

CONFEDERATE RESPONSES TO UNION BALLOON OPERATIONS DURING THE AMERICAN CIVIL WAR

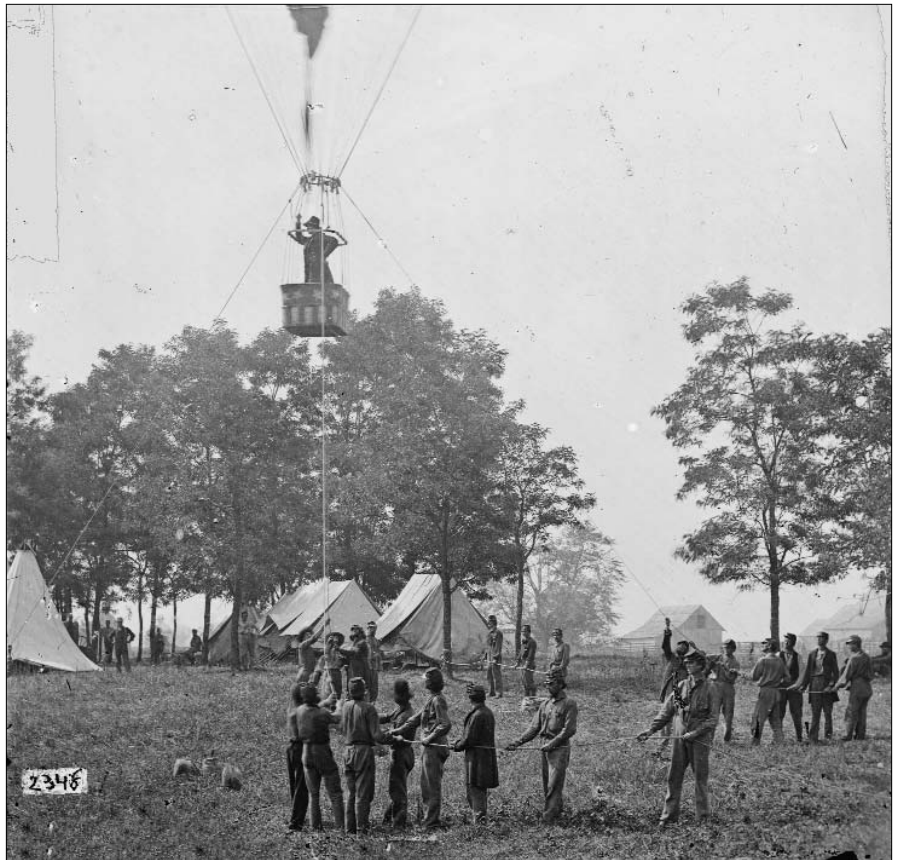
By Roger Horky

Some time after 1887, Thaddeus S. C. Lowe,¹ an American aeronaut and inventor, learned about a curious incident that had occurred during the Peninsular Campaign of the American Civil War.² The story was recounted by Confederate General James Longstreet, who described how he had been accompanying Jefferson Davis, the President of the Confederate States of America (CSA), and Robert E. Lee, Commanding General of the CSA's Army of Northern Virginia, on an inspection of a Confederate artillery battery. The gunners were demonstrating their skills for the president's party and had just opened fire. "Instantly," Longstreet recalled, "the Federal batteries responded most spitefully. It was impossible for the enemy to see us as we sat on our horses . . . surrounded by tall heavy timber and thick undergrowth . . . yet a battery by chance had our range and exact distance."³ One shell landed near the party, killing some horses and wounding several soldiers. Davis, Lee, Longstreet, and their staffs quickly withdrew from the area. Afterwards, Longstreet wondered at their near escape. "The Federals doubtless had no idea that the Confederate President, commanding generals, and division commanders were receiving point-blank shot from their batteries."⁴

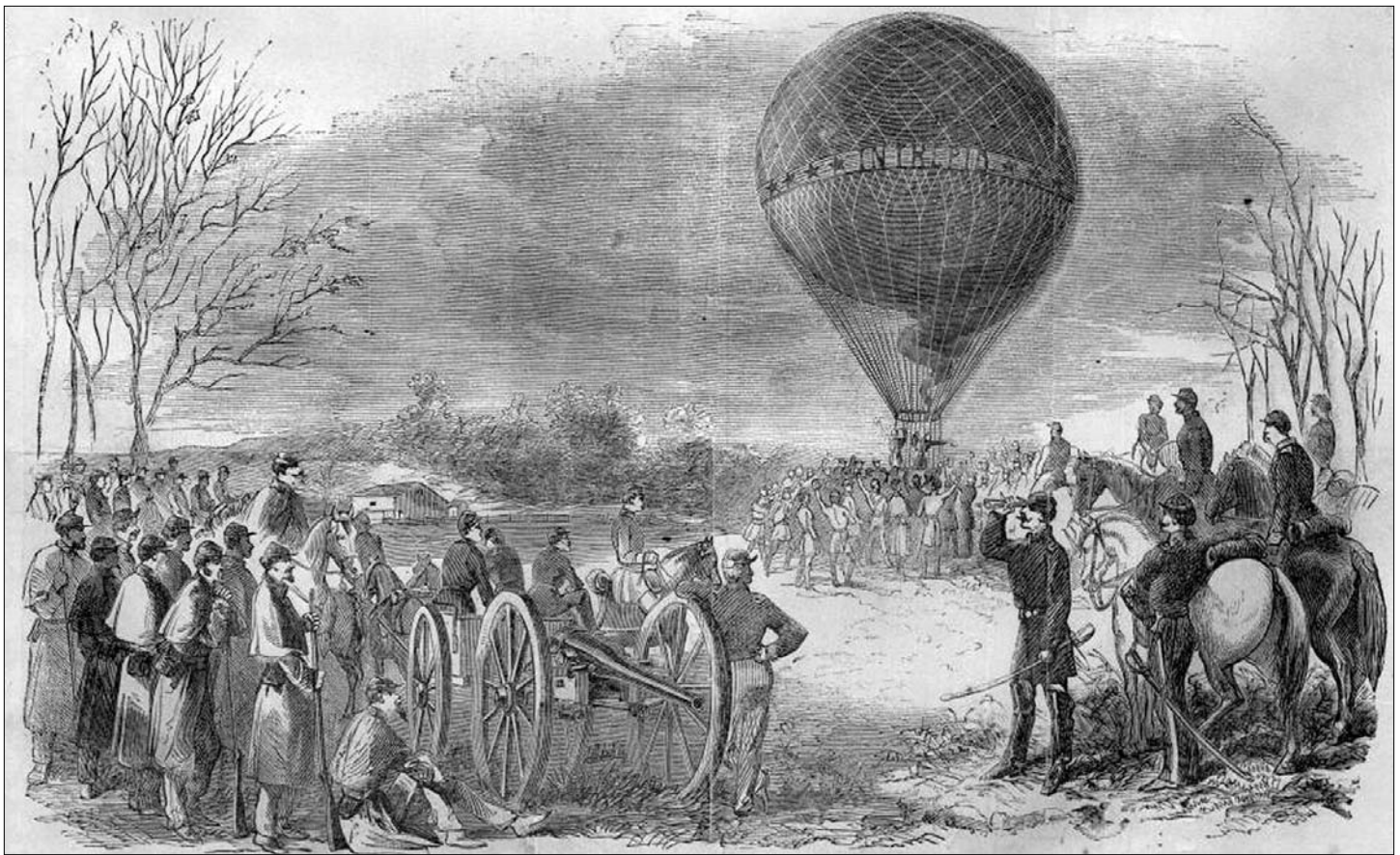
Lowe had information not available to Longstreet, which he revealed in his memoirs. He confirmed that Longstreet was correct in assuming that the Union forces did not know at whom they were firing. The general was mistaken, however, in believing that the Federals could not see them. The attack had been directed. The inspection party had been under observation for some time. Lowe had been the Chief of the Union Army's Aeronautical Corps for two years and knew that a "man in [a] balloon from a height of one or two thousand feet could very well discern the distinguished group of officials

in the field beyond the 'tall timber' though he may not have known the personnel of which it was composed."⁵ Such an observer could easily call artillery fire down upon on the assembled Confederate officers.

