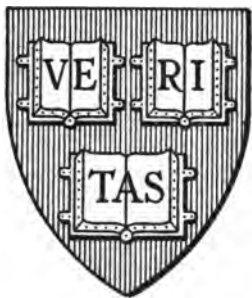


# NAVIGATING THE AIR

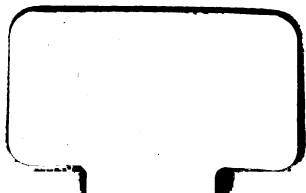


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## Navigating the Air



First ascent of Aero Club at West Point

# Navigating the Air

A scientific statement of the progress  
of aëronautical science up to  
the present time

By

The Aero Club of America

Illustrated with photographs  
and diagrams



New York  
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1907

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✓



*The Will Thomsen*

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## EDITORIAL NOTE

THE inventions described in the succeeding pages are the result of years of experiment and patient effort; sometimes amid the discouragement of apparent lack of success. They contribute a panoramic history of aëronautics in this country and in Europe.

To reach the goal of human aërial locomotion requires the thoughts and works of many men; therefore, it is most profitable that there should be gathered together the reports of aëronautical experiments.

Though no responsibility is assumed by the Aero Club of America for the statements of the individual writers, these papers were collected pursuant to a resolution passed by the Board of Directors of the Club.

ISRAEL LUDLOW,  
WILLIAM J. HAMMER,  
AUGUSTUS POST,  
*Publication Committee.*

## ACKNOWLEDGMENT

THE majority of the illustrations contained in this volume are from the remarkable collection of Aëronautical Pictures which was exhibited at the first and second annual exhibitions of the Aero Club of America by the owner, Mr. William J. Hammer, of New York City, and the publishers wish to acknowledge their indebtedness to Mr. Hammer for his kind permission to utilize the same herein.

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The National Geographic Magazine, published by the National Geographic Society, Washington, D. C.: "A few Notes of Progress in the Construction of an Aërodrome," by Dr. Alexander Graham Bell.

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## ERRATUM

"The first Annual Aëronautic Cup Race," by Lieutenant Frank P. Lahm, U. S. A., is used through the courtesy of "The Journal of Military Service Institution."

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## X

### A BALLOON TRIP FROM CINCINNATI, OHIO, TO SOUTH CAROLINA, IN APRIL, 1861

BY PROF. THADDEUS S. C. LOWE

THE significance attached to my early balloon work can be better understood if my reader compares and considers it with the kite-flying of Benjamin Franklin. So much does the modern scientific world think of Benjamin Franklin and his simple kite, that one of the imposing statues of the World's Columbian Exposition represented him in the act of flying the kite, and it occupied the post of honor at the main entrance of the Electrical Building. It seemed a small and insignificant affair, and yet it was that "kite-flying folly" that has led to the discoveries which have made possible the telegraph, submarine cables, telephone, phonograph, electric railways, and the thousand and one scientific and useful instruments and appliances of modern electricity. All these wonderful and useful inventions are the indirect result of that one little experiment of Franklin's, thus demonstrating the value of even small things, when directed for a scientific purpose by a scientific mind.

Few people understand the deep scientific interest

that was felt by Joseph Henry and many men of his intellectual stamp, in my balloon trip from Cincinnati in April of 1861. The trip was made purely in the interest of science. There was no monetary or other inducement in connection with it. In my observations of air currents I had become absolutely convinced of the existence, in the higher atmosphere, of a current which uniformly and almost invariably moved eastward, with but slight variations, no matter how diverse the surface currents might be. In order to test the existence of this current, over the ocean as well as the land, I planned the necessary machinery to carry on the work, and the trial of it so interested a number of the prominent eastern bankers and merchants that they offered to help sustain the expense, with a view—provided it was shown to be perfectly safe—to the inauguration of a balloon system which would convey information across the Atlantic in much less time than that occupied by the mail steamers.

In those days there was no telegraphic communication between the United States and Europe, the first Atlantic cable having failed, and the only way, therefore, of getting mercantile news across the ocean was by means of steamers. The merchants knew that the reduction by a day, or even, sometimes, of but two or three hours, in the time of the receipt of important news on business or other affairs would often make a difference to them of many thousands of dollars, enabling them to dispose of, or buy up, goods ahead of their competitors. This was the secret of their willingness to aid in sustaining the expenses of my earlier experiments. I was

ready to receive their help, but my object in the work was purely for the interests of science, and to further the organization of the Weather Bureau elsewhere spoken of, and which has since been accomplished on the lines I suggested, by the United States government.

