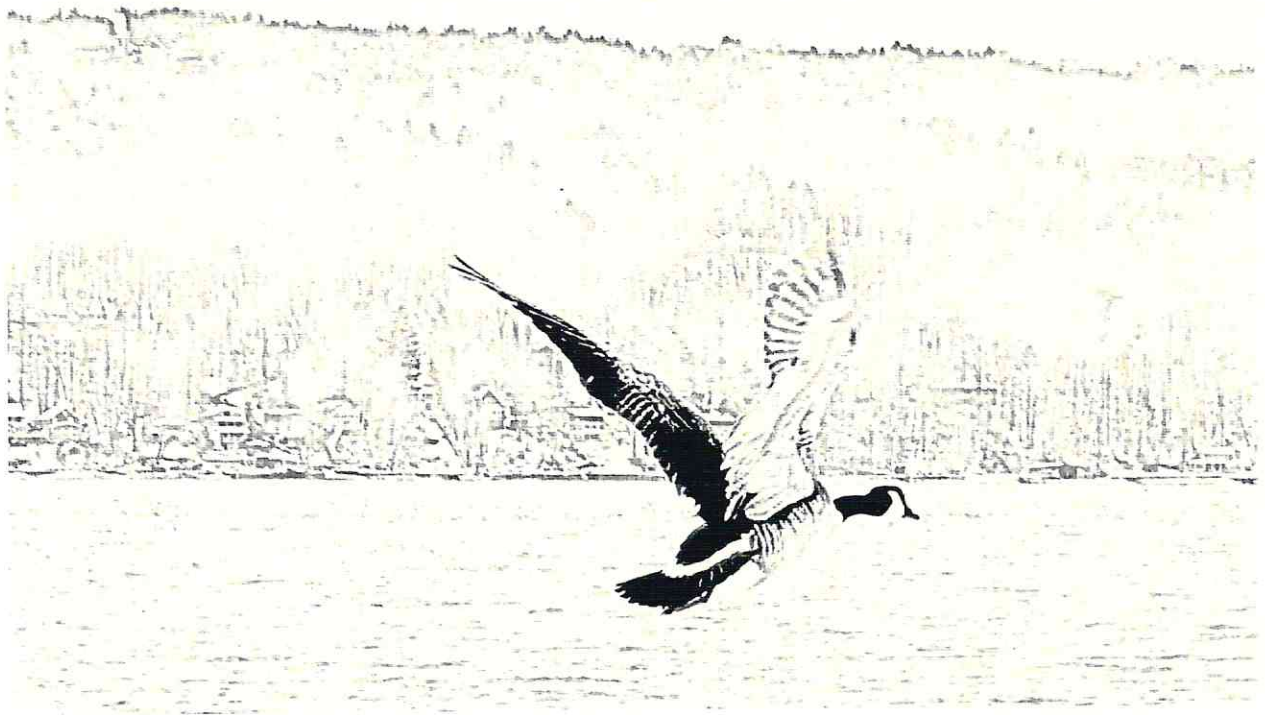


The ABC's of Flight



-by-

Cecile Swift Li
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Artist's Name: Cecile Lippitt
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The ABC's of Flight

Armen Firman

One of the earliest attempts at flight took place in 810 A.D. when Armen Firman attempted to fly by jumping from a tower in a large cloak with wooden struts designed to catch the wind. He escaped with minor injuries. Two centuries later, Franz Reichelt was not so lucky. Reichelt, an Austrian born tailor, made his attempt in 1912 by leaping from the Eiffel Tower in a parachute-like suit, with tragic results.

Bumblebee

An urban legend that persists to this day proposes that the actual flight of the bumblebee defies the laws of physics. This is due to the fact that the bee's wing span and body mass should make it impossible for the insect to get off the ground. By conducting a series of experiments, one involving lasers and tiny mirrors glued to the bees, scientists determined that bees use what are termed "mini hurricanes" to achieve lift.

Chanute

The aviation pioneer and author, Octave Chanute, was born in Paris in 1832. He played a major role in the experiments conducted by the Wright brothers. Chanute considered himself too old to take to the skies. Therefore, he assisted the Wrights and others through sharing results of aeronautical experiments. His book "Progress in Flying Machines," was one of the first to be recommended by the Smithsonian Institution when Wilbur wrote his famous letter of inquiry: "I wish to avail myself of all that is known...."

Dayton

Dayton, Ohio is the hometown of Wilbur and Orville Wright, the brothers who, without a formal education, unlocked the mystery of sustained flight. When Wilbur was asked what advice he would give to someone starting out in life, he replied, "Pick out a good father and mother and begin life in Ohio."