Such balloon-directed artillery fire was possible, Lowe knew. He had, after all, helped pioneer the technique. During the fighting around Fall's Church, Virginia, in September 1861, Lowe had relayed corrections to a Union battery firing "at an object the gunners themselves could not see"⁶ from his balloon. Never before in history had an aerial observer directed artillery



Professor Thaddeus S. Lowe observes the battle of Fair Oaks, Va., from his balloon "Intrepid" on May 31, 1862. (Photo from Library of Congress archives)



Engraving depicting Prof. Lowe's balloon "Intrepid" at the battle of Fair Oaks, Va., in 1862. (Engraving from Harper's Weekly, July 1862)

fire. "[T]he battery marksman, without seeing who [sic] or what he was firing at, by merely watching me, made such an accurate fire that the enemy was demoralized."⁷

Regarding the incident with Davis and Lee, Lowe found it "[s]trange that the Confederacy's most eminent citizens should not have connected the direct fire with the balloon."⁸ Of course, they might not have seen it. The balloon may have been obscured by the intervening "tall timber" Longstreet described. It is also possible the Confederates were just not in the habit of looking into the sky for threats. Human beings are ground-living creatures and have no airborne predators, so they rarely "think in three dimensions." Little wonder, then, that during the Civil War, one of the first conflicts in which balloons were employed, few soldiers or officers looked overhead for possible threats. It was unlikely they even considered the possibility that they might be under observation from the air.

Once they had realized that their opponents were employing balloons, however, the Confederates quickly learned to watch the skies. They recognized the potential of the balloon (even more so, perhaps, than the Northerners did), as indicated by their responses. Not only did they attempt to acquire their own balloons,⁹ they developed a wide variety of countermeasures. These defenses, both active and passive, anticipated almost all of the methods of anti-air protection devised after the introduction of the military airplane in the

early 20th century - an impressive achievement, considering that the Confederates had to work out the principles on their own. No military organization in the world had ever fought an enemy with an aerial capability for such an extended period before. Of course, most of the Southerners' anti-air methods were grounded in common sense. Any chess enthusiast would recognize their basic approaches to the problem, which resembled the choices a game player has when his king is in check: eliminate the threat, place a barrier between the menace and the piece at risk, or, as a last resort, move the unit away from danger. The Confederates did all of these at various times during the Civil War.

The Southerners were quick to apprehend the implications of the Union's possession of balloons. In his memoirs, Thaddeus Lowe wrote that a "hawk hovering above a chicken yard could not have caused more commotion than did my balloons when they appeared before Yorktown"¹⁰ in April 1862. By that time, the Union balloon corps had been in operation for nine months. The rebels had learned what the appearance of a balloon could portend.

Often it meant that an artillery barrage was forthcoming. The success of Lowe's artillery-spotting experiment at Fall's Church led the Union Army to use balloonists to direct gunfire whenever possible. During the battles along the Potomac in late 1861 and the Peninsular Campaign the next year, Federal

balloonists observed and corrected artillery fire with great effectiveness. Balloon-directed bombardments also contributed to the capitulation of Island No. 10 on the Mississippi in April 1862.¹¹

The balloon's primary role in the American Civil War was not artillery spotting, however, but observation. The idea was not new. Shortly after Joseph and Etienne Montgolfier had made the world's first balloon flight in the summer of 1783, Benjamin Franklin realized that it could be used for "elevating an Engineer to take a view of an Enemy's Army, Works, & Camps conveying Intelligence into, or out of, a besieged Town, giving signals to Distant Places, or the like."¹² A few operational experiments with military observation balloons occurred in the late eighteenth and early nineteenth centuries. Writing to (Federal) Secretary of War Edwin M. Stanton in 1863, Lowe noted that "The French were the first and only nation to make any use of this important means of securing information of the position and movements of the enemy."¹³ Napoleon's army had "secured great advantages. . . . when [their balloons] were used for reconnoitering the positions of the Austrians at the Battle of Fleurus"¹⁴ in 1794.

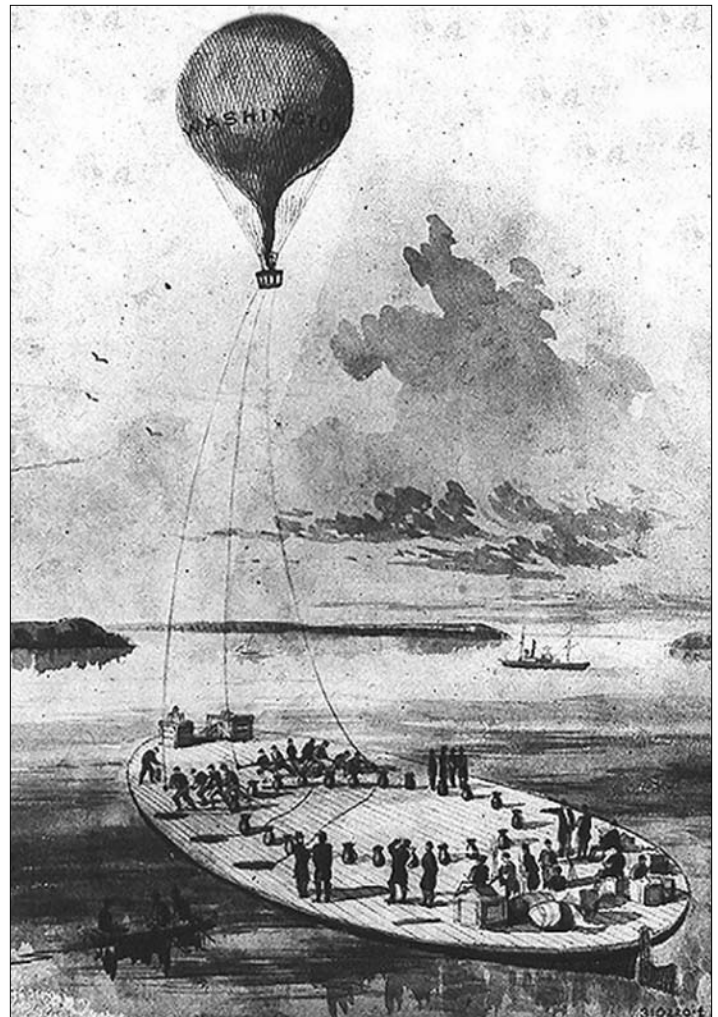
Reconnaissance - discovering what was happening on "the other side of the hill," as the Duke of Wellington put it - has been a concern of military leaders since the beginning of warfare. A tethered balloon floating 2,000 feet in the air proved to be an excellent platform for gathering information about an enemy army's position, movements, and composition. For an aeronaut at that altitude, the horizon is approximately 50 miles away.¹⁵ Using signal flags and, on occasion, direct telegraph lines (the cables were routed up the ropes securing the balloon to the ground), Union balloon observers could report Confederate activities "in real time," to use a modern expression. The value of timely intelligence from balloonists was demonstrated at the Battle of Fair Oaks (Seven Pines) in May 1862, when Lowe observed an unexpected Southern troop movement. He alerted General George McClelland, Commander of the Army of the Potomac, quickly enough to allow the general to repel the enemy advance. The North went on to win the engagement.¹⁶

