

THE UNITED STATES BALLOON CORPS IN ACTION IN NORTHERN VIRGINIA DURING THE CIVIL WAR

By

June Robinson

The first use of balloons for military purposes in the United States was made at Falls Church, Virginia, on June 23, 1861, by Thaddeus Sobieski Coulincourt Lowe at the direction of Captain Amiel Weeks Whipple of the Topographical Engineers Corps.¹ Professor Lowe, one of the best-known balloonists in the country, had come to Washington earlier that month to persuade the government of the advantages of the use of aeronautical services in the war that had just begun.

With the encouragement of Joseph Henry, Secretary of the Smithsonian Institution, whose scientific interests had been aroused by Lowe's earlier efforts to demonstrate the possibility of transatlantic balloon travel, Lowe came to Washington with the balloon *Enterprise* in which he had just completed a voyage from Cincinnati, Ohio to South Carolina, a distance of 900 miles, in nine hours. In the capital he inflated the *Enterprise* with illuminating gas from one of the mains in the Armory and made tethered ascensions from the Armory grounds, from the Smithsonian grounds, and in front of the Executive Mansion.

At one point telegraph operator Herbert Robinson went up with him, and using a direct wire to the ground, tapped out a message to President Lincoln:

Balloon *Enterprise*

Washington, D.C.

June 18, 1861

To the President of the United States:

Sir: This point of observation commands an area nearly 50 miles in diameter. The city with its girdle of encampments presents a superb scene. I have pleasure in sending you this first dispatch ever telegraphed from an aerial station and in acknowledging indebtedness for your encouragement for the opportunity of demonstrating the availability of the science of aeronautics in the service of the country.

T.S.C. Lowe²

A message from Mr. Lincoln waited for Lowe when he reached the ground. He was requested to call on the President that evening to discuss further plans for a balloon corps.

Earlier Life and Experiences

Thaddeus S.C. Lowe (August 20, 1832-January 16, 1913) was born in Jefferson Mills, New Hampshire, to Clovis and Alpha (Green) Lowe. His early schooling was limited to standard grammar school classes, but he took special interest in botany, chemistry, and geology, reading as much as he could on these topics. He became interested in flight and launched his own first flying experiment at the age of sixteen. Satisfied with preliminary efforts, he built a very large structure with several kites fastened together. A cage was attached between them and colored lanterns affixed to

each side. On a dark, windy night, Lowe picked up a friendly big black tomcat which went unsuspectingly into the cage and was sent aloft as his first passenger. The white and green lights blinked as the kite tossed in the night sky and at midnight — several hours later — when the kite was pulled in, the cage was opened and the cat, eyes wide open and fur on end, streaked out the door and disappeared into the night, never to be seen again. Lowe decided he would never frighten an animal that way again.³

Several years later Lowe became an assistant to a travelling lecturer giving talks and doing chemical experiments as part of a performance. At the age of twenty, he purchased his own portable laboratory and went on the tour circuit himself, adopting the title “Professor of Chemistry.”⁴ His first balloons, small hydrogen aerostats used in the demonstrations, were purchased during this period.⁵

By the time he was twenty-seven, Lowe had had considerable experience with balloons. He had made a series of short unpublicized ascensions and a series of public flights in Ottawa, Canada, in celebration of the laying of the first transatlantic cable in 1858. That summer he released small hydrogen balloons from his basket during a flight near Portland, Maine. Several of these were discovered 500 to 600 miles at sea. The possibility that they could have crossed the Atlantic in the upper air currents if they had been large enough interested him. He proposed the idea of a balloon large enough to cross the Atlantic, supporting an airship capable of transporting men and freight. In New York City the proposal drew backers and construction was begun on the *City of New York*. When filled with gas, the balloon would lift twenty tons in weight. The envelope alone weighed two and a quarter tons.⁶ Adventurous citizens signed up for the maiden voyage. Efforts to inflate the grand balloon failed because the city could not generate enough gas and interest waned. Encouraged by friendly new backers and the offer of enough gas, Lowe moved his balloon and airship to Philadelphia, renamed it the *Great Western* and started again. A year of incomplete inflation took its toll and on September 8, 1860, the *Great Western* burst.⁷

Lowe was encouraged by the aid and support of some of the most eminent scientists in the country and returned to his original backers with a plan for an improved airship. They did not discourage him, but suggested that he consult Joseph Henry, who was considered the country’s unofficial chief scientist.