I had already constructed the aërostat for my Atlantic journey. It was the largest one ever built, and has never since been approached in size or equipment. With it I safely lifted from the earth, including its own weight, sixteen tons, so that I was thoroughly convinced that I could safely convey across the Atlantic all the materials I required for comfort and safety. Not only was this balloon fitted to carry ample instruments, provisions for the crew, and all the implements, etc., required for observation and the manipulation of the balloon, but also a full-rigged life-boat schooner with air-tight compartments, built of light steel plates.

Chambers' and other encyclopedias state that this balloon would lift  $22\frac{1}{2}$  tons. In order that the reader may not misunderstand the apparent discrepancies between their statements and mine given above, permit me to explain that had the balloon been filled with pure hydrogen gas, it would have lifted  $22\frac{1}{2}$  tons, but on this occasion I had to use the ordinary coal gas, which, being heavier, permitted me to lift only 16 tons.

Professor Henry, however, was so adverse to my running any risk in making the trip over and across the Atlantic, that he suggested before doing so I should thoroughly test the existence of this current over a long land distance. He advised me to go west with my bal-

loon to make an ascent when the earth currents were blowing strongly to the west. When reaching the upper currents, if I sailed east across the continent, the existence of this eastward current would be sufficiently demonstrated to justify his urging the government to aid me in continuing the experiments with a view to the organization of the Weather Bureau—an object to which I had devoted my attention for many years.

Acceding to Professor Henry's request, I left my large balloon, and, taking my smaller experimental balloon, went to Cincinnati, and for about a month waited for conditions to be exactly as I desired before making the ascent. The newspapers took a great deal of interest in the project, some of them speaking in the most favorable terms of the work. At last the conditions were highly favorable for the experiment, the surface currents moving rapidly westward, and, accordingly, after learning by telegraph that the same conditions existed as far east as Washington, I made the ascent at about 3:30 o'clock on the morning of April 20, 1861. It was fully midnight before I was satisfied as to the existence of these westward-blowing earth currents extending from the Atlantic to Cincinnati, and then, having arranged with the superintendent of the city gas-works for the inflation of the balloon, I proceeded at once to direct that important and necessary work.

My readers must here understand that gas, exactly the same as atmosphere, absorbs and holds in suspension in warm weather, more moisture than it does when it is cold, so that, the day having been warm and

murky, the gas with which the balloon was inflated on this occasion held its full proportion of moisture in suspension.

In ascending, I started rapidly toward the west, as the surface currents from the east were quite strong. When I reached an altitude of 7000 feet I struck the eastward-flowing current, and here very rapidly the thermometer went down to zero. This sudden cold congealed the moisture, held in the gas, and formed a fine, glassy, bead-like hail, which in the absolute stillness I could distinctly hear falling upon the silk and rolling down the neck of the balloon. Being nighttime it was impossible for me to see it, but under similar circumstances in the daytime, I have seen a miniature snowstorm going on inside the balloon when I have left a warm for a cold current of air. It was not a soft snow this time, but, no doubt owing to the rapid change into so great a difference of temperature, it was a hard, bead-like hail. The neck or lower end of the balloon was opened to let the expanding gas escape, and a bushel or more of this fine hail was discharged.

This caused the balloon to ascend still higher, until, by looking toward a star over the top of the mercury column in the barometer, through a slot I had arranged for that purpose, and feeling the raised figures—for it was dark and I had made no arrangements for lighting—I found that the balloon was at an elevation of 14,000 feet.

This altitude it retained until sunrise, when the heat of the sun expanded the gas still further, and it rose to an altitude of 18,000 feet.

And such a sunrise!

The horizon appeared always on a level so that the earth resembled a great hollow bowl, with the exception of the Blue Ridge mountains, which, owing to their great distance, fully 200 miles, resembled a solitary peak arising from the ocean.

As sunrise approached, the streaks of light rapidly running around the horizon resembled bands of molten gold, and when the sun itself appeared, I was never more astonished and surprised. It was entirely different from our every-day luminary. There was a total absence of its usual dazzling appearance. It resembled a disk of burnished copper, as such a disk would appear when not in the bright rays of any powerful light. The singular appearance was retained during the time of the entire voyage, so long as I remained at an elevation of from 16,000 to 18,000 feet. This fact proved to me that the dazzling appearance of our great luminary is caused by our atmosphere and the elements it contains, or holds in suspension, within three or four miles of the earth.

The sky, too, was inexpressibly beautiful, even during the daytime, resembling a rich, dark-blue velvet, and the sun, moon, and some of the stars were all visible at the same time.