The Confederates quickly realized the disability that enemy balloon observation imposed upon their war effort. Depending on the terrain, an aeronaut at 2,000 feet can survey almost 8,000 square miles of territory. He would easily be able to spot a column of men or horses moving into battle. Indeed, he did not have to see it directly. He could deduce its presence by the clouds of dust it raised. Aeronauts grew adept at recognizing the various clues that gave away the size, position, and movement of enemy units. A war correspondent who accompanied Lowe on one of his ascents wrote that "[t]he Confederates were seen running to the cover of the woods, that we might not discover their numbers, but we knew the location of their camp-fires by the smoke that curled toward us."¹⁷

The Southerners developed a healthy respect for the abilities of the Yankee balloonists. As one Confederate general noted in his memoirs, "[T]he balloons of the enemy forced upon us constant troublesome precautions in efforts to

conceal our marches."¹⁸ Writing from bitter experience, he knew that "the very knowledge by the enemy of one's use of balloons is demoralizing, and leads them, in all their movements, to roundabout roads and night marches which are often very hampering."¹⁹

Aeronauts could observe fixed sites as well as moving formations. Balloons enabled observers to get a perspective on enemy fortifications unavailable to persons on the ground. This ability greatly concerned Confederate officers, as they knew that their forces lacked field pieces and did not want the Yankees to discover their weakness. In December 1861, General P.G.T. Beauregard of the Army of Northern Virginia warned General Longstreet "As it may become suddenly important to prevent the enemy's balloon observations from discovering whether or not we have guns in our Batteries, or more properly to let them believe that *we have*, you will have at once the position of each gun protected from aerial vision." (emphasis in original).²⁰ The Southerners prepared a number of gun emplacements with logs in place of cannons and camouflaged them to prevent balloonists from discovering the



Utilization of observation balloons were not limited to land. Here we see a reconnaissance balloon launched from the coal barge *George Washington Parke Curtis*, during the American Civil War, possibly during the battle of Island No. 10. (Image from Harper's Weekly)



Balloon logistics during the Civil War were problematic and challenging. Here we see Prof. Lowe replenishing gas to the "Intrepid" from the "Constitution" at Fair Oaks, Va., in May 1862. (Photo from the Library of Congress archives)

subterfuge. It has been suggested that Lowe himself coined the term "Quaker Gun" for these bogus installations.²¹

Darkness was no impediment to balloon observation. If the air was calm, an aeronaut could ascend at night. A war correspondent describing the activities of another Union aeronaut reported on an unexpected dividend associated with nocturnal flying. The balloonist was able to detect the Confederates "by means of the lights in their tents. He has in this way counted the exact number of tents in each encampment or fort, and calculating how many men usually occupy a secession tent, the whole force may be easily ascertained."²² The Confederates had a healthy respect for the Union balloons. The knowledge that their activities might be under observation had an inhibiting effect on Southern military leaders. As General Edward Porter Alexander noted, "Even if the observers never saw anything, they [the balloons] would have been worth all they cost for the annoyance and delays they caused us."²³

Among the inconveniences Confederate soldiers endured were restrictions on their use of campfires for cooking and illumination. General Beauregard issued orders to his soldiers implementing light discipline, directing that "every precaution

[be] taken to prevent the enemy from discovering by balloons . . . the number of our advanced commands or outposts. No lights shall be kept at night except where absolutely necessary, and then under such screens as may conceal the lights from observation."²⁴ The general seemed to have had an instinctive understanding of the basic principles of frustrating aerial observation. At other times he instructed his soldiers to build extra campfires to give the appearance of a larger army than actually existed.²⁵

Southern generals might have been thankful that all they had to worry about was observation from the air. They did not have to prepare for aerial bombardment or even airborne invasion. Neither concept was entirely unknown in 1861. Benjamin Franklin had once suggested that an army could be delivered by air, noting that 5,000 two-man balloons cost only as much as five ships of the line and had the advantage of being able to land almost anywhere.²⁶ During the Mexican War (1846-1848), an American aeronaut suggested using balloons to drop explosives on the fortress at Vera Cruz in lieu of a siege, although the idea was eventually rejected.²⁷ The Austrian army used unmanned balloons to carry small incendiary devices over Venice in 1848. The bombs were released by timed fuses. The operation was not successful because the drift of the balloons could not be controlled and many of the bombs fell into Austrian lines.²⁸

Yet despite the Austrians' disappointing experience, aeronaut Charles C. Coe of New York proposed a similar venture during the Civil War. He tried to enlist the aid of his friend, Colonel Wesley Brainerd, an engineer in the Union Army. Brainerd considered the idea impracticable, describing it as "A trick[y] operation certainly, especially with a strong wind blowing."²⁹ Coe persisted. "No amount of reasoning could dissuade him from his purpose of presenting his plans to the Secretary of war [sic]," Brainerd wrote in his memoirs, "and he finally left . . . wounded in spirit because I refused to recommend them."³⁰

The idea of balloons raining destruction upon an army was not limited to the community of professional aeronauts. One of the officers assigned to protect Lowe's camp had "a beautiful story" to tell curious civilians who visited the site. Apparently, the guards had no orders not to talk to the many curious spectators the balloons attracted, and were quite free in describing their operation. However, this particular officer embellished his stories. When asked how the balloon was used and what it did he replied that it carried a large tank, which was filled with sulfuric acid before each flight. The balloon was then allowed to drift over enemy lines. "Upon reaching a point

directly over the enemy's camp, the valve was opened and the acid sprinkled over tents, clothing, and into the commissary supplies, and of course great damage was the result."³¹ The story was made more believable by the common knowledge that balloons did indeed require a supply of sulfuric acid - but it was used to generate the gas to lift the balloon, not as a weapon.

Offensive operations by Union balloons would have given more urgency to the Confederacy's antiaircraft efforts. As it was, the South was not satisfied solely to implement the passive air defense measures described above. The Confederates also took more active approaches to antiaircraft operations.

In his biography of Abraham Lincoln, Carl Sandburg observed that Lowe was known as "the most shot-at man in the Civil War."³² His balloons appeared to be large, relatively motionless, and easy-to-hit targets, tethered as they were to float above a fixed point one or two thousand feet above the ground. Lowe's memoirs contain many references to being a target. "Almost daily, whenever the balloon ascended, the enemy opened upon it with their heavy siege guns or rifled field pieces until it had reached an altitude to be out of reach, and repeated this fire when the balloon descended, until it was concealed by the woods."³³ Lowe was also fired on by friendly troops on occasion, especially in the early part of the war, when he and his balloons were not as well known as they became later.³⁴

Soldiers on the ground wondered how Lowe could survive such a barrage. Writing to Lowe in 1909, a Union officer recalled his troops' disbelief that so much firepower could be brought to bear upon a target and yet not bring it down. "My men watched [the] scene, and commented often 'They will get him sure;' 'Why don't he come down;' 'That last shell came pretty close;' 'If the balloon is hit, that's the end of Lowe' and soon as the balloon rose higher, the smaller guns ceased to work; only the larger, heavier pieces kept up the useless job."³⁵

The chances of a roundshot or shell actually hitting the balloon were small. The artillery tables at the time were for ground targets exclusively. "Elevating the gun barrel above normal trajectories completely changed the arc [of the projectile] and made standard formulae useless."³⁶ The need to strike a target at the midpoint of an exploding shell's trajectory also made the calculation of fuse lengths an almost impossible task.