Although he received a memorial inscribed with the names of fifteen distinguished men⁸ Henry did not recommend appropriation of any Smithsonian funds in the balloon experiments, but did make the following statement as a result of an investigation. Lowe later quoted the statement as support for his own theories about upper air currents:

It has been fully established by continuous observations collected at this Institution for ten years, from every part of the United States, that, as a general rule, all the meteorological phenomena advance from west to east, and that the higher clouds always move eastwardly. We are, therefore, from abundant observation, as well as from theoretical considerations, enabled to state with confidence that on a given day, whatever may be the direction of the wind at the surface of the earth, a balloon elevated sufficiently high would be carried easterly by the prevailing current in the upper or rather middle region of the atmosphere.

I do not hesitate, therefore, to say that, provided a balloon can be constructed of sufficient size and of sufficient impermeability to gas, in order that it might maintain a high elevation for a sufficient length of time, it would be wafted across the Atlantic. I would not, however, advise that the first experiment of this character be made across the ocean, but that the feasibility of the project should be thoroughly tested and experience accumulated by voyages over the interior of our continent.⁹

Lowe was not the first balloonist in the United States to propose extensive flights. Following the development of the balloon in France in 1783, a number of adventurous Americans had, by the 1820s, experimented with building and flying balloons. In 1822, in the name of a Philadelphia mathematician, James Bennett, Congressman Milnor of that state had petitioned Congress for a forty year monopoly “for the right of steering flying machines through that portion of the earth’s atmosphere which passes over the United States, or so far as their jurisdiction may extend.” The petition was referred to a special committee, tabled, and forgotten.¹⁰ One of the most widely known American balloonists, John Wise, had made his first public announcement of a proposed transoceanic flight in June, 1843. Other active balloonists who were later to compete with Lowe for government preference during the Civil War included John LaMountain and James Allen.¹¹

Lowe, encouraged by Henry’s advice, went to Washington to meet him. Henry welcomed the professor and suggested that a long test flight from an inland city would help to erase doubts in the minds of the public as to the feasibility of an aerial voyage to Europe. Cincinnati was chosen as the western city and Lowe packed one of his larger balloons, the *Enterprise*, for the attempt. In Cincinnati he gained support from Murat Halstead, editor of the Cincinnati *Daily Commercial*. His flight was publicized and backers offered financial support. Lowe gave a series of public lectures on aeronautics.

Inflation was begun the night of April 19, 1861, only seven days after the attack on Fort Sumter in South Carolina. With conditions just right, he had cast off at 4:00 A.M. still wearing the top hat and frock coat he had worn to a farewell dinner party. Nine hours later the *Enterprise* settled down on a farm near Unionville, South Carolina.¹² Although public suspicions that he was a Union spy carrying despatches to the North were raised, he was recognized by a number of scientific and educated men who knew of his previous work and he was furnished with a passport by the mayor of Columbia, South Carolina, on April 22, 1861, to enable him to return with the balloon to Cincinnati:

THIS IS TO CERTIFY, that Prof. T.S.C. Lowe, now accidentally in our midst, is a gentleman of integrity and high scientific attainments, and I bespeak for him the courtesies of all with whom he may come in contact, and trust that this letter, to which I have affixed the seal of the City of Columbia, S.C., will answer as a passport for him through the Confederate States of North America.

(Signed) W. H. Boatright, Mayor¹³

It took four days, travelling by train only in daylight hours, to return to Cincinnati. There, in conversation with Murat Halstead and other civic leaders, Lowe decided to put the transatlantic voyage plan aside, raise some funds, and offer his services to the government. In Lowe's words:

From what seen, I was fully convinced the country was facing a severe struggle and patriotism getting the better of my desire to attempt a crossing of the Atlantic, I decided to offer my services to the government. I had a long talk with Mr. Potter and Mr. Halstead and they concurred in this view.

I hastened to Washington but found that several other aeronauts were already on the scene and that I would have competitors in my desire to form an aeronautic corps for the army.

