miles. Landing to be made at designated destination. Both outward and return flight at minimum altitude of 2,500 feet.
- (7) Fly for 45 minutes at an altitude of 4,000 feet.

During the eight to twelve weeks required for basic flight training, cadets received training on astronomy, the principles of flight, proper radio operations, the use of codes, aerial photography, aircraft maintenance, and machine-gun use.<sup>88</sup> After completing ground school training, the newly commissioned officers typically attended preliminary flight training where they learned the basic of handling and flying an actual aircraft. Unfortunately, the supply of preliminary flight training facilities could not meet the growing output from the many ground schools. As a result, the US Air Service sent a significant number of newly-minted officers to Canada for their preliminary flight training. An additional number went to France to receive training. However, transportation delays further compounded the problem for several more months.<sup>89</sup>

Bolling stated:

Since I have taken charge of the training over here also, I have been much concerned over the way it is being handled in the United States. When I left America I had definite assurance that sixty men, ten trained and fifty untrained, would be started for France immediately—but they reached here only yesterday, two months after they were promised to Major Tulasne and myself. It was also promised that others would follow every month and that mechanics would be sent in the ratio of eight to one student pilot. The French received word of this and made preparations in their schools, holding vacancies and others interfering with their own progress and output.

The failure to send the promised number of student pilots and mechanics had disappointed and upset the French no little, and has set us back seriously in training pilots and mechanics for early use. I cabled England that the British offered to take on hundred student aviators with as many mechanics as we could

send, and keep that number always in their schools, but nothing has been done about this opportunity and I am afraid it also may have been lost, though I hope I can yet obtain this training if I have definite assurances when the men will arrive. The Italians offered to train five hundred men before the first of the year. I cabled this offer to Washington, but again no action.

Now this is perfect nonsense. Our best and almost only chance to turn men out this autumn is in the British, French, and Italian schools, and not a day should be lost in drawing men from the ground schools or taking green men and shipping them over here. There is no trouble whatsoever to obtain transportation, for every passenger steamer which comes carries only one-third or one-fourth of its quota of the first and second class passengers.<sup>90</sup>

After completion of preliminary training, most American aviators left for Europe, where they completed their advanced training and gunnery training due to a shortage of such schools in the US. To further compound the problem, in August 1917 General Pershing told the US War Department that he “Cannot have too many pilots too soon. Send them over and we will take care of them.”<sup>91</sup>

The first cadets arrived in France in August and September 1917, with the majority arriving between October and December 1917. The only US school active at the time was located at Tours, France. The Tours site, formerly a French Air Service base, began operating as a primary flying training school on November 1, 1917. The school was originally slated to serve as an observation school but the pressing need for basic flight training took precedence over all other flying instruction needs.

## **Issoudon**

As mentioned previously, the sudden influx of men required the US Army to scramble to build suitable training facilities both at home and abroad. To help their new comrades in arms, the French military suggested to General Squier that the US construct a base approximately 9 miles from the small town of Issoudon in the central region of France. A contingent of US personnel accepted the site in June 1917. One month later, on 2 July 1917, the Aviation Officer, American Expeditionary Forces created a Training Section divided into five divisions: Personnel, Records, Materiel, Training, and Inspection and Intelligence. Officers assigned to the section took charge of pursuit instruction, bombardment instruction, aerial gunnery, and observation. The officers increased their staff by adding assistants taken from the ranks of officers and cadets that had recently arrived in France for training.<sup>92</sup>

The men of the Training Section oversaw the establishment of nine Aviation Instruction Centers to handle advanced and specialized training for Air Service, AEF. The 3rd Aviation Instruction Center (3 AIC) Issoudon, France, proved to be one of the most important such training centers during the war. Equipped with 10 runways to handle a large amount of flying traffic, the 50 square-mile base had the best facilities of the day including two field hospitals and seven geographically separated camps.



**Squadron Barracks at the Third Aviation Instruction Center (Photo: AFHRA)**

Captain James Ely Miller, a former Wall Street banker and the founder of the New York Air National Guard who had joined the 1st Aero Reserve shortly before the US declaration of war, joined General Pershing's staff in Paris. Shortly thereafter, Colonel Bolling appointed Miller as the first commander of the 3 AIC, which contained several other members formerly assigned to the 1st Reserve Aero Squadron. In fact, as historian Pearson argued, the men of the 1st Reserve Aero Squadron "played a brilliant part in building up the Air Service of the A.E.F."<sup>93</sup>

In August 1917, Miller left Paris along with Hamilton Coolidge and Douglas Campbell. When they arrived at Issoudon, which developed into the largest flying training center in the world, the area had twelve tents and a company of engineers busily constructing more-permanent facilities.<sup>94</sup> An early visitor to the developing site stated:

There are acres of ground just littered with great piles of lumber, and supplies of every description. Our own branch railway bringing carloads of everything. Many buildings of all kinds are already up and going: others in the process of speedy construction. Half a mile away you can see row after row of great canvas hangers....Everywhere is hustle, activity, (and loads of mud).<sup>95</sup>

Aware that they couldn't accomplish much with the area still under construction Miller and his colleagues returned to Paris to try and acquire aircraft and equipment for the base. At the beginning of October 1917, Miller and his men, which included Coolidge, Campbell, Quentin Roosevelt, and Edward Rickenbacker returned to Issoudon. Members of the 1<sup>st</sup> Reserve Aero Squadron, who had arrived at Issoudon the previous month, rounded out the initial staff.<sup>96</sup> Unfortunately for Miller, General Pershing was not impressed when he visited Issoudon in November 1917. Colonel Edgar S. Gorell, Assistant Chief of Staff, Air Service, AEF, explained:

## Douglas Campbell



Douglas Campbell was born in San Francisco on 7 June 1896. A student at Harvard University during much of World War I, Campbell and his friend Quentin Roosevelt, the son of Theodore Roosevelt, left school and joined the US Army on 18 May 1917. Campbell then trained at the School of Military Aeronautics at the Massachusetts Institute of Technology. Shortly thereafter, on 23 July 23, 1917, Campbell boarded a ship headed to France for further training.

Within two months of arriving in France, on 29 September 1917, Campbell received a promotion to first lieutenant. In early 1918, Campbell received advanced aviation training at the 3rd Aviation Instruction Center at Issoudun, France, and the 6th Aviation Instruction Center at Cassaux, France. Once he had completed his training, the Air Service, AEF assigned Campbell to the 94th Pursuit Squadron. Known as the “Hat in the Ring” because of the insignia they painted on the fuselage of their aircraft, the men of the 94th Aero Squadron proved themselves to be a group of very talented aviators. Campbell proved to be a talented as any of the men in his unit.

On June 5, 1918, Campbell and his wingman James Miessner shot down a Rumpler near Nancy, France. During the engagement, an explosive bullet fired from a German aircraft hit Campbell in the back. While he survived the wound, Campbell’s condition required him to return to the U.S. to recuperate. Fellow pilot Eddie Rickenbacker stated that, “Had it not been for this unfortunate accident Lieutenant Douglas Campbell would undoubtedly have one of the highest scores of victories claimed by any air-fighter, for he was just entering upon his full stride.”

While convalescing in the U.S., the Aviation Section promoted Campbell to the rank of captain. Then, on November 8, 1918, Campbell returned to France just in time to witness the end of the “Great War.” Campbell transferred to Germany with the Army of Occupation. He remained in the newly-defeated nation until January 1, 1919, when he returned to the U.S.

The situation was, however, very unsatisfactory, as the barracks and accommodations at the school were of the crudest kind, and it had been impossible to build roads before the rainy weather made the camp a sea of mud. The flying field itself was newly sown and mud thrown from the airplanes broke propellers almost as fast as they could be put on. No machine shops had been established and no materials for their erection were at hand, nor were there any machine tools or power available. All mechanical work to be done in a two machine-shop trucks brought from America.<sup>97</sup>

Concerned that things had not progressed fast enough, General Pershing placed Major Carl Spaatz in command of the 3 AIC. Miller did not leave Issoudun. Instead, he stayed at the 3 AIC as the commander of Advance Field 5.