The rebels were relying on the sheer volume of fire to get a lucky hit. Put enough lead in the air, they reasoned, and no target can possibly escape. This technique remains in use today. Despite their sophisticated antiaircraft suppression equipment and techniques, airmen still fear falling victim to what they call the "golden BB." The Confederates may also have been hoping to frighten the Northern balloonists into staying on the ground. A war correspondent who accompanied Lowe on a flight fainted from fear after shells began to burst close by, "Puff! Bang! Whiz-z-z-z! Splutter!"³⁷ Lowe, however, was not so easily intimidated, although he certainly respected the danger the Confederate guns represented. Just before the reporter lost consciousness, he heard the aeronaut

remark "Another shot will do our business. . . . It isn't a mile, and they have got the range."³⁸ Lowe quickly signaled the ground crew to start reeling in the balloon.

Of course, what goes up must come down. Although the balloons were never hit, the fire directed at them produced what would today be called "collateral damage." Writing to Lowe in 1909, Colonel W. J. Handy recalled, "The balloon rose, and the firing was soon directed at the air target. Shot after shot, shell exploding way up, occasionally the sharp crack of a rifle would be heard when their sharp shooters took a chance shot, kept up the work for half a day. No damage was done, as I remember, except the slaughter of fine old trees and great holes in the ground where the solid shell struck."³⁹

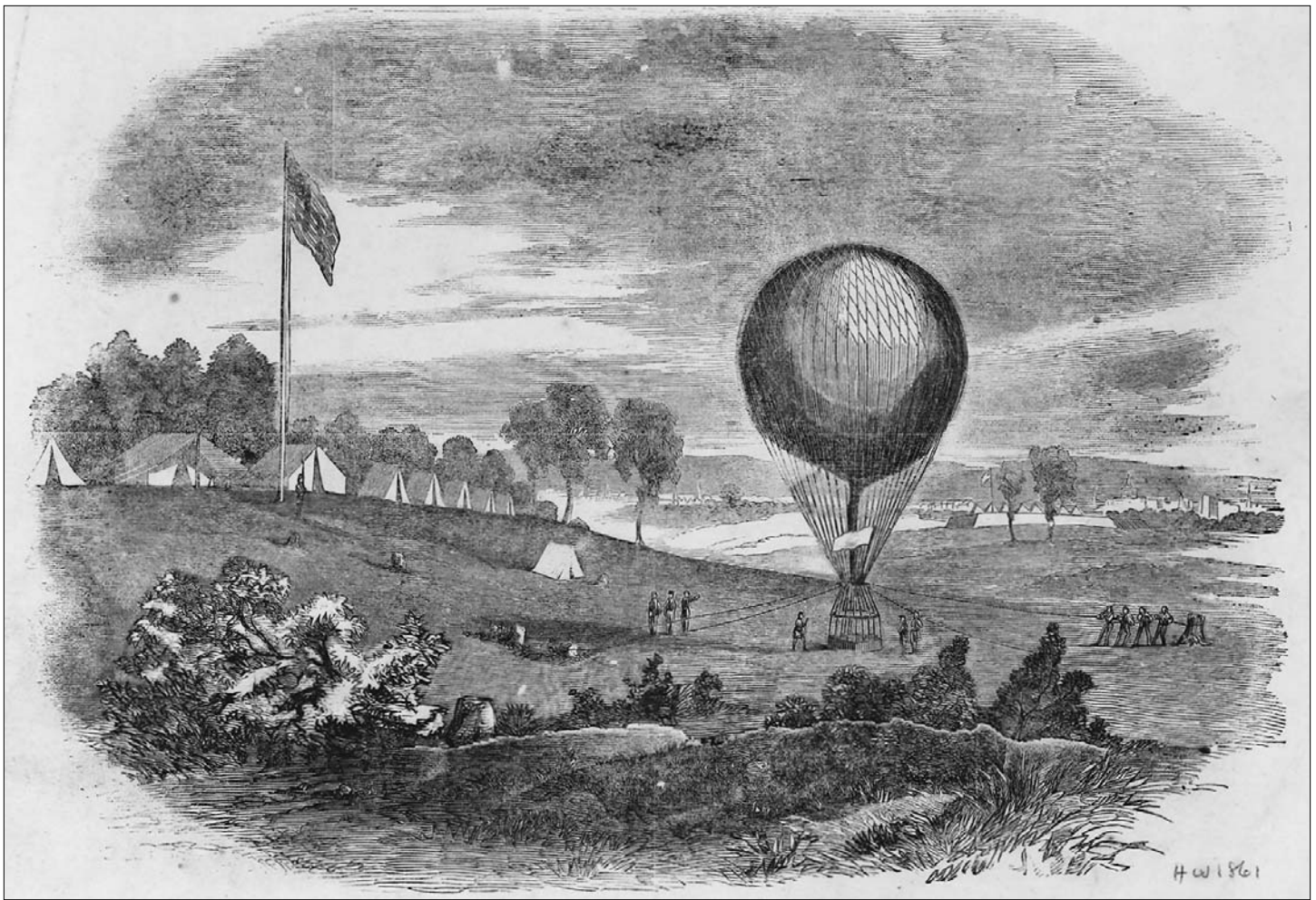
The landscape was not the only victim of anti-balloon barrages. Lowe remembers "having a little trouble with [Major] General [George] Stoneman, Commander of the Cavalry, who complained that I drew the enemy's fire over his great pack of horses."⁴⁰ Although the ordnance landed about a mile beyond the general's camp, the shot and shells screaming by overhead disturbed the animals greatly. "[E]very horse hump[ed] up its back every time those large siege guns were fired. It must have been annoying to the General who prided himself on his 10,000 fine cavalry horses."⁴¹

Lowe was in more danger on the ground than in the air. In his memoirs he recounts an incident that occurred on the evening of May 3, 1862. A Confederate shell "completely destroyed [Major General Samuel Heintzelman's] telegraph tent and instruments. . . . The General and I were sitting together discussing the probable reason for the enemy's unusual effort to destroy the balloon when we were both covered with earth thrown up by the twelve inch shell. Fortunately it did not explode."⁴²

After this incident Lowe offered to remove his balloon and his equipment from the area "so as to draw the enemy's fire in another direction."⁴³ Heintzelman declined the offer. "[H]e could stand it if I could. Besides, he wanted me near as he enjoyed making an occasional ascension himself."⁴⁴

Lowe was not imagining that the Confederates were making a special effort to destroy his balloon. In 1886, the *Detroit Free Press* published an article written by a former rebel soldier, which Lowe cites in its entirety in his memoirs. The author, identified only as "Ex-Confederate," observed that "[t]he balloon ascensions excited us more than all the outpost attacks, and it was officially determined to put a stop to them at whatever the cost."⁴⁵ To this end, "[t]he longest range [sic] rifles in the south were sent for, and they were put into the hands of Confederates noted for their marksmanship."⁴⁶ Yet despite the seeming vulnerability of the balloon, the sharpshooters could not bring it down.

