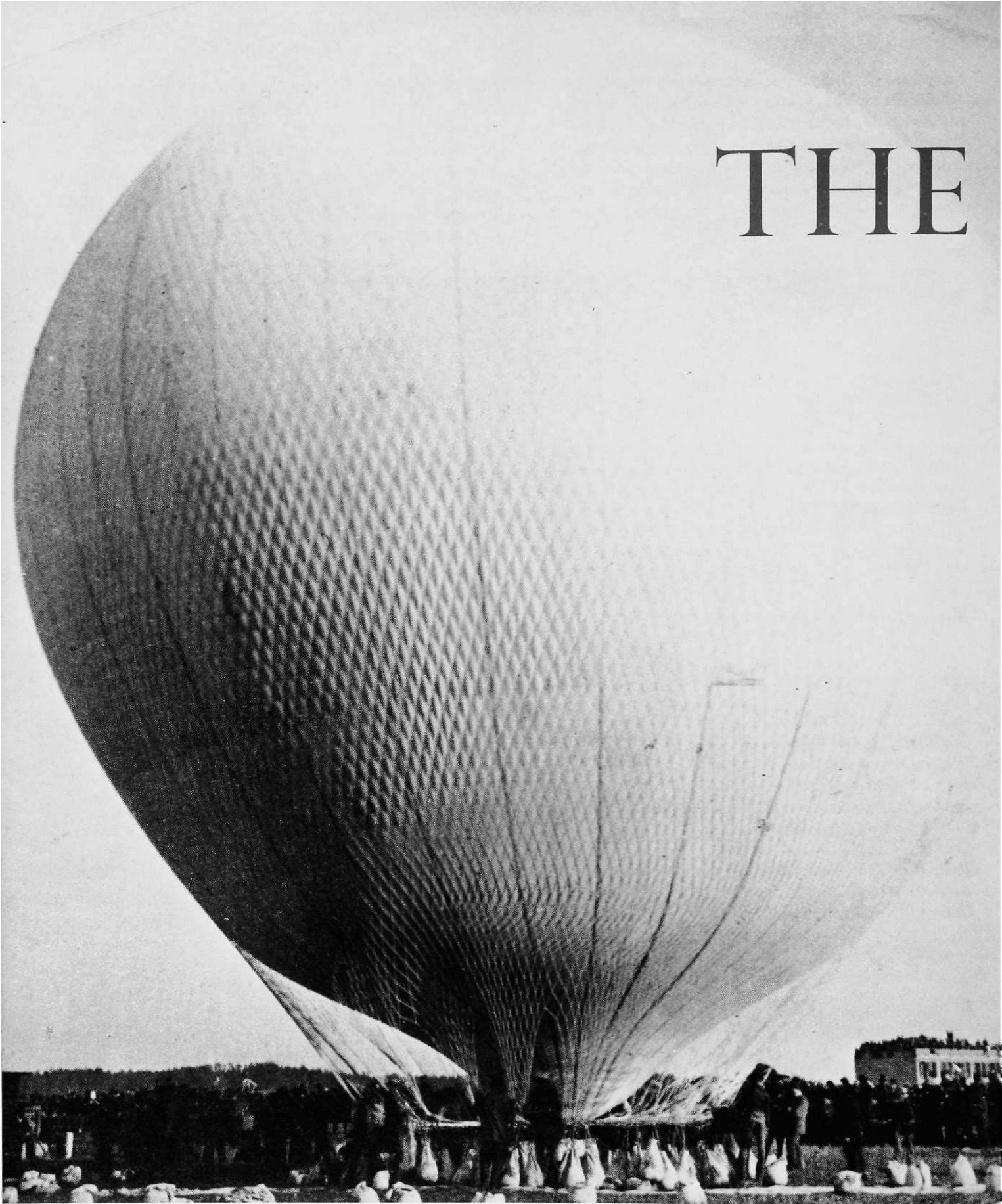


# THE



# BALLOON TO BOSTON

## *Samuel A. King and the "Great Northwest"*

Rhoda R. Gilman

THE RECENT color television program broadcast from the surface of the moon is not the world's first example of showmanship and science traveling hand in hand. Throughout the nineteenth century aeronautics was a curious blend of show business and genuine scientific investigation. The aeronauts themselves generally went by the title "professor," and though most of them were showmen pure and simple, there were a few who clung to the idea that man's toehold in the atmosphere would eventually lead the way to controlled human flight. Lacking any sort of sponsorship from government or industry, they parlayed carnival and Fourth of July ascensions into chances for trying new techniques and used the public entertainment value of balloons to get financial backing for scientific observations.

One of these dedicated men was Samuel Archer King, and nowhere was his shrewd use of show business to promote the increase of knowledge more clearly demonstrated than in a long-distance flight from Minneapolis to Boston that he attempted unsuccessfully in September, 1881. Born near Philadelphia in 1828, King had been a professional aeronaut from the age of twenty-three, and throughout his career he was a willing and often unpaid servant of science. He

experimented with the drag rope and is credited with introducing its use in the United States; in 1860 he piloted the balloon from which the first aerial photographs in America were made; and in the late 1860s he commenced a long association with the United States Army Signal Corps, carrying signal service observers on many flights for the purpose of taking weather readings.<sup>1</sup>

