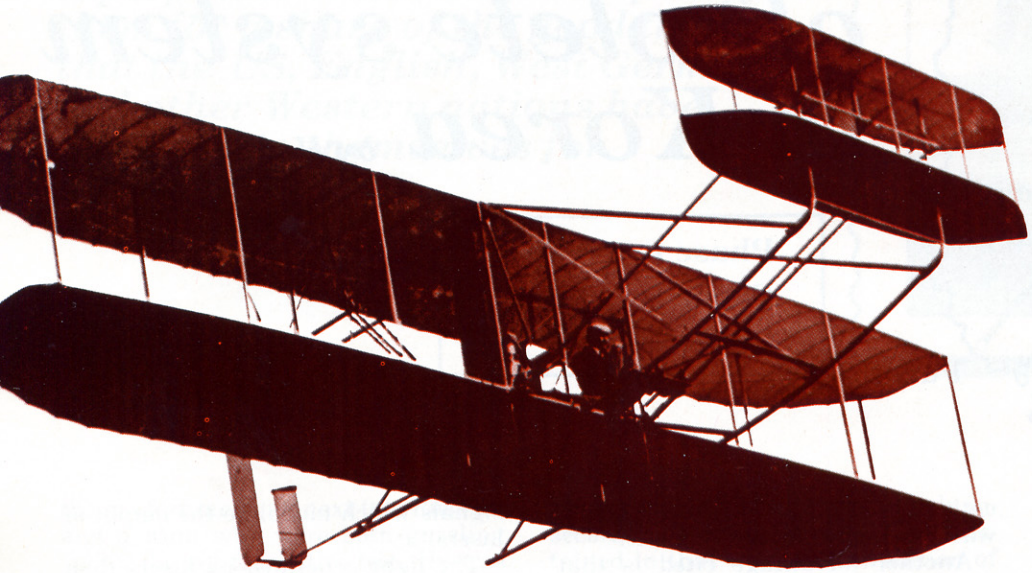
On the wings of the Signal Corps

by Rebecca Robbins



On 23 December 1907, the Signal Corps issued specifications for a heavier-than-air flying machine — an airplane.

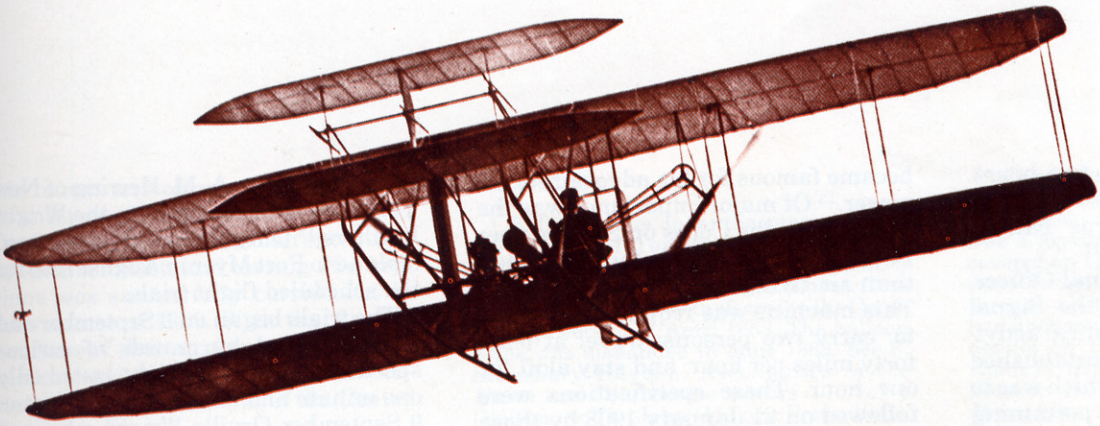
Seventy-five years ago, in September 1908, the Wright brothers made the initial test flights of the Army's first airplane at Fort Myer, Virginia. The plane was built according to specifications issued by the Signal Corps, which then had responsibility for military aeronautics. In view of the anniversary of this milestone in military aviation, it seems an appropriate time to take a look at how the Corps grew its wings.

