

# T.S.C. LOWE

## AND HIS

### PLANET AIRSHIPS



*Lowe among the lemons in Pasadena, several years later.  
— Cutler Lowe Brown collection*

## THE STORY OF THE MAN WHO MASTERED FLIGHT

## *The Early Years (1832 - 1861)*

Thaddeus Sobieski Constantine Lowe was born in a small frame house in Coos County, New Hampshire on the 20<sup>th</sup> of April, 1832. Very early on, he exhibited an interest in science and aeronautics. In 1845, in fact, he experimented with an enormous kite, keeping a cat aloft on it overnight (and, incidentally, creating a rash of what today would be called “UFO reports” in the city of Portland, Maine). He had planned to build an even larger kite and lift himself up into the air, but finally decided that a balloon would be more useful and dedicated himself to acquiring one.

Lowe worked long and hard over the next decade at many jobs, including lecturing on gases. During this time, he met his future wife, Leontine Gachon, a native of Paris, at one of his lectures. Instantly falling in love, they were married after only a week of courtship.

By 1856, he had saved up enough to buy his balloon. His first ascension went well and many others followed as he perfected his ballooning skills. He made plans for longer voyages, but realized he would need a larger craft for this, so took to giving rides: One dollar for short trips, five for longer ones. He was soon able to construct a larger balloon.

Now he began to dream of a balloon voyage across the Atlantic. His studies of the air had convinced him that - at the proper altitude - there was a continual eastward current of wind, moving with sufficient velocity to carry him across the ocean in a scant three days. But it would take a balloon far larger than any previously built.

Burning with ambition, in July of 1859, he began the construction of his vast new aerostat, over one-hundred and twenty feet across. Soon the construction was finished and in November of 1859, the inflation of the *City of New York* began.



*The City of New York*

Unfortunately, the gas works for the city were only able to deliver gas at a tenth the rate promised and Lowe quickly realized that the balloon could never be filled at that slow a flow. The launch was canceled.

The City of Philadelphia then invited Lowe to bring the balloon to their city - and the Philadelphia Gas Works offered to fill the balloon free of charge. On June 28<sup>th</sup>, 1860, the newly renamed *Great Western* made a test ascension above Philadelphia with Lowe and five guests. The flight was successful, rising to a height of two-and-a-half miles, then descending to

land only eighteen miles from its liftoff point.

Philadelphia was more understanding of the potentials of his flight, but his supporters there were also more cautious about the possible *problems* as well. Requesting Lowe first make more tests of his upper-air current theory, something to which he only reluctantly agreed, they suggested he consult with one of the premier scientists of the day, Professor Joseph Henry, Secretary of the Smithsonian. Lowe agreed and sent off a communique to the Institute.

Professor Henry quickly replied, confirming that the Institute's own studies suggested that Lowe's eastward current was quite real. But wisely, perhaps, he also suggested that Lowe make a shorter - though still long - journey over *land* first, before risking the unknown over the middle of the Atlantic.

The Spring of 1861, therefore, found Lowe in Cincinnati, Ohio, waiting for a westerly wind to rise. Lowe surmised that if he took off when a strong wind was blowing *westwards* at ground level, yet still managed to travel *eastwards* at altitude, it would be the most convincing proof of his air current theory. And on the night of April 19<sup>th</sup>, 1861, just such a wind arose. Lowe rushed away from a banquet in his honor, his balloon already inflating.

At 3:30 a.m. the following morning, the now fully inflated balloon, Lowe aboard (and still in his formal evening dress), lifted off into the dark skies over the city. Initially drifting west, once it reached Lowe's planned height of sixteen-thousand feet, it quickly headed east.

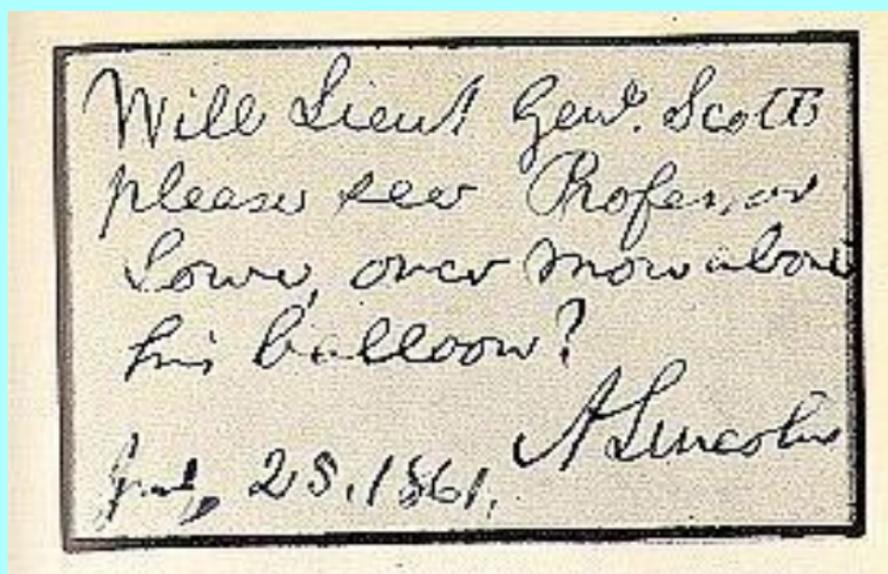
As the sun came up, Lowe drifted over Virginia to the sound of cannonading celebrating that state's secession from the Union. Soon he was over the Carolinas and, nine hours and five-hundred miles from Cincinnati, Lowe made a perfect touchdown in South Carolina, just outside of Unionville.

