

JORGE CHAVEZ DARNELL: THE FORGOTTEN AVIATOR

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Abstract

This paper describes some of the early inception of man exploration, and the determination for flight. It gives a background of a young man's early achievements that led to the first crossing of the Alps. Although Jorge Chavez Darnell made one of the great achievements in aviation, he has been all but forgotten in aviation history. It was an era in which men of courage were passionate in reaching greater heights and speeds. Civilian inventors and innovators propelled advancements in aviation. Before the Wright brothers proved that controlled, powered flight could be achieved, they had over 1000 flight hours in gliders prior to the first motorized flight on December 17, 1903 (Kane, 2003). At the same time that the Wright brothers were pursuing to be the first in flight, Europeans shared the same ambitions. It was a time of early aviation history when airplane fuselages were built of wood and canvas, and men were attempting to break altitude, and speed records (Rhoades, 2013). While pilots in those days did not have a parachute, what they had was great courage, bravery, and faith that they could reach higher heights and faster speeds. One of these men of courage was Jorge Chavez Darnell. Of Peruvian descent, in 1909, at the age of 21, he graduated as an engineer and became an aviator (Gagliardi, 2009). Competitions in Europe and the United States encouraged breaking altitudes and speed records. One of those competitions was the crossing of the great Alps. As a result of hazardous weather conditions, his aircraft suffered serious damage to the wing. While he was just meters from the runway, his wings folded and the aircraft fell to the ground. Jorge Chavez was taken to the hospital where days later, he died from the injuries. Today, he is honored as one of the earliest pioneers in aviation in Peru, but unlike other European and U.S. aviators, he has been all but lost in world history.

Introduction

One hundred and three years after his heroic flight in a fragile light aircraft, across the Alps, Jorge Chavez Darnell is still remembered in Peru. During these early years of aviation, on September 23, 1910, Jorge Chavez piloted a Bleriot XI, 50 horse power engine, and became the first aviator to cross the mountains that only a few others would. This feat brought two countries separated by the Alps closer together (Switzerland and Italy) (Gagliardi, 2009). Like other men of courage in those days, such as Louis Bleriot and later Charles Lindberg, Jorge Chavez achieved the unachievable. On July 25, 1909, Bleriot flew across the English Channel from France to England in 37 minutes and became the first man to fly an international flight in an airplane (Gesell & Dempsey, 2010). This flight brought France and England together. Chavez, a young man, at the age of 23, dared freezing temperatures at altitudes of over 2,100 meters (approximately 7,000 ft.) and became the first man to cross the Alps bringing two nations closer together.

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His fragile open cabin light aircraft fuselage was made out of wood reinforced with diagonal wire bracing. A wingspan of 7.2 meters (23 feet) and empennage were covered with fabric. A 50 horse power engine with a wooden propeller carried the light airplane crossing the Alps as it encountered heavy gusty winds that tossed the aircraft like a toy. Battling these heavy winds, he tirelessly continued to fight the winds for several kilometers with no place to land and no parachute (Gagliardi, 2009). His efforts paid off as he crossed the Alps; however his badly damaged aircraft came apart as he approached the landing strip meters from reaching the ground. Jorge Chavez died in the hospital four days later from his injuries, but his legacy has inspired millions of people (Gagliardi).

A reflection of Jorge Chavez' feat reveals a great heroic demonstration that made a significant mark in civilian and military aviation at the beginning of the twentieth century. Jorge Chavez's heroic act and bravery is remembered in the history books and taught in elementary schools of Peru, South America. His life personifies the best of core values, and inspires all those that have aspirations and dreams in aviation and life in general. Today, he is considered a national hero. His accomplishment was an act of international significance.

Jorge Chavez

The third of six children, Jorge Chavez was born in France in June 13, 1887. His parents of Peruvian descent registered their son at the Peruvian Consulate in Paris as a Peruvian citizen born abroad. Jorge went to the best schools in Paris, was very athletic and participated in sports winning several competitions in 1500 meters and hurdle races. At the age of 16, his mother passed away at the age of 54. This was hard on the family, especially to the youngest brother and sister, 12 and 8 respectively (Gagliardi, 2009).