Earhart

Amelia Earhart achieved many aviation records during her short life, one being the first woman to fly solo across the Atlantic Ocean. Concerning Earhart's early interest in flying, the story is told that she and a female friend were at a flying exhibition. A World War One flying ace saw the women standing in a field and decided to give them a scare. As he dove at them, Earhart stood her ground. "I did not understand it at the time," she said, "but I believe that little red airplane said something to me as it swished by." Shortly after, she took her first flying lesson from Anita Snook, a pioneer aviator in her own right, who was fated to be remembered only for teaching Earhart to fly.

Francis Swift

In the early 1900's, Francis Swift (my great grandfather) moved his young family from Iowa where he had been born and raised, to Dayton, Ohio. When asked why, he said that he had heard Dayton was a hotbed for inventors and, since he considered himself an inventor, he felt it was the best place for him to live. He was also looking for better schools at which to educate his 6 daughters. Perhaps Francis and his family watched the practice flights the Wright Brothers held at "Huffman Prairie," a cow pasture eight miles northeast of Dayton.

George Cayley

George Cayley was a British inventor in the late 1700's and early 1800's who has been called the Father of Aviation for his many contributions to the study of flight, including the first to design a successful human glider. Years later the Wright Brothers would credit his inventions, including the multi wing design, with helping them build their plane "Flyer."

Hot Air Balloon

Early attempts at manned flight included flying "machines" that were powered by hot air. Balloonists were able to solve one problem, getting off the ground. However, there was little controlled flight in hot air balloons.

Icarus

In Greek Mythology, Icarus, overcome with the joy of flight, flew too close to the sun, melting his wings made of wax and feathers. He plunged to the sea and drowned.

Johnson

Mathematician, Katherine Johnson was instrumental in the success of early NASA missions. Her accuracy in calculating the trajectory of the space capsule was unparalleled. Because of her, many early missions were successful. John Glenn was reported to have asked Johnson to check all the calculations of the reentry of his capsule before he would agree to the mission.

Kitty Hawk

What drew Wilbur and Orville Wright to this windy desolate patch of sand in the middle of nowhere? Actually, Kitty Hawk had everything they were looking for: isolation, sustained strong winds, and lots of sand. The brothers lived and worked in Kitty Hawk for three years, going home to Dayton only to work out problems that came up during their test runs. Overall, they achieved 700 successful flights in the sand dunes of the Outer Banks.

Leonardo Da Vinci

“For once you have tasted flight, you will walk the earth with your eyes turned skywards, for there you have been and there you will long to return.” 300 years after his death in 1519, Da Vinci’s scientific works began to surface. His exhaustive study of the mechanics of flight led to the conclusion: “There is in man [the ability] to sustain himself in the air by the flapping of wings.” But, 300 years later, after research of his own, Giovanni Alfonso Borelli, an Italian mathematician and physicist, reached his own conclusion: “man’s muscle power is not sufficient for lifting him and propelling him through the air.”

MacCready

In 1979, Paul MacCready and a team of engineers built a human-powered aircraft, the Gossamer Albatross which successfully crossed the English Channel with the use of pedal power alone. The 26-mile flight took close to three hours. When the pilot, Bryan Allen, landed in Cap Gris-Nez, France, he collapsed from exhaustion. Although the flight didn’t involve the flapping of wings, it did lend credence to Da Vinci’s theory, and invalidated Borelli’s.

Nest

Leaving the nest is a big step for baby birds. According to the Cornell Laboratory of Ornithology, the decision of when to leave the nest depends very much on the type of bird. Swallows and woodpeckers do not leave the nest until they are strong flyers, whereas the red-winged blackbirds will make forays out of the nest before they are strong enough to fly, with parents keeping a close watch. So, if you find one of these fledglings, do not assume they fell out of the nest.

O

“O that I had wings like a dove! For then would I fly away and be at rest,” Psalm 55:6. This psalm beautifully captures our longing for flight.

Pancho Barnes

Florence Lowe “Pancho” Barnes was the granddaughter of Thaddeus S. C. Lowe who Abraham Lincoln placed in charge of the Union Army Balloon Corps during the Civil War. His fame as the “founder” of the United States Air Force, as Barnes liked to describe him, had a profound impact on her own desire to take to the skies. In 1928, she took her first flying lesson and soloed after only 6 hours of formal instruction. She is fondly remembered as the proprietor of the famous bar/restaurant Pancho’s Happy Bottom Riding Club which catered to the flying aces from Edwards Air Force Base. This was right after the Second World War when the race was on between the United States and Russia to perform the greatest feats in aviation including sending a man into outer space. Pancho encouraged such risky feats by offering any pilot who broke the sound barrier a free steak dinner.

Quest

In 2018, NASA’s Lunar Quest Program effectively turned our attention from Mars back to the moon, with the possibility of creating an outpost closer to home. The outpost orbiting around the moon will allow for refueling and provisioning without having to reenter the earth’s atmosphere, thus extending human presence into deep space.