There, he was promptly charged by the local farmers with being a “Yankee spy” and threats of being shot for such activities filled the air. Fortunately, cooler heads prevailed and he was taken to town...to be threatened with being shot as a spy again.

It was five days before Lowe and his equipment made their way by train back to Cincinnati, a trip he had made in just nine hours by balloon.

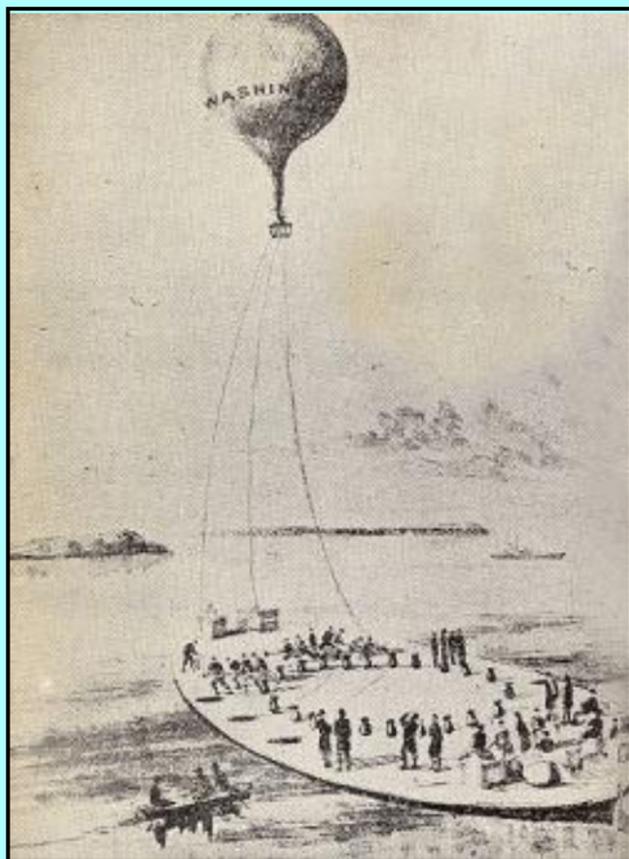
### *The Civil War & the Balloon Corps (1861 - 1864)*

**W**ith the start of the Civil War, all Lowe's Transatlantic plans were put on hold and he instead immediately offered to form a Balloon Corps to act as observers for the Union army. A test ascension carrying aloft Lowe and a telegraph operator, connected to the ground by a half-mile long wire, sent a message to an impressed President Lincoln. A little bit more than a month later, the twenty-nine year-old Lowe was ushered into the office of the President. There, Lincoln himself wrote the note that created the Balloon Corps.



Lincoln's note, the start of the Balloon Corps

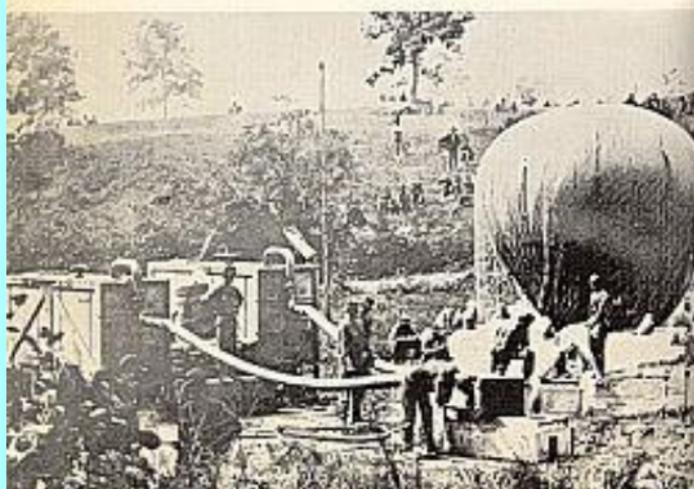
Within the next year, Lowe had created the world's first Air Force: Building the balloons, hiring the aeronauts to fly them and creating the techniques necessary to launch the fragile craft in the middle of a war and receive signals from them. Amongst other



The world's first aircraft carrier, 1861



Lowe's invention of the portable gas generator was acclaimed, as a valuable achievement for it freed the balloons from dependence on city illuminating gas. The hydrogen generated in these devices, moreover, had greater lifting power than did coal gas from the mains, and a balloon filled with it could therefore make more ascensions before reinflation became necessary. In the picture below Lowe can be seen at the right feeling the *Intrepid* to test the amount of gas in it. — U. S. Signal Corps photos, Brady Collection, the National Archives



Portable gas generators, designed by Lowe for the Civil War

things, Lowe created a portable gas generator, so that the balloons could be filled at site, rather than the laborious prior method of filling them in the nearest town and towing them (by hand!) to the battle. Lowe also soon created a set of portable lime-lights so that filling operations could occur all through the night.

The balloons soon proved their worth, following troop movements, finding hidden Confederate forces and allowing for the first time Union artillery to fire at targets it itself could not see. Lowe then built the world's first "Aircraft Carrier:" A large barge with a balloon, gas generators and everything necessary to operate as on land. It soon was proving its worth as well during the Peninsula Campaign. He also attempted to introduce aerial photography but, for reasons that have never been explained, he could not convince the military of its worth.