Small arms having failed, the Southerners, naturally enough, turned to heavier weapons. "Ex-Confederate" recalled that "Light artillery was then brought into play, using both shot and shell, but somehow the target could not be struck. We finally opened up with any and every piece of ordnance which [sic] could be brought to bear. . . . [W]e could not frighten the man in the basket."⁴⁷



The war balloon at General McDowell's headquarters preparing for a reconnaissance during the Peninsular Campaign. (From Harper's Weekly, October 26, 1861)

The Confederates then made a second attempt to bring down the balloon with rifles. Reasoning that range, not accuracy, was the problem, they endeavored to get their best riflemen as close to the target as possible. "One dark night, 35 Confederate sharp shooters . . . were sent out to creep as far across the neutral ground as possible, find hiding places, and to open on the balloon next morning."⁴⁸ The plan was an utter failure. Ten of the soldiers were taken prisoner during the night, "and the rest . . . had hardly opened fire when a heavy force hunted [them] out and killed or captured all but six."⁴⁹ Whether they were from a special unit or they were ordinary line soldiers, the loss of so many skilled marksmen gave the Southerners even more reason to curse the balloon and its occupants.

The lack of success did not discourage the Confederates, who continued to fire all their available weapons at Union balloons at every opportunity. In late May 1862, a shot actually passed through the rigging securing Lowe's gondola to the envelope of his balloon. By that time, Lowe had become the personification of the balloon threat to Southern soldiers. A private from Mississippi often made note of Union balloon ascensions in his journal. His early entries, written in the winter of 1861-1862, simply referred to "the Yankees" raising

balloons.⁵⁰ By the next year he was writing that "Prof[essor] Lowe has been peeping at us to-day"⁵¹ (the title was a courtesy commonly given to men of science at the time).

Lowe would not have appreciated the notoriety. He was not a uniformed combatant but a civilian contractor. In his final report to the Secretary of War, he complained "I have also at all times been exposed to the danger of being treated as a spy, had I fallen into the hands of the enemy"⁵² due to his lack of military status.

The Southerners, however, were more interested in destroying Lowe's balloon than in getting their hands on him.⁵³ As one Union officer wrote in a letter to Lowe, "I remember the excitement . . . when it was reported that spies were in camp, and an attempt would be made to blow up, or in some manner wreck the blamed thing that was finding out so much over on the other side."⁵⁴ Lowe has similar recollections: "The Confederates adopted any device to destroy [my balloons]. Finding they could not hit me [in the air], they began to devise the means to extinguish my entire corps."⁵⁵

The newspaper story by "Ex-Confederate" describes an attempt to wreck the balloon and its support equipment on the ground. After their rifles and cannons failed to shoot down the balloon, the Southerners decided that the balloon could be

destroyed only by sabotage. "Nothing but fire would answer our purpose. Tents could be mended and holes patched, and while it was likely that a balloon could be made in a couple of weeks, the interval would permit the Confederates to make many changes."⁵⁶ A reward was offered for its destruction. "I was promised \$1,000 in gold and a commission as second lieutenant if I succeeded, and I presume the same promise was made to the [four] others" who had also accepted the challenge.⁵⁷

The five Southerners each made their way independently through the lines. It took "Ex-Confederate" a day and a half to make his way to the Union rear. He then approached the camp from the north, disguised as a tobacco and sundries peddler unable to serve due to lameness. He did not get near to Professor Lowe's balloon works until almost a week after leaving his own unit.⁵⁸

He was not able to enter Lowe's encampment itself. Union soldiers, although talkative, took their duty seriously and remained alert. The southern infiltrator wrote that "the greatest precautions were taken to guard against what I had been sent to effect. Sentinels were stationed about the place in such numbers that it was useless to hope that I might pass them, and what made the matter worse was the fact that two of our spies had been captured and held on suspicion."⁵⁹

"Ex-Confederate" began to despair of being able to fulfill his mission when fate intervened. On April 11, 1862, Union General Fitz John Porter, who so enjoyed making observation flights with Lowe that he sometimes went aloft alone, was making a flight when the rope securing it to the ground broke (it had probably had acid spilled on it during an earlier ascent). The balloon started drifting toward enemy lines. "Ex-Confederate" was nearby, "within rifle shot of the ascension,"⁶⁰ and was elated to see the balloon and Porter floating southward. Not only was the threat of the balloon neutralized but the Confederates were going to gain an important prisoner. Then "a change of wind occurred and back came the air ship to crop the ground almost at my feet. I was one of the 15 or 20 men who seized the basket and held it to earth while Porter stepped out."⁶¹

The saboteur realized he could still accomplish his objective. "I had matches, and I had only to strike a light to destroy the balloon in a flash," he wrote, "but as I drew a match from my pocket, having a filled pipe already in my mouth as an excuse, a big Sergeant . . . seized me by the neck and shouted at me 'You infernal idiot!- do you want to fire the balloon?'"⁶²

He did, of course, as he reminded his readers. But he had missed his last and best opportunity. A few of the men nearby laughed, while others wanted to punish him for his apparent thoughtlessness. "[P]rudence whispered to me to take myself off while I had the chance."⁶³ He left the Union camp and returned to the Confederate lines to report his failure: "Only two of us out of the five got back to our regiments. What became of the others was a mystery we were never able to clear up."⁶⁴ Lowe supplies the answer in his memoirs: the would-be saboteurs "were shot as spies."⁶⁵

"Ex-Confederate" also mentions that "[o]ther plans to

destroy the balloon were projected, but without success."⁶⁶ Yet what the Army of Virginia failed to do, the Union's military bureaucracy accomplished. In early 1863, Lowe was getting tired of what he perceived as excessive interference from mid-level army personnel. Lacking any official military standing, he chose simply to withdraw his services and equipment. Although the Union had other balloons and balloonists, it had no one with Lowe's organizational skills. Lacking effective leadership, the Union Aeronautic Corps was disbanded a short time thereafter.

If Northern generals did not appreciate the value of balloons, Confederate officers did. General Alexander "never understood why the enemy abandoned the use of military balloons early in 1863."⁶⁷ He was unaware of Lowe's frustration with the Union Army, and attributed the suspension of Northern balloon operations to other causes. "This [early termination] would imply that they did not consider them of much value. If so I think their conclusion a decided mistake."⁶⁸

Painfully aware of the effectiveness of Union balloon operations, the Confederates resolved to acquire a balloon for their own use. General Longstreet remembered, "The Federals had been using balloons in examining our positions, and we watched with envious eyes their observatories as they floated high in the air."⁶⁹ The first Confederate balloon entered service during the Peninsular Campaign. Captain John Randolph Bryan, the officer assigned to fly in it, recalled, "It was nothing but a big cotton bag, coated over so as to be air-tight, and intended to be inflated with hot air, as gas was a thing not to be had in those days and in those places."⁷⁰ Most hot air balloons ("Montgolfieres"⁷¹) carry a heat source onboard to keep the air within their envelopes warm. This particular example, however, had no such equipment and thus had to be filled with hot air on the ground. As the air cooled, the balloon slowly lost its lifting power, limiting its endurance. Thaddeus Lowe saw the Confederate balloon on its first ascent in April 1862, and, in the words of a war correspondent working nearby, "was infinitely amused. He said it had neither shape nor buoyancy, and predicted that it would burst or fall apart after a week."⁷²

Lowe was not entirely correct in his assessment of the Confederate balloon. It made just three flights in its short service career but its loss could not be attributed to any flaw in its construction. On May 5, 1862, the balloon was being readied for a night ascent. As had occurred on each of its previous flights, it attracted a crowd of curious soldiers and one of them got his leg caught in a loop in the balloon's mooring line as it rose. Another soldier severed the rope with an axe, rescuing his companion, but also releasing the balloon.