While maintaining a good academic standing, he participated in several sports. In interscholastic competition, he became the champion in France, won the 400 meter hurdles, and won a 1200 meter race in London. As for his personal traits, he was a very cheerful and pleasant character who made friends easily. His school friends trusted, appreciated and loved him as did all who knew him (Gagliardi, 2009).

He studied engineering at the *Ecole d'Electricité et Mécanique Industriel les Violet* in Paris. He also had some artistic abilities and demonstrated to be a good sketcher and painter. He enjoyed his social life, was well liked by his friends, participated in reunions and activities with his friends, concerts, music and dancing, was an active member of a French Rugby team, and participated in car racing competitions and cycling (Gagliardi, 2009).

In 1908, at the age of 21, still studying engineering, his father died at the age 68. The following year, he graduated as an engineer. While attending the engineering school, he became interested with the great progress in aviation; he was particularly inspired by Louis Bleriot's crossing of the English Channel (Gagliardi, 2009).

Early Aviation Pioneers

Toward the end of the nineteenth century and the beginning of the twentieth century, the skies showed activities of air balloons, Zeppelins, and gliders. A German engineer, Otto Lilienthal, experimented with gliders and in 1891 flew his first glider. One of the modifications he made was increasing the wing span from 16 to 24 meters (52-78 ft.) to provide greater lift. He later started building bi-planes, but in 1896, his glider stalled crashing into the ground; he died the next day (Gagliardi, 2009). Lilienthal was considered "the father of glider experiments" and raised interest for others who continued efforts to develop the airplane (Kane, 2003, p. 51).

The Wright brothers, Orville and Wilbur, from the United States were not far behind the German engineer. They were also experimenting with gliders, and had over 1000 glider flight hours when they decided to mount an engine on the fuselage and began testing in 1903. The first test was on December 13, 1903, in Kitty Hawk, North Carolina, but was not successful. Three days later, on December 17, Orville Wright lifted off the ground and managed to maintain flight for 12 seconds for a distance of 120 feet (36.5 meters). The same day, Wilbur Wright flew the same aircraft for 59 seconds for a distance of 852 feet (259 meters) (Gagliardi, 2009; Kane, 2003). While these achievements may not seem as significant today, it was a major achievement at the beginning of the twentieth century. For decades, research and development dreamed and worked toward a reliable engine with enough power to lift an airplane.

At the same time that the Wright brothers were pursuing controlled power flight, Europeans shared the same ambitions. These milestones were highly reported in major newspapers in Europe and raised the curiosity of many around the world. Jorge Chavez had the opportunity to be in the middle of this environment and became very interested in these activities. He traveled to Reims, a city East of Paris, to attend the *Great Aviation Week of Champagne*. There, he met and made friends with a well-known French aviator Louis Paulhan (Gagliardi, 2009) who was also one of the pioneers of aviation and won many races, and Henri C. Farman, another well-known French aviator, aircraft designer and aircraft manufacturer who made the first night flight. There was a mutual respect between the two, as Paulhan recognized that Chavez had the ideal qualities to become an aviator. Jorge Chavez asked Paulhan if he could work with him as an amateur mechanic; he then attended several of his competitions. Later, Paulhan became partners with Henri Farman and Chavez joined them. Henri Farman was an aircraft builder who popularized the use of ailerons. He won the first circular flight of 1 km in 1908 and in 1909; he set a world record for endurance with a flight of 243.3 km (145.59 miles) in the Farman III (Crouch, 2014). He was also the first to fly at night. Working with Paulhan and Farman gave Chavez an opportunity to attend the Farman Flight School. His first flight was on February 10, 1910. On February 15, 1910, he received his International Pilot License, N° 32 (Gagliardi, 2009).