Like some other aeronauts of the time, he was convinced that a trans-Atlantic balloon crossing was possible, and it was with a view to testing west-east air currents that he proposed making a long-distance flight from the mid-continent to the East Coast. There was a theory that at a certain height a continuous and dependable eastward air current existed. None had yet found it, and King did not subscribe to the idea, but his experience with the Signal Corps had convinced him that there was an over-all easterly movement of the atmosphere. He reasoned that if a balloon were built with enough staying power to wait for favorable winds, long-distance journeys from west to east could be made by taking advantage of this general trend. Such flights would take place in a number of

---

<sup>1</sup> *Dictionary of American Biography*, 10:401 (New York, 1933); Jeremiah Milbank, Jr., *The First Century of Flight in America*, 142-146 (Princeton, N.J., 1943); Robert Doty, "Aloft With Balloon and Camera," in *Image*, 7:198-201 (November, 1958). The first government weather service was established as part of the Army Signal Corps in 1870, where it remained until the creation of the present weather bureau under the Department of Agriculture in 1890.

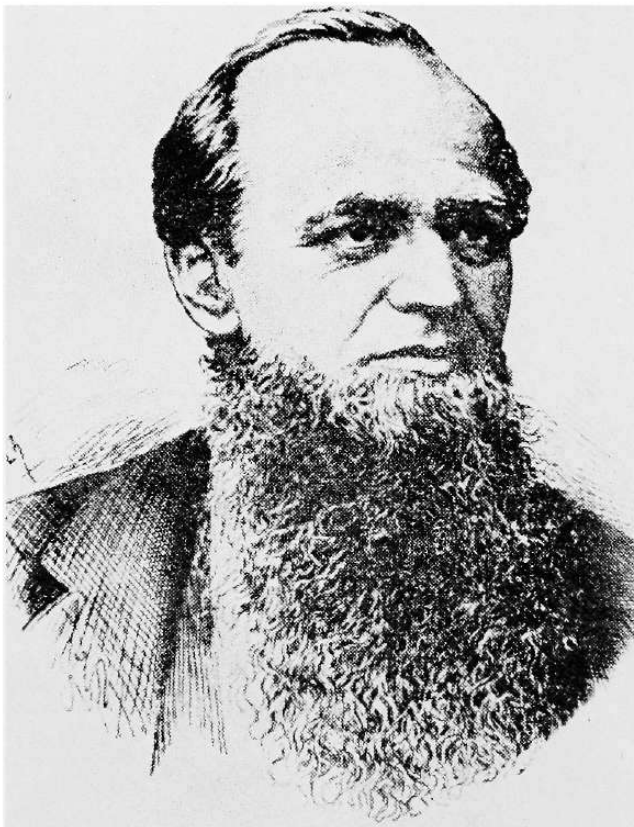
---

*Mrs. Gilman, assistant managing editor of the society, has contributed several articles on balloonists to Minnesota History. She is also the editor of Rufus Porter's A Yankee Inventor's Flying Ship (1969).*