## **Training Intensifies**

Spaatz helped oversee the rapid development of Issoudun. The curriculum they developed at Issoudun revolved around the intricacies of pursuit aircraft and pursuit tactics. Instruction included advanced flying training in the Nieuport 15 (15-meter wingspan) and the Nieuport 18 (18-meter wingspan).<sup>98</sup>

After completing an advanced flying course, student pilots participated in intensive training in acrobatics, formation flying, and mock dogfighting with camera guns in place of working machine-guns. Many also received some night flying training as a result of the British Royal Flying Corps' success while attacking at night. Upon finishing those courses, students attended an aerial gunnery course at the French school at Cazaux, at the US school at St. Jean-de-Monts, or at Issoudun. In total 766 pursuit pilots trained at Issoudun. Of that number, 627 served in the Zone of Advance while the remainder served as instructors, staff pilots, and testers. These included First Lieutenant Edward Rickenbacker, the 3 AIC's first graduate.<sup>99</sup>

The increase in the number of trainees arriving at Issoudun had some unfortunate results. On many instances, the training proved unforgiving, with an average of one death for every 9.2 graduates versus one out of 50 for observation, reconnaissance, and bombardment students. In total, 218 pilots and observers met their end at one of the many US training centers. Those deaths included 169 students and 49 instructors, testers, and transfer pilots. Not surprisingly, a great number of those deaths occurred when flying the faster aircraft types used to train pursuit pilots at Issoudun. While the use of parachutes may have lowered the number of deaths, the use of parachutes by pursuit pilots remained in the "experimental stage" throughout World War I.<sup>100</sup>



**Field 3, Third Aviation Instruction School (Photo: AFHRA)**

## **Miller's Death**

On February 20 1918, Bert M. Atkinson, commander of the 1<sup>st</sup> Pursuit Organization and Training Center, selected Miller to command the 95th Aero Squadron located at Villeneuve, France. Soon thereafter, Miller took a group of pilots with him to retrieve the 95 AS's aircraft from Paris. The group returned to Villeneuve on March 6, 1918, with fifteen Nieuport 28 aircraft. The men of the 95 AS proceeded to put the aircraft through their paces. Miller, eager to see the front lines for himself, asked two pilots he knew to help him solve a problem. Miller explained that, while he was in command of the first US pursuit squadron at the front, he had "never seen the lines from the air." Thus, he argued "I need the experience for myself but I need it more to give me some prestige with these pilots." The pilots, Major Davenport Johnson and Major Millard Harmon, spoke with their commander who lent Miller an airplane to fly the following day.<sup>101</sup>

The following day, March 7, 1918, Miller awoke and flew his unarmed Nieuport to Coincy, France, to retrieve the armed SPAD set aside for him to fly. Miller then joined Major Johnson and Major Harmon on patrol above Juvincourt-et-Damary, France. Engine trouble shortly after takeoff forced Harmon to return to Coincy but the Miller and Johnson continued unabated. The two pilots encountered German aircraft near the town of Reims, France. Johnson, whose guns jammed, broke off the engagement while Miller continued the fight. Within moments, witnesses on the ground saw Miller's aircraft enter a tailspin while the two German aircraft followed in close pursuit.<sup>102</sup> Miller did not survive his first combat sortie.<sup>103</sup>

Miller's death took a toll on the men of the 95 AS. His friend Phillip Roosevelt explained that "everything is in the air and Jim was the only man who seemed to have definite ideas about

what a squadron ought to be, to have and to do.”<sup>104</sup> To help fill the void left by Miller’s passing, Atkinson selected First Lieutenant Seth Low to lead the 95 AS.<sup>105</sup> Low, a former member of the 1st Reserve Aero Squadron, held the post for a week before Major Davenport Johnson took command of the unit.<sup>106</sup>

## **Bolling’s Death**

Several weeks after Miller’s untimely death, another former member of the 1st Reserve Aero Squadron met his fate while serving in France. In March 1918, the German’s began another large offensive to try and break the stalemate on the Western Front. The German’s made a significant breakthrough along the British Fifth Army’s lines shortly thereafter. On March 26, 1918, Bolling and his driver, Private Paul Holder, passed near Amiens, France, on the Amiens-Saint-Quentin Road to inspect Air Service, AEF, forces at the front. Unfortunately, both men were caught in the crossfire between German and British forces.

On 14 January 1919, Private Holder provided his statement regarding Bolling’s death. Holder stated:

We left the hotel at Amiens about 9:30 a.m. on the 26th of March, 1918, headed for Harbonniers Aerodrome, which we found evacuated. Upon finding the Aerodrome evacuated, we decided to drive towards the lines. After several kilometers, we arrived at Estrées, where we met three English Infantry Officers, one Major and two Lieutenants (we had brought the Major's servant back to Amiens from Champien the day before). Colonel Bolling inquired of the Major: "How far is the Hun away?" They replied: "Three miles away is our latest knowledge," and that it would be all right for us to go up on the top of the hill, which was about 1 1/2 miles away. It is at Estrées that the Somme battlefield opens out, and upon continuing on some 300 yards after leaving these officers, we ran into a nest of German machine-guns; the Germans opened fire upon us, from both sides of the road. The Colonel thereupon remarked something to the effect that "This is getting too warm," and I endeavored to turn the car in order to retrace our steps; but as the machine-guns were but 150 feet from us, their continuous fire quickly put the motor out of commission, so that I was unable to turn the car. Colonel Bolling then gave me orders to jump out of the car into a shell hole on the side of the road, which I did. Colonel Bolling likewise left the car and took shelter in another near-by shell hole. A ditch connected the shell hole in which I lay and the; one in which Colonel Bolling was, and he could see me. The machine-gun fire of the Germans continued for about fifteen minutes and was directed both at the car and the shell holes in which Colonel Bolling and I had taken shelter. After the machine-guns ceased firing, two German officers appeared at the edge of the shell hole in which I was lying; I was unarmed and was unable to make any resistance, and was shot at twice by one of the German officers as I lay in the shell hole waiting to see what course Colonel Bolling would take. As these German officers fired at me, Colonel Bolling fired at them with his revolver (which was the only firearm in the possession of either of us), killing one German officer and was in turn killed by the return fire of the other officer. He was

instantly killed by a bullet through the heart, and received a second wound on the head from the fire of the Germans.

The German officer who shot Colonel Bolling then retired from the scene, evidently toward his machine-gun, leaving Colonel Bolling and me. I lay still in the shell hole about thirty minutes, the German patrol having passed beyond where I lay, going in a westerly direction. Shortly after the patrol passed me, German infantry occupied the territory. Upon becoming aware of the presence of the infantry, I decided to feign dead until darkness came on, when I then thought I could make my way through the German lines to our own line, but as I lay feigning death, five infantry men stepped down in my shell hole and rolled me over. Upon finding that I was not dead, they commenced to ask me question in German, amongst which was whether or not I was American. One of these men then went to the car and brought back the Colonel's small handbag, asking me for the key. Upon my telling him I had no key, he ripped the bag open with his bayonet and took some minor articles, but did not take the entire contents of the bag. One of the men then searched my clothes and took everything I had. The man who had ripped open the bag then fixed the bayonet to his gun and marched me behind the German lines to a prison camp.<sup>107</sup>

After the war, Major General Mason M. Patrick, who served as air chief of the American Expeditionary Forces in France, recalled Bolling's impact. He stated that, "It was a privilege of mine to know Colonel Bolling in France. This was before I joined the Air Service, in the dark days of the winter of 1917-18, when even to us who knew the potential strength of our country, who built high hopes upon her being a factor in the war -- what had been done seemed very little, almost enough to make one lose heart. It was then that I met Colonel Bolling and learned to admire his attitude, his determination, his conviction that we should soon be ready to play our part in that mighty struggle. He was working, whole-heartedly and with a single purpose. He meant to make the Air Service count, and although the difficulties had been many, I marveled at what he had accomplished."<sup>108</sup>

## **Bingham Takes Command**

Hiram Bingham, recently promoted to the rank of lieutenant colonel, took command of the 3 AIC in August 1918. Bingham's previous experience as an aviator, professor, and explorer served him well during his tenure. He quickly adapted to his new position and helped the 3 AIC weather some of the busiest flying months of the entire war, which included the Battle of Saint-Mihiel (12-15 September 1918) and the Meuse-Argonne Offensive (26 September 1918-11 November 1918).