Jorge Chavez participated in competitions that involved speed, altitude, and endurance. In five months he had attended 94 competitions. He was very popular and often drew a crowd. “The young Chavez excelled at these air shows and lengthy articles appeared in the most important newspapers of the time, highlighting his triumphs and rankings, compared to the more experienced pilots in the competitions” (Gagliardi, 2009, p.142). While Chavez had only obtained his license two months earlier, he was already competing with more experienced pilots (like Louis Bleriot, Louis Paulhan, and others); he was already ranked second among them. During an air meet in Verona, Italy, from 22 to 29 May, there were several strong competitors like Henri Farman, Louis Bleriot, Antoinette, Arthur Duray and others. During the distance competition, Arthur Duray started to take off and when he reached a speed of 50 km/hour, he lost control of the airplane and was thrown from the aircraft as he tried to cutoff the ignition. The aircraft continued to race along the ground and began to spin violently. Chavez, realizing the potential danger and tragedy, skillfully and with amazing agility got on the plane and managed to turn off the engine. His brave action was recognized by the participants and by the public which had attended the meet.

Aviator Arthur Duray was badly injured and ended up retiring from competitions, but a friendship began between him and Chavez that resulted in Duray becoming Chavez’ manager, advisor and fitter during the future competitions where he participated, including the feat of crossing the Alps. (Gagliardi, p. 144)

In June 1910, while he was participating in the altitude competition in his Farman biplane, Chavez reached the altitude of 496 meters (1627 feet), placing second to Leon Morane, who reached 521 meters (1,709 feet). He realized that his Farman plane was not designed for altitude competitions. He

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borrowed Leblanc's Bleriot plane to confirm the capacities of the Bleriot. After a test flight, he was convinced that this was the plane for him to break altitude records. Chavez appeared in the "Great Champagne Week" air meet with his newly purchased Bleriot aircraft on July 3, 1910. "Here, he won the altitude competition, with a record of 1,150 meters, astonishing the spectators and the experts of that time" (Gagliardi, 2009, p. 144). On August 3, 1910, Jorge Chavez reached the altitude of 1,647 meters, and won the first prize. This broke his previous record of 1,150 meters (3,773 feet). Having heard of the crossing of the Alps competition, he decided to prepare by concentrating on altitude only.

Preparation for Flight

During the time of the crossing of the Alps competition, there were very few skilled aviators capable of accomplishing such a dangerous flight. While aircraft in 1910 were not designed to reach heights as the Alps, courage was the limiting factor on how much the limitations of the envelope were exceeded. Although Jorge Chavez had only been flying for a year, he had demonstrated that he was an outstanding pilot, winning several competitions in endurance, speed, and altitude. The *Milan Air Circuit* offered these challenges. Aircraft in those days were light and aviators had managed to reach altitudes of 1,290 meters (4,232 feet) and the flight speed had not exceeded 80 kilometers per hour (Gagliardi, 2009). Organizers held several competitions, offering significant prize money as a motivator to exceed these limitations. Just as there was a motivation for the race to the moon, 59 years later, there was a motivation to overcome existing limitations in the early years of flight (Gagliardi).

There were three possible choices for the flight path. A path from Brigue, Switzerland to Milan, Italy offered some of the flight path accessible by road. The starting point, Brigue, Switzerland located at an altitude of 870 meters (2,854 feet) and Domodossola, Italy was the arrival town, at 277 meters (909 feet) above sea level. The pilots would have to climb to an altitude of over 2,000 meters (6,561 feet), over the Simplon peak, and cross some of the most dangerous peaks in the Alps (Gagliardi, 2009).