Making many of the ascensions himself, he soon acquired the legend "Most shot at man of the Civil War." Lowe always said that the best proof of the Balloon Corps usefulness was how much effort the Confederates put into trying to shoot them down - something they never managed to do.

But while the Corps was proving its worth, internal tensions were building up within it. To staff his force, Lowe had recruited most of the aeronauts then operating in the United States. Many felt, not unaccountably, that *they* rather than the young Lowe should be in charge. Dissension within the Corps was picked up by the higher-up military personnel outside of it, quite a few of which disliked the whole idea of a "Balloon Corps" for one reason or another (Lowe was constantly forced to fight for supplies, for support and occasionally just to be allowed to *fly* once he got to the battlefield all during the war).

One of the more vocal opponents within the Corps was John La Mountain. His continual attacks on Lowe reached such absurd levels that Lowe appealed to high

command to intercede and do *something* about him. What they did instead was to allow La Mountain to test out his “free-balloon” theory of observation.

In spite of his years of free balloon ascension, Lowe had insisted that all of the Balloon Corps flights during the Civil War be tethered, feeling, understandably, that a free flight over a battlefield added immeasurably to the dangers without providing much if any additional information (*and* it prevented such communication methods as telegraphs). La Mountain felt otherwise - though whether this was a calculated belief, or the simple fact that if Lowe felt they should be tethered, *he* should feel they should be free, is unknown.

And in early 1862, he got his chance. At first, the free balloon observation flight seemed to go well. La Mountain was able to find and, by maneuvering his balloon, track a group of Confederate troops. But upon landing, the flight suddenly turned disastrous. Coming down among the forces of Union General Louis Blenker, without uniform or insignia (at this time, the Balloon Corps was still a civilian organization), he was taken to be a Confederate spy. His balloon was riddled with bullets and one of those bullets passed through the back of La Mountain's head. He died instantly.

La Mountain was the only member of the Balloon Corps to be killed during the Civil War.

The death of La Mountain, while a tragedy, did result in an immediate lowering of tensions within the Corps. It also gave Lowe ammunition of his own to resume his fight to have the Balloon Corps made part of the Military. While the Corps had been working with and within the Union Army since the beginning, it had remained a “civilian” organization. Quite apart from the dangers (as shown by the death of La Mountain) of being mistaking as an enemy by their *own* troops, had any of the Corps been forced down in

Confederate territory, their lack of any uniform would most *certainly* get them shot as a spy by their troops.

Lowe fought with the military hierarchy long and hard on this (years later, he said “*I would rather have faced the entire Confederate Army of Northern Virginia defending Richmond, than one Union Lieutenant, defending his own small bureaucratic territory*”) and on the Fourth of July, 1863, Lowe's wish was finally granted as the Balloon Corps was officially attached as a branch of the Signal Corps. Lowe was given the rank of Colonel and his insignia was pinned on by President Lincoln himself.

For the Corps, things began to go a bit smoother now. For Lowe, however, things were not nearly as good. The stress of the previous three years of nearly continual fighting with Generals, compounded by a flair-up of malaria, had taken their toll of the young Colonel. On January 13<sup>th</sup>, 1864, Lowe was forced by his deteriorating health to formally resign from active duty. Command of the Corps passed to Captain Cyrus B. Comstock (who would command it until 1887) and Lowe returned to his quiet boyhood home in Jefferson, New Hampshire.

### *The Business Years (1865-1888)*

**F**ree from the pressures of running the Balloon Corps and fighting with Generals, Lowe quickly regained his health and soon returned to experimenting with gases. After the war ended, he turned his talents towards creating a refrigeration system and soon had a viable ammonia-gas unit for making ice. But Lowe was thinking bigger than that. Acquiring a ship, the *William Tabor*, he outfitted it with his refrigeration system and used it to ship a load of perishables from San Francisco to New York. They arrived in perfect condition.

With some associates, Lowe formed the “Lowe Refrigerated Shipping Company” to transport cargoes

such as beef from the West and Gulf Coast states to the growing cities on the Eastern seaboard. The project proved to be but a modest success at first. However, as the twentieth century dawned, returns to the initial investors would climb up into the tens of millions.

In later years, Lowe would recount how the entire project had nearly failed when he originally planned to send his ships to Texas harbors too shallow for them. But, fortunately, a former member of the Balloon Corps had come by for a visit, looked at the plans and instantly pointed out the error to the chagrined Lowe. Lowe said: *“It may have been the most embarrassing moment of my then young life, to have made such an elementary mistake and have it pointed out to me by a companion a decade my junior. But it was nothing as compared to what my embarrassment would have been had I sent the ships!”*

With his refrigeration business moving smoothly, Lowe's fertile inventiveness next turned to the problem of gas production, a field his years of experimenting with balloons and work creating portable gas generators for the Corps had well prepared him for.

In the 1870's, most towns used coal gas, a poor quality fuel produced by heating coal. The process created a great deal of dirt and smoke - and very little gas. A better quality fuel could be produced by passing steam over red-hot coal or coke - “water gas” - but the process at the time was even more inefficient and expensive than that of coal gas. Lowe came up with a method of packing the coke in tall, firebrick structures and blowing air through it to increase the temperature. This improved the efficiency enough to make producing water gas in commercial amounts both practical and profitable.

