

JOHN JOSEPH MONTGOMERY

HIS LIFE IN BRIEF

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MONTGOME

A Research Paper

Presented to

The California Pioneers of Santa Clara Valley

by

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For errors in interpretation and fact in this paper, the author claims complete responsibility.

John Joseph Montgomery was born at Yuba City, California, February 15, 1858. He was the son of Zacharia and Ellen Montgomery, a family of comfortable but not excessive means. His father was a lawyer by occupation and when better opportunities presented themselves in Oakland, California in 1863, the family moved to John's grandmother's farm, near Oakland.

From early youth, John had an active and curious mind. It is reported that he spent many hours studying the flights and hopping of birds and farmyard fowl,¹ but little is actually known of these early years of Montgomery's life. In 1874, John enrolled at Santa Clara College and spent one year studying under Father Kenna. Although not taking science courses, Montgomery showed an interest in the experiments carried on by the science classes and spent much of his time in the laboratories observing their work.

After Montgomery's one year at Santa Clara, he completed his formal education at St. Ignatius College in San Francisco. It was there that Montgomery began to pursue a

¹Various sources have noted that John would lie on his back beside a fence and have his sisters drive his grandmother's chickens over the fence so he could watch how they flapped their wings. His experiments ended, however, when his grandmother, concerned about the flying ability of her chickens, clipped their wings.

Edwin Way Teale, The Book of Gliders (New York: E. P. Dutton & Co., Inc., 1930), p. 16.

study of the sciences. During his first two years, his main interests were astronomy and flight² but his attention soon shifted to experiments being conducted by Father Neri in the field of electricity. John participated in many of the basic studies upon a new machine called the "Alliance," the forerunner of the dynamo, and he was present in downtown San Francisco when Father Neri performed his experiments with electric arc lights.

In 1879 John graduated from St. Ignatius with his interest in flight and electricity still in its infancy. It was probably unfortunate that Zacharia Montgomery chose this time to again move his family, for John could have used the guiding hands of his friends at both Santa Clara and

²The following paragraph was written by Father D. J. Kavanaugh, a Professor at Santa Clara College, in 1905. He knew Montgomery for a number of years and is reported to have spent many hours conversing with him about his theories on flight.

On one occasion an experiment of lasting influence was performed. Young Montgomery found a piece of sheet-iron, curved in a peculiar way at one end. He threw it from him and noticed it gliding through the air. Suddenly while nearing the ground, it struck a weed and in striking changed its position. The result was that it paused for a moment and then ascending to a considerable height made an almost complete circle and falling with great force struck and held fast to a tree. The manner of its rising and its subsequent motion appealed to the curiosity of the youth and he concluded that there was something there which was not fully understood and he determined in youthful earnestness to solve the mystery.

Kavanaugh, Dennis J., "The Story of the Aeroplane," in The Aeroplane, edited and published by the Aeroplane Advertising Co., Santa Clara, California, 1905?, p. 19.

St. Ignatius. But in 1879, the Montgomery family moved to a small 80 acre farm at Fruitland, in Otay Valley, near San Diego, where John's father opened a law office. John was then 21 years old, and it was the job of him and his older brother James to care for the farm.³ His spare time, however, was devoted to his two special interests, and to further his studies he built a combination laboratory and workshop in a shed connected to the barn.

It was during his first three years at Otay that John began in earnest his studies of aviation. Graduating from the study of birds in flight, John began to shoot various types of birds so that he could study the structure of their bodies and wings in order to determine the principle that made flight possible. From 1880 to 1883, John shot pigeons, pelicans, sea-gulls and many other types of birds, mounted them, and studied the relationship between wing spread and weight, wing curvature, the bones that braced them, and attachment of the wing to the body.⁴

Encouraged by his findings, he began to construct small gliders to test his theories. His main goal, throughout his experiments, was to construct a glider that could

³John held a job in a local grocery store for a short time but lost his job because he could not keep his mind on clerking. He gained the reputation of being slightly crazy from the drawings, diagrams, and calculations concerning birds which he drew on wrapping paper.

"First Man to Fly," Air Trails, XXIV (May, 1945), p. 28. Varsi Library Collection.