To return to the point of departure. Mr. Potter, proprietor of the "Cincinnati Commercial," and Murat Halstead, the editor, arranged to be with me at the time I decided to make the ascent. They brought down a number of delicacies of all kinds for me to take along, and Mr. Halstead thoughtfully provided me with a

large jug of hot coffee, which he wrapped up in a number of blankets in order to keep it hot, which it did throughout the entire journey. He also brought me 200 copies of the "Cincinnati Commercial" announcing the preparations that had been made for this trip, that the balloon was now being inflated, and that, "shortly after going to press Professor Lowe will have left the earth for the purpose of making his long anticipated aerial eastern voyage."

Some of the newspapers amusingly stated, after I had ascended, that the balloon which had gone up for the purpose of demonstrating the existence of an upper air current which invariably flowed eastward, when last seen was rapidly sailing west, but quite a number of spectators, even after the balloon was enveloped in darkness, discovered its course by the occasional eclipse of a star, which showed them that the line of movement had changed to the east, and later in the morning, at daylight, telegraphic despatches were sent all over the country from Falmouth to Lexington, Ky., saying that a large balloon had been seen rapidly moving eastward. All who saw the despatches and knew of my discovery were convinced of the correctness of my former deductions.

The average height at which I sailed was about 16,000 feet, but in crossing over the Alleghanies I discovered that air currents bound and rebound exactly as the currents of water do, when flowing down a stream against large boulders and ledges. The air was flowing rapidly eastward, and as it struck the crests of the Alleghanies it caused an extra upward movement

of the balloon. In a few moments I ascended to a height of 22,000 feet, probably 6,000 feet higher than the balloon could have gone by its own lifting power, and when it made the curve on the other side of the range, I descended so rapidly that the fall was about a mile in one minute. Though racing through space with such extreme rapidity, everything around me was perfectly quiet and still—so still that I could have carried a lighted candle without any protection, and I left loose sheets of paper about without any fear of their being disturbed. The reason for this may not be quite clear to all my readers. I was floating *with* as well as *in*, the undisturbed atmosphere, consequently there was not the slightest sense of motion whatever. The altimeter, my instrument for measuring latitude and longitude, and thus determining the rate at which I was traveling, showed such a rapid movement of the balloon to the east that I doubted its accuracy, until I glanced down over a rope, hanging for one hundred feet below the car, and there noticed the short space of time it required to cross large farms, fields, woods, etc. The velocity was so amazing that I no longer doubted the accuracy of the registrations of my altimeter, but not feeling entirely sure of the state I was then over, and seeing with my glass some plowmen in a field many miles in advance of me—pretty well up on the west slope of the Alleghanies—I descended toward the earth to make a flying inquiry as to the location. When within hailing distance I descended into a neutral current, and standing nearly stationary shouted to the men at the plow, "What state is this?" They looked every

direction except upward, without replying. I shouted again, and as the sound probably seemed to come from the woods, and while trying to ascertain the direction from which the voice came, they shouted: "Virginia." At that, with a "thank you," I poured out quite a quantity of sand from the ballast bag, and as this came pattering down on the earth near the men, they glanced upward, only to take to their heels to woods near-by in affright, while their aërial visitor was rapidly ascending into the eastward current again.

Before reaching the Alleghanies, owing to the flow of a deep and rapid current of air between that range and the Blue Ridge, my balloon was drawn slightly southward, out of the direct eastern path, and I finally landed in South Carolina, a short distance from the line of North Carolina.

When I first descended from the higher atmosphere I found myself near the coast, and decided I had better return a little inland and find a better landing-place than the rice fields I saw coming into view. When I had gone as far as I thought was necessary I pulled open the valve and rapidly descended, to find myself quickly surrounded by several planters and negroes. The latter were ready to aid me, but the former ordered them away, and commanded me also to leave in short order. I asked a few questions as to my location of one young white fellow, who seemed disposed to be friendly, and, as soon as I had gained what information I wanted, I concluded that it would be better for me to find a more congenial landing-place, where I should be nearer to a railway. The planters kept warning me

that they would not be responsible for the consequences if I persisted in staying, so, lifting up a bag of ballast, I tipped it over the edge of the car, and, at once, ascended rapidly. Fearing some one might shoot and injure the balloon, as they all had muskets, I used a large bag of ballast so that when I did ascend I should go up rapidly. I was much amused as the balloon shot up from the earth to hear the young fellow call up to me: "Hello, mister! I reckon you 've dropped your baggage!"

I left the "baggage" for them to investigate if they desired to do so, and was soon floating away westward for a short distance, until, when I had reached the proper height, the balloon again moved eastward, giving me another demonstration of the existence of the eastward-flowing upward current. This time I heard firing all along until I again landed. I was about two miles up in the air, but the people below thought I was only a short distance from them, and, never having seen such an object before, kept up a-firing, thinking to "bring such strange quarry down."