**Bolling and Staff at Issoudun, France (Photo: AFHRA)**

Recalling his time at Issoudun, Bingham recalled that the 3 AIC had changed a great deal in the short time he had been away. The fields that had once been muddy and strewn with lumber were neatly manicured and full of living quarters, work centers, and aircraft hangers. According to Bingham, the facilities at the 3 AIC had developed to such an extent that he had an engineering department at his disposal that could handle nearly any challenge when it came to repairing damaged aircraft.<sup>109</sup> Bingham stated that “If a crashed plane proved to be a total wreck, it was carefully salvaged, all the precious bolts and screws that were so hard to obtain in France during war times were rescued, and everything that could be used again was turned into the supply stores from which planes were rebuilt.”<sup>110</sup>

Despite the robust facilities at the 3 AIC, many aircraft parts remained hard to obtain due to wartime circumstances that slowed their delivery to the field. Such hard-to-acquire aircraft parts included dope and cloth for the wings, wood, glue, aluminum, steel cables, paint, and varnish. Bingham lamented that the shortage of aircraft parts forced his men to cannibalize other aircraft, often aircraft damaged in crashes, just to keep up with the flying hour demand. Yet, Bingham recalled that his repair shop rebuilt approximately 20 aircraft each week, saving the US government more than \$100,000 a week.<sup>111</sup>



**Test Department Repair Shops at Issoudun, France (Photo: AFHRA)**

Issoudun also boasted a large aero supply warehouse originally organized by Captain H.B. Close and further improved by Lieutenant Selmer J. Tilleson. The variety of aircraft flown at the 3 AIC included 17 different types of Nieuport aircraft, four types of Moraine aircraft, three types of SPAD aircraft, and several others. As a result, the warehouse contained thousands of individual parts listed under 30,000 different separate categories.<sup>112</sup>

While warehouse operations served as a point of pride for Bingham, such was not the case on every front. Bingham related that he had a difficult time procuring enough gasoline to fuel the sorties needed to sustain the high-paced training requirements. He explained that the officers distributing the fuel from other locations were slow to appreciate the fact that the 3 AIC flew as many as 1,000 hours per day, since each aircraft used between 12 to 20 gallons per hour.<sup>113</sup>

## St. Mihiel and the Meuse-Argonne Offensive

After the defeat of German Army at the First Battle of the Marne, Generals Erich von Falkenhayn and Hermann von Strantz attempted to capture Verdun with a converging maneuver. On 24 September 1914, the French 3rd Army stopped von Falkenhayn's army short of the objective, but failed to halt von Strantz's forces until after they captured St. Mihiel. As a result, the offensive created a new battle line 24 miles wide along the base and 14 miles deep. This V shape protrusion in the line became known as the St. Mihiel Salient. It featured rugged, heavily wooded areas along the Meuse River, as well as the Woevre plains, which contained the detached heights Loupmont and Montsec and afforded high ground and good visibility for the entrenched German forces. Furthermore, heavy rains in the fall made the Wovre plains virtually impassable due to mud. The French First Army attempted unsuccessfully to retake the Salient in February and again in April 1915. German forces shored up the defenses at the Salient, creating two defensive lines. The first, the Wilhelm position, was near to and paralleled the French line at the front. Five kilometers to the rear of the Wilhelm line, was a much more strongly fortified line known as the Schroerer line. It extended from St. Mihiel and ran along the base of the Salient.<sup>114</sup>

Pushing back the St. Mihiel Salient and eliminating the bulge in the front was an important focus of Allied war planning. All attempts to reclaim St. Mihiel since 1914 had failed. In July 1918, the American Expeditionary Force received its first great test of World War I. They were to push back the St. Mihiel salient. From an Air Power perspective, the St. Mihiel Offensive was important for several reasons. It was the first American led battle of WWI and marked the first usage of a combined air force operating under the command of an individual employed in conjunction with a ground offensive.<sup>115</sup> St. Mihiel was also the greatest air battle of WWI and employed the single largest collection of aircraft during the war. Allied aircraft for the battle totaled 1,476 with German opposition totaling 500 aircraft.<sup>116</sup>

The overall Allied strategic offensive plan on the Western front called for the reduction in the various salients that interfered with railroad communications. One such line, the Paris-Nancy railroad, ran through the St. Mihiel salient. The St. Mihiel offensive can generally be broken into two phases. The planning phase occurred from 10 August 1918 to 11 September 1918 and the attack phase occurred from 12-16 September 1918.<sup>117</sup> The objectives of the St. Mihiel offensive were the opening of the Paris-Nancy railroad, the securing of a suitable line from which to launch the planned follow on offensive into Meuse-Argonne, and the seasoning of American forces in their first real test of the war. The ground attack, planned by General John Pershing, called for a converging attack on two sides of the salient, with the main attack occurring against the southern face, while a third force performed a holding attack against the nose of the salient.<sup>118</sup> The Air campaign plan, created by Col Billy Mitchell, complemented the ground plan. Presented to Pershing on 20 August 1918, the objectives were the destruction of enemy air forces to gain air superiority and prevent them from over flying the allied lines, the reconnaissance of enemy positions to include location and direction of artillery fire, and the destruction of ground forces and supply lines through strafing and bombardment.<sup>119</sup> Mitchell separated the proposed attack into four phases, preparation, night preceding the attack, day of the attack, and exploitation. He then further allocated air assets for each phase into three categories, observation, pursuit, and bombardment. The preparation phase consisted mainly of

## Frank Luke



Frank Luke Jr. was born in Phoenix, Arizona, on 19 May 1896. His father, Frank Luke Sr., immigrated to the United States from Westphalia, Prussia, and his mother came from a family that immigrated from Alsace-Lorraine.

On 25 September 1917, Luke enlisted as a private first class in the Aviation Section. Luke subsequently attended flight training at the University of Texas School for Military Aeronautics in Austin, Texas. After leaving Austin, Luke attended the Signal Corps Aviation School at Rockwell Field in San Diego, California. After completing the requisite aviation training, Luke accepted a commission as a second lieutenant in the Aviation Section, Signal Officer's Reserve Corps.

Shortly after receiving his commission, Luke traveled to France to the 3rd Aviation Instruction Center for Aerial Gunnery School in Cazaux, France. After having demonstrated superb marksmanship, Luke joined the 27th Aero Squadron in July 1918. Described as arrogant and reckless by many in his squadron, Luke possessed an immense drive to prove himself.

On 29 September 1918, Luke jumped in the cockpit of his aircraft for the final time. Despite having been grounded by his squadron commander, Luke took off in search of German targets. Within minutes, Luke had destroyed five enemy balloons. During the engagement Luke's aircraft was damaged by German ground fire, which forced him to land in the French village of Murvaux which was occupied by German troops.

reconnaissance. The night before the attack plan consisted of bombardment attacks on personnel and strategic objectives. The plan for the day of the attack consisted of offensive missions deep to the rear of the enemy lines aimed at weakening German air defenses, bombardment missions with pursuit aircraft protection aimed at strategic targets such as airdromes, and protective missions against enemy reserves if necessary. Exploitation operations aimed to extend the zone of action by moving forward to new targets and attacking the retreating formations at opportune times.<sup>120</sup>

By the start of the St. Mihiel offensive on 12 September 1918, Mitchell either had direct control of or could rely on the assistance of 1,481 allied aircraft including 701 pursuit, 366 observation, 323 day bombers, and 91 night bombers. The Allied powers possessed a ten to one numerical advantage in pursuit aircraft. In addition, German pilots were still getting used to flying the new Fokker D VII. The result was that, despite German reinforcements, the Allies never lost air superiority. However, unescorted day bombers remained particularly vulnerable to German pursuits. The 1st Day Bombardment Group lost 31 bombers during the offensive, 16 from one squadron alone.<sup>121</sup> This led to a baiting strategy in which day bombers and observation aircraft drew out the German pursuit planes, which quickly fell prey to nearby allied fighters. In total, American airmen fired 30,000 rounds of ammunition, dropped 75 tons of bombs, destroyed 12 balloons, and 60 aircraft during the four-day battle.<sup>122</sup> Results could have been even better if not for the flying limitations brought on by weather, which created the worst flying conditions American airmen had faced up to that point. Cloud cover often masked the retreat of German troops, which hampered attacks on strategic targets, as well as targets of opportunity. Nevertheless, the Battle of St. Mihiel was seen as a success. By the second day of the offensive, Allied forces had gained enough ground to open the Paris-Nancy rail line, which allowed for the follow-on Meuse-Argonne campaign. Air power contributed to the success of troops on the ground and the Allies only lost 7,000 men over the course of the four-day battle, which was a low number for a major offensive in WWI.

## **The Meuse-Argonne**

A series of separate engagements, the Meuse-Argonne campaign spanned 47 days from 26 September 1918 until the Armistice on 11 November 1918. Billy Mitchell expounded on the tactics the Air Service, AEF, had used during the Battle of St. Mihiel. The weather during the entirety of the offensive proved more amenable than during the four days of the Battle of St. Mihiel, which aided Mitchell's quest for air superiority. As they had at St. Mihiel, US pursuit aircraft once again used day bombers as bait for German fighters. The tactic proved effective.