⁴Teale, op. cit., p. 18.

sustain the weight of man in flight. His first attempt at flight was in 1883 with a wing-flapping machine.⁵ Having no success with this invention, he concluded that the principle of flight was not embodied in the motion of the birds' wings. He thereupon determined he must overcome certain basic problems before he could again attempt actual flight, and began to lay plans for the construction of a glider which would bear the weight of a man. Continuing to base his studies upon the anatomy of birds, especially the sea gull, he found that the most difficult problem to overcome was that of equilibrium and balance.⁶

In the fall of 1883 or the spring of 1884, Montgomery constructed a glider which he considered large enough to carry a man.⁷ The glider was constructed with curved wings

5. . . (the) wing flapping contrivance (was) built on the idea that a man with muscular effort could rise from the ground. He succeeded in flapping, as might be expected, but rise he could not; something else was necessary, and he accordingly constructed a double-winged concern, with the idea of alternate flapping; but it, too, failed, and he had to begin anew.

Kavanaugh, loc. cit., p. 21.

⁶Regina Clary Montgomery, et. al. vs the United States., p. 67. (Hereafter cited as Montgomery, et. al.).

⁷James Montgomery set the year of the flight as 1883 with the following statement:

The year 1883 was a dry year and the crops were poor. . . . John was managing the ranch while Dad (Zacharia Montgomery . . .) ran his law office in San Diego. There wasn't much for John to do that summer because of the crop failure, and he spent a lot of time working on the

like the sea gull's. Montgomery had steamed some thin ashwood sticks of about four-and-a-half feet in length until they could be easily curved. These formed the ribs which were attached to two large ashwood crossbeams extending the full twelve feet of the wingspread. The wing was covered with unbleached muslin which was sewn on by John's sister, Jane. The fuselage of the structure consisted of three ashwood beams: two beams placed parallel to which the wings were attached, and the other centered and placed a bit lower with a small saddle for Montgomery. The tail of the glider was half moon shaped and movable, and controlled by a cord to give it the effect of a rudder. Montgomery hoped that he could steer and balance the machine himself by leaning his body to the right or left. The entire machine weighed no more than forty pounds.⁸

Fearing the ridicule of his neighbors, Montgomery decided to test the plane in the early morning hours away

glider.

Article from LaFayette Courier, October 14, 1944.
Varsi Library Collection.

This date is further substantiated by a letter from Jane Montgomery to Father Bolen of Santa Clara, thanking him for his letter fixing the date of James' matriculation at Santa Clara as August, 1884. This means the flight had to be made prior to August, 1884, as James participated in the historic event.

Letter from Jane F. Montgomery to Father Boland, October 15, 1944. Montgomery Collection.

⁸Winsor Josselyn, "He Flew in 1883," Harpers (June, 1940), p. 30. Montgomery, et. al., p. 36.

from curious eyes. On the appointed day (the day cannot be more closely fixed than late 1883), John and his brother James put the glider on the back of their hay wagon and drove a few miles to a small hill overlooking the Otay Valley. The terrain sloped down sharply for 20 feet. The glider was set upright away from the edge of the hill and a rope was attached to the front. James was instructed to run down the hill pulling the rope at the first sign of a breeze. When the breeze came, James ran, pulling the glider, while John also ran, holding it up. At the edge of the hill James fell, releasing the rope, and John ran off the edge and soared out over the valley. When he alighted he had soared 600 feet from the point of take-off.⁹ Several more flights were made until, on one attempt, the rope fouled and the glider crashed, damaging it beyond immediate repair.

With this initial success, Montgomery conducted two other glider experiments: the first was with a flat winged glider and the second had the wings pivoted at the body. Both experiments were unsuccessful. Again Montgomery decided that he must learn more about the principles governing flight, especially the relationship between wing surfaces and air.¹⁰

⁹James said they paced this distance immediately after the flight. Josselyn, loc. cit., p. 31.

¹⁰Montgomery had in mind patenting his successful machine of 1883, for he wrote his brother James, who was

Little is known of Montgomery's activities between 1885 and 1893, although it is clear that he continued his studies on flight. In a letter to his sister, Jane, dated December 23, 1885, he wrote:

. . . My attention is still fixed on my flying machine and I am getting along fast enough to suit myself. Since I last wrote you, I have performed hundreds of experiments and discovered some important facts and laws My theory from the beginning has not changed, maybe at first it was not by any means as clear as now, but the difficulty I have encountered is to combine the proper mechanical principles to work out this theory. . . .¹¹

He went on to state that he was engaged in building a "large machine" with which to test his theories.