At this period, ballooning was looked on by the public at large as an expression of the showman's art and indeed with a rare exception here and there, balloonists themselves looked no higher so that it was extremely difficult to impress even those in power, that ballooning belonged to the realm of science and to be of any benefit, must be handled scientifically. This was the only claim I could lay to superiority but it seemed almost impossible to get a hearing.¹⁴

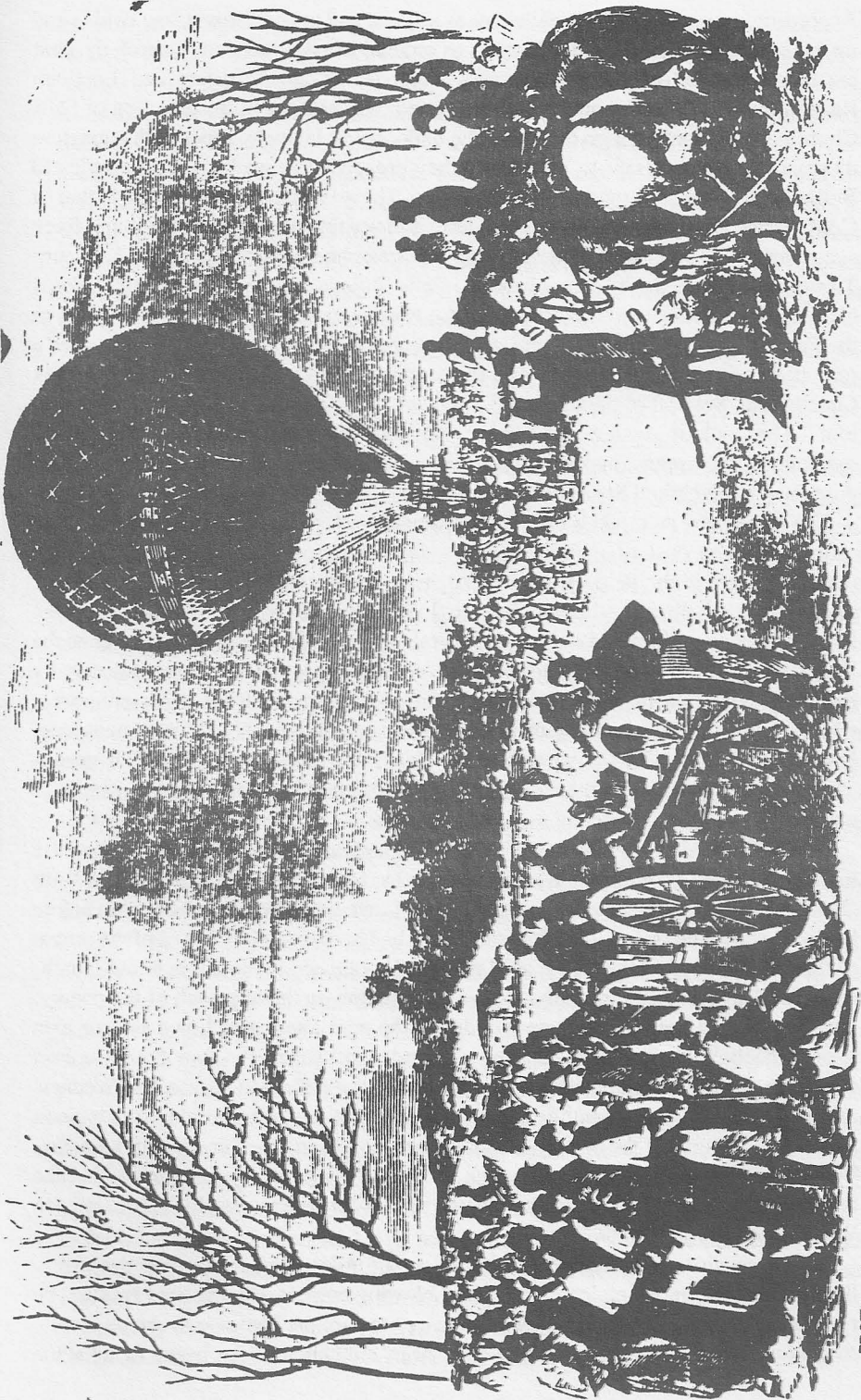
Other balloonists had had the same idea. James Allen, a New England aeronaut, was already in Washington applying for an army position. An army major contacted John Wise about constructing a balloon that would be suitable for reconnaissance purposes. John LaMountain sent a petition signed by thirty-three citizens of Troy, New York, testifying to his upright character, ability and experience.¹⁵