When I had gone, as I thought, far enough, I again essayed to land. I was just above Pea Ridge, doubtless so named because it appears as if nothing will grow on it except peas and pitch pine. When I approached the earth the feathered tribe was the first to notice my appearance, and the air being the realm that they alone are supposed to navigate, they took my balloon for some great hawk or other predaceous bird, and imagining themselves in great and dire danger, immediately flew to shelter, making a great cackling and screeching as

they went. This sent consternation into the hearts of the negroes and whites, who, by this time, were watching my movements with increasing interest, so that when I finally landed in the midst of the cabins occupied by whites and negroes, they had all fled, and it was some time before any one would approach to aid me in anchoring the balloon.

What a commotion my coming caused! Not a soul was in sight. They had all taken shelter in the various cabins, from many of which I could hear groans, praying and other symptoms of distress and alarm.

After the anchor had firmly taken hold in a heavy rail fence and the balloon was quiet, I called to the people inside the cabins.

Presently doors began to be furtively opened, and from the rear of the cabins as well as the doors, heads peeped out.

I asked some one to come and aid me steady the car, but no one, either white or black, responded, until at last a young white woman, possibly eighteen or twenty years of age, standing fully six feet high and well proportioned, came forward with a pleasant manner and a smile, and asked what she could do.

I explained to her that I wanted the car steadied until I could discharge sufficient gas from the balloon to allow the car to remain firmly on the ground. Immediately she took hold, then came other whites and a number of negroes and held on likewise, and I was soon the recipient of more attention than I desired.

This white woman was the only brave person in the

whole crowd, and I shall have occasion to refer to her later on.

I could see the people, while the balloon was descending, congregating from all directions. They had followed me as closely as they could, some on foot and some on horseback, most of them armed with shot-guns; and every now and then a new arrival would appear on the scene. It was amusing to see each man, as he approached, sneakily deposit his gun under the fence, as if ashamed to be seen with arms under such circumstances.

✓ As I had decided to make this my landing, I opened wide the balloon valve to allow all the gas to escape, and many of those present never having smelled this element before, held their nasal organs in intense disgust at the odor, and ran to escape what they considered its vile and noxious influence. I motioned to them to keep to windward so that they would not be annoyed, but all my movements were viewed with considerable suspicion, and as the balloon grew less and less the onlookers became more and more bold and aggressive, in both remarks and gestures.

Many of them still thought I was an inhabitant of some ethereal or infernal region, who had floated to this earth to do damage and injury to its inhabitants, and I thought to pacify them and convince them I was human, exactly as themselves, by showing them I had to live on the substantial things of earth just as they did, so I took from the basket quite a variety of cakes, crackers, bread and butter, rolls, cold meats, chicken, etc., and the other delicacies presented to me when leav-

ing Cincinnati, eating some myself and passing the rest around. I also passed out several india-rubber bottles of water which had frozen solid, and, to let them realize how cold it was in the upper regions of the atmosphere where I had been, I cut one of them open and took out a large mould of ice, shaped exactly the same as the bottle.

This was the worst thing I could have done, for immediately one man asked how could anyone but a devil put so large a piece of ice through so small a place as the nozzle. Others began to call attention to the difference in the cakes. Those portions which had been exposed were frozen, the others were not. Some of the apples and oranges which had been under the blankets were perfectly good, others frozen as hard as rocks.

The two-gallon jug of Murat Halstead's coffee wrapped up in a dozen thicknesses of blanket, was still as hot as one would care to drink it, and all these astonishing, and to them contradictory things, instead of impressing them with the fact that I was but an ordinary human being, gave them more cause for alarm than ever, until, finally, all the gas by this time having been discharged from the balloon, and the giant lying limp and harmless on the ground, one old man—of dissipated countenance—suggested that a Yankee who was capable of doing all these things was too dangerous a man to run loose, therefore he moved that he be "shot on the spot where he had dropped from the skies." Quite a number approved of this motion and thought it would be "serving him right," others,

more conservative, thought an investigation would be better.

The friendly young woman before referred to, fearing I might be alarmed by these "shooters on the spot," again approached me and volunteered the information that I need have no fear. Said she: "Most of them are cowards; all the brave men of the neighborhood have gone to war."

While they were discussing me, pro and con, I began unloading the instruments from the car. Many of them were very elaborate and curious—the alimeter, for determining the latitude and longitude without a horizon; the long, mercurial barometer, especially constructed for my use and before described, for determining altitudes; the telescopes and hydrometers, etc.

As the crowd saw these, their alarm increased, for they knew at sight they were all fearful instruments of destruction of one kind or another, and what gave emphasis to this fear was that I finally displayed a large Colt's revolver, which I had had the precaution to take along with me, thinking I might possibly have occasion to use it.