Lowe demonstrated his new gas at the Centennial

Exposition in Philadelphia, building a five-story hotel entirely illuminated by his water gas. The public greatly admired the demonstration and two years later, Lowe was producing stoves, heaters and other appliances that used water gas, plus an early version of an incandescent gas light, using a platinum wire (this was soon superseded by the far cheaper "mantle," however). This was perhaps Lowe's most lucrative venture.

By the mid-1880's, Lowe had become a very rich man. His gas production and ice-making facilities were turning a handsome profit and he had expanded both into several other Midwest cities. In 1886, now in his 50's, Lowe announced his retirement and he and his wife, Leontine, along with the younger members of his ten children, moved out to what was then the sleepy farming community of Pasadena - just northeast of Los Angeles - in Southern California. He planned to relax, play with his children and enjoy the warm California sunshine in his declining years.

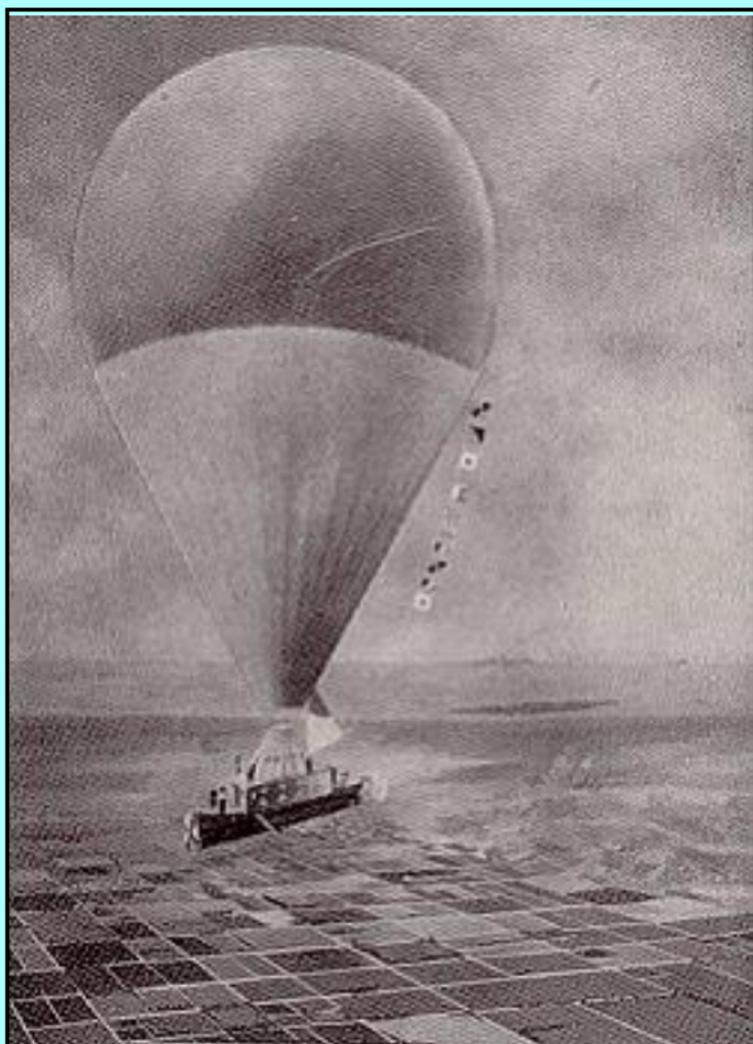
Instead, he soon began the biggest project of his life.

### *California and the Airship Years (1888 - 1913)*

**W**hile forced away from ballooning during the Civil War by illness, then kept away from it by the demands of his many enterprises, Lowe never lost his love of flight. Soon the lazy days in California began to wear on the always inventive Lowe and he began to contemplate once again his Trans-Atlantic balloon venture.

By now, small, sputtering internal-combustion engines were making their appearance in America, powering the first cars, boats, generators and even the occasional railcar. Lowe looked at them and saw a potential way to improve the maneuverability of his balloon, to ensure it was no longer dependent entirely on the winds during the tricky launching and landing phases (at the time, he saw most of the actual flight

*itself* as to still be unpowered - not a unwarranted thought, given the rather poor fuel economy and reliability of the engines back then!). Lowe began to design what he called his “Planet Airship.” Soon after, work began on the craft in a rented warehouse at the outskirts of the tiny beachfront community of Newport Beach. After seven months, she was completed and Lowe announced to the papers the date of his first flight.



Lowe's original Planet Airship design

On the night of August 1<sup>st</sup>, 1889, Lowe began the inflation of his enormous craft. Fully one-hundred and fifty feet high, the immense gas-bag supported a boat-like cabin (which was actually *usable* as a boat in case of a water landing) with room



LPA1 model at the Smithsonian

for six and a single six horsepower Bayton kerosene motor, turning two, two-bladed propellers. Also within were fuel tanks and space for a week's supplies. Lowe had named it the *Leontine*, after his wife, but it was also known as "*Lowe Planet Airship One*" or more commonly now, "*LPA 1*."

At dawn the next day, a large crowd had gathered to watch the first ascension. Lowe climbed aboard the great ship and signaled for cast-off. Quickly the *LPA 1* rose up to an altitude of three-thousand feet and began drifting north.