*AT LEFT: "The Great Northwest," fully inflated*

hops, with delays depending on the weather. The key problem was keeping the balloon inflated for a period of days or weeks. King felt that he had the answer in three factors: an improved balloon fabric, inflation with pure hydrogen rather than coal gas, and the use of a drag rope to conserve both gas and ballast.<sup>2</sup>

An experiment would be costly, but the way appeared open to the aeronaut when he succeeded in striking a bargain with the imaginative and flamboyant Minnesota promoter William S. King (no relation). Among "Bill" King's numerous ventures was an annual fair held at Minneapolis in the late 1870s and early 1880s. Nominally sponsored by the Minnesota Agricultural and Mechanical Association, the Great Northwestern Exposition succeeded for a while in completely eclipsing the older Minnesota State Fair.<sup>3</sup> The exact terms of the agreement between the two Kings are not known, but the flight was billed as one of the main attractions of the 1881 exposition, and it drew nationwide attention to Minneapolis. The cost of putting the balloon up was guessed at between \$8,000 and \$10,000. Part of this may have been paid by the five newspapers that were to send reporters along; ap-



**SAMUEL ARCHER KING** (1828–1914), successor to John Wise as America's leading scientific aeronaut



**BILL KING'S** Great Northwestern Exposition of 1881

parently the United States government, represented by an astronomer from the Signal Corps, rode free. The balloon itself was the property of the aeronaut and was fabricated in Philadelphia under his careful supervision. However, christening it the "Great Northwest" was no doubt part of the bargain made with his Minnesota backers.<sup>4</sup>

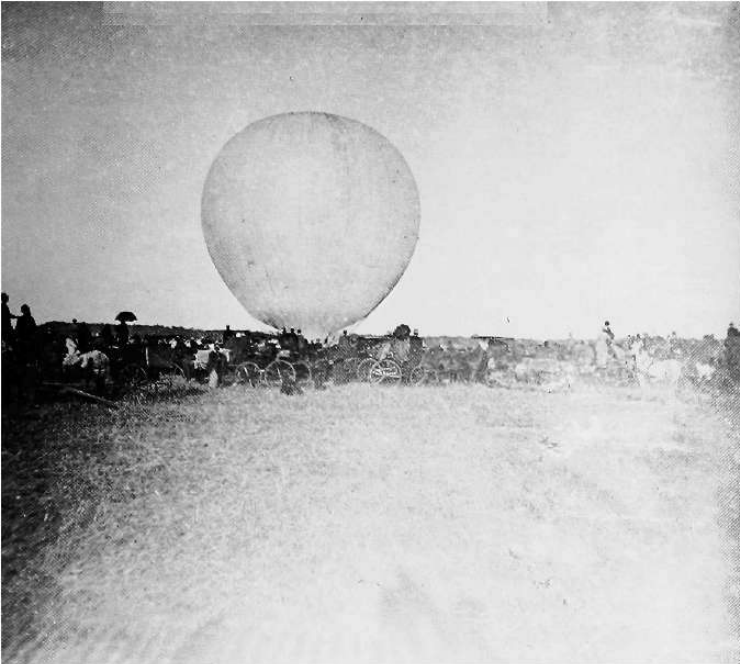
The North Star State had seen its first professional balloonist in 1863. During the 1870s ascensions by traveling performers had become commonplace at local fairs and celebrations. Some of these aeronauts

<sup>2</sup> What was probably an authorized statement of King's ideas appears in the *Boston Evening Journal*, September 3, 1881, p. 4. He was often misrepresented in the press. See, for example, the *Washington Post*, September 2, 1881, reprinted in the *New York Herald*, September 4, 1881, p. 8, which claims that King was a firm believer in "the much mooted eastern current." The existence of the high-altitude jet stream was not discovered until the mid-twentieth century, since it is far above the normal range of unpressurized balloons.