From its birth in 1860, the Signal Corps had charge of communication in its various forms — beginning with flag signals and expanding to include such instruments as the electric telegraph, the heliograph, and the telephone. Although observation balloons were used during the Civil War, their operation was not under the Signal Corps' supervision.[1] After the war, the Signal Corps was almost totally involved in meteorological activities, but when those duties were transferred to the Agriculture Department in 1891, the Corps turned its attention to more strictly military functions. Aeronautics was considered a function falling within the Signal Corps' auspices because the use of balloons for reconnaissance purposes related to the Corps' mission of providing communications.

In his 1892 annual report, Chief Signal Officer Adolphus Greely outlined plans to organize a balloon section to accompany each of the Corps' field telegraph trains. The balloon would be connected to the train by a telephone cable so that the information gained from aerial observation could be speedily transmitted to the ground and then telegraphed to the field commanders. Because European countries were more advanced in the study of aeronautics than the United States, Greely sent Lieutenant William A. Glassford abroad to learn about their operations and to obtain equipment. While in France he purchased the Corps' first balloon which was named the *General Myer* in honor of the first Chief Signal Officer, Albert J. Myer. After being displayed at the World's Columbian Exposition in Chicago in 1893, the balloon was sent to Fort Riley, Kansas, where the Signal School was then located. The following year the balloon was transferred to Fort Logan, near Denver, Colorado, where its operation would be supervised by Glassford, now a captain and Chief Signal Officer of the Department of the Colorado. The *General Myer* was in such poor condition upon its arrival there, however, that it burst upon inflation.[2]

The Corps' limited budget and personnel hampered the construction of a new balloon and the organization of a balloon section.[3] Chief Signal Officer Greely requested a special appropriation of ten thousand dollars for balloon construction and experiments, but it was not approved. The balloon section, when finally completed in 1897, consisted of a new silk balloon of fourteen thousand cubic feet capacity, a balloon wagon, four wagons to carry tubes containing compressed hydrogen, one service wagon, and a gas generator and compressor. To prevent the deterioration suffered by the *General Myer* at Fort Riley, a balloon shed was built at Fort Logan to house the equipment.[4]

Shortly before the outbreak of the War with Spain in April 1898, Greely ordered the balloon section to be trans-

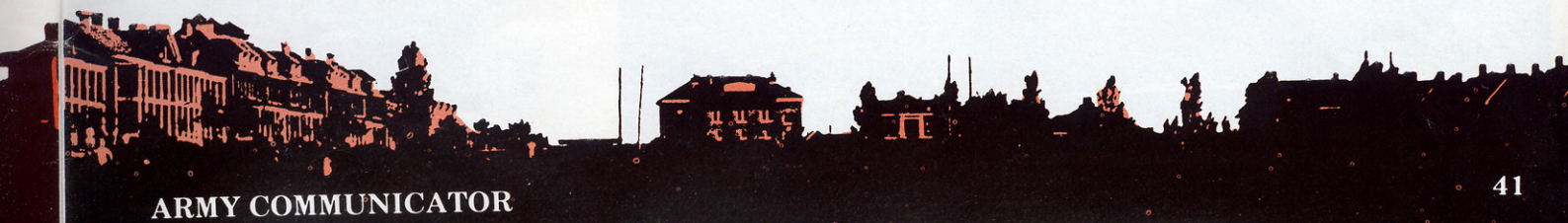


ferred from Fort Logan to Fort Wadsworth, New York, where it could be used to detect the presence of the Spanish fleet whose appearance off the Atlantic coast was greatly feared.[5] At the request of Nelson A. Miles, the Major General Commanding the Army, a balloon company for field duty was hastily organized at Tampa, Florida, with the balloon and equipment sent down from Fort Wadsworth. The balloon was used for reconnaissance during the battle of San Juan Hill on 1 July, but its deployment at the front disclosed the position of the American troops and, therefore, drew enemy fire. When lowered and examined, the balloon was found to have been badly damaged by the gun fire. Due to the lack of facilities in the field for the extensive repairs needed, further use of the balloon was impossible.[6]