Along with his work upon the glider, Montgomery experimented with electrical devices. In 1883, at approximately the same time as he was finishing his glider, he also finished constructing a small dynamo. His hopes for its future were shattered, however, when he read an article describing the completion of the exact same machine in the east. Montgomery, it is reported, became so angry that he

in Washington, a letter on September 7, 1886, asking him to ascertain the costs and procedure for obtaining a patent. In the letter he "expressed apprehension that someone would get advantage of him in the discovering of aerial navigation and completing the subject" and for that reason he wanted inquiries made.

His brother obtained the desired information and the only apparent reason for failing to file for a patent at this time was lack of finance.

Teale, op. cit. Montgomery, et. al., pp. 49 and 51.

¹¹Letter from John J. Montgomery to Jane Montgomery, December 23, 1885. Montgomery Collection.

picked up a hammer and smashed his own machine.¹²

In 1886, John's father was appointed Assistant Attorney General of the United States and most of the family moved to Washington, D. C., leaving John and his two brothers in charge of the ranch. It was during the six years his father was in Washington that John learned the basic principles behind gliding flight. His activities centered about three sets of experiments which he ran over and over again.¹³

The first experiment studied the movements of the wind when striking a plane. By sprinkling light down in a breeze moving from five to ten miles an hour, the direction of the wind, as it hit the edge of the plane (which was changed to form various angles) could be noted.

The second experiment studied the movements of a gentle draft against a plane.

Small metallic planes--the largest four inches square--were placed in a draft regulated at will and a beam of light, from a heliostat, used to light up the floating dust particles which in the darkness revealed their slightest movements. As these approached the plane the changes already mentioned were noticed. . . .¹⁴

¹²The article appeared in the Scientific American. Montgomery, et. al., p. 63.

¹³These experiments are fully described in a paper Montgomery read before the Conference of Aerial Navigation at Chicago in 1893. One comment by Montgomery is most perplexing because he states "about six years ago I discontinued temporarily a course of study on the flight of birds and the laws relating thereto, after having pursued it for a number of years in a rather isolated place." He nowhere mentioned the flight of 1883 or even the construction of a glider.

Cited in Aeronautics, July, 1894, p.94. Montgomery Collection.

¹⁴Ibid.

In the third experiment, metallic plane surfaces were placed at various angles in currents of water and the movements were observed by means of dust scattered on the surface of a fibre of silk attached to a slender wire which was used as a flag.

The dust revealed the general motions, while the flag served the purpose of examining more carefully the direction of motion in any particular portion. The same phenomena shown by air currents were noticed in these experiments, the great difference in the elasticity of the two media having no appreciable effect in the general results.¹⁵

Montgomery drew three important conclusions from these experiments: first, that a plane deflecting a fluid current produces a wave which crests directly above the plane, and therefore, all particles approaching the plane ascend and all particles leaving the plane descend; second, that the structure best suited to receiving and utilizing air currents "is one having a gradually increasing curvature from the rear to the front edge;" and lastly, that the curvature of this surface "is dependent on the relation of weight to the surface and the length of the surface to its breadth."¹⁶

He presented these ideas to the Conference of Aerial Navigation at Chicago in 1893. It was on this occasion that Montgomery met Octave Chanute,¹⁷ a successful Chicago

¹⁵Ibid., p. 127. ¹⁶Ibid., p. 128.

¹⁷Octave Chanute was a wealthy man, with a great interest in flight. He spent many years exchanging correspondence between the various experimenters in aviation and directly aided the Wright brothers in their successful efforts from 1900 to 1905.

engineer. Chanute discussed various principles of flight with Montgomery and became very interested in his work. He suggested that Montgomery continue his research and keep him notified of his success.¹⁸

When Montgomery left the Conference he was again enthused about the possibilities of further developing his ideas, but he quickly ran into the same problem which was to plague him throughout his life--financing. Being totally without funds, he secured a teaching position at Mount St. Joseph's College at Rhonerville, in Humboldt County, California. Although this job afforded temporary financial security, it indirectly caused him the loss of his one great opportunity to develop his glider along practical lines.