<sup>3</sup> [Ray P. Speer], *Minnesota State Fair: The History and Heritage of 100 Years*, 14 (n.p., 1964). In 1881 the Minnesota State Fair was held at Rochester.

<sup>4</sup> Full reports of the fair and the balloon flight appear in the *Minneapolis Tribune*, September 6–15, 1881, and in the *St. Paul and Minneapolis Pioneer Press*, September 6–13. Accounts of the flight were also carried by the *New York Herald*, September 4, 10, 14, and 17, and by the *Boston Evening Journal*, September 3, 12, 13, and 24. The *Journal* reports are the most complete and probably the most reliable, since their author, Luther L. Holden, was himself an experienced balloonist and a close friend of Samuel King. Unless otherwise noted, all details in this article are from one or more of the papers cited above. Quotations are separately identified.





*SPECTATORS watch the preparations for launching.*

*IN FLIGHT: 5:40 P.M. Monday, September 12, 1881*

added to the thrills through trapeze acts or parachute jumps, but no large balloons were used, and no long flights had been tried. The promised spectacle drew hundreds of people in addition to the crowds that normally came for the fair, and Twin Cities hotels were filled to overflowing.<sup>5</sup>

Reporters and curious strangers swarmed around Professor King when he appeared at the Nicollet Hotel early in the week of September 5–10. One of the writers described him as “A tall, thin man, slightly stooped; eyes blue as steel, forehead high — very high, in fact — upper lip clean-shaven, but firm cheek and chin and jowl, a very cataract of sun-browned beard dependent. A man who would not impress you greatly at first sight, but who grows upon you with his hearty earnestness and thorough good fellowship.”<sup>6</sup>

King had wide experience with the press, and with all his genial manner he took careful steps to protect himself. At nine o'clock on the morning of September 6 the seven-man crew met, and the members signed a public agreement to obey the aeronaut implicitly during the flight and to abide by any decision he might make concerning the length of the journey or the num-

ber of passengers. In addition to King, the adventurers were to include Winslow Upton of the Signal Corps, James Creelman of the *New York Herald*, Luther L. Holden of the *Boston Journal*, W. G. Nicholas of the *Chicago Times*, Edward R. Johnstone of the *St. Paul Pioneer Press*, and Charles M. Faye of the *Minneapolis Tribune*.

MEANWHILE at the fairgrounds on the south edge of town, near what is now Franklin Avenue and 24th Avenue South, the first signs of preparation for the flight could be seen. Close to the racecourse a broad section of field was fenced off, lying in easy view of the grandstand. There, sheet metal workers from the Batavia Wind Mill Company set up seven large black tanks for generating hydrogen. Each was seven and a half feet high by nine feet in diameter. Next day the balloon was unpacked and spread out on the grass “in a huge serpentine mass.”<sup>7</sup>

It had been announced that the flight would start on Wednesday, September 7, but two days of rain and heavy storms cut down so heavily on attendance that the main attractions, including the departure of the “Great Northwest,” were postponed until Friday. Those who did brave the sea of mud and the periodic downpours were treated to a series of ascensions in small balloons, for Bill King had hedged his bet and had also brought to the fair a well-known troupe of aeronauts managed by Carl E. Myers of Mohawk, New York. Among these the stiffest competition to Professor King came from Miss Pearl McBain, described by one reporter as an “exceedingly pretty and interesting blonde.” She made several short solo flights

<sup>5</sup> John H. Steiner, who made a series of tethered ascensions from St. Paul in August, 1863, was the first professional aeronaut to visit the state. The first balloon flights over Minnesota were made by William Markoe, a local citizen, in 1857. See Rhoda R. Gilman, “Zeppelin in Minnesota: A Study in Fact and Fable,” in *Minnesota History*, 39:280, 282–285 (Fall, 1965).