As Bryan later recalled the incident, "There I was . . . absolutely helpless, with no idea how to manage the balloon, and with every prospect that I would eventually very reluctantly land in the enemy's lines . . . or else that my balloon would come down in Chesapeake Bay."⁷³ The hapless aeronaut had been selected for his knowledge of the local terrain, not for his technological expertise.⁷⁴ The balloon's ground crew had

taken care of the vehicle; the observer was just its payload. The wind blew the balloon north, towards the Union Army, then changed. Rapidly losing its lifting power, the balloon descended towards a Confederate regiment, the soldiers of which associated balloons with Yankees and began firing their guns at it. A second change in wind direction carried the balloon away from this danger only to push it towards the middle of the York River. The balloon was low enough for the severed mooring line to trail in the water and Bryan, thinking he would soon be having to swim, began to undress. He had to slice open his tight leather boots with a knife to get them off. A gust of wind at the last moment imparted just enough impetus to the balloon to allow it to reach shore. Bryan clambered out, tethered the balloon to a tree, and watched as “after a few ineffectual flops, [the] balloon sank, exhausted to the ground.”⁷⁵ The balloon was never used again.

This unfortunate experience did not curb the Confederates’ desire for an aeronautic corps of their own. As General Longstreet recalled, “While we were longing for the balloons that poverty denied us a genius arose for the occasion and suggested that we send out and gather together all of the silk dresses in the Confederacy and make a balloon.”⁷⁶ That “genius” was Doctor Edward Cheves of Savannah. However, he had several obstacles to overcome. One was that the materials for its construction were difficult to acquire. The envelope of a balloon has to be strong and light in weight, yet gastight. The preferred materials for their construction are tightly-woven fabrics such as silk taffeta, but such material was in short supply in the Confederacy as a result of the Union blockade of Southern ports. Cheves “bought up all the silk to be found in Sav[annah] & Charleston, experimented with various substances for varnish to make the silk approximately gas tight (finally using old rubber car springs dissolved in oil) & at last completed a very excellent balloon and brought it to Richmond about Jun. 24th [1862].”⁷⁷ The legend arose that the material came from frocks donated by patriotic southern belles (hence Longstreet’s reference to dresses, above). Cheves’ aerostat thus became known as “the silk dress balloon.”

Having acquired his material, Cheves then had to decide whether to build a gas or hot-air balloon. For various reasons he eventually chose the former. Hot air has less lifting capacity than hydrogen or helium, so a hot-air balloon needs to be much larger than a gas balloon, but Cheves had a limited amount of fabric. Additionally, hot-air balloons were considered more dangerous than hydrogen balloons. Although hydrogen is flammable, the air in a Montgolfiere requires a heat source, usually an open flame. Cheves knew that many pioneer aeronauts had perished when the heavily-varnished envelopes of their balloons caught fire.

The decision to use hydrogen created other problems, however. The Confederates “could not get pure hydrogen gas to fill the balloon and had to use ordinary illuminating gas, from the Richmond Gas Works.”⁷⁸ As a result, the balloon’s lifting capacity was less than it could have been. It could carry but a single occupant and rarely rose above 1,000 feet in altitude.⁷⁹

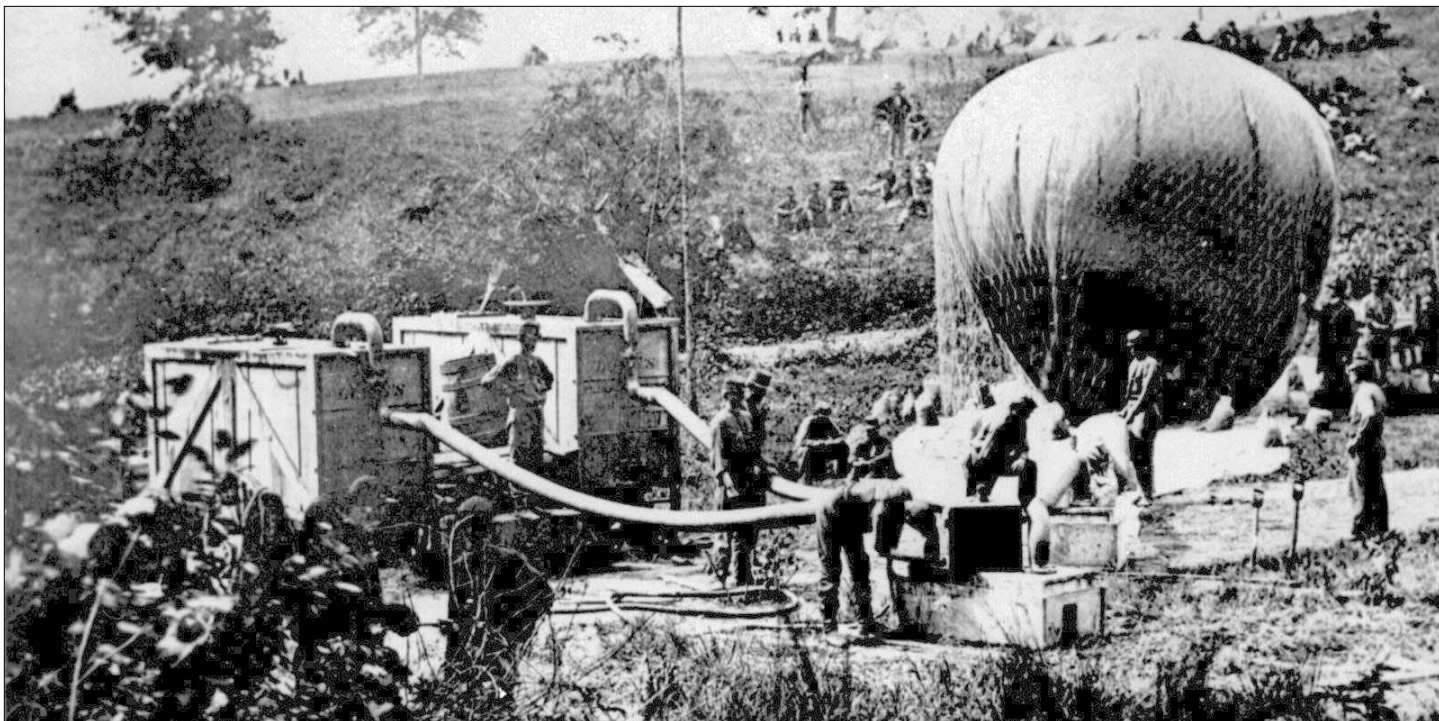


One of the logistical challenges faced by both sides was the availability of gas generators. Lowe solved this problem by developing a portable gas generator that provided greater deployment mobility. (Photo from the National Archives)

The limited lift of the Confederate balloons compelled the Southerners to consider carefully whom they recruited as aeronauts. Captain Edward Porter Alexander was selected to man the silk dress balloon. The experience led the future general to form the opinion that the best candidates for the job were military personnel. “[T]he observers in the balloon should be *trained staff officers*, not the ignorant class of ordinary balloonists, which [sic] I think were generally in charge of the Federal balloons” (emphasis in original).⁸⁰ It might be argued that a veteran balloonist would be better qualified to handle any inflight emergencies that arose but Bryan seemed to have conducted himself well enough during the runaway balloon incident.⁸¹

Further handicapping the rebels’ balloon effort, the Richmond plant was the only source of gas in the entire South. The balloon was thus restricted in mobility as it had to be inflated in the Confederate capital and then towed to where it was needed. The route had to be chosen carefully to avoid buildings, telegraph lines, woods, and other obstructions, all of which could easily have fouled the inflated envelope.⁸² (Lowe, who also used Charlieres, had devised a portable gas generator, allowing him to operate his balloons without any such restrictions.)