For example, on 4 October 1918, American pursuit aircraft shot down 11 Fokker and Pfalz biplanes that had attacked three bombardment squadrons. However, unlike the Battle of St. Mihiel, the day bombardment aircraft proved adept at protecting themselves, often flying in large formation to mass their firepower. In fact, large formations proved to be a hallmark of the Meuse-Argonne offensive and a major difference from the tactics used during St. Mihiel. From the beginning of the offensive, General Mitchell sent out large pursuit groups of approximately 100 aircraft deep into German held territory to attack observation balloons, strafe enemy troops, and overwhelm the outnumbered German fighters. The largest formation occurred on 9 October

1918, when Mitchell sent 200 US bombardment aircraft and 100 pursuit aircraft to attack German troop concentrations.

Despite the successes of the campaign, it was the deadliest of World War I for the American Expeditionary Force, which suffered casualties totaling 110,000 men. By the end of World War I, the Air Service, had destroyed 776 enemy planes, 72 balloons, dropped 138 tons of bombs in 150 raids, and took 18,000 photographs of German positions. However, those achievements came with a high price. In total, the US Air Service, AEF, suffered 569 killed and wounded, 654 killed in accidents or by illness, and the loss of 290 aircraft and 37 balloons.<sup>123</sup>

## **Individual Achievements**

It is difficult to gauge the overall impact of Reservists on operations during WWI. There were no organized Reserve aviation units in combat at the time. Therefore, all Air Service Reserve participation was by individual Reservists scattered throughout the total force. However, several notable Air Service Reservists participated in combat. Among them were Hamilton Coolidge, Charles D'Olive, Frank Luke, Douglas Campbell, Quentin Roosevelt, Hiram Bingham, Raynall Bolling, William Bond, Robert Stone Oliver, Charles Henry Ramsey, Frank Edward White, and Allen Winslow.

Frank Luke, known as the balloon buster, was the first airman recipient of the Medal of Honor. The second leading ace of the War, Luke shot down fourteen balloons and four airplanes while flying with the 27th Pursuit Squadron. He preferred to attack in late afternoon, when the shadows from the sun concealed his dark colored SPAD from fighters patrolling above. He died on 29 September 1918 after shooting down three balloons and taking heavy fire. Wounded, he crash landed his aircraft, exchanged gunfire with a German patrol, and received a mortal wound from a German rifle.<sup>124</sup> This action earned him the Medal of Honor.

Lt. Hamilton Coolidge of the 94th Pursuit Squadron also earned a reputation as an adept balloon killer, downing three balloons in addition to five aircraft, earning him ace status. Coolidge died on 27 October 1918 during the Meuse-Argonne offensive after his SPAD took a direct hit from German Artillery.<sup>125</sup>

His best friend, Harvard classmate, and fellow Reservist, Lt. Quentin Roosevelt, son of former President Theodore Roosevelt, died on 14 July 1918, after a spirited dogfight with three German Fokkers. Becoming separated from his flight, he received a mortal wound from German ace Sergeant Karl Thom. He was credited with great heroism by flight leader Lt. Edward Buford who stated that, "...he certainly died fighting, for any one of us could have gotten away as soon as the scrap started with the clouds as they were that morning."<sup>126</sup> Roosevelt was one of the most popular men in the 95th Pursuit Squadron and his death inflicted a devastating blow to unit morale.<sup>127</sup>

Charles D'Olive, of the 93rd Pursuit Squadron, was also a highly decorated airman. He was the last ace of World War I, receiving credit for his fifth kill in 1963. He earned the Distinguished Service Cross for his actions on 13 September 1918 during the battle of St. Mihiel. One of D'Olive's wingmen, Lt. Walter E. Case, described the action,

## Quentin Roosevelt



Quentin Roosevelt, the youngest of former President Theodore Roosevelt was born 19 November 1897. He saw his first airplanes in Europe in the summer of 1909. “We were at Rheims and saw all the aeroplanes flying,” Quentin wrote in a letter to a school friend back in the States, “and saw Curtis (sic) who won the Gordon Bennett cup for swiftest flight.” At an average speed of 47 mph, airplane designer Glenn Curtiss won the first Bennett Trophy race at the world’s first air meet near Rheims, France.

Roosevelt was mechanically inclined and enjoyed buying and repairing old disabled motorcycles and automobiles in order to take them apart and repair them. Desiring to serve his country, Roosevelt attended the Student Military Instruction Camp held at Plattsburg in the summer of 1916. Soon thereafter, in May 1917, Roosevelt joined the 1st Reserve Aero Squadron.

Arriving in France with the rest of the 1st Reserve Aero Squadron, Roosevelt helped set up the 3rd Aviation Instruction School at Issoudun, France. Popular among his fellow officers, Roosevelt attended pilot training at Issoudun. Assigned to the 95th Aero Squadron, Roosevelt was described as a talented and daring pilot. Roosevelt scored his first aerial victory on 10 July 10 1918. Four days later, during the Second Battle of the Marne, he was shot down behind German lines.

Roosevelt flew for the last time on 14 July 1918. While engaged in aerial combat over Chamery, he was struck in the head by two machine-gun bullets. The German military buried him with full military honors using two pieces of basswood saplings, bound together with wire from his Nieuport 28, to fashion a cross for his grave.

September 13th is marked with red letters in the history of our pilots. About 17 o'clock, after an observation mission some kilometers behind the lines. One of our formations became somewhat split up. Lt. D'Olive met a patrol of the 103rd Squadron, just as the latter was about to engage in combat with several enemy planes. D'Olive attacked one Fokker with Lt. Furlow of the 103rd, and last saw the blacked crossed machine spiraling at an altitude of about 100 meters. D'Olive climbed hurriedly and attacked another Fokker with Lt. Furlow, at an altitude of about 500 meters. This enemy plane was seen to crash near St. Benoit. Again D'Olive climbed up to about 500 meters, attacking a third time. He followed his adversary down till he saw him crash not far from the second plane. With three planes to his credit, D'Olive flew home, there to be congratulated by an admiring group of comrades, and, later, to be recommended for the D.S.C.<sup>128</sup>

## Post-War

The US Air Service, AEF, had 45 squadrons and 457 serviceable aircraft at the end of the conflict. In addition, the Air Service had a total of 195,023 officers and men serving with the Air Service, AEF.<sup>129</sup> On 17 December 1918, Major General Mason Patrick, Chief of the Air Service, wrote to Bingham thanking him for his "excellent work" while in charge of the 3 AIC. Upon leaving the 3 AIC on 1 January 1919, Bingham returned to US and took a job at the Air Service Headquarters in Washington D.C. where he remained until 8 March 1919 when his discharge papers arrived. In Bingham's memoirs of his time in uniform, published in 1921 with the title *An Explorer in the Air Service*, he recalled that he was initially under the impression that the US Air Service was fully prepared for war. However, he stated that "It was amazing and very disconcerting to learn that the General Staff of the Army had apparently made no plans for the part which aviation was to take in the war."<sup>130</sup>

For most, the transition to civilian life proved to be rather quick, while for others the process took up to a year or more. By the middle of 1919, the Air Service had dwindled in size to just 15,875 men. Many men took jobs in the civilian world never again donned a military uniform. Others continued to serve their nation in uniform. Major James Meissner, who served in both the 94<sup>th</sup> Aero Squadron and the 147<sup>th</sup> Aero Squadron, moved to Birmingham, Alabama, after the war to work for the Tennessee Coal, Iron, and Railroad Company. While in Birmingham, Meissner helped transform the Birmingham Flying Club into the 135<sup>th</sup> Observation Squadron. Hiram Bingham, another former member of the Signal Officers Reserve Corps, published the account of his wartime experience in 1920 and, in 1922, the citizens of Connecticut elected him as the state's lieutenant governor. Two years later, on 16 December 1924, Bingham was elected to the US Senate to replace Senator Frank Bosworth Brandegee.<sup>131</sup>

## Conclusion

The US military entered World War I mostly unprepared for the enormity of the task it faced. The US Army did not have the active-duty, National Guard, or Reserve aviation forces it needed to accomplish they immense task before it. Fortunately, many talented and ingenious men stepped forward to do their part to win the war in the air. Commissioned into the Signal Officers Reserve Corps and enlisted into the Signal Enlisted Reserve Corps, men such as Major

Raynal Bolling, Major Hiram Bingham, Captain Phillip Carroll, Captain Douglas Campbell, Lieutenant Frank Luke, and Lieutenant Charles D'Olive proved that talented civilians could do great things in uniform. Their important contributions paved the way for future generations of US military aviators.