<sup>6</sup> *Pioneer Press*, September 7, 1881, p. 9.

<sup>7</sup> *Pioneer Press*, September 9, 1881, p. 2.

in a tiny basket and winsomely declared herself "so sorry" that she could not be one of the travelers in the "Great Northwest."<sup>8</sup>

Friday dawned clear, and hopes were high. The balloon had suffered no damage from its wetting, despite fears that it would mildew, and the professor and his crew were ready to go. But the necessities of show business prevailed. The fair's schedule was already so crowded that the flight was postponed until Saturday. On Saturday it rained again. The grounds were almost deserted, and all events were held over until the following Monday. The disappointed balloonists were not cheered by the fact that a steady northwest wind, blowing all day and into Sunday, would have carried them miles on their way had they been allowed to take off.

On Monday the "true climate of Minnesota," according to the *Pioneer Press*, at last asserted itself, and in the clear autumn sunshine preparations for launching went speedily forward. The seven big tanks had each been loaded with two tons of scrap iron, and they were now half filled with water. Into this a total of two carloads of sulphuric acid was poured. The hydrogen thus produced was purified by passing through small tanks filled with lime water and was then piped to the balloon through a hose of rubberized cloth. This cumbersome process accounted in large part for the high cost of the flight. Illuminating gas, which was ordinarily used in balloons at the time, was far cheaper but also less buoyant.<sup>9</sup> Inflated with hydrogen, the "Great Northwest" would have enough lifting power, King estimated, to continue its journey even if half its gas were lost.

To prevent leakage of the precious gas King had concocted a special rubber varnish with which he coated cotton cloth. Two layers of this were used throughout the bag, with three layers at the top. The balloon's capacity was 100,000 cubic feet, and when fully inflated it stood 60 feet high and measured 186 feet in circumference. A copper valve operated by springs and a rope was attached at the top. The whole balloon was enclosed in a netting of rope "about the size of ordinary clothesline" woven into eight-inch squares.<sup>10</sup> Sacks of sand were attached to this netting, and as the bubble of gas swelled inside the cloth, more sandbags were added, all being moved down a few meshes as necessary to let the balloon rise.

Around the outside of the basket just below the rim was fastened a long roll of canvas containing forty empty sealed cans. It was estimated that this device would support between 1,500 and 2,000 pounds in water, and each passenger was also equipped with his own life preserver.<sup>11</sup> Inside the basket were stowed

rations for two weeks and camping equipment totaling together some 450 pounds.

Upton's scientific instruments, including thermometers, hygrometers, aneroid barometers, and vertical anemometers, were mounted on a shelf attached to the edge of the basket. For seeing them at night he had a tiny electric light powered by a three-cell battery. This had been especially designed for the trip by Thomas A. Edison, who took "a great interest in Mr. King's experiment, and in the proposed meteorological observations."<sup>12</sup> Signal officers throughout the United States east of Dakota and north of Virginia were instructed to take hourly readings for eighteen hours after the balloon started. Upton was in constant touch by telegraph with the main office of the corps in Washington, receiving weather forecasts and reporting on his probable take-off time.

THROUGHOUT the early afternoon, horse races were held on the nearby track. When these ended, the crowd's interest turned to the balloon which was by then nearly inflated. Hundreds pressed against the fence. Those allowed within the magic enclosure were limited to the balloon's crew, their immediate friends, the press, and a few notables, such as Governor John S. Pillsbury, Congressman William D. Washburn, and St. Paul's Bishop Thomas L. Grace with "a number of his coadjutors."<sup>13</sup>

Excitement mounted as the basket was moved into

<sup>8</sup> *Pioneer Press*, September 9, 1881, p. 2.

<sup>9</sup> Three years later, in 1884, the first cylinders of compressed hydrogen were put into use in England. This technological breakthrough made inflation with the lighter gas more practical. Holden claimed that the "Great Northwest" was the largest balloon filled with hydrogen up to that time. See L. T. C. Rolt, *The Aeronauts: A History of Ballooning 1783-1903*, 179 (New York, 1966); *Boston Evening Journal*, September 3, 1881, p. 4.