The Balloon Corps

Lowe's friends, meanwhile, had contacted Secretary of the Treasury Salmon P. Chase and asked the administration to consider Lowe. On his arrival in the capital he met with Joseph Henry, who urged him to call on Chase and introduced him to Secretary of War Simon Cameron. Henry also sent a very strong message of support, claiming that Mr. Lowe's balloon would retain its charge for several days under normal circumstances; that in an inflated condition it could be towed by a few men along an ordinary road or over fields in calm weather; that it could be tethered in the air on a calm day to a height sufficient to observe the country on a twenty mile radius; and that telegrams could be sent from the balloon to the quarters of the commanding officer.¹⁶

President Lincoln met with Lowe the evening of the telegraph experiment and gave him a note to General Scott, urging the general to meet with Lowe. Lowe was rebuffed by the general — too busy and preoccupied to meet with him, even at the request of the commander-in-chief. A few hours later, when the matter was reported to the president, Lincoln appeared with Lowe at the general's doorstep and Lowe had his hearing.¹⁷

That evening Lowe received a telegram from Captain Whipple directing him to fill the balloon and to bring it and the telegraphic equipment tools to Arlington.



Professor Lowe making a balloon ascension on a reconnoitering expedition to Vienna (Va.).

From The New York Times, AIAA Files, Library of Congress.

Accordingly, the next day the balloon was inflated and towed across Long Bridge and up the hill to Arlington House. Lowe was ordered to take it to Falls Church the next morning. Just before dawn the group proceeded to the Arlington and Loudoun Railroad where Lowe learned that there were no pickets out in the direction of Falls Church and he could not go by train. The balloon was let up by ropes high enough to discover that it was safe to go on and they proceeded to walk two more miles to Bailey's Crossroads towing the balloon. There Lowe was informed that a Confederate scouting party had just left, anticipating that a large military force accompanied the balloon. The company then marched up the Alexandria-Leesburg Turnpike, balloon bobbing overhead, to Falls Church. At the Topographical Corps headquarters it was kept in constant use for two days. General Tyler, commander of the First Division that occupied the area, sent up with Lowe an officer who sketched a map of the countryside and observed the actions of the Confederate forces at Fairfax Courthouse. Several of the other officers, including Captain Whipple, went up with him. The balloon had been inflated for four days and had made numerous reconnaissance ascensions during this first experience at using balloons for military purposes in the United States.¹⁸

The *Enterprise* was taken back to Washington where Lowe was asked to give an estimate of the cost of making balloons for military purposes and details about operating them in the field. Much to his dismay, he was soon informed that the order to construct a balloon had been given to John Wise, his estimate being lower than Lowe's by several hundred dollars. When told that he might be needed to operate the Wise balloon, Lowe replied that he refused "to expose my life and reputation by using so delicate a machine, where the utmost care in construction was required, which should be made by a person in whom I had no confidence".¹⁹ In the meantime, Lowe gave another coat of varnish to the *Enterprise* and started a series of experiments on the grounds of the Smithsonian Institution to demonstrate his system of aeronautics.

In mid-July, finding that the Wise balloon had not yet arrived, Whipple sent a message asking Lowe to inflate his balloon and to follow the army to Manassas. With Captain Whipple already in the field of battle, Lowe met several days of delay before he could start with twenty men for Falls Church. There he was informed of the retreat of the army following the Battle of Manassas. He planned to remain in Falls Church, in the midst of a drenching rain, to give information on the approach of the enemy. However, when the pickets were withdrawn the next afternoon, Lowe and the men towed the balloon in a typical July rain and wind storm for four hours to Fort Corcoran, on the Virginia side of the Potomac, near Arlington House. On Wednesday, July 24, when the weather had abated, he made an early morning free balloon ascension, observing the enemy in motion between Manassas Junction and Fairfax. The report, when circulated, did much to relieve apprehension and rumor that the confederates were following up their victory at Manassas by marching on Washington.²⁰