I then and there let the aggressive portion of my surroundings understand that the first man to make any hostile advances toward me would go into eternity far quicker than I had descended into their locality, but that I was willing to further any investigations they desired to make. I suggested that they appoint a party to go with me to the nearest county seat, which I afterward learned was about ten miles away.

After a good deal of parley with the different squads,

my compromise was accepted, so I packed up the balloon and all the car paraphernalia, and then placing the same in the car, I joined the conservative portion of the party and went to one of their cabins to await the getting ready of the wagon which was to take me to Unionville, keeping my eyes alertly upon the belligerents, however, in which I was zealously aided by the friendly young woman, whom I afterward found lived in the cabin where we were going, and was the daughter of one of the chief men in the conservative element.

The cabin to which I was escorted was a large one-room log house with an open fireplace of generous dimensions. In each corner were two little negroes, playing with their feet in the warm ashes. I could not help the reflection that upon the future growth of each of those black youngsters depended from \$600 to \$1,000 to their owner. Some one announced that in a few minutes an early supper would be ready. When about three o'clock, the man announced that they must begin to eat at once, as it was necessary to make an early start in order to get over the rough roads to the county seat before dark. Considerable time had already been lost in getting the mule team ready. We were asked to sit up to the rough table on our three-legged stools, and, as we sat, the ashes were removed in the great fireplace, and a large cast-iron Dutch oven brought forth. On opening it, about two dozen good-sized "corn dodgers," about the shape and size of a goose egg, were revealed, cooked to a rich, dark golden brown. I thought to myself how delicious these would taste when the butter was put on the table to join them.

But, alas! I was doomed to disappointment. There was no butter! Such a thing it seemed was unknown among the pines, and as for bacon, I was informed, with many apologies, and in a most mournful tone, that they were not able to obtain it, as what little there was in the country had been taken for the army, and—with an added tone of indignation—that “Abe Lin-korn’s” gun-boats were preventing more from coming in. Coffee also was an almost unknown luxury, the left-over crusts of the “corn dodgers” serving in its stead.

But to make up for loss of butter, bacon and coffee, they brought out a jug which had been set aside as a reserve for special occasions, containing Louisiana molasses. Even this was nearly all gone. As the entire capacity of the railways was being employed in conveying troops, it was difficult and expensive to get goods of any kind.

A younger brother of the girl who had aided me, in his desire to make me think well of the locality, said: “You ought to be here in summertime when we have blackberries and molasses, then these dodgers taste good!”

I still had a satchel full of sweet and dainty delicacies, so desiring to return in some measure the cordial, though rough, hospitality of the friendly woman, and to further propitiate those who were inclined to be kind to me, I distributed its contents freely. I ate of their corn dodgers and praised the former highly, to the evident delight of my hostess, who had made them, and then I had to listen to the praises bestowed upon my

cake—the best that the ladies of Cincinnati knew how to make.

The repast being over, a six-mule team and wagon were driven up, into which were placed the balloon, the car and all its belongings. My whole outfit only weighed a little over 200 lbs., so I asked them why they had brought so many mules? The driver replied that when he started for them he thought he had to load in that great, monstrous balloon, so he put on two extra animals, and that he never drove over those rough roads with one of these heavy wagons with less than four. The wagon was a heavy, lumbering affair, used for hauling rosin.

Everything being in readiness, off we started.

The scene was a picture worthy a master brush. Let me endeavor rapidly to portray it for you.

When I so hastily left Cincinnati, I was clothed in my usual costume of black, wearing a tall silk hat, little thinking how soon my dress would be in such marked contrast. The people among whom I had fallen had long hair and beards, mostly sandy-red in color, reaching to their short rotund stomachs, wore slouch hats, and blue jean clothes. Mounted on shaggy horses, each man with a shot-gun over his shoulder, three on each side of the heavy, lumbering wagon, drawn by six mules, acted as a sort of military guard and escort to myself, who, in black Prince Albert costume and silk hat, sat in regal state on the basket in the wagon. Around us was a motley crowd composed of the belligerents, the still scared negroes who scarcely knew what to make out of the whole proceeding, the

half-clad youngsters of both colors and sexes standing open-mouthed and open-eyed gazing upon a scene they had never witnessed before and most probably never would again.

By this time a crowd from the surrounding region had assembled, drawn hither by the strange spectacle of the floating and descending balloon; so, under these circumstances, I bid farewell to Pea Ridge. It was an absolute farewell, for I have never seen it, nor heard from the people I met there, from that day to this.

After a long, dusty, jolty ride, with scarcely any conversation, and with but little to break the monotony, except the clatter of the mules' hoofs, the clanking of the chains, the jolting of the wagon, and an occasional "cat-nap," we arrived at Unionville, about ten o'clock that night.