## Notes

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- <sup>2</sup> John Keegan, *The First World War*, pp. 52-77.
- <sup>3</sup> Howard Jones, *Crucible of Power: A History of U.S. Foreign Relations Since 1897*, p. 73.
- <sup>4</sup> Woodrow Wilson, “Address at Sea Girt, New Jersey Accepting the Democratic Nomination for President,” *ucsb.edu*, 2 Sept 1916.
- <sup>5</sup> Juliette A. Hennessy, *The United States Army Air Arm April 1861 to April 1917*, (Washington D.C.: Office of Air Force History, United States Air Force, 1985), p. 233.
- <sup>6</sup> *Ibid.*, 9-14.
- <sup>7</sup> Air Vice Marshall Ron Dick, RAF, *Reach and Power: the Heritage of the United States Air Force in Pictures and Artifacts*, (Washington D.C.: Air Force History and Museum Programs, 1997) 4-5.
- <sup>8</sup> Emil R. Salvini, *Hobey Baker: American Legend*, (Saint Paul, Minnesota: The Hobey Baker Memorial Foundation, 2005), 81-82.
- <sup>9</sup> Major General Benjamin D. Foulois with Colonel C.V. Glines, *USAF, From the Wright Brothers to the Astronauts: The Memoirs of Major General Benjamin D. Foulois*, (New York: McGraw-Hill, 1968), 47.
- <sup>10</sup> Juliette A. Hennessy, *The United States Army Air Arm April 1861 to April 1917*, (Washington D.C.: Office of Air Force History, United States Air Force, 1985), 217.
- <sup>11</sup> Major General Benjamin D. Foulois with Colonel C.V. Glines, *USAF, From the Wright Brothers to the Astronauts: The Memoirs of Major General Benjamin D. Foulois*, (New York: McGraw-Hill, 1968), 48.
- <sup>12</sup> Jill Hennessy, *The United States Army Air Arm*, pp. 27-28.
- <sup>13</sup> *Ibid.*, pp. 33-38.
- <sup>14</sup> Major General Benjamin D. Foulois with Colonel C.V. Glines, *USAF, From the Wright Brothers to the Astronauts: The Memoirs of Major General Benjamin D. Foulois*, (New York: McGraw-Hill, 1968), 65.
- <sup>15</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 1-2.
- <sup>16</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 23.

- <sup>17</sup> William Addleman Ganoë, *The History of the United States Army*, (New York: D. Appleton and Company, 1924), 272-273, 288.
- <sup>18</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 13-14.
- <sup>19</sup> John Garry Clifford, *The Citizen Soldiers: The Plattsburg Training Camp Movement, 1913-1920*, (Lexington KY: The University Press of Kentucky, 1972), 5-9.
- <sup>20</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 1-2.
- <sup>21</sup> William Addleman Ganoë, *The History of the United States Army*, (New York: D. Appleton and Company, 1924), 431.
- <sup>22</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 17-18.
- <sup>23</sup> Stephen L. Ossad, "The Frustrations of Leonard Wood," *Army Magazine*, 1 Sep 2003.
- <sup>24</sup> *Ibid.*.
- <sup>25</sup> Lt Col Robert J. Sperberg, *Major General Leonard Wood; A Study of Leadership in an Army Transition*, (Carlisle Barracks, PA: US Army War College, USAWC Class of 1992), p 84.
- <sup>26</sup> John Garry Clifford, *The Citizen Soldiers: The Plattsburg Training Camp Movement, 1913-1920*, (Lexington KY: The University Press of Kentucky, 1972), 5-9.
- <sup>27</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 23.
- <sup>28</sup> William Addleman Ganoë, *The History of the United States Army*, (New York: D. Appleton and Company, 1924), 445.
- <sup>29</sup> John Garry Clifford, *The Citizen Soldiers: The Plattsburg Training Camp Movement, 1913-1920*, (Lexington KY: The University Press of Kentucky, 1972), 11.
- <sup>30</sup> *Ibid.*, p. 12.
- <sup>31</sup> *Ibid.*, pp. 16-17.
- <sup>32</sup> Leonard Wood, Major General, Chief of Staff, "Report of the Chief of Staff," (Washington D.C.: War Department, Office of the Chief of Staff, October 31, 1913), in *The Abridgement: Containing the Annual Address of the President of the United States to the Two Houses of*

*Congress 63d Congress 2d Session with Reports of Departments and Selections from Accompanying Papers*, (Washington, 1913) 231.

<sup>33</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 24.

<sup>34</sup> Dorey Halstead, "The Plattsburg Contribution to Military Training," *Proceedings of the Academy of Political Science in the State of New York*, Vol 6. No 4., Jul 1916, 230.

<sup>35</sup> John Garry Clifford, *The Citizen Soldiers: The Plattsburg Training Camp Movement, 1913-1920*, (Lexington KY: The University Press of Kentucky, 1972), 26-27.

<sup>36</sup> *Ibid.*, pp. 184-185.

<sup>37</sup> Frank E. Vandiver, *Black Jack, The Life and Times of John J. Pershing*, (College Station: Texas A&M, 1977) 585.

<sup>38</sup> Juliette Hennessy, *The United States Army Air Arm*, pp. 110-111.

<sup>39</sup> *Ibid.*, p. 111.

<sup>40</sup> John Garry Clifford, *The Citizen Soldiers: The Plattsburg Training Camp Movement, 1913-1920*, (Lexington KY: The University Press of Kentucky, 1972), 52-53.

<sup>41</sup> *Ibid.*, pp. 54-60.

<sup>42</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 26.

<sup>43</sup> John Garry Clifford, *The Citizen Soldiers: The Plattsburg Training Camp Movement, 1913-1920*, (Lexington KY: The University Press of Kentucky, 1972), 68.

<sup>44</sup> Henry Greenleaf Pearson, *A Business Man in Uniform: Raynal Cawthorne Bolling*, (New York: Duffield & Co., 1923), 32, 58-60.

<sup>45</sup> *Ibid.*, p. 59.

<sup>46</sup> *Ibid.*, p. 60.

<sup>47</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 27.

<sup>48</sup> Frank E. Vandiver, *Black Jack, The Life and Times of John J. Pershing*, (College Station: Texas A&M, 1977) 604-605.

<sup>49</sup> Major General Benjamin D. Foulois with Colonel C.V. Glines, USAF, *From the Wright Brothers to the Astronauts: The Memoirs of Major General Benjamin D. Foulois*, (New York: McGraw-Hill, 1968), 119, 123, 125.

<sup>50</sup> James E. Hewes, Jr., *From Root to McNamara: Army Organization and Administration, 1900-1963*, (Washington D.C.: Center of Military History United States Army, 1975), 19-21.

<sup>51</sup> James T. Currie and Richard B. Crossland, *Twice the Citizen: A History of the United States Army Reserve, 1908-1995*, (Washington D.C.: Office of the Chief, Army Reserve, 1997), 26-27.

<sup>52</sup> *Ibid.*, p. 17.

<sup>53</sup> Wilson authorized a total of 16 majors, 48 captains, and 232 first lieutenants for the Signal Officers Reserve Corps and 40 master signal electricians; 140 sergeants, first class; 200 sergeants; 400 corporals; 305 privates, first class, and 915 privates in the Signal Enlisted Reserve Corps. Jill Hennessy, *The United States Army Air Arm, April 1861 to April 1917*, p. 185.

<sup>54</sup> By 19 July 1917, the U.S. government had paid the Curtiss Company a total of \$100,523 for the training of 131 enlisted reservists. *Ibid.*, p. 185.

<sup>55</sup> While the 1st Reserve Aero Squadron proved to be more significant throughout World War I, it was not the only Reserve Aero squadron. The 2nd Aero Company of the New York National Guard followed the 1st Reserve Aero Squadron's lead by providing the bulk of the men for the 2nd Reserve Aero Squadron. The 2nd Reserve Aero Squadron activated at Chandler Field Aviation Station, Essington, Pennsylvania, on 12 July 1917. Shortly thereafter, the U.S. Army prohibited the formation of any further Reserve Aero squadrons. The Aviation Section then re-designated the 2nd Reserve Aero Squadron as the 45th Aero Squadron. Officially part of the regular U.S. Army, the 45th Aero Squadron transferred from Chandler Field to Gerstner, Louisiana, near Lake Charles, Louisiana, in July 1917. The members of the 45th Aero Squadron spent the war training new aviators. The U.S. Army demobilized the unit in November 1918.