That ascension, to a height of three and a half miles, took Lowe over the enemy lines on an early morning lower westward blowing current. Having seen enough, he rose to the upper current and began moving east toward the Potomac River, expecting to land near Arlington House. As he drew near, the Union troops began firing at the

balloon, thinking it was from the enemy to the west. Lowe descended low enough, as he described it, “to hear the whistling of the bullets and the shouts of the soldiers to ‘show my colors’ ”. Having no flag, he decided not to take the chance of having himself and his airship riddled with bullets. He sailed on, taking the risk of landing outside Union lines and came down in a grove of trees two and a half miles outside Union pickets at Mason’s plantation, south of Alexandria. His wife, who had been watching the flight from Washington, attempted a rescue, securing a large farm wagon and the help of men from the Thirty-first Regiment New York Volunteers. Dressed as a farm woman, she drove the wagon and team into the countryside seeking him. The deflated balloon and Lowe were hidden in the bottom of the wagon and driven by his wife past the Confederate pickets at dusk.²¹

Five days later Lowe received a letter from Captain Whipple offering temporary employment: “The United States will pay for the gas used for inflation, will furnish twenty men to manage the balloon, will pay you \$30 per day for each day the balloon is in use for reconnaissance on the Virginia side of the Potomac.”²²

Lowe countered with an offer to construct a balloon more suited for tethered observation, stating the cost and also offering to serve for \$10 per day. In the meanwhile, he repaired the balloon, filled it with gas, and had it transported across Long Bridge to Arlington and from there to Ball’s Crossroads (Fort Union). The heavy weather tossed the balloon first against the bridge trusses and then against the trees that lined the narrow rough road. Fearing damage to the balloon, Lowe had the gas discharged and the balloon carried back to town. He was sure that if he were given the opportunity to construct a heavier balloon, suitable for tethered flights, rather than using the *Enterprise*, which had been designed for free flights, it would be a valuable asset to the Union forces in the war. Orders were finally given for the construction of a balloon for military purposes.²³ According to the specifications, it was to be capable of containing at least 25,000 cubic feet of gas, to be made of the best india silk — 1200 yards were purchased — with linen network and three guys of manila cordage from 1200 to 1500 feet in length.²⁴

The first airship, the *Union*, was sewed by women who cut the silk into strips according to pattern and stitched them together with reinforced seams. When inflated, the balloon took on a pear shape. All balloons were outfitted at the top with valves which could be opened by the aeronaut to allow gas to escape for descending maneuvers. The bottom was finished in a wide hose that could be used to relieve increases in gas pressure which occurred when high temperatures caused the gas to expand. To make the envelope — as it was called — airtight, the outside surface was given four coats of heavy varnish while the inside was scrubbed with oil. The balloon was fastened within a network of heavy linen cord, gathered together and fastened to a strong wooden ring. Ropes which held the basket below the balloon were also attached to the ring. Strong manila ropes, worked with pulleys, were used to hold the balloon during captive ascensions and when the balloon was being towed.²⁵

Each balloon was decorated with its name in bright paint. The *Constitution* had a picture of George Washington and a spread eagle. The *Union* had stars and stripes. The baskets were painted with white stars on a red background.²⁶ Lowe felt that to be completely useful, a portable generator would have to be constructed so the balloon could be inflated on the field. Although he had devised a plan for that purpose, he

could not get authorization at that time to build the machinery. Balloon service would, apparently, be limited to areas close to the supply of gas.

By August 28 the new silk balloon was ready and Lowe was called to bring it to Captain Whipple at Fort Corcoran. He was furnished with thirty men to aid in preparation and transportation of the balloon — they formed the first unit of the Balloon Corps, which remained a civilian operation during the war. Lowe devised a small metal cap insignia shaped like a balloon bearing the letters “BC” for the men to wear on their caps and they were outfitted in field service garb. Lowe himself wore his trousers stuffed into high cavalry boots, a broad black hat, and a long, loose dark coat.