¹⁸In a letter to his sister Jane, written at the Chicago Conference, Montgomery said,

The scientist here who first took an interest in me is writing a work on the question of flying and wants to publish my experiments and has requested me to give him a written account of them. He also wants me to write an article for publication on the various scientific problems and the theories involved.

And then Montgomery continued with a comment which again sheds very revealing light upon his cautious character, but which, as I will later show, directly cost him the fame which he so earnestly desired. He said,

. . . I am convinced more than ever that it is better for me while being associated with scientific men to carry on my work by myself for I see that my mind is just as far in regions of the unknown world searching every dark cavern for treasure of knowledge as theirs are.

Letter from John J. Montgomery to Jane Montgomery, August 25, 1893. Montgomery Collection.

Early in 1894, Chanute had written to Montgomery stating that he was willing to help him further his experiments. For an unknown reason (possibly his hyper-cautiousness concerning other scientists), he refused Chanute's aid, simply stating he was not at that time in a position to resume his experiments on sailing flight.¹⁹

Montgomery spent about three years at Mount St. Josephs, returning to Santa Clara to take a position as an instructor in 1896. He set up a work shop located to the rear of the present college library and began to build small models of a new glider. In 1896, at the invitation of a fellow professor at Santa Clara, James E. Leonard, Montgomery began experiments at the Leonard ranch near Santa Cruz, California. At various times from 1896 to 1903, Montgomery tested all his theories in anticipation of

¹⁹Montgomery had sent his reply to Chanute March 18, 1894, and shortly thereafter--August 30, 1894--he wrote his sister the following:

If I can complete my work in time to publish it before others have discovered the law [he does not explain what law], it will be worthy of all my years of labor and study. Since I have formulated my ideas, there is not a day passes, but I make one or more discoveries concerning the motion of fluids. I have really gotten into a harvest of discovery.

It is evident, therefore, that Montgomery was still actively experimenting in flight and must have had some other reason for refusing Chanute's offer--possibly suspicion that Chanute, already well-recognized, would receive the fruits of any success they might have.

Letter from John J. Montgomery to Jane Montgomery, St. Joseph's College, August 30, 1894. Montgomery Collection.

building a glider large enough to carry a man.²⁰ His tests at Leonard's consisted of flying his gliders from a railroad trestle down a narrow canyon. By using adjustable wings and tail, he was able to make the glider turn and dip depending upon the strength of the wind. Montgomery's main purpose during these experiments was to develop a plane which would right itself under all conditions--equilibrium was his greatest concern.

During this period from 1896 to 1903, Montgomery was relieved of personal financial worries by his teaching job at Santa Clara. However, he still lacked the funds to exploit his flying machine. In March of 1904, Montgomery shared in the success of Father Bell of Santa Clara, who had constructed a successful system of wireless telegraphy.²¹ These activities in electrical research cannot be neglected as they formed an important part of Montgomery's life. At various times at Santa Clara, Montgomery even worked on a machine designed to sift gold from sand, in hopes that this invention might bring him vast wealth. But these activities were only secondary to his main interest--that of his plane.

In 1903, Montgomery met a man named Baldwin who gave public balloon exhibitions and who approached Montgomery with a business agreement to demonstrate his glider. To

²⁰Montgomery, et. al., p. 323.

²¹San Francisco Call, March 6, 1904, p. 35.

finish his experiments quickly so he could take advantage of Baldwin's offer, Montgomery again went to Leonard's ranch at Santa Cruz. The tests were conducted during December of 1903, and were successful. Montgomery came back from the tests convinced that he had solved the problem of perfect equilibrium.²² In April of 1904, Montgomery and Baldwin came to an agreement and signed contracts by which Montgomery agreed to exhibit his glider under Baldwin's management.²³

Montgomery, assuming his secrets safe with Baldwin, had shown him the construction of his glider prior to his Santa Cruz tests. But while Montgomery was at Santa Cruz, Baldwin had gone to Los Angeles and made plans for the construction of a glider of his own. In July of 1905, Montgomery found out about Baldwin's plane and further

²²Montgomery had strung a wire across a narrow valley between two high poles and had commenced dropping the planes from the wire. The wire was about 100 feet above the ground and the gliders were hoisted up by means of a pulley at the center of the wire. Montgomery sometimes weighted the gliders with sand and released them "in all possible positions, in an erect position, on their backs, from the head, the tail and from the tip of the wing and in every instance they would turn like a cat, then curve sailing down beautifully."