Despite the criticism received by the Corps for the handling of the balloon in Cuba, its aeronautical work continued in the postwar period. Balloon operations were transferred to Fort Myer, Virginia, where a new Signal Corps post had been established in 1898. Although a balloon shed was completed at Fort Myer in February 1901, ballooning still suffered from a lack of resources. While the size of the Corps had increased, the scope of its duties had correspondingly expanded with the nation's new global commitments.[7] After the war, the Corps continued for several years to maintain telephone and telegraph lines in Puerto Rico, Cuba, and the Philippines. In 1900 the Corps began construction of the Alaska communications system and furnished personnel for the China Relief Expedition. Nevertheless, a balloon detachment of twelve men was organized at Fort Myer in 1902, and it participated in the Army's maneuvers in Connecticut that year.[8] But in his annual reports for 1903 and 1904 the Chief Signal Officer stated that "it has been impossible to do any ballooning work."

Meanwhile the Army pursued the development of the airplane through its support of the work of Samuel P. Langley, Secretary of the Smithsonian Institution. He had been granted $50,000 by the Army's Board of Ordnance and Fortification to build a flying machine, known as the "aerodrome."[9] Langley conducted tests of his machine in October and December of 1903, but both were unsuccessful and thereafter the Board was extremely reluctant to support further aerial experimentation. Shortly after Langley's failure, the Wright brothers flew successfully at Kitty Hawk, North Carolina, on 17 December 1903, but several years passed before their accomplishment was well known and accepted. When, after making some modifications, the Wrights submitted a written offer to sell their plane to the government in 1905, the Board of Ordnance and Fortification turned them down because they had not included conclusive proof that their plane could fly.[10]

The work of Langley and others was, however, creating an increased interest in aviation throughout the United States as evidenced by the formation of the Aero Club of America in 1905. Further interest was generated when an American Army officer, Lt. Frank P. Lahm, won the first International Balloon Race held in Paris in 1906 by



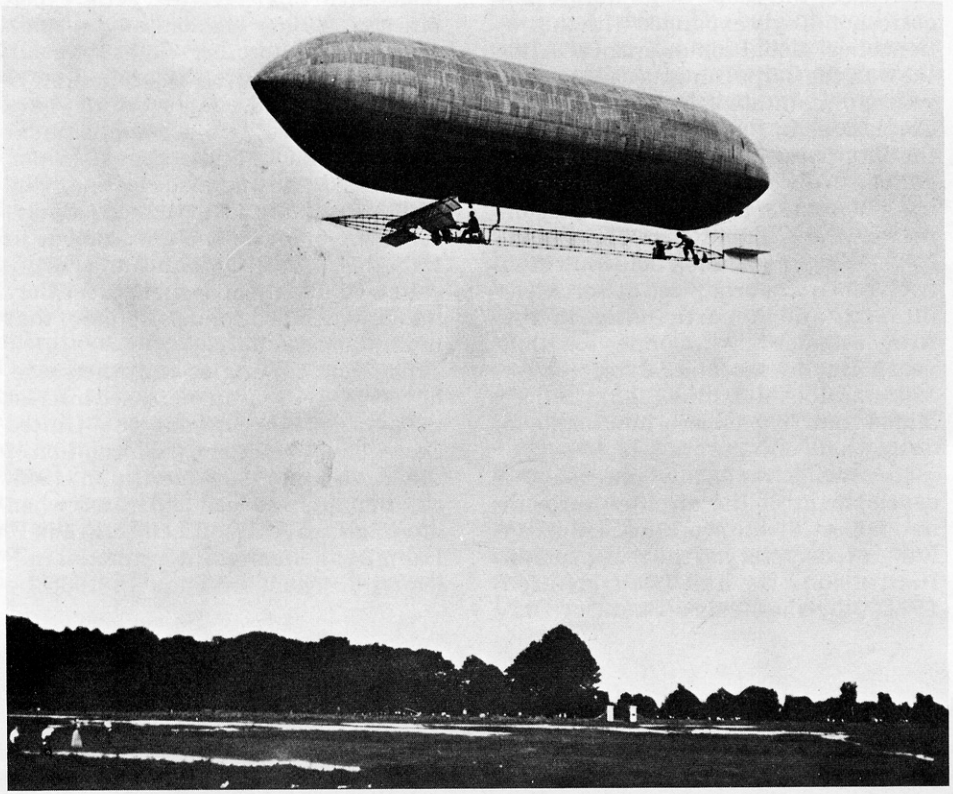
flying 402 miles in twenty-two hours. The next year the race was held in St. Louis with the Signal Corps' balloon detachment in attendance.[11]