<sup>56</sup> Henry Greenleaf Pearson, *A Business Man in Uniform: Raynal Cawthorne Bolling*, (New York: Duffield & Co., 1923), 66.

<sup>57</sup> *Ibid.*, p. 67.

<sup>58</sup> *Ibid.*, p. 69-71.

<sup>59</sup> *Ibid.*, p. 90.

<sup>60</sup> *Ibid.*, p. 76-77.

<sup>61</sup> John Garry Clifford, *The Citizen Soldiers: The Plattsburg Training Camp Movement, 1913-1920*, (Lexington KY: The University Press of Kentucky, 1972), 55, 185.

<sup>62</sup> *Ibid.*, pp. 55, 185.

<sup>63</sup> Henry Greenleaf Pearson, *A Business Man in Uniform: Raynal Cawthorne Bolling*, (New York: Duffield & Co., 1923), 90.

<sup>64</sup> Ibid., p. 84.

<sup>65</sup> Charles Joseph Gross, *The Air National Guard and the American Military Tradition*, (Washington D.C.: Historical Services Division, National Guard Bureau, 1995) 31.

<sup>66</sup> Henry Greenleaf Pearson, *A Business Man in Uniform: Raynal Cawthorne Bolling*, (New York: Duffield & Co., 1923), 83.

<sup>67</sup> Gerald T. Cantwell, *Citizen Airmen. A History of the Air Force Reserve 1946 – 1994*, (Washington, D.C.: Air Force History and Museums Program, 1997), 5.

<sup>68</sup> “First Reserve Aero Squadron to Go to Europe,” *Flying*, Aero Club of America, Vol. 6, No. 5, June 1917, 391.

<sup>69</sup> Henry Greenleaf Pearson, *A Business Man in Uniform: Raynal Cawthorne Bolling*, (New York: Duffield & Co., 1923), 109.

<sup>70</sup> Charles Joseph Gross, *The Air National Guard and the American Military Tradition*, (Washington D.C.: Historical Services Division, National Guard Bureau, 1995) 31; On 24 February 1917, some officers and enlisted men remained on active-duty with the 1<sup>st</sup> Aero Company of the New York National Guard at Mineola and the 2<sup>nd</sup> Aero Company of the New York National Guard at Memphis. The Chief of the Militia Bureau suggested that the commanding General of the Eastern Department muster those men out of federal service. He also recommended that the Chief of the Aviation Section submit a list of the officers and enlisted men who he wanted to remain on active-duty. Jill Hennessy, *The United States Army Air Arm*, pp. 186-187.

<sup>71</sup> Fact Sheet, 26 Space Aggressor Squadron (AFRC), Air Force Historical Research Agency.

<sup>72</sup> Juliette A. Hennessy, *The United States Army Air Arm April 1861 to April 1917*, (Washington D.C.: Office of Air Force History, United States Air Force, 1985), 183.

<sup>73</sup> Hiram Bingham, *An Explorer in the Air Service*, (New Haven CN: Yale University Press, 1920), 11-12.

<sup>74</sup> Ibid., pp. 16-17.

<sup>75</sup> Hiram Bingham, *An Explorer in the Air Service*, (New Haven CN: Yale University Press, 1920), pp. 20-21.

<sup>76</sup> Rebecca H. Cameron, *Training to Fly: Military Flight Training 1907-1945*, Washington D.C.: Air Force History and Museums Program, 1999), pp. 112-113.

<sup>77</sup> Bingham, *An Explorer in the Air Service*, pp. 23-24.

<sup>78</sup> Major General Benjamin D. Foulois with Colonel C.V. Glines, USAF, *From the Wright Brothers to the Astronauts: The Memoirs of Major General Benjamin D. Foulois*, (New York: McGraw-Hill, 1968), 148; *Businessman in Uniform*, pp. 114-115.

<sup>79</sup> Henry Greenleaf Pearson, *A Businessman in Uniform*, p. 117.

<sup>80</sup> *Ibid.*, pp. 119-120.

<sup>81</sup> *Ibid.*, p. 122.

<sup>82</sup> *Ibid.*, pp. 122-124.

<sup>83</sup> Benjamin Foulois and Colonel C.V. Glines, *From the Wright Brothers to the Astronauts: The Memoirs of Major General Benjamin D. Foulois*, P. 151.

<sup>84</sup> Mauer Mauer, *The U.S. Air Service in World War I*, p. 76.

<sup>85</sup> *Ibid.*, p. 93

<sup>86</sup> *Ibid.*, p. 93.

<sup>87</sup> Pearson, p. 138.

<sup>88</sup> James J. Hudson, *Hostiles Skies*, p. 28.

<sup>89</sup> Major Douglas A. Galipeau, "Issoudun: The Making of America's First Eagles," p. 17.

<sup>90</sup> Henry Greenleaf Pearson, *A Business Man in Uniform: Raynal Cawthorne Bolling*, (New York: Duffield & Co., 1923), pp. 136-147.

<sup>91</sup> James J. Cooke, *The US Air Service in the Great War, 1917-1919*, p. 19.

<sup>92</sup> Maurer Maurer, ed., *The U.S. Air Service in World War I, Vol. 1*, The Office Air Force History, p. 93.

<sup>93</sup> Henry Greenleaf Pearson, *A Business Man in Uniform: Raynal Cawthorne Bolling*, (New York: Duffield & Co., 1923), p. 105.

<sup>94</sup> Bert Frandsen, *Hat in the Ring: The Birth of American Air Power in the Great War*, p. 38.

<sup>95</sup> James J. Cooke, *The US Air Service in the Great War, 1917-1919*, p. 20.

<sup>96</sup> Ibid., p. 38.

<sup>97</sup> Colonel Edgar S. Gorrell (1891-1945) graduated from The US Military Academy at West Point in 1912 and then spent two years as an infantryman in Alaska before transferring to the Signal Corps. He joined the 1st Aero Squadron and served under General Pershing during the Punitive Expedition in Mexico. In 1917, he was promoted to Captain. Shortly after the US joined World War I, Gorell became the Chief Engineering Officer for the Air Service, and later, the Chief of Staff for the Air Service. He also served as a member of the Bolling Mission before being selected as the Chief Historian of the Air Service, AEF, on 4 December 1918. Maurer, Maurer, ed., *The U.S. Air Service in World War I, Vol. 1*, The Office Air Force History, p. 97.

<sup>98</sup> James J. Hudson, *Hostiles Skies: A Combat History of the American Air Service in World War I*, pp. 34-36.

<sup>99</sup> Maurer Maurer, ed., *The U.S. Air Service in World War I, Vol. 1*, The Office Air Force History, p. 106.

<sup>100</sup> Maurer Maurer, ed., *The U.S. Air Service in World War I, Vol. 1*, The Office Air Force History, p. 106.

<sup>101</sup> Bert Frandsen, *Hat in the Ring: The Birth of American Air Power in the Great War*, pp. 22-24.

<sup>102</sup> Ibid., p. 24.

<sup>103</sup> Miller's death was not confirmed until a month after his death. The German's provided official confirmation of Miller's death. Author Unknown, *Flying*, February 1918, pp. 344-345.

<sup>104</sup> Bert Frandsen, *Hat in the Ring*, p. 24.

<sup>105</sup> Low had been the captain of the Yale rowing crew in 1915. When the men of the 1<sup>st</sup> Reserve Aero Squadron first reached France, Low took command and ensured that they made it through flying training at the French Aviation School at Tours, France. Ibid., p. 33.

<sup>106</sup> Ibid., pp. 24-25.

<sup>107</sup> Henry Greenleaf Pearson, *A Businessman in Uniform*, p.

<sup>108</sup> Stephens, "The Life and Death of Col. Raynal Bolling," p. 1.

<sup>109</sup> Hiram Bingham, *Explorer in the Air Service*, pp. 190-197.

<sup>110</sup> Ibid., p. 190.

<sup>111</sup> Hiram Bingham, *Explorer in the Air Service*, p. 191.

<sup>112</sup> Ibid., pp. 202-203.

<sup>113</sup> Ibid.

<sup>114</sup> Allison J. Barnett, “Air Operations in the St. Mihiel Offensive.”

<sup>115</sup> Maj Michael J. Taschner, “Examples of Air-mindedness From America’s First Operational Air Campaign the St. Mihiel Offensive, 1918. p 1.

<sup>116</sup> Lt Col Lauderbaugh, “The Air Battle of St. Mihiel: Air Campaign Planning Process Background Paper,” (Airpower Research Institute).