Once at altitude, Lowe started the motor and began experimenting with flying his ship under power. Unfortunately, its maneuvering proved to be poor, at best. With the motor going the craft had a tendency to swing back and forth beneath the gas bag. Steering was inadequate and while Lowe could tell that he *was* changing his course, it was at such a low velocity as to be almost useless (later flights would show it to have a maximum powered-flight speed of just three mph - assuming absolutely still air). Still, by changing altitude to catch the different air currents, ninety-minutes later Lowe was able to maneuver the *LPA 1* to a gentle landing east of Pasadena.

Six more test flights were made, with Lowe making improvements to the steering (though he was never able to correct the "swinging" problem) and practicing powered take-offs and landings. Here the motor, while still obviously inadequate, proved to be useful in controlling his flight, especially during the tricky landing phase. Finally Lowe felt he was ready and began his plans for a long cross-country test flight, much like his flight in the *Great Western*. But this time, he would be traveling clear from the Pacific to the Atlantic!

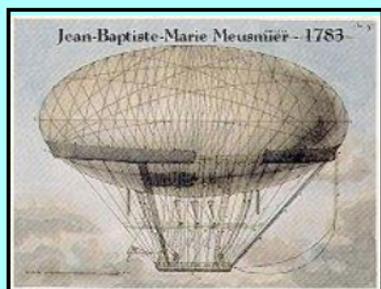
On November 12<sup>th</sup>, Lowe and his assistant Eugene Block lifted off from the warehouse at Newport and climbed to their cruising altitude of sixteen-thousand

feet - both to clear the mountains and to catch Lowe's east-bound air current. At first, the flight seemed to be going well as the ship drifted high over the California deserts. Several hours later, the *LPA 1* crossed the Colorado almost directly above Yuma, causing much excitement to the residents below.

As they drifted farther into Arizona, though, the winds pushed them north over the high mountains surrounding the Grand Canyon and Flagstaff (the ship came within five miles of being the first to fly over the Grand Canyon, in fact). Here, the uplifting currents forced their ship thousands of feet higher until both men began to feel the effects of the lack of air and the sub-freezing temperatures. Unfortunately, this fast climb also strained the fabric of the gas bag and it began to slowly leak. Crossing into New Mexico they were forced to drop most of their ballast to clear the Great Divide and Lowe realized there was no way that they would be able to complete the trip without repairs. As Santa Fe approached, he prepared to land the craft, aiming for an open field near the town. When Block attempted to start the motor, however, it was discovered that the freezing temperatures had damaged the water-cooled engine and it would not turn-over. Lowe stated later in his biography *"had I known the engine would not start, I would have tried for a larger landing site for, due to the loss of gas and lack of ballast, once we began our descent to the field, we were committed."*

Unable to maneuver and equally unable to rise again, the *LPA 1* grazed the trees at the edge of the field, ripping the gas bag and causing the craft to instantly drop the rest of the way to the ground. The impact shattered the bottom of the cabin and as what was left of the bag dragged it sideways across the field, both the rudder and starboard propeller mount were torn off. Amazingly, neither Lowe nor Block were hurt beyond a few small bruises, but the sad remains of the *LPA 1* would never fly again.

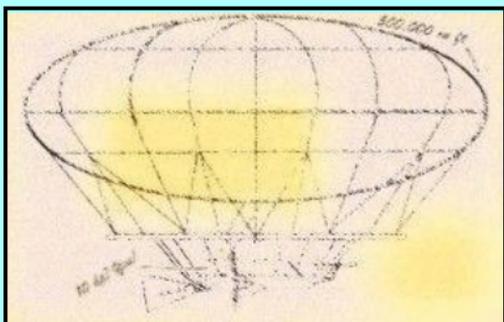
Still, she had proved the essential soundness of Lowe's ideas and upon his return to California, Lowe quickly began the design and construction of the *LPA 2*, also known as *The Pasadena*.



Jean-Baptiste-Marie Meusmier's airship design, 1783

Researching, Lowe had come across the designs of Jean-Baptiste-Marie Meusmier, who amazingly right after the first flight of the Montgolfier brothers in 1783, had designed a craft which combined what would be all the essential elements of an airship: A aerodynamic bag that adjusted to pressure changed not by expanding or contracting but by the use of an internal air-filled “balloonet”, a rigid frame to hang the cabin from and rudders and elevators to steer the craft. As Lowe later said, “*had he access to an engine, dirigible-balloon flight would have come a century earlier.*”

On June 17<sup>th</sup>, 1890, the *LPA 2* lifted off on its first flight over Southern California. Along with the newly designed gas bag, she had two engines,



Lowe's sketch for the *LPA 2* – Compare this to Meusmier's design

either one capable of powering both propellers. Lowe was never going to be dependent on just *one* engine again! The test flight went well and Lowe was pleased to discover that she handled far better under power than the old *LPA 1*, both faster (nearly six miles-per-hour has been estimated) and far stabler, the new gas bag and rigid frame had totally eliminated the “swing” of the older ship while under power.

While a far superior ship, her life also proved to be far shorter. On just her second flight two weeks later, Block and his assistant (unnamed in any reports) crashed against the top of Echo Mountain, when

unexpectedly fierce winds caught the craft north of Pasadena. Both nearly lost their lives as the cabin tore free from the gasbag and tumbled halfway down the slope. It took rescuers nearly eight hours to reach the pair, Block suffering from a broken leg, his assistant a broken arm and wrist and both from numerous cuts and bruises.