During this time Frank Leslie sent Mr. Arthur Lumley, who stayed with the Balloon Corps and made drawings during the course of the war for *Leslie's Magazine*. Other artists and writers, attracted by the colorful unit, also attached themselves to the corps until, during the Peninsula Campaign, the commanders gave orders that no newsmen or artists were to be allowed to fly in any of the balloons. Photographer Matthew Brady spent time with the corps and made many photographs of the balloons.²⁷

From Fort Corcoran Lowe observed the Confederate forces building earthworks on Munson Hill and Clark's Hill, as well as their movements along the entire line. Later the balloon was moved to Ball's Crossroads to make closer observations. During one of these observations, he reported that . . . “I made an aerial reconnaissance at Ball's Crossroads, where in their attempt to bombard and destroy my airship, the Confederates landed their shots nearer Washington than at any time during the Civil War.”²⁸

For almost two months Lowe and the balloon were kept busy in Northern Virginia watching the enemy forces on the high lands west of Washington. On September 7 General McClellan made an ascension with Lowe, who wrote admiringly of him as a genius in reorganizing the Army — “one of the finest and best equipped armies the world has ever seen.”²⁹ Many other officers made ascensions, finding that the balloon offered an excellent point of view for reconnaissance and map making. From time to time there were alarms about enemy activity and the troops were called out in battle line. After a balloon ascension had been made and no danger discovered, the troops were sent back to their quarters and allowed to rest — no surprise attack was on the way. With only one balloon available, Lowe found it necessary to make night trips to Washington regularly for gas.

During the five weeks the Confederate forces held Munson Hill their fortifications appeared formidable. With binoculars, nervous watchers on the unfinished dome of the capitol in Washington could see the Confederate flag flying against the western skyline and signal fires burning at night.³⁰ Lowe reported that the fortifications were strong. When the Confederate troops withdrew, it was discovered that most of the “cannon” had been left behind and that they were not cannon. Many years later, in correspondence to Lowe, General James Longstreet reported that after the first Manassas he was allowed only one battery to fortify Munson and other hills that his troops held overlooking Washington and Alexandria. He had his men collect wagon wheels and mounted stove pipe of different calibre until he had formidable, threatening batteries.³¹ Lowe gave the name “Quaker guns” to them when the earthworks were abandoned and the deception discovered.

During that same time, with Brigadier General Fitz-John Porter's support, Lowe asked for construction of two additional balloons and a portable inflating apparatus that could be used in the field. The estimated manufacturing time was set at two weeks.³² In October he was authorized to construct four military balloons and the apparatus. By the following spring, seven balloons, six portable generators, and eight trained aeronauts made up the Balloon Corps, with Lowe at its head. The portable equipment was actually a gas generator which used sulfuric acid and iron filings to produce hydrogen. One inflation was estimated to require four barrels of iron filings, weighing about 3300 pounds, and 1600 pounds of acid. After some experiments the inflation time was cut to about one and a half hours. Four horses were needed to haul each generator, with additional teams to carry supplies and other equipment.³³