<sup>117</sup> Maurer Mauer, *The U.S. Air Service in World War I, Vol I*. p235.

<sup>118</sup> Allison J. Barnett, “Air Operations in the St. Mihiel Offensive.”

<sup>119</sup> Lt Col Lauderbaugh, “The Air Battle of St. Mihiel: Air Campaign Planning Process Background Paper.”

<sup>120</sup> Mauer Mauer, ed., *The U.S. Air Service in World War I, Vol III*, The Battle of St. Mihiel, p. 52, 53.

<sup>121</sup> Richard Hallion, *Rise of the Fighter Aircraft, 1914-1918*, p. 144.

<sup>122</sup> Bernard Nalty, ed., *Winged Shield, Winged Sword: A History of the United States Air Force, vol I, 1907-1950*, p 66; James J. Hudson, *Hostile Skies: A Combat History of the American Air Service in World War I* (Syracuse: Syracuse University Press, 1968), p. 139.

<sup>123</sup> Bernard Nalty, ed., *Winged Shield, Winged Sword: A History of the United States Air Force, vol I, 1907-1950*, p 66.

<sup>124</sup> Bernard Nalty, ed., *Winged Shield, Winged Sword: A History of the United States Air Force, vol I, 1907-1950* (Washington: Office of Air Force History). p 64.

<sup>125</sup> James J. Hudson, *Hostile Skies: A Combat History of the American Air Service in World War I* (Syracuse: Syracuse University Press, 1968). pp 278-283.

<sup>126</sup> Kermit Roosevelt, *Quentin Roosevelt: A Sketch with Letters* (Scribners: New York, 1921) pp 169–172.

<sup>127</sup> James J. Hudson, *Hostile Skies: A Combat History of the American Air Service in World War I* (Syracuse: Syracuse University Press, 1968). p97.

<sup>128</sup> Maurer Maurer, ed., *The U.S. Air Service in World War I, vol III, The Battle of St. Mihiel* (Washington: Office of Air Force History, 1979). p 665.

<sup>129</sup> James P. Tate, *The Army and Its Air Corps: Army Policy toward Aviation, 1919-1941*, p. 7.

<sup>130</sup> Hiram Bingham, *Explorer in the Air Service*, pp. 217-218.

<sup>126</sup> James P. Tate, *The Army and Its Air Corps: Army Policy toward Aviation, 1919-1941*, p. 7.

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## Appendices

### Appendix 1

#### Roster of the 1st Reserve Aero Company

<b>Officer</b>	Ward, Thomas W.
Bolling, Raynal C. (Major)	Faye, James J.
Carroll, Philip A. (Captain)	Harvey, Grinnel S.
Miller, James E. (Captain)	Hill, Robert S.
Noyes, Daniel R. (First Lieutenant)	Cooks
Bleakeman, Frederick L. (First Lieutenant)	McGrath, James E.
Reed, Charles (First Lieutenant)	Soule, Louis
Baker, Hobart A.H. (First Lieutenant)	Fantion, Robert
<b>Master Sergeant</b>	Lafargue, Isadora
Spiegel, Edward F.	Richard, Gabriel
Bardwell, Harold E.	Vivian, Emil
Perry, Francis	<b>Corporals</b>
<b>Sergeant First Class</b>	Dolan, William
Walton, Francis E.	Egglefield, George H.
Aaron, George	Dornos, Valantine F.
Norman, William J.	Jeffors, Jack V.
Schmitz, Paul E.	Joralemon, Prescott H.
VandeWater, LeGrand	Leiper, Alexander
Durand, Toofile C.	Olmann, Joseph J.
Claude, John J.	Pomorey, Randle
Fraudin, Jules P.	Slote, William
Coachman, James H.	Harry, Henry V.
Craswell, Alphius	Johanson, Oscar E.
Reasor, Orian S.	Lawrence, Frederick J.
Donaldson, William K.	Webb, Frank W.
Horton, John J.	Zimmerman, Edwin H.
Sergeant	Rabideau, Frederick W.
Bouchor, Arthur	Sifferlin, Ernest
Carlson, Carl A.	Simistor, James T.
Clarke, Robert C.	Craig, Joseph A.
Bourges, Fernand A.	Chevrier, Fernand P
Paganini, Alfred	<b>Private First Class</b>
Cook, Ralph L.	Cormier, L.H.
Kilpatrick, William	Ayers, R.L.
Johnson, Ingolf M.	Copeland, Hugh
Murphy, Maria R.	DuFrasne, Francis A.
Durbin, Malcolm C.	Grill, Jean
Durbin, Paul C.	Hagen, Elvin C.

Elder, Walter C.	Hagorty, Harry E.
Elliot, Carlisle B.	Hollwedel, Henry W.
Farleigh, William	Hargraves, Horace
Fraser, Gerald	Harmon, Vincent T.
Garlick, Charles	Hayes, Joseph R.
Gilligan, John L.	Henry, Paul T.
Good, Michael	Hollaman, Frederick T.
Leonard, Gustav W.	James, George S.
McManamon, John J.	Johner, Charles F.
Pranitic, George L.	Johnson, Gerald C.
Schickel, William P.	Zidder, Elmer J.
Starr, George H.	Kelly, Henry
Wills, Halsey W.	Lake, John W.
Wills, Walter H.	Lamberton, James R.
Durbin, Malcolm C.	McCollum, Myles
Durbin, Paul C.	McDonnel, Eugene J.
Elder, Walter C.	Maguire, Walter R.
Elliot, Carlisle B.	Merkle, William J.
<b>Privates</b>	Miller, John J.
Abrams, William F.	O'Flaherty, James E.
Ahech, Fernand	Grill, Jean
Addor, Henry	Hagen, Elvin C.
Good, Michael	Hagorty, Harry E.
Leonard, Gustav W.	Hollwedel, Henry W.
Barker, Stanley M.	Hargraves, Horace
Borgen, Abram S.	Harmon, Vincent T.
Bishop, Frank S.	Parnoll, Frod B.
Braine, Reginald P.	Powell, Georgo M
Brooks, Merrel V.	Rasmussen, Svend
Brooks, Reginald R.	Rielly, Frank V.
Butler, Clyde H.	Rogers, John H.
Cavanna, Paul	Rubenstein, Ralph
Abrams, William F.	Soagrist, Nicholas M.
Ahech, Fernand	Seals, Harold A.
Addor, Henry	Stout, Russel M.
Schaffer, George H.	Sweetman, Francis
Van Husen, Arthur	Taylor, Edward G.W.
Foot, Elliot B.	Tynan, John E.
Freckner, George V.	Tulp, Herman J.
French, John J.	Ungerland, Henry A.
Geddes, Robert H.	Utterhaegon, Arthur
Glaser, William	Wardlow, Charles A.
Chestor, John R.	Warnock, Milton C.

## Appendix 2

### General Mitchell's Battle Orders

Headquarters, Air Service, First Army,  
American Expeditionary Forces.

September 11th, 1918

#### Battle Orders No. 1.

I. The enemy is losing ground, personnel and material at all points of the front on which the allied armies are attacking. On the front of the first Army he is holding the line Pont-sur-Seille -St. Mihiel- Fresnes-en-Woevre—Chatillo·sous·les·Cotes in his old positions. His Air Service is estimated at 150 pursuits, 120 reconnaissance and 25 battle air planes, which is being reinforced. The strength of his ground troops is estimated at about seven divisions, with from three to five divisions in reserve. The strength and morale of these divisions is reported low. There are signs that he intends to withdraw from his first lines and make his main resistance at some point further to the rear.

2. The First Army attacks on the whole front on 12 September, 1918. The hour of the attack will be 5 H, 12 September, 1918. The 1st and 4th Corps will attack at H hour. The 5th Corps will attack at H hour plus three hours. The Second French Colonial Corps will attack as follows:

The attack west of the 4th Corps at H plus one hour.

The attack south of the 5th Corps at H plus four hours. The artillery bombardment will commence as follows:

1st and 4th Corps H minus four hours. 5th Corps H minus four hours. The Second Colonial Corps will attack at H minus four hours.

3. OUR AIR SERVICE WILL TAKE THE OFFENSIVE AT ALL POINTS WITH THE OBJECT OF DESTROYING THE ENEMY 'S AIR SERVICE, ATTACKING HIS TROOPS ON THE GROUND AND PROTECTING OUR OWN AIR AND GROUND TROOPS.