As I had not closed my eyes in sleep for over thirty-eight hours, I could not refrain from "napping" as we rode along, and I would sleep until rudely awakened by a little rougher jolt than usual. As soon as the wagon settled down to an easy motion I would drop off to sleep again. But the stopping of the team before the old jail at Unionville aroused me to full consciousness, as it was the first full stop we had made.

A portion of my "guard" aroused the jailer, and conversed with him in a low tone. The substance of the talk I could only surmise from the reply of the jail-keeper, who said, in a louder tone, that if their description of the man they had was correct it would be of no use to place him in that jail. They had better take me

to the hotel and keep me under guard until the next morning.

This suggestion seemed to meet with their full approval, for they drove on, and in a few minutes hauled up in front of a long, two-story, roughly-built house with a porch extending its entire length, on which the country people when in town lounged away their spare time between drinks.

The landlord was aroused, and a similar whispered consultation took place between him and a portion of the guard, as at the jail. He was unable to understand what they were talking about, and asked to see the man who was giving them so much trouble. He lit up the main reception room, and then I was escorted in for him to see and determine the dangerousness of my character.

I had no sooner entered the room than he quickly came forward like an old acquaintance, with extended hand and, calling me by name, said he remembered me well, and that he had made a "cable trip" with me in my balloon at Charleston, S. C., the year before, at which place I was then making meteorological experiments and observations. His name, I soon learned, was Fant, and he had been a town official, and was a highly esteemed and respected citizen of the place.

It was amusing to see the expression on the countenances of my guards as this brief interchange of compliments took place. They were literally dumfounded, and stood without a word to say, and with an expression of blank amazement and astonishment. Then one of them in a slow and deliberate, though evidently

confused manner, began to make apologies, in which several of the others joined. I replied that they had no occasion to offer me any apologies; they had rendered me real service, such as I would have been willing to pay well for had they not volunteered to take me in charge, and that I could not think of their leaving the house without partaking of the best refreshment the house afforded. I then asked Mr. Fant to arouse his servants and get up as good a supper as possible, for my own appetite was sharp enough even at that late hour.

While this was being done we all sat down, and in a friendly way talked freely about the events of the day. The guests of the hotel, hearing the unusual noise, were interested enough to inquire what was going on, and immediately arose, dressed, and joined the party; and those who were sufficiently well informed to appreciate the distance I had traveled in the balloon expressed great wonder and surprise at my having made so long a journey in so short a time.

A hotel keeper in that part of the country is generally a man of influence and importance, so that when Mr. Fant informed my guard from the rural district that their services would no longer be needed in that capacity, as he would vouch for me, his decision was at once accepted without demur. He explained that he knew the history of my scientific researches and the object of my balloon investigations; that he had met me in a lodge at Charleston, S. C., and that I was "all right."

When supper was over and all were suitably re-

freshed, I gave to my guard the amount of cash I should have had to pay for their services had I engaged them, and they left me with many regrets and apologies if they had been a source of annoyance to me. I assured them of my satisfaction with their conduct, when they turned their team homeward, and I never saw or heard from them again.

Being exceedingly fatigued with my labors in making preparations for the voyage, and owing to loss of sleep, making continual observations during the journey, the excitement consequent upon my landings, and the ride in the mule-wagon to this point, I immediately retired and was no sooner in bed than I fell into a deep and refreshing sleep.

But it seemed to me only a few moments after retiring when I was aroused by a knock at the door, and on opening my eyes I saw the sunlight shining in the room and was told that it was seven o'clock.

I informed the landlord, Mr. Fant, that I was so very tired that I did not care to arise before noon. He replied that it was very desirable that I do so at once, as a large crowd of people had gathered about his house, waiting to see me, and he thought a look at me would satisfy them so that they would go away. He was afraid of so large a crowd remaining, especially as many ugly remarks were being made about the Yankees, the hostilities against the North having created a strong sentiment against all Northern people.

I arose at once and a glance out of the window demonstrated that the landlord's statement was not exaggerated. I dressed as quickly as possible, and, in look-

ing into the mirror to adjust my cravat, I found that my face was very red and swollen. When I was in the balloon, and while the thermometer stood from 15 to 20 degrees below the freezing point, the pure atmosphere I was drifting in, having no moisture or floating particles to modify the sun's rays, and, as the curious appearance of the great orb of day caused me to observe it intently, I felt a pricking sensation on my face as if a thousand or more needle points had been thrust into my skin. I attributed this sensation at the time to some peculiar electric effect consequent upon the high altitude, but afterward concluded that it was the unintercepted rays of the sun. It had certainly caused the worst sunburn I have ever experienced, either before or since. But as my face was unburdened with a superabundance of flesh, it did not appear to others as bad as it felt to myself, so I made the best of it and soon found my way down-stairs.