To prepare for this competition, Chavez stopped other competitions to practice his altitude flying skills. He knew that to accomplish this mission he would have to reach altitudes over 2,100 meters (6,890 feet). Jorge Chavez had only reached 1,647 meters (5,403 feet) and was not sure of what freezing temperatures, winds, or oxygen were expected at those heights. It was believed by some in those days that the limit for humans was altitudes of 2,000 meters (6,561 feet) (Gagliardi, 2009). Chavez wanted to make sure that this flight could be achieved, so prior to registering in the competition; he traveled the flight route in automobile and by train. He carried a barometer with him to learn the altitudes of key areas. In the process, he drew his own maps and paid close attention to the winds. After studying the flight routes, he and his friend Arthur went to Brigue and talked to the competition commissioners. The commissioners explained the route, showed him drawings, maps, and all information available. They were very impressed by the knowledge Chavez had of the area. This shows that he was well prepared to meet his objective, thus confirming what he had stated in Reims: "I want to do something useful in aviation" (Gagliardi, p. 149).

While testing his new Bleriot aircraft, over the capital city of France, Chavez achieved the world altitude record of 2,652 meters (8,700 feet) on September 8, 1910, beating a five day old 2,582 (8,471 feet) meters record set by Leon Morane (Gagliardi, 2009). It was a highly publicized achievement in the front pages of European newspapers. Chavez recalls "It was intensely cold. I was at 2,500 meters (8,202 feet). Some more engine turns and I would have defeated Morane's record" (Gagliardi, p. 152).

Crossing the Alps

The *Milan Air Circuit* was the greatest competition of the time. The commissioners of Switzerland as well as Italy had both taken areas of responsibility throughout the route and the event. Route signs, weather forecast, communication systems, search and rescue, were available for the pilots and an Alpine support team was on standby along the route between Switzerland and Italy. In terms of communications, both civil and military technicians from Switzerland and Italy worked together to improve both telephone and telegraph infrastructure along the route. Fast cars were available in case parts and mechanics were needed (Gagliardi, 2009).

Due to the large number of pilots signing up, the Swiss and the Italian commissioners held a meeting and decided to select only five of the best known pilots to enter this dangerous competition. Selection was intense and the pilots were selected for their skills and past performance in previous competitions.

The five pilots selected to cross the Alps were: Jorge Chávez, a Peruvian flying a modified Bleriot XI monoplane equipped with a 50 HP Gnome engine; Bartolomé Cattaneo, a Italian, flying a Bleriot XI monoplane equipped with a 50 HP Gnome engine; Charles Weymann, a North American, in a Farman biplane equipped with a 50 HP Gnome engine; Eugen Wienziers, a German, in an Antoinette monoplane equipped with an Antoinette 60 HP engine; and Marcelo Paillette, a Frenchman, flying a Bleriot XI, equipped with a with 50 HP Gnome engine. (Gagliardi, 2009, p. 153)

The competition began on Friday, September 16, 1910. Each competitor was given a hangar in the Brigue airfield, and their name with big letters and country flag was displayed over the hangar door. Reporters interviewed the pilots while pictures were taken as competitors got their planes ready. The crowd was very excited as pilots the performed test flights on their planes (Gagliardi, 2009).

Severe weather postponed the competition Friday and Saturday, but Sunday turned out to be clear skies. “The Canton Government of Valais, however, had passed a decree that prohibited the execution of flights before 1600 hours, to observe Sunday rest and the sanctification of the day of prayer and penance” (Gagliardi, 2009, p. 154). Participants and spectators, as well as competition officials protested to the city without any success. Chavez, however did not participate in the protests, instead he and his team took the opportunity to drive and scout the route once again. On their return, Chavez provided the commissioners with a letter expressing his intent “Dear Commissioners, I shall depart tomorrow at six o’clock in the morning to start the crossing of the Alps, signed, Chavez” (Gagliardi, p. 154).