<sup>10</sup> *Tribune*, September 13, 1881. There is some disagreement on the facts and figures concerning the balloon. The *Tribune* (September 13) and the *Pioneer Press* (September 7) agree on a capacity of 100,000 cubic feet; the *Boston Journal* (September 12) gives it as 98,000 cubic feet. The height of 60 feet is given by the *Pioneer Press* (September 13), but the *Tribune* of the same date gives 95 feet. This difference is reconciled by the *Boston Journal* (September 12), which specifies that the height of approximately 100 feet included the basket and rigging. The weight of the copper valve is given by the *Tribune* (September 13) as 400 pounds and by the *Boston Journal* (September 12) as 100 pounds.

<sup>11</sup> These special precautions were undoubtedly suggested by the recent drowning in Lake Michigan of two well-known aeronauts, Washington H. Donaldson in 1875 and John Wise in 1879. See Rolt, *The Aeronauts*, 144.

<sup>12</sup> *Boston Journal*, September 12, 1881, p. 2.

<sup>13</sup> *Tribune*, September 13, 1881, p. 6.

position under the towering canvas dome. The seven prospective travelers, dressed in blue flannel shirts and heavy suits, posed for a picture, then climbed in. If any were nervous they did not show it. A light north-west breeze that had blown in the morning had sunk to almost a dead calm — perfect weather to launch, except for a few clouds overhead threatening a small shower. The raindrops came, but they were hardly noticed by either the crowd or the balloonists as the moorings were cast off at precisely 5:39 P.M. and the craft rose majestically into the air. All observers agreed that it was a beautiful sight. The low clouds passed off to the east, and as the balloon soared higher, it caught the light of the sinking sun. The glowing white ball was reportedly seen as far away as Hudson, Wisconsin.

---

<sup>14</sup> These altitude figures were given by the *Pioneer Press* (September 13). According to the *Boston Journal* (September 24) the maximum height reached was 3,200 feet above sea level, or about 2,600 feet over Minneapolis.

From the *St. Paul and Minneapolis Pioneer Press*, September 13, 1881 —

"Then in the center of the vast field . . . rose a mighty dome, symmetrical, beautiful and wonderful. It rose like Aladdin's palace, and its white surface shone in the sun, while all about were standing a wondering throng, alternately watching its rising and graceful form, and the semi-circle of huge black tanks, from which came the unseen force that lifted it. . . . They waited with breathless expectancy, and hung about the inclosure that guarded the fragile appearing ship, watching every detail of preparation. . . . It was an interesting sight to watch the throbbing of the great artery that connected the tanks with the great white monster tugging at the numberless weights that held it down, and to observe the steadiness with which the cords had gradually to be lengthened, and when, finally, the inflation was complete, and the head of the great air ship towered sixty feet in the air, and the order was given for the basket to be moved into position, it was well nigh impossible to restrain the excited multitude within bounds.

"At five o'clock and forty minutes the bonds that held the tugging monster to the earth were loosened, and amid the cheers of the vast multitude and the waving of hands and handkerchiefs, it gradually left the earth and sailed away towards the clouds, making a picture of thrilling interest such as few ever have the privilege of seeing."

It rose to 3,000 feet then began to sink. Some ballast was released — a black stream of sand that looked from the ground almost like a rope being lowered. Again it rose, this time to some 4,200 feet, drifting gently off toward the southeast.<sup>14</sup> Not far from Minnehaha Falls it descended once more, gaining speed as it went down. King was anxious to conserve ballast and threw over the drag rope instead. The crew in its haste did not pay out the line smoothly, and part of it remained coiled, hanging in mid-air. Before more ballast could be cut loose the balloonists had passed through several treetops. Upton's observation shelf was torn off, but he had the presence of mind to rescue his precious instruments in time.