Ibid.

²³Montgomery wrote his brother James, on May 15, 1904, explaining the entire agreement and expressing great hope for financial success. Montgomery optimistically quoted Baldwin as having said, ". . . If the big machine will do half as well as the small ones we can clear over one hundred thousand dollars the first year."

Letter from John J. Montgomery to James Montgomery, May 15, 1904. Montgomery Collection.

learned that Baldwin had written several articles for New York newspapers using his (Montgomery's) own ideas. Montgomery immediately began two legal actions; the first to prevent Baldwin from using the plane or any of Montgomery's ideas, and the second to force him to comply with the terms of the contract into which they had entered.²⁴

During 1904, Montgomery was also corresponding with Fred W. Swanton, a concessioner at Santa Cruz, who wished to exhibit Montgomery's glider. Mr. Swanton had originally been contacted by one of the Leonard brothers, who asked him if he would finance some Montgomery tests.²⁵ Swanton felt that the glider might prove to be an attraction to the beach so he wrote Montgomery in January, 1905, to determine if Montgomery were interested. Montgomery showed definite interest as he was in need of financing and wanted to try his large glider. They agreed to test the machine in March of that year, before the tourists arrived.

Montgomery disassembled his glider at Santa Clara, boxed it and took it to Santa Cruz. Swanton had previously engaged an aeronaut by the name of Maloney to test the glider, and they proceeded to move a balloon to Leonard's ranch where they met Montgomery. Three actual flights took place at Leonard's ranch in March of 1905, and all were

²⁴San Francisco Examiner, May 31, 1905, p. 1.

²⁵Montgomery, et. al., p. 348.

successful. The first flight was made on March 16,²⁶ and was marked because Maloney became frightened upon releasing himself from the balloon (at 800 feet), and was not in control of the glider.²⁷ The plane soared to earth by itself, however, and proved that Montgomery had solved the problem of equilibrium. The tests of the eighteenth and twentieth of March were made from heights of 2500 and 3000 feet and Maloney was then in complete control.²⁸

Immediately following the March experiments, Montgomery returned to Santa Clara with Maloney and the owner of the balloon, a man named Hamilton. Apparently John had been enticed away from Mr. Swanton by the promise of greater profits from exhibiting the glider in various towns and charging admission.

²⁶The date of this first flight is fixed by a telegram from John to his brother Richard. The telegram was sent from Aptos, California, March 16, 1905, and said: "Experiment successful. Aeronaut descended 500 feet in large circles. John."

Montgomery, et. al., p. 85. Also Montgomery Collection.

²⁷The balloon lifting the glider was filled with hot air from a mixture of burning gasoline and coal oil. The hot air was carried into the balloon through a long trench which led from the fire pit. The glider was placed to one side with a rope attached to the balloon. The balloon was held down by a windlass and when it was fully inflated it was swung over the glider and then released slowly to prevent damage to the plane. The rope leading from the glider to the balloon was fixed with a trigger mechanism so that the aeronaut could release it whenever he desired.

²⁸Montgomery, et. al., pp. 349, 303. Also see Richard H. Bell, "The Success of March 18th," in The Aeroplane, edited and published by the Aeroplane Advertising Co., Santa Clara, California, 1905?, p. 25.

On March 25 and 26, the San Francisco Bulletin ran feature articles on Montgomery, publicizing his success at Leonard's and noting that an Exhibition was to take place on the Santa Clara College grounds on April 29. Before a large crowd of college officials and newspaper reporters, the glider (appropriately named the "Santa Clara") was demonstrated as it had been five weeks before at Leonard's.²⁹

Montgomery, at the urging of reporters, made certain comments of importance following this flight. He said that

. . . this is not a complete flying machine, but only a first step. The problem naturally divides itself into three parts: first, equilibrium and guidance; second, continuance of flight; third, rising from the ground.³⁰

Montgomery was aware of the use of powered flight to lift a plane from the ground, but this he felt to be of secondary importance to gaining equilibrium once in the air.

On May 23, 1905, Montgomery gave a public demonstration of his glider at San Jose, near present Race Street. Two attempts were made by Maloney that day, but both were unsuccessful. The first glider, lifted by the balloon, jerked loose at 150 feet and Maloney glided straight to the ground. Montgomery had brought another glider for display

²⁹The demonstration apparently took on the appearance of a sideshow. The ascent was made at about 11 o'clock in the morning and Maloney had come dressed in multicolor tights. The whole day had actually been titled President's Day, in honor of Father Kenna, and the flight was added for the enjoyment of those gathered for the festivities.