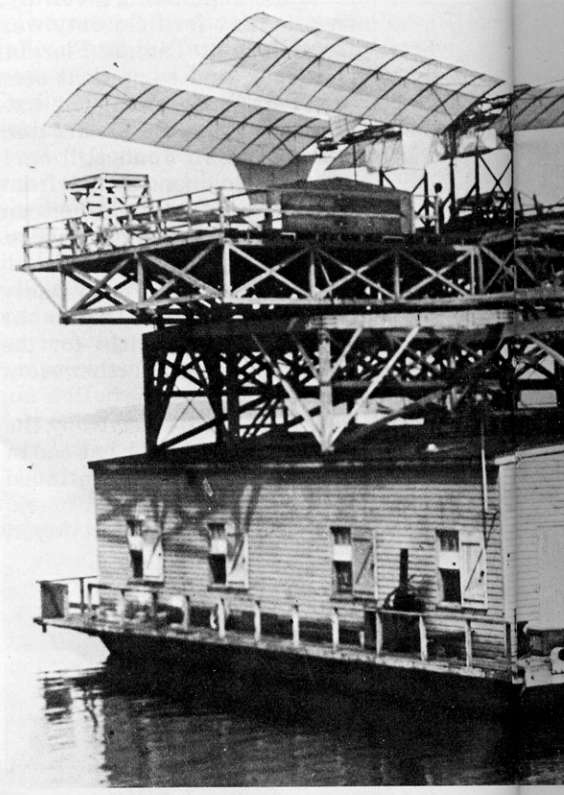
Under its new Chief Signal Officer, Brig. Gen. James Allen, the Signal Corps expanded its aeronautical activities. On 1 August 1907 he established an Aeronautical Division which was to have charge "of all matters pertaining to military ballooning, air machines, and all kindred subjects."[12] Lahm, meanwhile, was detailed to duty with the Signal Corps to visit the aeronautical divisions of European armies to study such developments as the dirigible balloon. Military aeronautics was included in the curriculum of the Signal School at Fort Leavenworth, Kansas, which had been established in 1905. One of the instructors at the school was Capt. William (Billy) Mitchell, then a member of the Signal Corps, who later became famous for his advocacy of air power.[13] Of major importance was the issuance by the Corps on 23 December 1907 of specifications for a heavier-than-air flying machine, or airplane. This machine was required to be able to: carry two persons; travel at least forty miles per hour; and stay aloft for one hour. These specifications were followed on 21 January 1908 by those for a dirigible balloon which also was to be capable of carrying two persons and was required to travel at least twenty miles per hour.[14] The Board of Ordnance and Fortification provided the funds to purchase this equipment as the Signal Corps did not have the money within its own budget.

In response to its avertisements, the Corps received numerous proposals for the building of an airplane, including one from a prisoner in a Federal penitentiary who promised to furnish a satisfactory flying machine provided that the Army secured his release from prison. Twenty-four bids were seriously considered and two contracts were awarded, one to A. M. Herring of New York City and the other to the Wright brothers.[15] Only the Wrights delivered a plane to Fort Myer in August 1908 for the scheduled flight trials.

The trials began on 3 September and were attended by crowds of curious spectators. The first flight lasted only one minute and eleven seconds, but on 9 September Orville Wright remained aloft for one hour and two minutes. Earlier that day, Lahm had accompanied Orville on a flight lasting over six minutes. Three days later, Maj. George O. Squier, who subsequently became Chief Signal Officer, flew with Orville for over nine minutes. But disaster struck on 17 September when mechanical failure caused the plane to crash, severely injuring Orville and killing his passenger, Lt. Thomas E. Selfridge.[16]

Despite the tragic conclusion, the demonstrations made by the Wright's airplane at Fort Myer in 1908 finally





laid to rest any remaining skepticism as to the possibility of powered flight. The Wrights were granted an extension on their contract, and testing of a new plane was successfully carried out in the summer of 1909. With the Army's purchase of that airplane, a new era of military aviation began which ultimately led to the creation of the United States Air Force.