Relieved of another hundred pounds of ballast, the balloon bounced upward, giving the men time to haul in and untangle the rope. It was then let out again, and with part of the rope's weight resting on the ground, the tricky craft stabilized itself, drifting aimlessly in the still air just above the trees. They were on the eastern bank of the Mississippi, nearly across from Minnehaha Falls.

As dusk drew on and there seemed no prospect of further progress, King decided to land for the night. He called to a group of curious watchers that had gathered on the ground below, and by hauling on the rope they towed the balloon to a nearby cow pasture, where it was pulled down and fastened securely. The travelers found themselves on the farm of Rudolph Knopheide, near the present junction of Randolph Street and Mississippi River Boulevard, then some two miles from the southwestern city limit of St. Paul. Knopheide, who specialized in dairy cattle and fruit, had a large house and a hospitable disposition. He took in the whole party and entertained them royally, but spirits were low nevertheless. Nor did they improve at daybreak, when a fresh wind sprang up from the south and the sky clouded over.

All day long the would-be aeronauts watched the balloon in shifts as the wind increased and tossed the bag about mercilessly. By noon on Wednesday the gale had turned and was coming from the northwest, but high clouds were still scudding up from the south. The "Great Northwest" retained a good share of its gas, but unless the wind changed further, King feared that an attempt at flight would only land them in the north woods of Minnesota or Wisconsin. That night rain came again, and with it a full-scale storm out of the northwest. Although weighed down with nearly 6,000 pounds of sand and stone, and tied to trees and stumps by four heavy ropes, the balloon strained and heaved with such force that it often lifted the car entirely off the ground. The crew watched helplessly as





*BOSTON as seen from King's balloon in 1860 — the first aerial photograph made in the United States.*

the neck at the bottom of the bag, which had been tied shut to prevent loss of gas, was torn open, letting hydrogen rush out each time the wind laid the great bag over on its side. The stout fabric and rope netting held fast, but the two welded iron hoops that held the ropes beneath the balloon snapped under the pressure.

By Thursday morning half the gas was gone, and the wind was still increasing. King tried to deflate but found that the valve rope was tangled. A company of soldiers from nearby Fort Snelling volunteered to help

and joined the crew in trying to hold the balloon down by hanging to the netting. The wind whipped the bag up and down and the men were shaken off like so many puppies. At last the tugging on the valve rope tore a hole in the cloth, and slowly the monster subsided, sinking on its side until it lay across the trampled field, a soggy mass of rope and canvas.

Throughout the frustrating ordeal King remained calm and philosophical. Despite their humiliating position, he absolutely refused to endanger the lives of the party by trying the flight against his better judgment. With the expedition actually under way, he was in complete command, and the pressures of show business so far as he was concerned might be damned. Even the restive reporters credited his moral courage. It was a characteristic King displayed on a number of occasions, and it was no doubt responsible for the fact that before his death in 1914 he had attained the distinction of being the country's oldest living aeronaut.<sup>15</sup>

As for knowledge, the attempt had added little — unless, perhaps, it was confirmation of those skeptics who were convinced that no balloon had the staying power to survive the daily vicissitudes of weather, no matter what the over-all trend of wind currents might be. Public fascination with the airy playthings continued, and ballooning remained popular in show business and sport, but it was well into the twentieth century before Minnesota saw another attempt to put balloons to any genuine scientific use.

<sup>15</sup> Milbank, *First Century of Flight in America*, 142, 145.

THE PHOTOGRAPH on page 16 is by H. R. Farr, and the three balloon photos on 18 and 19 are by W. H. Jacoby. All are from the picture collection of the Minnesota Historical Society. The portrait of King is reproduced from Jeremiah Milbank, Jr., *The First Century of Flight in America*, and the photograph above is from the Library of Congress.



Copyright of **Minnesota History** is the property of the Minnesota Historical Society and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. Users may print, download, or email articles, however, for individual use.

To request permission for educational or commercial use, [contact us](#).