4. (a) The Corps Sectors of reconnaissance are as announced in Annex 113, Field Orders #9, Appendix #4, dated September 7, 1918. Particular attention is to be paid to minute reconnaissance of the enemy lines to determine whether he has been reinforced or has changed his dispositions. Important information involving immediate action obtained by Corps Air Services will be sent by telephone, radio or courier airplane to the C.A.S., 1st Army, or to the nearest brigade of the French Air Division.

(b) The 1st Army Observation Group (Reynolds) will execute the reconnaissance and surveillance as ordered in the plan of reconnaissance, Annex #3, Field Orders #9, Appendix #4, dated September 7th, 1918. Particular attention is to be paid to minute reconnaissance of the enemy lines to determine whether he has been reinforced or has changed his dispositions. Important information involving immediate action obtained by our Air Services will be sent by telephone, radio or courier plane to the C.A.S., 1st Army,

or to the nearest brigade of the French Air Division. Three airplanes will be held ready to execute any special reconnaissance ordered.

(c) The Army Artillery Group (Block) will execute the observation ordered for the Artillery to which it is attached. Important information involving immediate action obtained by Air Services will be sent by telephone, radio or courier airplane to the C.A.S., 1st Army or to the nearest brigade of the French Air Division.

(d) The First Pursuit Wing, (Atkinson) will cover the front Pont-sur-Seille—St. Mihiel, inclusive. An absolute barrage<sup>3</sup> will be established against enemy aviation, our own observation aviation will be protected and an attack against all balloons exposing themselves on this front will be made early in the morning. After 9:00 A.M., one pursuit group loaded with bombs will be held in reserve to be used for the purpose of attack of hostile troops or convoys on the ground, so as to be ready to leave the ground 15 minutes after the receipt of the order.

The First Bombardment Group will attack the hostile division and corps posts of command and such enemy positions as present a suitable target.

The right flank of the 1st Pursuit Wing will be protected by the First Brigade (French) Aerial Division and the Aerial defenses of the 8th French Army. Close liaison will be maintained by the 1st Pursuit Wing (Atkinson) with both of these and with the Army Corps so as to keep close track of the advance of the troops.

(e) The First Pursuit Group, (Hartney) will cover the front Chatillon sous les Cotes—St. Mihiel, inclusive. A barrage will be maintained against hostile aviation, observation aviation will be protected and hostile balloons will be attacked opposite the front of the 5th Corps.

The left flank will be protected by the aerial defenses of the 2nd French Army with which close liaison will be maintained. Close liaison will also be kept with the Corps Air Services so as to keep track of the advance of the troops.

(f) The Army Night Bombing and Reconnaissance Wing, 14 (Major Villome) will execute the night reconnaissance directed as provided for. Railroad Centers and airdromes will be bombed systematically as provided for in the plan of employment. Particular attention will be paid to the German Night Bombing Airdromes.

(g) The French Air Division (Vaulgremant) will take the offensive against the enemy's aviation and troops on the ground. The brigades will execute successive attacks, passing over both sides of the St. Mihiel salient. On the right (east) of the area opposite the front of the 1st and 4th Army Corps and on the left (west) opposite the front of the Fifth Army Corps and on the left of the Second Colonial Corps the meeting point of these two axes approximately the area Jonville-Hadenville-Chambley. The principle being to operate along the axes indicated so as to take the enemy aviation in reverse and force it towards our lines. Attacks will be made against the ground troops of the enemy when occasion offers.

The bombardment aviation will attack the objects on the ground which show themselves to be the most dangerous as operations develop.

Provision will be made for guarding the 1st Army's right flank against hostile air attack. Close liaison will be maintained by radio and courier planes with the Corps Air Services so as to insure the air division's cooperation in the attack.

5. The Equipment Section will hold itself ready to insure the supply and movement of any units required.

6. The Army Dropping Ground for messages from airplanes is a point two and one-half kilometers southeast of Ligny-en-Barrois. The Army Landing Field is Maulan, six kilometers east of Ligny-en-Sarrois. The 1st Day Bombardment Group will provide a detail of four command airplanes to take station at Maulan, beginning at 7:00 A.M. September 12th.

7. Reports will reach the Chief of Air Service at Headquarters Air Service, First Army, Ligny-en-Sarrois.

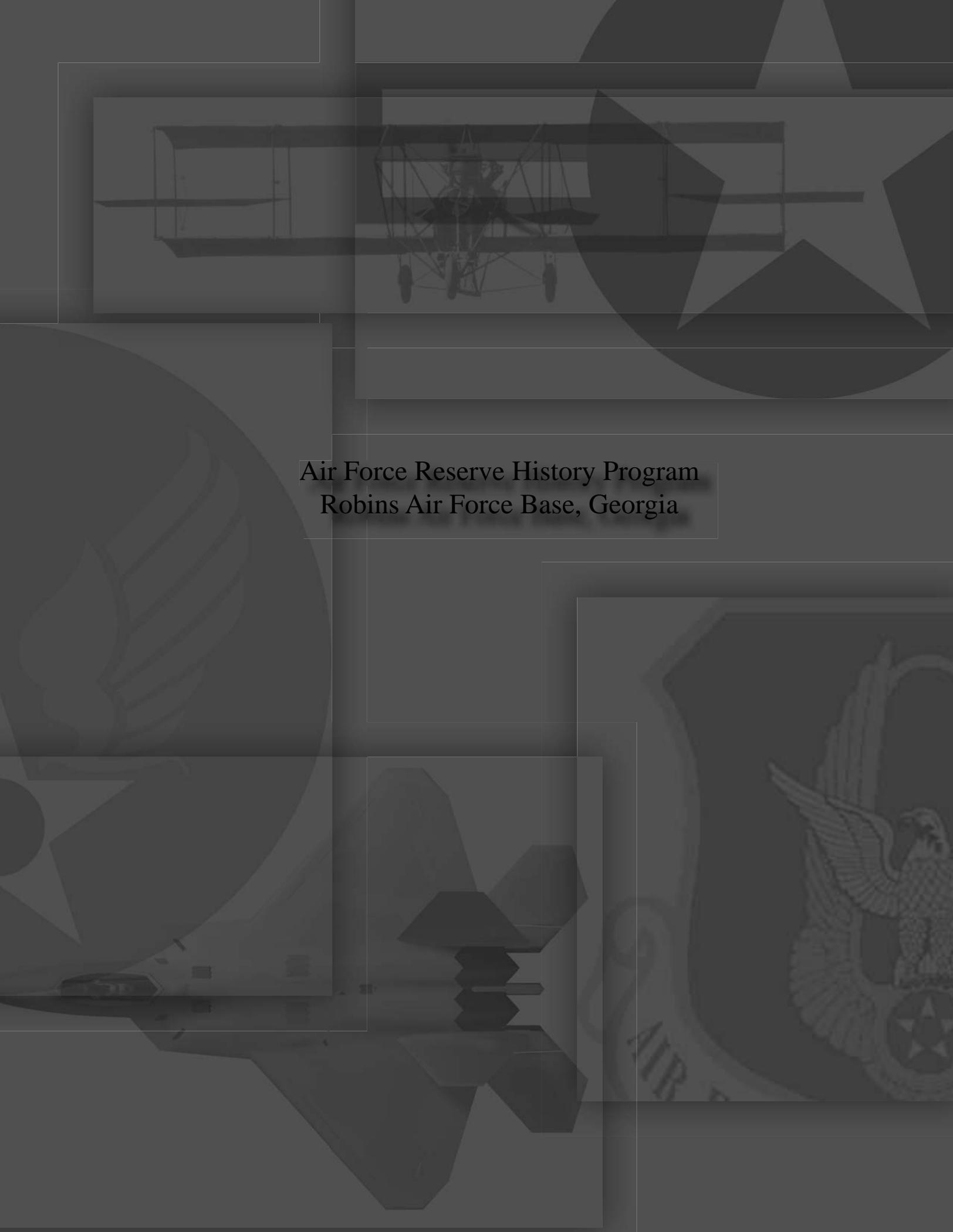
A liaison officer from each Corps Air Service, each Wing or independent group of the Army Air Service, and the French Aerial Division will report at the Headquarters, C.A.S., 1st Army, at 21.00H each day to receive orders.

A liaison officer for the Night Bombardment Group, (Villome) will report at the Headquarters, C.A.S., 1st Corps at 14-00H each day to receive orders.

William Mitchell.

Read and explained to assembled  
Corps Air Service Commanders,  
Group Commanders,  
Wing Commanders,  
Chief of Staff of the Air Division,  
Staff of the C.A.S., 1st Army at 1530, September 11, 1918, without giving H  
hour.





Air Force Reserve History Program  
Robins Air Force Base, Georgia