(Left) Dirigible balloon at Fort Myer, 1908
(National Archives photo)

(Below) Langley's aerodrome rests atop the catapult from which it was launched during the unsuccessful test flights in 1903.
(Smithsonian Institution photo)

(Right) The balloon house at Fort Myer
(National Archives photo)

Endnotes

[1] Balloons were under the supervision of the Bureau of Topographical Engineers until 31 March 1862 when they were placed under the Quartermaster Department. Control of balloons was transferred to the Corps of Engineers on 7 April 1863. The balloon corps was disbanded in June 1863. See F. Stansbury Haydon, *Aeronautics in the Union and Confederate Armies. . . .* vol. 1 (Baltimore: The John Hopkins Press. 1941).

[2] Russell J. Parkinson, "Politics, Patents and Planes: Military Aeronautics in the United States 1863-1907" (Ph. D. dissertation, Duke University, 1963), p. 87.

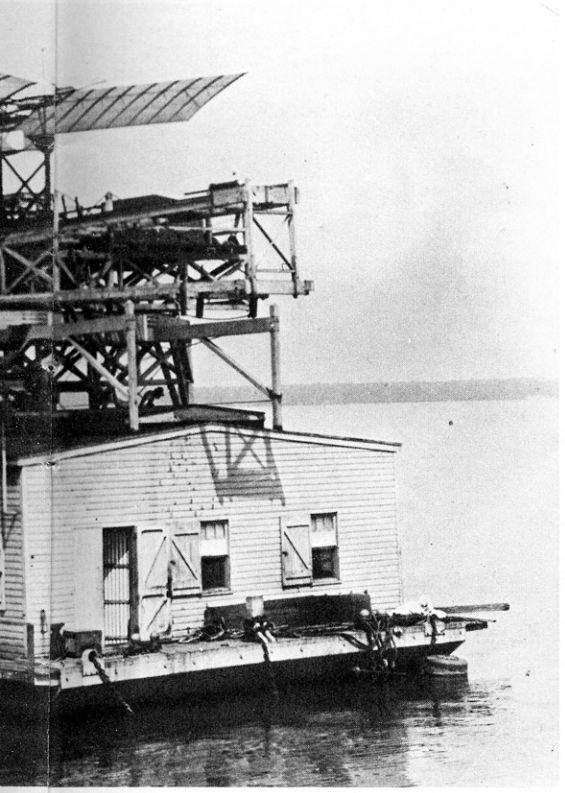
[3] For the years 1892 to 1897, the Corps' appropriation ranged from a high of $22,500 in 1892 to $17,000 in 1895, most of which was used to operate approximately 800 miles of military telegraph lines. The Corps' authorized strength was ten officers and fifty enlisted men.