On Monday, September 19, Chavez arrived at his hangar at 0545 and began to prepare for his flight. His Bleriot monoplane was towed to the field. Chavez started his engine, gave the signal, and began to taxi out. His Bleriot slowly took off and later he began to spiral as he climbed in altitude to reach 2,100 meters (6,890 feet). At that altitude, he was able to cross the snow covered Aletchs peak. Shortly after he crossed the Simplon peak, he felt some crosswinds on his tail. He decided to climb over the clouds at an altitude of 2,500 meters (8,202 feet). Darks clouds rapidly approached and the fragile Bleriot aircraft was tossed around violently. Chavez recalls that the monoplane was thrown down 60 meters (196 feet) and lifted up like a toy over 100 meters (328 feet) up against the Kaltwasser peak (Gagliardi, 2009). There were no parachutes. He was able to hold on to the controls to keep from being thrown out of the cockpit. Aircraft in those days were open cockpit, did not have a wind screen, no seat belt, and no instrumentation other than a tachometer. Chavez managed to gain control, escaped the whirlwinds, and found a place to turn around and return to Brigue.

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Chavez met with commissioners and expressed his concerns of the reliability of the weather dispatchers. There were no weather balloons displaced to give him warning of the winds. He acknowledged that his life depended on the forecasting of the winds, so he placed his friend in the area of the Simplon peak. He displayed great courage knowing that the crossing of the Alps was dangerous. He made a comment to his friend Joseph Christiaens: "Giving your life for nothing would be stupid. Giving your life to win is beautiful" (Gagliardi, 2009, p. 155). He announced he would fly again the next day, but all flights were postponed due to bad weather. After traveling by land examining weather conditions, all the competitors quit the competition except Jorge Chavez and U.S. citizen, Charles Weymann.

On September 23, the weather forecast reported that the area of the Simplon peak was calm, but some gusty winds were reported over the Simplon Valley and the Monscera Mountains were calm. Chavez and his crew traveled the route by car and took notes. His friend Louis Paulhan reported that winds were calm over the Monscera Mountains. Chavez quickly came back to Brigue. His team rolled the Bleriot on to the runway. They spun the prop and started the engine. Chavez signaled, and smoothly took off at 1329. He flew in a spiral path as he tried to gain altitude and crossed the Aletchs peak (Gagliardi, 2009).

The Bleriot piloted by Chavez was later seen over the Simplon valley. After he crossed the Simplon valley, he flew over the Hospice field which would be the last chance to find a place to land (Gagliardi, 2009). Chavez had planned two flight paths. One was, after passing the Simplon Pass, make a left through the gorge peaks to Gonda, then making a right at Varzo and fly on the right skirts of the mountain to Domodossola. The second path was instead of turning left to Varzo, fly through the Monscera Pass to Domodossola, which was shorter route, but very rocky and dangerous.

After passing the Simplon Pass, Chavez thought the hardest part was over. He then was thinking about crossing the Monscera Pass when heavy gusty winds shook his plane and carried him like a ribbon for over 1000 meters (3,280 feet) passing the first flight plan turn. He was then captured by the wind. Chavez said:

They were real hammer strokes, sudden, coming from every direction ... a real hell. I felt I was bouncing like a ball. The plane jumped fifty and sixty meters... The wind threw me against the land, and one second later, it grabbed me again and threw me up into the sky. (Gagliardi, 2009, p. 160)

Chavez had to make quick decisions, whether he turned into a narrow gully of peaks which was dangerous or to fly through the ugly and dangerous path of the Monscera. He had no choice; he flew around Sehorn and for over 2000 meters (6,561 feet) the wind carried him, and he struggled with the winds for three minutes. Later, stronger winds on his tail helped to carry him along the dangerous corridors of peaks at 100 km per hour; he described it, as a log being carried out by a river. He controlled the Bleriot aircraft by flying like a glider, then doing engine starts. He came into a calmer area and recognized Varzo (Gagliardi, 2009).

This episode with the winds had damaged the plane, but Chavez had not realized it. Flying over the mountains of Varzo, he made a right turn and flew alongside the skirts of the mountain until he saw the valley of Domodossola as it was getting wider. He felt relieved as it was a normal descent. People on the ground were cheering as they saw the first aviator to cross the Alps. Chavez started his engine as he was making his descent 20 meters (66 feet) before reaching the ground his wings collapsed, folded, and fell to the ground on the runway as thousands of spectators watched. Chavez's body was covered from the airplane's debris. His face was covered with blood and his legs broken, along with other bodily injuries. He was rushed to the hospital where he died from his wounds five days later (Gagliardi, 2009).