The crash disheartened Lowe and while he sent a team to salvage what they could of the ship from the mountainside, for nearly a year he did nothing with the pair of surprisingly undamaged engines nor with the designs that swirled through his head.

Eventually, though, his basically cheerful nature - with prods from his wife - encouraged him to start again. On August 1<sup>st</sup>, 1891, he formed the "Lowe Airship Construction Corporation" to construct his latest vessel. And on February 5<sup>th</sup>, 1892, the *LPA 3* "*Altadena*" was gently towed out of the converted Newport warehouse that locals were already calling the "Air Wharf."

Externally similar to the *LPA 2*, she was actually nearly fifteen percent bigger. Within her boat-cabin (the last such cabin of this type Lowe would use - though those of the *LPA 4* and *LPA5* were also designed to float, no one would call them "boat-like") now rested three engines. Two were arranged as on the *LPA 2* - both co-powering a pair of side-mounted propellers - with the third, more powerful one, spinning a single rear-mounted propellor. Lowe now felt that "free flight" would be too dangerous to be used on a regular, commercial venture and this added thrust gave the ship a top speed of nearly twelve miles-per-hour and the ability to maneuver even on windy days.

In spite of three minor crashes over the years and some stability problems when flown in any other than light winds, the *LPA 3* is considered by most aeronautical historians to be the first successful

airship. Over the next three years, she made more than sixty flights: The longest, a flight from Los Angeles to San Diego in 1894 (following the installation of upgraded engines). She was retired in 1895 following the launch of the *LPA 4* and her cabin now hangs near the entrance of the Smithsonian.

While the *LPA 3* was successful, it was still essentially a powered balloon: The gasbag a non-rigid construction, with the cabin suspended below much as on any regular balloon. While the framework between the bag and the cabin added some rigidity, the ship still lacked the internal skeleton that is the hallmark of all later airships.

The idea for this came to Lowe on June 21<sup>st</sup>, 1894. During a recent flight, high winds had repeatedly deformed the bag, both putting additional stress on the fabric and making steering the craft problematical at best and Lowe had been worrying over how to prevent future incidents for many weeks now. It's solution came about in what is now known to historians as “the pierced balloon incident.”

Lowe was watching a magician give a show at a birthday party for one of his friends children when the magician performed the then new trick of shoving a long needle through a child's balloon (“new” since children's latex balloons themselves were a new item). Lowe later said that he had “*stared at that balloon as if I had seen the promised land.*” His fertile mind took in the image of a balloon with a long steel needle running its length and rapidly went from thoughts of a balloon with an internal framework, to those of a series of balloons *within* a covered framework.

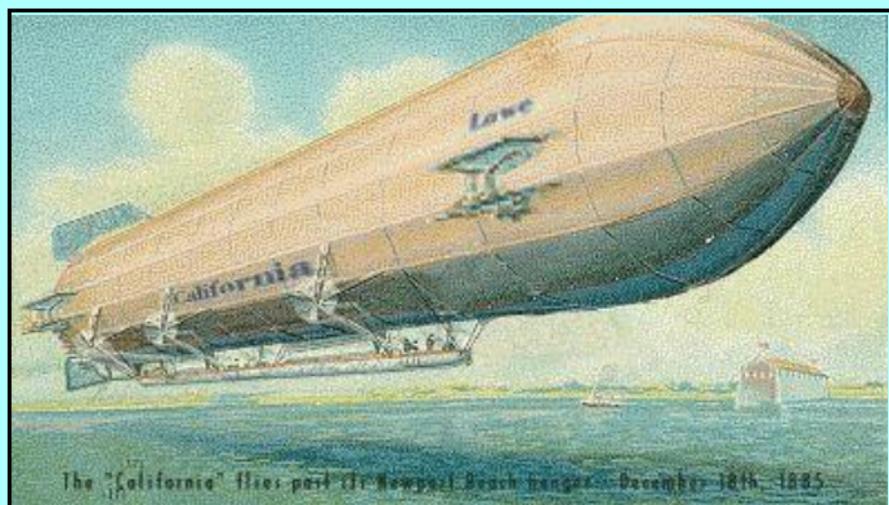
Lowe began designing what would become the *LPA 4* that very evening.

Fifteen months later, on September 24<sup>th</sup>, 1895, the *LPA 4* “*California*” was towed out of the specially built hanger, next to the old “Air Wharf” warehouse.

A rigid framework of plywood formed a sharply pointed cylinder, four-hundred feet long, within which were housed ten balloonets. Three banks of two propellers ran down the bottom length cylinder, each bank powered by its own air-cooled Bayton kerosene engine of then unprecedented horse-power. Beneath this massive cylinder hung three cabins, one for each set of propellers.

In flight, that cool September morning, she proved to be a wonderful ship. Her motors could propel her at the unheard of speed of eighteen mile-per-hour! And with Lowe at the helm, she could turn nearly on a dime and maneuver so smartly that on landing, she came to the ground crew rather than they to her.

That is not to say she was the perfect vessel, however. When she was first built, her twenty passengers were carried split between the three cabins with no way to move between them save by climbing up into the cylinder itself and half crawling to the next one. After the sixth flight, a narrow catwalk was fitted between the three cabins and doors cut, but it was not for the faint of heart!