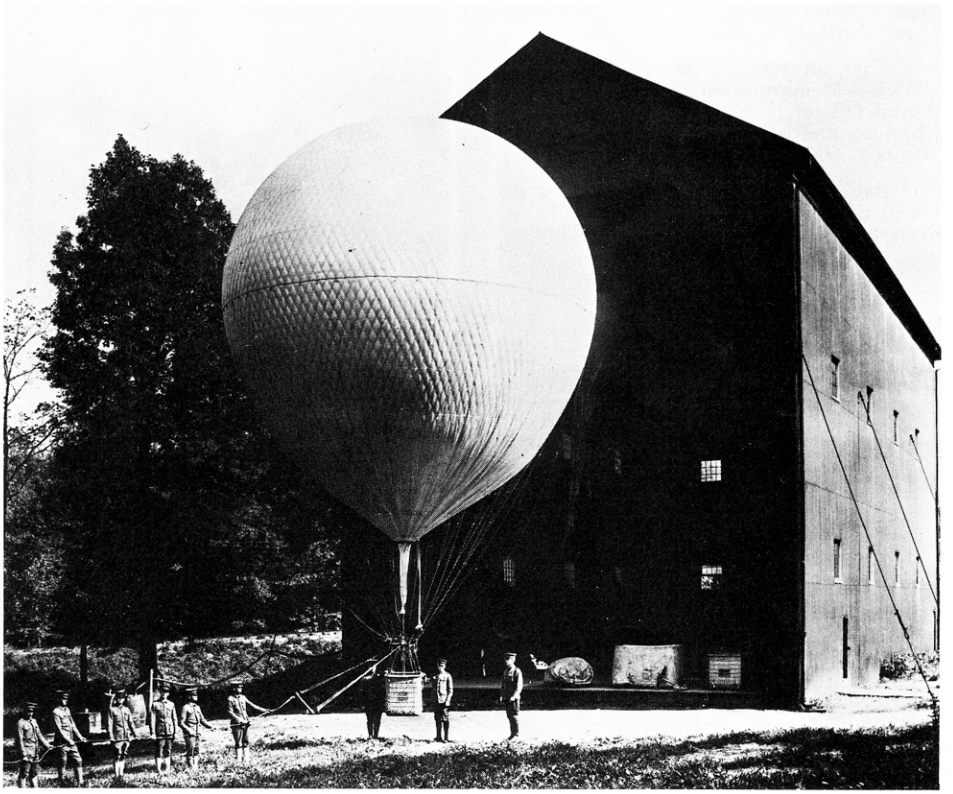
[4] US War Department, *Annual Report of the Chief Signal Officer*, in *Annual Report of the Secretary of War, 1896*, volume 1, page 603; Parkinson, "Politics, Patents and Planes," pp. 87ff.

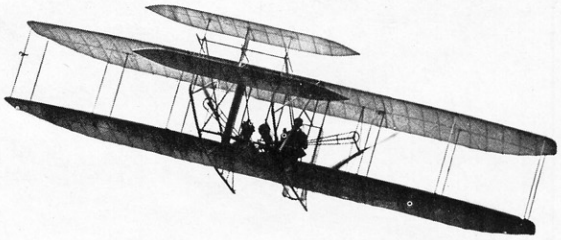
[5] The Spanish fleet sailed from the Cape Verde Islands on 29 April for an unknown destination, and for two weeks its location was a mystery. The fleet was finally discovered on 13 May west of Martinique. Six days later, the Signal Corps learned, through an agent in Havana, that the fleet had anchored in Santiago harbor. For more details on this story, see the article by Admiral William Sampson, "The Atlantic Fleet in the Spanish War," *The Century Magazine* (April 1899), pp. 886-913; Parkinson, "Politics, Patents and Planes," p. 106.

[6] New balloons and equipment that were purchased after the outbreak of the war were not delivered in time to be sent with the balloon company to Cuba. A second company was organized at Tampa to serve in Puerto Rico, but it did not leave the United States. See US, War Department, *Annual Report of the Chief Signal Officer* in *Annual Report of the War Department, 1898*, volume 1, part 1, pp. 878, 888-891 and Appendix 5; Parkinson, "Politics, Patents and Planes," chapter 6; Charles deForest Chandler and Frank P. Lahm, *How Our Army Grew Wings* (New York: The Ronald Press Co., 1943), pp. 46-49.

[7] By 1892 the Corps' strength was 35 officers and 810 men and its annual appropriation was $500,000.







[8] Chandler and Lahm, *How Our Army Grew Wings*, p. 51; Parkinson, "Politics, Patents and Planes," pp. 241-244.

[9] The Board was created in 1888 with the authority to "make all needful and proper purchases, investigations, experiments, and tests, to ascertain with a view to their utilization by the Government, the most effective guns, . . . and other implements and engines of war; . . . "See General Orders No. 76, Headquarters of the Army, Adjutant General's Office, 5 October 1888, in which the act creating the Board is printed. The Board's authority was broad enough to include airplanes as an object of study. See also Parkinson, "Politics, Patents and Planes," chapters 8 and 9; and Tom D. Crouch, *A Dream of Wings: Americans and the Airplane, 1875-1905* (New York: W. W. Norton and Co., 1981), chapters 12 and 13.