San Francisco Bulletin, April 29, 1905, p. 1.

³⁰San Francisco Examiner, April 30, 1905, p. 23.

purposes, and this was immediately commissioned for the second ascent. But as Maloney gained an altitude of a thousand feet he noticed bolts were loose and wires were twisted and so he rode with the balloon until it returned to the ground, some forty-five minutes later.³¹

Following the success of his April flights, Montgomery immediately filed for a patent upon his invention. Embodied in the patent was the design of the 1903-1905 glider, which was essentially the same as that of 1884. Montgomery's patent claimed

. . . an aeroplane device, comprising plural aeroplanes, one in advance of another, with means for changing the surface of each, and means for varying the angle of one relative to another, each of said aeroplanes being curved parabolically from front to rear.³²

It is interesting to note that the Wright brothers had applied for a patent on March 23, 1903 and stated that their machine was "a normally flat aeroplane."³³

Patents were issued to both inventors in 1906, the

³¹Montgomery asserted on this same day that it had been Baldwin who had tampered with the plane, but this was never proven.

San Francisco Examiner, May 31, 1905, p. 1.

³²Victor Loughheed, Vehicles of the Air (3d ed. rev.; Chicago: The Reilly and Britton Co., 1911), p. 461.

³³The Wright Brothers clearly stated: "we have used the term 'aeroplane' to indicate the supporting-surface or supporting surfaces by means of which the machine is sustained in the air, and by this term we wish to be understood as including any suitable supporting surface which normally is substantially flat. . . ."

Ibid., p. 455.

Wrights receiving theirs in May and Montgomery his in September. In later years, the differences I have noted in the patents were to take on great significance in the courts. Montgomery, himself, in 1911, was making plans for a suit against the Wright's for infringement of his patent when his action was cut short by death. In 1919, Montgomery heirs began a suit against the United States for having signed contracts with the Wright brothers for planes based upon the Montgomery patent. Although the case went through the courts, the Montgomery claim was not allowed.

During 1905, Chanute resumed his correspondence with Montgomery. Having read about his successful March and April flights, he was eager to get a first-hand account of the details. But Montgomery, even more cautious than in 1894, sent him no information.

Encouraged by the success of the May flights, Montgomery began to put on exhibitions in the San Francisco area, hoping to finance further experiments--possibly the addition of a motor. But all of his plans were ruined when, on July 18, Maloney was killed at a demonstration before some army personnel. Apparently the glider was not at fault. When the balloon had lifted the plane into the air, the rope holding the machine had become tangled with one of the struts, and when Maloney cut loose from the ballon the strut bent, leaving Maloney with no control over the plane and it

plunged to earth.

Montgomery, shocked by Maloney's death and without another aeronaut to carry on the demonstrations, discontinued them until 1906. In January, 1906,³⁴ Montgomery again constructed a glider which was demonstrated at Idora Park, Oakland, California, by a young man named Wilkie.³⁵ But all hopes for further flights ended with the earthquake of April 18, which destroyed not only his gliders but also his entire workshop, and for the next five years Montgomery worked on other inventions and taught classes at Santa Clara.³⁶

During the years from 1905 to 1911 Montgomery also began a correspondence with Victor Lougheed, an engineer residing in Chicago. In 1907, Lougheed came to California, met Montgomery and expressed a desire to test his glider with the hope that he might interest someone in financing powered flight with it. In 1910, Montgomery and Lougheed

³⁴Letter from Octave Chanute to John J. Montgomery, February 16, 1906. Montgomery Collection. Also see Montgomery, et. al., p. 84.

³⁵Marvin W. McFarland, The Papers of Wilbur and Orville Wright (New York: McGraw-Hill Book Co., Inc., 1953), I, p. 485n.

³⁶In a letter to his brother James on May 8, 1906, he said:

. . . I was getting things in fine shape for the summer exhibitions and intended to give some flights this month but the earthquake and the destruction of S. F. has upset everything. . . .

He then went on to say that the respite had afforded him more time to work on his gold extracting machine, which he had begun in 1904.