Painting of the LPA 4, just off the coast of Newport Beach, California

The *LPA 4* made fourteen flights over the next three months, testing her capabilities, carrying a few special passengers and on one occasion, making the first official Air Mail flight, between Los Angeles and San Bernadino, doing the round trip in just three and a half

hours. During this time, Lowe began construction of the *LPA 5*, making changes to its design as the test flights of the *LPA 4* showed problems (including building the new ship with a *single* long cabin).

Unfortunately, on evening of January 3<sup>rd</sup>, 1896, a major storm came up. Winds of over seventy miles-per-hour were clocked in some places. The *California* had, of course, been safely housed within its hanger, but the high winds literally blew the doors off the wooden structure and the *LPA 4* was dashed repeatedly against the walls of the hanger. Frame members broke, fabric tore and a solemn Lowe's visit the next morning revealed something more akin to a trash dump than an airship. Lowe had the doors replaced and reinforced and ordered salvage from the *LPA 4* to immediately be used to complete the *LPA 5*.

Four months later, on May 5<sup>th</sup>, the *LPA 5*, hopefully named *Leontine II* slid out of the hanger. Apart from the improvements suggested by the *LPA 4's* short series of test flights, she remained much the same craft as her destroyed sister. Her three engines could drive her at nineteen miles-per-hour (the single cabin had slightly improved the aerodynamics) and she could carry twenty-two passengers and crew - twenty-five, if they were of light build.

The *LPA 5* now completed the series of test flights that the *LPA 4* had begun. Lowe had the ship make longer and longer distance flights, testing the durability of the motors and the capability of the ship to fly continuously for up to twenty-four hours at a time. Lowe and the other engineers of the *Lowe Airship Construction Corporation* were pleased by the results and it finally looked as if they had the right design for a commercial-level vessel. *L.A.C.C.* laid the keel for the *LPA 6*.

So on June 1<sup>st</sup>, 1897, "*Lowe Airship Lines*" was officially incorporated. And less than a month later, on June 29<sup>th</sup>, 1897 the *LPA 5* made a flight from Los

Angeles to San Diego in just nine hours and twenty-three minutes carrying the first load of fourteen passengers. *L.A.L.* now began a regular once a week flight between San Diego and San Francisco, with stops at Los Angeles, Santa Barbara and Monterey. The flight quickly became extremely popular (even though, for the time, tickets for the flight were also *extremely* expensive). Other less regular flights were made to Sacramento and Arizona.

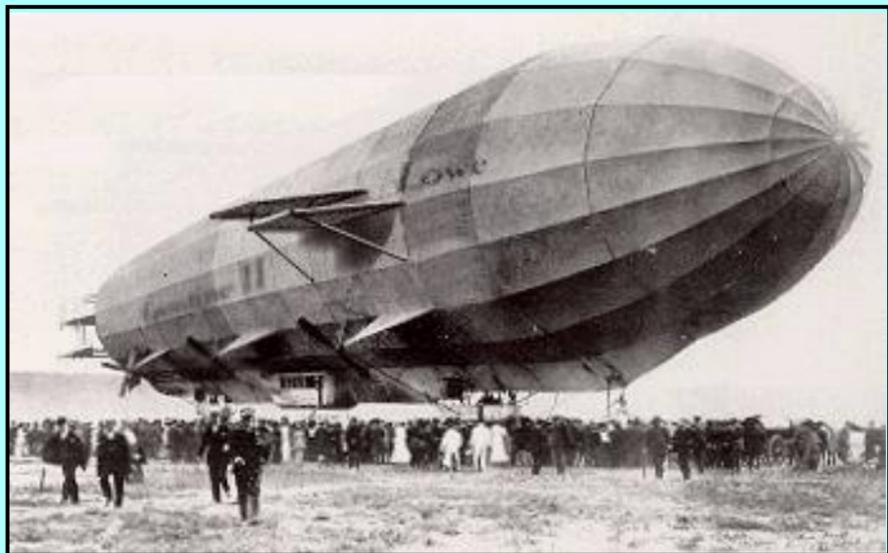
*LPA 6* - the "*Los Angeles*" made her first flight on May 28<sup>th</sup>, 1897. Nearly the same as *LPA 5*, the double elevators fore and aft were replaced by a single fixed aft and a single moveable fore and the rudders were slightly modified. She could do twenty-two miles-per-hour and the passengers no longer had to be of "light build" for her to lift twenty-five. After a short series of test flights, she entered service with *L.A.L.* on the Coast and Arizona routes. In late August, she made the first Grand Canyon fly-over, a route that soon became *L.A.L.*'s most popular flight.

In February of 1898, when the *LPA 7 & 8* went into service. They had more powerful motors, but were basically the same as the *LPA 6*. With the new pair available to take the flights, it and the *LPA 5* were then briefly pulled from service for improvements. Both received the new motors and rudders, but *LPA 5* kept its double elevators, as it was judged too expensive to convert to the superior single.

Unfortunately, on April 15<sup>th</sup>, 1899. *LPA 7* crashed off the coast of Monterey, killing three of the passengers and injuring six others. *LPA 6's* upgrades were completed as quickly as possible and *LPA 9* was rushed into production to fill the gap now created, but Lowe realized that the crash could permanently discourage the public from flying.