[10] The Wrights avoided publicity about the details of their plane until they were granted a patent on it in 1906. For a detailed discussion of the correspondence between the Wrights and the Board see Parkinson, "Politics, Patents and Planes," chapter 9.

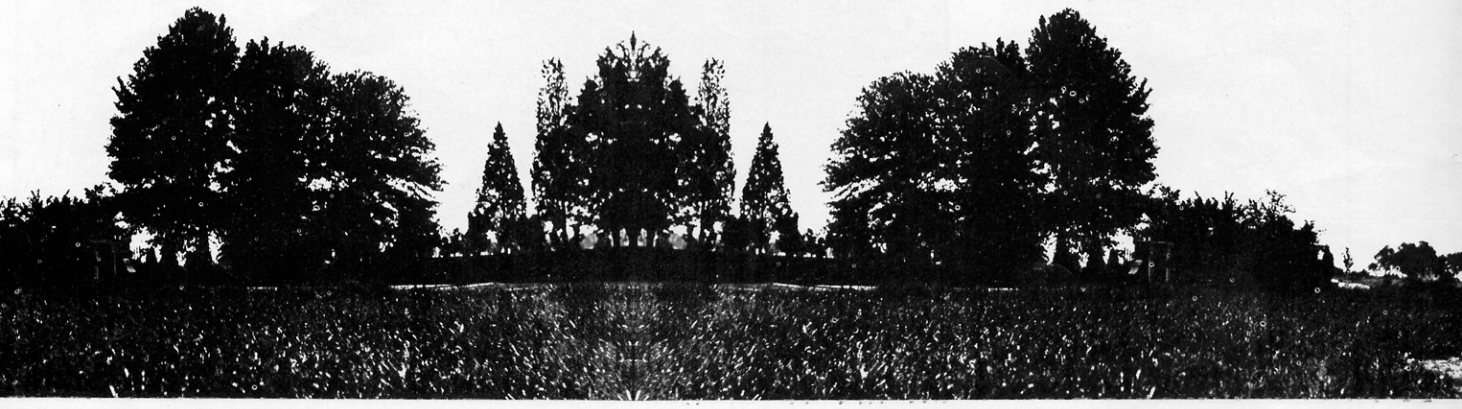
[11] Lahm, of the 6th Cavalry, was then attending the French Cavalry School at Saumur. He ascended from Paris at 4:55 p. m. on 30 September and landed 15 miles north of Scarborough, England, at 3:12 p. m. on 1 October. See Chandler and Lahm, *How Our Army Grew Wings*, pp. 58ff; US, War Department, *Annual Report of the Chief Signal Officer*, in *Annual Report of the War Department, 1980*, volume 2, p. 210.

[12] Allen succeeded Greely on 10 February 1906. See Memorandum, Office of the Chief Signal Officer, 1 August 1907, printed in Chandler and Lahm, *How Our Army Grew Wings*, p. 80, footnote 6.

[13] Paul Wilson Clark, "Major George Owen Squier: Military Scientist" (Ph. D. dissertation, Case Western Reserve University, 1974), pp. 112ff.

[14] The specifications are printed in Chandler and Lahm, *How Our Army Grew Wings*, as Appendices 3 and 6.

[15] Chandler and Lahm, p. 147 and *Annual Report of the Chief Signal Officer, 1908*, p. 211. Lahm and Chandler state that out of forty-one proposals received, only twenty-two were seriously considered, two less than the number reported by the Chief Signal Officer.

[16] The longest flight made during the trials was on 12 September when Orville flew for 1 hour, 14 minutes, and 20 seconds. See Marvin W. McFarland, ed., *The Paper of Wilbur and Orville Wright*, 2 vols. (New York: McGraw-Hill Book Company, Inc., 1953). Volume 2 contains entries from the Signal Corps "Log of Wright's Aeroplane; kept during the flights. See also Clark, "Squier," pp. 139ff. A dirigible balloon was successfully tested at Fort Myer in the summer of 1908 and purchased by the Army.

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