Letter from John J. Montgomery to James Montgomery, May 8, 1906. Montgomery Collection.

signed a contract whereby Montgomery supplied his theories and an actual plane, while Loughheed provided the financing for experiments with the hope that a motor might be attached. But Loughheed defaulted on his obligations. By January, 1911, he had gone no further than running basic experiments as to the lift and drift of the glider, and so Montgomery cancelled the contract.³⁷

Montgomery was undoubtedly motivated at this time by experiments he himself was carrying on at Evergreen, California. In March, 1911, he had begun the construction of a new plane which he hoped would prove capable of powered flight. In an interesting article which appeared in the San Francisco Call on January 3, 1911, it was stated that Montgomery was working on powered flights in southern California. The article quoted Montgomery as having said,

I solved the problem of equilibrium here in 1905, and now am devoting myself to the problem of motive power for aircraft. You know that aeroplanes now used have no power of equilibrium in themselves, but depend upon the aviator for maintaining the equilibrium. Now, through my experiments an aeroplane can maintain its equilibrium of itself, mechanically, and the aviator merely assists and directs.³⁸

Following this article, Montgomery became involved in extensive litigation concerning an electric rectifier which he had invented and patented. The twenty-one day trial proved that the invention belonged to Montgomery exclusively,

³⁷Loughheed, op. cit., pp. 193-213.

³⁸San Francisco Call, January 3, 1911, p. 3.

but it also held up his flight experiments of that year until May 27.³⁹

With the help of a man by the name of Joseph Vierra, Montgomery added a steering wheel control system. This wheel adjusted the wings much as modern flaps are operated, allowing the plane to ascend or descend.

On about October 15, John, his wife Regina,⁴⁰ Cornelius Reinhardt, and Joseph Vierra took the plane to a spot about twelve miles southeast of San Jose, called Evergreen. Here they set up a small camp and built a downhill runway for the glider, which had been equipped with baby carriage wheels for the tests. Over a period of about two weeks, Montgomery and Vierra tested the machine, in flight, fifty times with marked success. But on October 31 Montgomery met with an accident. He had taken off in the early morning at about 9 o'clock, with the intention of checking the plane's equilibrium one last time before returning it to Santa Clara. At a height of about twenty feet, a sudden gust of wind caught the plane and lifted it on end. John lost control and the machine sideslipped, crashing to the ground on the right wing. Montgomery's head hit one of the bolts which secured the wing, and although he remained conscious for

³⁹San Jose Mercury, February-May, 1911.

⁴⁰John had married Regina F. Cleary, a girl he had known all of his life, on June 30, 1910.

three hours, the blow proved fatal.⁴¹

It is only fitting that a few observations should be made concerning Montgomery's contributions to the field of aviation. Most authors who have bothered to comment on Montgomery at all have dismissed him by simply mentioning that he was reputed to have flown in 1883 or 1884. But the material which has gradually turned up since his death indicates that Montgomery's significance should not be based solely upon this early flight. What, then, was his significance?

I believe it is safe to say that Montgomery deserves the title of "Father of Gliding," on the basis of his 1883-1884 flight. In May, 1909, the Austrian Flying Technical Society sent a copy of an article in their journal to Montgomery in which they stated that after extensive research, they had determined that he, and not Otto Lilienthal, was the first man to "master aerial navigation in the world."⁴²

Next, he should receive credit for his experiments in aerodynamics in the late 1880's. His studies of air and water currents led directly to his success in aeronautics in the use of cambered wing surfaces.

⁴¹San Francisco Examiner, November 1, 1911, p. 1.
See also the San Jose Mercury, November 1, 1911, p. 1.

⁴²San Francisco Examiner, May 16, 1909, p. 40.

And, finally, Montgomery himself, as a man, must receive credit for his unceasing efforts, regardless of the motives, to achieve successful sustained flight.

Montgomery was, perhaps, his own worst enemy. He left no records, although essential to a scientist, from which historians might piece his life's story. Unlike the Wright brothers and other inventors, he left very little correspondence and few papers noting his theories. Although he desired recognition, his overwhelming cautiousness and jealous guarding of his secrets, and his desire to produce his invention first, and alone, made his recognition an impossibility. A pioneer in aviation he was, but through faults in his character and poor judgment in gauging the opportunities presented to him, Montgomery sealed for himself a secondary place in the history of aviation.

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