Here, in the parlor, a number of gentlemen were waiting to see me, among others the sheriff of the county, to whom I was first introduced, then to the editor of the Unionville paper, afterward to Mr. Thomson, a member of the South Carolina legislature, and other prominent citizens. Mr. Fant and the sheriff proposed that we take a ride just as though I was an ordinary visitor to whom they wished to show the town. This would give the people an opportunity to see me and let them know I was not a person to be feared. They thought we had better not wait for breakfast, as they would like the crowd to disperse as soon as possible. Many of these people were from the sur-

rounding country. They had followed the balloon in its flight, traced its descent to Pea Ridge, there learned of my conveyance to Unionville, and, determined to see all there was to be seen and find out more about the strange object they had seen floating in the air, had followed the wagon and were now determined upon seeing me. I did n't wonder at it when I learned that some of them had come sixty, eighty and even a hundred miles in their search for me

The conveyance being in readiness, the editor of the paper and Mr. Fant took the rear seat, with the sheriff and myself in front, the sheriff driving, and as he took the lines we bowed to the people as if they were giving us an ovation. For three hours we drove around the city, and then, returning to the hotel, found that fully two-thirds of the crowd had disappeared, the others still remaining to learn more of the wonder they had heard so much about—the balloon, and of that mysterious stranger whose marvelous descent from the heavens had so startled them and thoroughly aroused their curiosity.

These people were somewhat satisfied by my friends, and then we took breakfast, after which a couple of lawyers with the town officials having stepped in, they, the editor and Mr. Thomson asked a great many questions of me as to the purport of my journey, the distance traveled, the time occupied, etc.

My answers were not disputed, yet I could see while making my statement there was an unexpressed feeling of doubt, which was confirmed by the perfect silence which reigned when I had concluded.

Finally Mr. Thomson asked me if I could give them any tangible evidence that I had left Cincinnati the same morning that I landed at Pea Ridge, as it seemed to them all incredible that a trip of that distance could have been made in so short a time. I stated that I would pay the expenses of a telegram to Cincinnati and return if they desired or, what would perhaps answer their purpose just as well, was a sight of the "Cincinnati Commercial" which I had with me, that I had received wet from the press that morning just before my departure. The editor immediately exclaimed: "That will be proof sufficient if you show us that paper."

I said I had quite a number of the papers in one of my sandbags, packed away in the folds of the balloon. I had hidden them because the "Commercial" was considered in the South an abolition paper, and the penalty in South Carolina for distributing abolition documents being death I had thought it best not to show them.

At this suggestion they were all delighted, for it would not only prove the truth of the—to them—wonderful journey, but would also give them the latest news from the North, which they were all anxious to learn. They assisted me in getting out the package, and, as I drew out the papers still damp from the press they read the account already spoken of, and unanimously declared that was proof sufficient and that nothing further was necessary. From that time on I was an increased object of their wonder and admiration, and they all desired me to visit them at their

homes. One of the most cordial and pressing invitations came from Mr. Thomson that I would take dinner with him, so I accepted it and accompanied him to his home. It was the finest residence in the neighborhood, and his family one of the most pleasing and intelligent in the state. They informed me that their son had just raised a regiment and was on his way to Manassas Junction.

Mrs. Thomson took great pride in her garden, and invited me to see it with her. She showed me the lettuce, asparagus, radishes and other garden delicacies which she was growing for her son, which she explained she would send him, as well as eggs, chickens, fresh butter, etc., until the Southern army reached Washington. Then as it marched farther north, she had no doubt he would be able to capture all he would require. Poor lady! Like many other mothers she had great confidence—unfounded in this, as in many other cases—in her son's ability to go wherever he pleased.

There being no train out of Unionville on Sunday, I remained there the entire day, visiting the newspaper offices and other places. I also obtained a certificate of the hour and place of my landing, signed by several of the most prominent citizens, including all the gentlemen I have before named.

Next day I took the train for the North to enter into another series of most unexpected and exciting adventures.

With the balloon and instruments, I started for Washington by way of Columbia, S. C. The train had many refugees on board, together with Southern

troops and officers going north to join the army then forming in Virginia, but little of interest to me occurred until we entered the depot at Columbia.

I was surprised to see the great crowd assembled in and about the depot, but thought nothing of it, supposing that the attraction was the passing troops; so, picking up my barometer, which was in a long leathern case, I slung it across my back, and with both hands filled with instruments in cases, started up the depot to the baggage car, to have my balloon paraphernalia transferred to the next train, as in those days each railroad ran its own section, and each traveler was required to look after the transfer of his own baggage at the points of junction.