The time, effort and money put into the Southern balloon were wasted, as it remained in service for less than two weeks. “When the enemy got away from his original lines and we could not follow with the balloon by land,” Alexander wrote, “I had it filled [with gas] and towed down the James River by a little armed tug, the ‘Teaser.’”⁸³ The little riverboat never reached its destination. “[U]nfortunately, the *Teaser* ran hard aground on a mud bank out near the middle of the river.”⁸⁴ A patrolling Union gunboat arrived and, after driving off the tug’s crew, captured it and its precious cargo.⁸⁵ The balloon was cut into pieces and distributed to congressmen and other Union dignitaries, including Thaddeus Lowe.⁸⁶ Long after the war



Federal observation balloon Intrepid being inflated. Battle of Fair Oaks, Va. (Photo from the National Archives)

had ended, General Longstreet wrote, “The capture [of the *Teaser*] was the meanest trick of the war one I have never yet forgiven.”⁸⁷

Thus ended the Confederacy’s brief bid for aerial parity. Alexander realized that, sadly, “We could never build another balloon, but my experience with this gave me a high idea of the possible efficiency of balloons in active campaigns.”⁸⁸ His enthusiasm for ballooning, evident throughout his writings, was born of experience, both as an aeronaut and as an officer in an army under the watchful eyes of enemy balloonists. He appreciated the value of balloons far more than did the Northern generals who did nothing to intercede when Lowe was having his problems with their subordinates.

The use of balloons by both sides in the American Civil War was an experiment, short-lived and ultimately a failure. The aeronauts were unable to overcome the combination of unenthusiastic bureaucrats, wartime shortages, and the limitations of their technology. The Confederate balloon effort was too brief and sporadic to have generated much concern in the Federal Army. The Union Balloon Corps, however, operated for almost three years, more than enough time for the Southerners - but not, ironically, the Northerners - to realize just what balloons could do, and to prepare countermeasures against them. As is so often the case, the people who possessed an item did not appreciate it, while those without truly recognized its value.

The Confederate Army was one of the first military organizations in the world to face an enemy with an aerial capability. Having no historical models to emulate, Southern officers and soldiers were on their own in devising defenses. With little more than common sense and the equipment they had on hand, they developed a number of methods, both pas-

sive and active, for countering the threat posed by the Union Army’s balloons. Twentieth century military services took many of the same approaches in response to the introduction of the airplane. It is tempting to speculate that the Confederate experience in the American Civil War influenced later armies in their quest to develop effective air defenses. However, it should be noted that the Union employment of balloons in that conflict is generally considered an irrelevant, if interesting, episode in the history of air power. Thus it follows that the South’s passive and active antiaircraft activities were outside the continuity of counterair warfare. Of course, future research may establish a connection. Yet the most likely explanation for the similarity of Civil War and early 20th century antiaircraft operations is that there are certain basic principles, easily identifiable, governing the conduct of such activities.

NOTES

- 1 Sources disagree regarding one of Lowe’s middle names. The “C” represents either “Constantine” or “Coulincourt.” The latter is more common, and is preferred by the Library of Congress. The “S” is generally agreed to stand for “Sobieski.”
- 2 The exact date was not recorded. The year 1887 was chosen because it was when the Longstreet story was first published, appearing in the second volume of “The Century War Book,” better known today as *Battles and Leaders of the Civil War*. The “War Book” series were anthologies of pieces originally written for *The Century Magazine*, so Longstreet’s story would have appeared in the magazine some time before the book was published. However, Lowe mentions the book, not the magazine, as his source for the story in his memoirs.
- 3 James Longstreet, “The ‘Seven Days,’ Including Frayser’s Farm,” *Battles and Leaders of the Civil War*, volume 2, ed. by Robert Underwood Johnson and Clarence Clough Bell, exact

edition not known; quoted in Thaddeus S. C. Lowe, *Memoirs of Thaddeus S.C. Lowe, Chief of the Aeronautic Corps of the Army of the United States during the Civil War: My Balloons in Peace and War*, ed. by Michael Jaeger and Carol Lauritzen (Lewiston, NY: Edwin Mellen Press, 2004), p.92.

The pertinent passage by Longstreet can be found on pages 400-401 of the Castle Books (New York) edition of *Battles and Leaders* published in 1956.

It is interesting to note that although the action described in the Longstreet piece took place on 30 June 1862, Lowe includes the story in his memoirs in a chapter about his activities the previous September.

4 Longstreet, "Seven Days," 401; quoted in Lowe, *Memoirs*, p.92.

5 Lowe, *Memoirs*, p.92.

6 *Ibid.*, p.91.

7 *Ibid.*

8 *Ibid.*,p.92.

9 For an overview of Confederate balloon operations, see Joseph Jenkins Cornish III, *The Air Arm of the Confederacy: A History of Origins and Usages of War Balloons in the Southern Armies during the American Civil War*, Official Publication #11 (Richmond, Va.: Richmond Civil War Centennial Committee), 1963.

10 *Ibid.*, p.113.

11 *Ibid.*, p.104.

12 Benjamin Franklin, letter to Joseph Banks dated 21 November 1783; quoted in Benjamin Franklin, *The Works of Benjamin Franklin: Including the Private as well as the Official and Scientific Correspondence, Together with the Unmutilated and Correct Version of the Autobiography*, volume 10, ed. by John Bigelow (New York: G. P. Putnam's Sons, 1904), p.206.

13 Thaddeus Lowe, Final Report to the Secretary of War [Edwin M. Stanton] by the Chief of the Aeronautical Corps, 26 May 1863; in *War of the Rebellion: A Compilation of the Operational Records of the Union and Confederate Armies*, Series 3, Volume 3, S# 124, p.253.

14 *Ibid.*

15 During the Civil War, Union aeronauts usually made their observations from between one and two thousand feet. However, low clouds sometimes compelled them to limit their ascents to five hundred feet. There was also one occasion during which an aeronaut ascended to almost a mile in altitude.

16 Charles M. Evans, *War of the Aeronauts: A History of Ballooning in the Civil War* (Mechanicsburg, Penn: Stackpole Books, 2002), 226-230; Lowe, *Memoirs*, pp.129-140.

17 George A. Townsend, *Rustics in Rebellion: a Yankee Reporter on the Road to Richmond, 1861-65* (Chapel Hill, N. C.: University of North Carolina Press, 1950), p.97.

18 Edward Porter Alexander, *Military Memoirs of an Ex-Confederate: A Critical Narrative* (Dayton, OH: Morningside Bookshop, 1977), pp.172-173.

19 Edward Porter Alexander, *Fighting for the Confederacy: The Personal Recollections of General Edward Porter Alexander*, ed. by Gary W. Gallagher (Chapel Hill: University of North Carolina Press, 1989), p.115.

20 P. G. T. Beauregard, orders issued to James Longstreet dated

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5 December 1861, manuscript from the papers of General Pierre Gustave Toutant Beauregard, Division of Manuscripts, Library of Congress; quoted in F. Stansbury Haydon, *Military Ballooning During the Early Civil War* (Baltimore: John Hopkins University Press, 2000), pp.135-136.

21 W. J. Handy, letter to Thaddeus S. C. Lowe dated 1 December 1909; quoted in Lowe, *Memoirs*, p.116.

22 "C.W.D." letter to the editors of the New York *Commercial Advertiser*; dated 17 August 1861, published 19 August 1861; quoted in Haydon, *Military Ballooning*, pp.103-104.

23 Edward Porter Alexander, "The Great Charge and Artillery Fighting at Gettysburg," *Battles and Leaders of the Civil War*, volume 3, ed. by Robert Underwood Johnson and Clarence Clough Bell (New York: Thomas Yoseloff, 1956), p.358.