So when the *LPA 5* finished her repairs, Lowe sent it on what was called the "*Round America*" flight. For the next three months, the *LPA 5* toured the United

States on a good-will trip that hit nearly every major city in the nation, flying over nine-thousand miles before returning home. On July 4<sup>th</sup>, she took part in the celebrations in Washington, D.C., trailing an enormous U.S. flag beneath her.



The LPA 5 on its 'Round America flight

The “*Round America*” flight accomplished what Lowe had wanted it to. Prior to this, only a few tens of thousands in California and Arizona had seen his airships, had seen that the age of flight was now here. Following this flight, *L.A.L.* became solidly booked for the next two years and Lowe was able to begin construction on three more airships.

By 1900, *L.A.L.* was now making over one-hundred and fifty flights per year in California and Arizona and had just started the monthly Los Angeles to New York run. Lowe's name was known around the world and a flight on a “*Grand Cañon Cruiser*” was almost a social necessity for the upper crust.



The LPA 9 – this painting hangs in Corporate offices, Newport

The *LPA 9* and *10* joined the fleet early in the year and after over a decade of pouring money into the project (straining even Lowe's large fortune), Lowe finally began to get a steady return on his enormous investment.

The *LPA 10* "*Union*" would be the last airship Lowe would be directly involved in designing. By now, *L.A.C.C.* began to get orders for airships from people other than Lowe himself and Lowe increasingly found himself tied-up with the day-to-day operations. Nearly seventy now, these daily toils eventually wore on Lowe and on March 2<sup>nd</sup>, 1901, Lowe retired a second time, remaining on the boards of *L.A.C.C.* and *L.A.L.*, but generally only operating as "Elder Statesman" for the companies.

Also in 1901, the U.S. Navy contracted *L.A.C.C.* for the construction of two airships, to use for coastal patrols. Both vessels, the *LNA 01* "*Gettysburg*" and *LNA 02* "*Antiem*" were delivered on March 7<sup>th</sup>, 1902 and the Navy began trials with them immediately.



The *LNA 01* over Catalina Island, California, during its test flights

After a year's worth of trials, the Navy was so pleased with the results that they ordered two more of the ships in 1903.

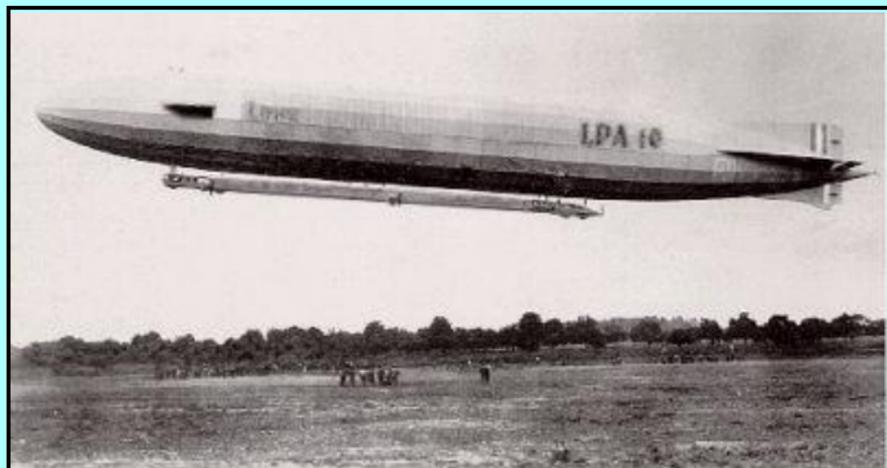
As the years went by, *L.A.C.C.* grew and prospered and *L.A.L.* was now offering flights to Europe, the Caribbean and Hawaii.

Lowe's last major contribution to the company came in 1907. Upon hearing of the successful flights of the Wrights and their heavier than air craft, he sent a congratulatory message to the brothers and invited them to come to California and demonstrate their *Flyer* for *L.A.C.C.* The Wrights, looking for investors, took Lowe up on his offer and the *Flyer* was soon found to be circling the landing field at the Newport factory - five times, with an excited Lowe as a passenger. He was very impressed and immediately proposed to the board that the company invest in the Wright's invention. Many of the board members disagreed, feeling that useful heavier than air flight was at best decades away and would never be able to compete with the companies airships. But Lowe strongly disagreed. As far back as 1859, he had predicted heavier-than-air flight saying "*I have no doubt, but cherish a fervent hope, that the time is not far distant when we can travel in the air without the aid of balloons for buoyant forces*" and here was his prediction made true by two Ohio boys.

Lowe badgered the board into investing and soon the *Lowe Airship Construction Corporation* was producing the latest versions of the "*Wright Flyer*" and Lowe was toying with the idea of using one to transport people and cargo between his airships and the ground. It was beginning to look like he would come out of retirement yet again to begin this new - and exciting - project.

But in 1912, disaster came to Lowe when his wife, Leontine, died after a long illness. He tried to go on, moving in one of his children for a while, but it was

obvious without his beloved Leontine, his heart was no longer in it And on January 29<sup>th</sup> of 1913, Thaddeus Sobieski Constantine Lowe died in his bed.



The LPA 10 on it's flight to Arlington

The whole world mourned his death. Flags flew at half-mast everywhere from Washington to Peking. The *LPA 10* took Lowe's body on one last long flight from Pasadena across the country to the National Cemetery at Arlington, where, posthumously promoted, General T.S.C. Lowe was laid to rest next to the other heroes of the Civil War.

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