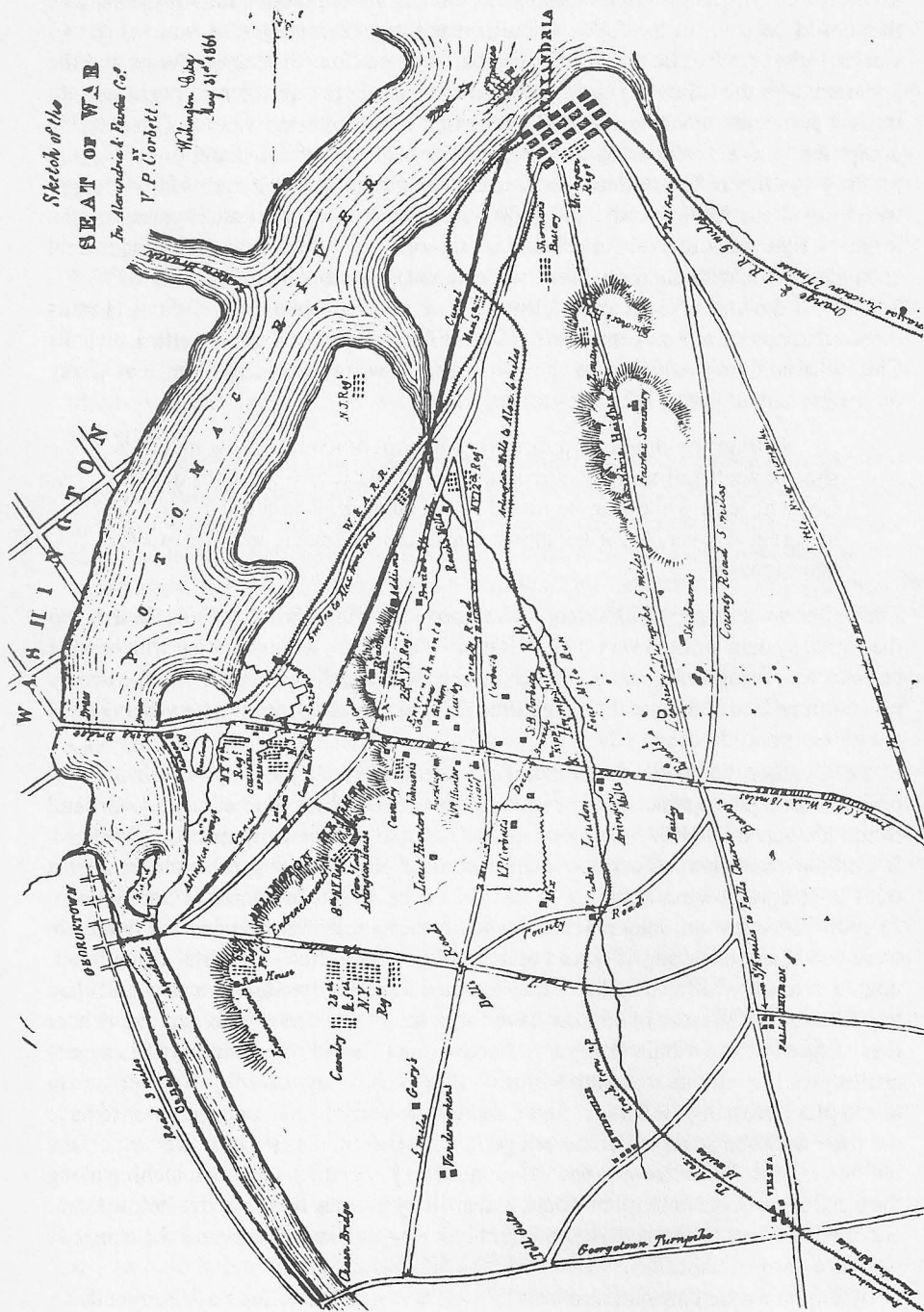
Toward the end of September, 1861, Lowe accomplished another first. He was directed to ascend at Fort Corcoran to observe General Smith's cannon attack on Falls Church from Camp Advance and he was supplied with two orderlies who would stay on the ground and carry messages to the general.

. . . During the time of fire it is very important to know how much the shot or shell fall short, if any at all . . . If we fire to the right of Falls Church, let a white flag be raised in the balloon; if to the left, let it be lowered; if over, let it be shown stationary; if under, let it be waved occasionally.³⁴

The balloon was let up to 1000 feet with a good view of the firing on Falls Church and the signal system worked very well. "Battery marksmen, without seeing who or what he (sic) was firing at, by merely watching me, made such an accurate fire the enemy was demoralized." This was the first time fire was directed from a battery at an object the gunners could not see.³⁵

On October 12, while in Washington superintending the construction of new balloons and gas apparatus, Lowe received an order to report immediately to General Smith at Johnson's Hill. A balloon was inflated and the company started at 9:00 P.M. It was dark and the professor was apprehensive about running the balloon against trees or telegraph wires stretched across the streets in Washington and Georgetown. Leaving Georgetown, they reached the road to Chain Bridge and decided that there were too many trees and it would be best to go across fields. With a strong wind, unable to tow the inflated balloon, they lowered it to the ground, and occasionally had to pause to cut the trees in order to have room for the balloon to pass. Six hours later they arrived at the Chain Bridge to discover that the narrow span was filled with artillery and cavalry moving into Virginia. With no military authority to allow them to take a place crossing the bridge, Lowe and his men decided the only way was to have the men walk the stringers of the bridge, only eighteen inches wide, to transport the balloon across. With Lowe in the basket directing operations, his men inching along the trestle work, the column of troops and artillery moving on the bridge below them, and the turbulent Potomac River 100 feet below in the dark, it was an exhausting, as well as a dangerous, effort.³⁶