I soon heard exclamations such as: "There he goes!" "That 's the fellow with that gun on his back, and infernal machines in his hands!"

My long strides and hurried steps—for I had only a brief time in which to change cars and get my baggage transferred—were not sufficient to enable me to keep ahead of the crowd that was following me, and before I reached the baggage car I was stopped by a long black-bearded fellow, who held a revolver in his hand, tapping me on the shoulder, and informing me I was his prisoner. I immediately took in the situation, and asked him where he wished me to go. He gruffly replied: "To jail!" The crowd, by this time was rapidly growing, and cries of "Tar and feather the d—— Yankee," and similar expressions were heard, while some kindly-disposed spirits suggested that, "That 's too good for him; better hang him!"

As the crowd was surrounding us, and was disposed to be ugly, seeing a carriage close by I suggested we take it and ride to our destination. He agreed, if I would pay for it, so I invited him to take a ride with me. We jumped into the vehicle and were driven to the jail, the crowd running as fast as the carriage, evincing the deepest interest in our movements.

The people had evidently been informed from Unionville and other places of my strange and sudden appearance in the South, and my arrest had been ordered by the military and civil authorities. .

While riding to the jail, the sheriff was very sullen and not at all complimentary in his remarks. He stated that I had a great deal of assurance to dare to travel in the South at those times, and that "A d—— Yankee was known by his assurance at any time."

We soon arrived at the jail, and I heard the music of the big rusty key turning in the lock, opening the cell I was to occupy. It was of generous size and already had one occupant, as I could see at a glance. Many other of the cells were also filled, but all was silent as the grave.

But I was not to be incarcerated for long, as my case was the uppermost one in the minds of the officials. In less than fifteen minutes the mayor and councilmen appeared and I was taken into the jailer's large room for examination.

I stated to the mayor that I had gone through a satisfactory examination in Unionville, and that I was well-known by many people in Charleston, who were familiar with the objects of my aëronautic investiga-

tions, and I had no doubt there were gentlemen in Columbia who were familiar with my profession and the object of my work, and drawing from my pocket the certificate given me by the citizens of Unionville, I asked his consideration of it, together with the notice of my ascension in the "Cincinnati Commercial."

I was then asked by some one in the party if I was acquainted with the officers of the South Carolina College; I replied that I was not, but that I had often heard Professor Joseph Henry speak of the president of the college, and that as Professor Henry was my friend and co-worker, I presumed that if they would send for the president of their college they would be able to gain some information of me and my work from him. They sent at once for the president and faculty also, and soon we had quite a meeting of the educational and literary élite of South Carolina. The president and others of the faculty said they had read of my experiments with much interest, in this department of scientific work, and they verified my statements as to my association with Professor Henry.

Upon hearing this and other statements the whole party soon became more enthusiastic in my favor than the sheriff at first had been against me, and it was amusing to see the change come over him, both in countenance, expression and temper, as he sat and listened to the testimony which exonerated me of any dangerous intent. They then took a vote as to giving me my liberty, and it was unanimous in my favor, whereupon the mayor volunteered to give me what he called a

passport through the Confederate States of North America, which read as follows:

*Columbia, S. C., April 22, 1861.*

*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, Mayor.

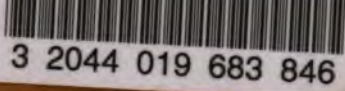
The crowd about the jail was now many times greater than it had been at Unionville, and the mayor feared trouble from the people who did not understand the situation. He suggested, therefore, that we take a walk through the streets of the city and visit the college and other interesting portions of the town. Taking his arm, we left the jail—to meet another astonished and disappointed crowd. The mayor and the officials of the college being exceedingly popular, the people made way, and no attempts were made to crowd upon us, as was the case when we were on our way from the jail to the station. It was soon noised about that my presence was perfectly satisfactory to the authorities, and the crowd dispersed.

We went to the hotel, as I had invited the mayor and the faculty to dinner with me. While we were dining, I took particular note of what was going on, as the many uniformed officers occupied tables near-by. My

companions were quite interested as well as interesting, so we continued our conversation for a little while, they accompanying me to my rooms, supposing that I should have no further annoyances.

I learned that I could not proceed farther north, the train I was on in the morning being the only one that would reach Washington, as the blockade of trains to the North had now been made complete at Manassas Junction. The only way to get back to Cincinnati, therefore, was to return by way of Louisville, Ky., and that train would not leave until the middle of the afternoon.

I then started on my four days' journey back to Cincinnati, the same journey I had taken, though in an opposite direction, in the balloon, in the brief space of less than nine hours; and these four days, while not so exciting as the one just past, were equally full of interest.



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