24 P.G.T. Beauregard, message to General Longstreet dated 2 September 1861, MS Letterbook, 1st Corps, p.124, Beauregard Papers; quoted in Haydon, *Military Ballooning*, p.215.

25 Haydon. *Military Ballooning*, p.216.

26 Benjamin Franklin, letter to John Ingenhausz dated 16 January 1784, in *The Works of Benjamin Franklin*, ed. by Bigelow, pp.267-268.

Usually known as Jan, Franklin's correspondent was a Dutch physician who discovered the phenomenon of photosynthesis.

27 Haydon, *Military Ballooning*, pp.28-32.

28 *Ibid.*, 17-18; L.T.C. Rolt, *The Aeronauts: A History of Ballooning 1783-1903* (Brunswick, Great Britain: Alan Sutton, 1985), p.165.

29 Wesley Brainerd, *Bridge Building in Wartime: Colonel Wesley Brainerd's Memoir of the 50th New York Volunteer Engineers* (Knoxville, Ky: University of Kentucky Press, 1997), p.54.

30 *Ibid.*

31 Handy, letter to Lowe; quoted in Lowe, *Memoirs*, p.115.

32 Carl Sandburg, *Abraham Lincoln: the War Years*, volume 1 (New York: Harcourt, Brace & Company, 1939), p.493.

33 Lowe, *Memoirs*, p.118.

34 *Ibid.*, p.80.

35 Handy, letter to Lowe; quoted in Lowe, *Memoirs*, p.116.

36 James D. Crabtree, *On Air Defense* (Westport, Conn.: Praeger 1994), p.3.

37 Townsend, *Rustics in Rebellion*, pp.98-99.

38 *Ibid.*

39 Handy, letter to Lowe; quoted in Lowe, *Memoirs*, p.116.

40 Lowe, *Memoirs*, p.119.

41 *Ibid.*

42 *Ibid.*, p.119-120.

43 *Ibid.*, p.120.

44 *Ibid.*

45 "Ex-Confederate," "The Yankee Balloon: An Attempt to Destroy the One used at Yorktown," *Detroit Free Press*, 1886, page number not known; cited in Lowe, *Memoirs*, p.113.

46 *Ibid.*

47 *Ibid.*

48 *Ibid.*

49 *Ibid.*, p.114

50 Robert A. Moore, *A Life for the Confederacy: As Recorded in the Pocket Diaries of Pvt. Robert A. Moore, Co. G, 17th Mississippi Regiment, Confederate Guards, Holly Springs, Mississippi*, ed. by James W. Silver (Jackson, Tenn.:

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McCowat-Mercer Press, 1959), pp.94, 101, 105.

51 Moore, *A Life for the Confederacy*, pp.129, 136, 143.

52 Lowe, *Memoirs*, p.198.

53 The CSA had actually had an opportunity to prevent Lowe from participation of any kind in the Civil War. Early in the morning of 20 April 1861, the aeronaut took off from Cincinnati in an attempt to set a long distance and endurance record in preparation for a planned transatlantic flight. Nine hours and 650 miles later, he landed in South Carolina. It was an inopportune time for such a journey. The bombardment of Fort Sumter had been earlier in the week, and President Lincoln had closed Southern ports the day before. Unfriendly citizens threatened to lynch Lowe and the local authorities considered detaining him and confiscating his equipment. He was eventually granted a safe conduct pass, however, and allowed to return to the North. The officials who permitted him to leave doubtless had no idea how a balloonist could be of any use to the Union's war effort.

54 Handy, letter to Lowe; quoted in Lowe, *Memoirs*, p.116.

55 Lowe, *Memoirs*, p.113.

56 "Ex-Confederate," "The Yankee Balloon," quoted in Lowe, *Memoirs*, p.114.

57 *Ibid.*

58 *Ibid.*

59 *Ibid.*

60 *Ibid.*

61 *Ibid.*

62 *Ibid.*, pp.114-115.

63 *Ibid.*, p.115.

64 *Ibid.*

65 *Ibid.*

66 *Ibid.*

67 Alexander, "The Great Charge," p.358.

68 Alexander, *Fighting for the Confederacy*, p.115.

69 James Longstreet, "Our March Against Pope," in *Battles and Leaders of the Civil War* volume 2, ed. by Robert Underwood Johnson and Clarence Clough Bell (New York: Castle Books, 1956), pp.512-513.

70 John Randolph Bryan, "Balloon used for Scout Duty: Terrible Experiences of a Confederate Officer," *Southern Historical Society Papers* 33 (1905), p.33.

71 The name "Montgolfiere" honors Etienne and Joseph Montgolfier, the sons of a French paper manufacturer, who demonstrated the world's first practicable balloon, lifted by hot air, in the fall of 1863. A few months later Jacques Charles, another Frenchman, successfully flew hydrogen-filled balloon. Gas balloons are thus called "Charlieres."

72 Townsend, *Rustics in Rebellion*, p.92.

73 Bryan, "Balloon used for Scout Duty," p.39.

74 Bryan's superiors had asked for volunteers who knew the area but failed to mention that the mission entailed going aloft. When informed of this detail, Bryan began to have misgivings about the assignment. Only his sense of duty enabled him to go through with his first flight. The balloon came under heavy fire as it rose, compounding Bryan's nervousness, although it soon rose out of range. However, the Yankees brought in more guns while Bryan was aloft—and he could see them, which did nothing to ease his anxiety. Nonetheless, he managed to accomplish his objective, the making of a map showing the dispositions of the enemy. His

descent through the "danger zone" was even more harrowing than the ascent. Once safely back on the ground, he reported his observations to his commanding officer, then immediately asked for a reassignment. The general refused, telling him "I fear you forget that you are the only experienced aeronaut that I have with my army." (Bryan, "Balloon used for Scout Duty," pp.35-38).

75 *Ibid.*, 41.

76 Longstreet, "March Against Pope," p.513.

77 Alexander, *Fighting for the Confederacy*, p.115. The "car" springs referred to would have, of course, been from a carriage or cart, not an automobile.

78 Alexander, *Fighting for the Confederacy*, p.116.

79 *Ibid.*

80 *Ibid.*, p.115.

81 No doubt Lowe would have taken exception to Alexander's remark impugning the qualifications of balloonists to be observers, noting that Union officers seemed well satisfied with his reports. Of course, Yankee balloons had greater lifting power than their Confederate counterparts and could easily accommodate two people. A contemporary reporter noted that Lowe was often joined on his flights by an "army companion [who] was invariably either an artist, a correspondent, or a telegrapher" (Townsend, *Rustics in Rebellion*, 92). Many Union generals, including Fitz John Porter, Samuel Heintzelman, and John Gross Barnard, accompanied Lowe on his flights, often, it seemed, for no other reason than because they enjoyed the experience (Evans, *War of the Aeronauts*, pp.108, 181-183, 183-184, 212-213; Lowe, *Memoirs*, pp.85, 111, 112, 119-120).

82 Alexander, *Fighting for the Confederacy*, p.116.

83 *Ibid.*, p.117.

84 *Ibid.*, p.116. How or why the original editor failed to notice Alexander's inconsistent use of both quotation marks and italics to identify the name of the boat in the same paragraph is not known.

85 The Teaser's capture was the least of three "birthday presents" the United States received on July 4, 1863. The others were news of the Union victories at Vicksburg and Gettysburg (although the latter battle had actually ended the day before).

86 Lowe, *Memoirs*, p.145.

87 Longstreet, "March Against Pope," p.513.

88 Alexander, *Military Memoirs*, pp.172-173.

About the Author

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