By daybreak the corps arrived near Lewinsville with the balloon to discover that a strong, sudden wind had sprung up. Although the balloon was lashed securely to a stump in a field, the wind continued to increase, uprooting trees at the edge of the



Map of the seat of war in Alexandria and Fairfax County, May 31, 1861, drawn by V. P. Corbett, probably on the basis of observations made from a balloon expedition. National Archives R. G. 77

field. At the height of the storm the cordage broke and the balloon escaped. In less than an hour it had flown 100 miles to the east, landing near the coast of Delaware, where Lowe later retrieved it.³⁷

In November, 1861, the first balloon launching from a ship was completed successfully. Lowe, his balloon, and the inflating apparatus were put aboard a navy lighter (formerly the USN W.W.P. Custis) and towed by a steam tug toward Mattawoman Creek on the Potomac. There the balloon was inflated and Lowe made observations of the enemy constructing new batteries at Freestone Point.³⁸ By this time five additional balloons had been constructed and, under the command of competent aeronauts, had been deployed to various commands at Port Royal, South Carolina; Poolesville, Budd's Ferry, and Hall's Hill, Maryland. Later another balloon and aeronaut were deployed to the western front. In all, eleven balloons were built for the corps.

During that first winter Lowe continued to make ascensions in northern Virginia, observing troop movements between Leesburg and Centerville. In early March, near Pohick Church, he observed the evacuation of the Occoquan, the first indication of the retirement of the enemy from Manassas.³⁹ Later that month Lowe was directed to load his balloon and inflating machinery on a steamer bound for Fort Monroe for what was to be the beginning of the 1862 Peninsula Campaign. The balloons were also used during engagements at Fredericksburg and Chancellorsville in 1863.

Despite the general successes of the Balloon Corps under Lowe, difficulties resulting from poor administration and lack of unified military supervision began to surface. The unit was variously under the supervision of the Topographical Engineers Corps, the Signal Corps, and the Quartermaster Corps. Special Orders Number 95, naming Captain Cyrus B. Comstock to head the balloon establishment was issued on April 7, 1863.⁴⁰ Comstock intended to establish absolute control over the Balloon Corps, and issued orders cutting Lowe's pay and firing two of the men, including Lowe's father, from the payroll. Five days later Lowe wrote to General D. Butterfield, Chief of Staff of the Army of the Potomac, informing him that he could no longer serve under the terms placed on him by Comstock and offering to serve without pay until the matter was resolved.⁴¹ He continued with the aeronautic corps through the Wilderness Campaign and the battle at Chancellorsville, leaving the corps finally on May 8, 1863.

Back in Washington, in an effort to justify his position and theories, Lowe pulled together the mass of receipts, invoices, memos, and correspondence which had been jumbled in his files to contest charges of corruption and poor administration which had been levied against him. He hired W.J. Rheas, a Smithsonian employee, to put them in order, together with his own commentary and testimonies he sought from officers he had worked with to justify his actions. The finished report was submitted to the War Department in 1863. Published in the *Official Records of the War of the Rebellion* in 1899, it contains the full story of two years of activity of the U.S. Balloon Corps.

Without Lowe, the Balloon Corps gradually disintegrated. By the time the Union forces turned back the Confederates at Gettysburg there was no longer an active organization. Whether the Balloon Corps was as valuable as Thaddeus Lowe contended it could be and had been, military historians are divided in their opinion.

Certainly, during the early months of the war in the area around present Arlington, it served often and well to bring intelligence of the enemy to the Army of the Potomac. It remains one of the more colorful aspects of the Union Army's activities during the Civil War.

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- ⁸Correspondence from "American Airship Pioneers" December, 1860, Library of Congress, AIAA Files, Box 80.
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- ²³*Ibid.*, p. 259.
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