Thousands of people came to his funeral, and then to the train station where his body was transported to Paris. The plane, a Bleriot XI, with which Jorge Chavez crossed the Alps, was received by the Peruvian Academy of History, in a ceremony held on March 19, 1911 (Gagliardi, 2009). On September 12, 1957, the remains of Jorge Chavez were brought to Peru after an agreement with France. A highly attended ceremony was done at the airport of Paris when his body was carried to the plane as well as when Jorge Chavez's remains arrived in Lima, at the airport which today bears his name: Jorge Chavez International Airport.

Today, there are several monuments recognizing his heroism and courage. The first monument was built in Italy, at the spot where Chavez's Bleriot aircraft crashed. Another monument of Jorge Chavez was erected in the Ecole d'Electricité et Mécanique Industrielles Violet of Paris, where Chavez graduated as an engineer. In Switzerland, the government has two monuments, one at the field where he took off with his Bleriot to conquer the Alps, and the other one is in the Brigue square. In Lima, on September 23, 1937, in honor of Jorge Chavez, a monument was unveiled during a ceremony that took place during the Inter American Technical Aviation Conference (Gagliardi, 2009). Dignitaries from several Latin American countries were present. "Commemoratory and bronze plates were placed by the representatives of Argentina, Brazil and Chile delegations, which had inscribed their admiration for the distinguished aviator Jorge Chavez Dartnell in bronze" (Gagliardi, p. 171). After speeches from several Peruvian and foreign dignitaries, a formation of four United States combat plane squadrons conducted a flyover. The formation totaled 65 biplanes from the aircraft carrier USS Ranger. As they flew over the monument the crowd of over 90,000 spectators applauded loudly. There were also over 140 planes from other countries that flew over the stands and monument honoring Jorge Chavez' great achievement.

Other gestures of honor and recognition include: The Jorge Chavez Medal, which awards military personnel, civilians, or foreigners who have given great service or merit to national aeronautics. The most widely circulated currency (S/. 10 Nuevo Soles) in Peru bears Jorge Chavez's picture. His body rests at the Peruvian Air Force Academy. Next to his monument is a replica of his Bleriot XI aircraft (Gagliardi, 2009).

Conclusion

Man's desire to push the envelope of knowledge goes back to the beginning of mankind. Christopher Columbus's eagerness to find a shorter route to India, and the Conquistadors' search for gold and riches were some of the early times of exploration, discovery, and opportunities. More recent events of significant achievements occurred in these early years of the last century, beginning with heavier than air flights by the Wright Brothers and Glenn Curtiss, and Jorge Chavez's first high altitude flight while crossing of the Alps; these achievements led to discoveries of the unknown as man took baby steps to reach higher altitudes. Unfortunately, few people today realize the accomplishments of Jorge Chavez.

Since Jorge Chavez's 2,652 meters (8,700 feet) altitude record and the crossing of the Alps, others have emerged breaking speed, endurance and altitude records. Chuck Yeager flew the Bell X-1 at Mach 1.06 on 14 October 1947; Major Arthur Murray piloted the X-1A, at an altitude record of 27,584 meters (88,000 feet), on 28 May 1954; Sputnik, the first satellite to orbit earth, on 4 October 1957; Cosmonaut Yuri Gagarin became the first man in space, 12 April 1961; and Neil Armstrong became the first man on the Moon, 20 July 1969. There will be others because the curiosity for the unknown, discovery, and the search for new frontiers prompt men and women to adventure and risks. There is no doubt that the words of the author of the book "The Feat of Jorge Chavez", echoes in our hearts when Gagliardi (2009) proclaimed "We must recognize the great courage and bravery shown by this young man, when he fearlessly set out to conquer the Alps" (p. 135).

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