Roll

The control of an airplane is much more complex than controlling a car or a boat. Planes move in three dimensions while cars and boats move in two. The three aspects of a plane’s movement are roll, pitch and yaw. Roll uses the

longitudinal axis which allows the wings to dip from one side to the other. The Wright Brothers tried several ideas to control for roll with no success. The moment of inspiration came when Wilbur was working alone at the bicycle shop one night. A customer came in to buy an inner tube. Wilbur removed the tube from the box and began fidgeting with the box, twisting it back and forth while talking to the customer. Suddenly he imagined the movement of two wings latched together and twisted in the same way as the two sides of the box. In that moment Wilbur had his solution for achieving lateral control. He called it "wing warping."

Snoopy

In a 1965 comic strip, Snoopy makes his debut as a World War One flying ace, complete with leather helmet and white scarf. At the controls of his trusty Sopwith Camel biplane (read doghouse) Snoopy is ready to take the fight to the Red Baron (based on a real-life flying ace Manfred von Richthofen). The Prussian aristocrat, von Richthofen, flew only scarlet colored airplanes and, over a 19-month period, shot down 80 Allied aircraft, more than any pilot on either side of the war. When the Red Baron was killed in a dog fight over France, the Allied troops recovered his body and buried him with full military honors. The Red Baron was only 25 years old. In the Peanuts comic strip, the Red Baron often gets the best of Snoopy who can be heard to exclaim "Curse You Red Baron!"

TransAtlantic

This novel by Colum McCann tells the story of the first transatlantic flight. The novel sets one fact straight: The very first nonstop transatlantic flight in a fixed wing aircraft took place in 1919, a full eight years before Charles Lindbergh's famed flight. The credit goes to British aviators Captain John Alcock and Lieutenant Arthur Brown. Both men had been prisoners of war during the first World War. During imprisonment, both dreamed of flying across the Atlantic and winning the prize of 10,000 pounds sterling silver offered by the British newspaper, the Daily Mail, to the first aviator to fly across the Atlantic nonstop. And win they did!

U.S. Air Services

A popular American aeronautics magazine, U.S. Air Services, published articles of general interest to aviator buffs the world over. In 1945, Orville Wright authored an article for the magazine titled "The Mythical Whitehead Flight" which addressed the rumor that the German American aeronautical engineer, Gustave Whitehead had

preceded the Wright brothers first flight in Kitty Hawk by flying a plane of his own making in Connecticut in 1901 and again in 1902. There is no proof to substantiate Whitehead's claim, although the rumor survives to this day.

V-2 Rocket

The V2 Rocket, the world's first long range missile, was developed by Germany toward the end of the Second World War. It was referred to as the "Retribution Weapon" as it was meant to punish Allied cities for bombing German cities. The V2 Rocket was responsible for killing not only thousands of people in cities like London, but thousands more during its production using concentration camp prisoners for the labor. The V2 Rocket was the first object to leave the earth's atmosphere and travel into space.

Wright

Wilbur and Orville Wright were an unlikely pair to become the first to unlock the mysteries of controlled flight. Without any formal education, they took on a systematic study of a problem that had stumped mankind since the beginning of time. Much has been written about the many influences that led the brothers down this unlikely path. Experts agree that their mother, Susan Koerner Wright, played a key role with her natural mechanical abilities which she passed on to her sons, and her encouragement of their building efforts as young children. A wooden helicopter, a gift from their father, seems to have led to an early fascination with flight. However, this fascination laid dormant for many years as the brothers focused on running a successful printing business and bicycle shop. What appears to have reignited the flame in Wilbur were the many accounts of the death of Otto Lilienthal known as "The Flying Man" in a glider crash in Germany in 1896. Wilbur felt obligated to continue the research and experimentation in the field. In a May 1900 letter to Octave Chanute he wrote: "For some years I have been afflicted with the belief that flight is possible to man. My disease has increased in severity and I feel that it will soon cost me an increased amount of money if not my life." On December 17, 1903 at 10:35 am, Wilbur's dream was realized as he cheered on Orville who guided "Flyer" into the air for the first sustained, controlled flight by man.

X-Wing

The X-wing starfighter is a fictional spacecraft, a superior dogfighter flown by the Rebel Alliance. A shot from an X-wing destroyed the Death Star and saved the galaxy.

Yeager

Chuck Yeager is most well known for being the first pilot to break the sound barrier, which he did on Oct 14, 1947 in an experimental rocket-powered aircraft. He was indeed the first pilot to get that free steak dinner at Pancho's. Yeager served in the US Air Force during the Second World War as a flying ace, and commanded fighter planes during the Vietnam War. He retired in 1975 as a brigadier general. Yeager has a fine sense of humor which is evident from his appearance in the movie "The Right Stuff," about flying aces who were handpicked by the government for the first forays into outer space. Yeager was passed over for this assignment because he lacked a college education. In "The Right Stuff," Sam Shepard plays a young Chuck Yeager, while Yeager plays "Fred," the bartender at Pancho's. Yeager reflected that it was fitting for him to play the part since he had probably logged more hours at Pancho's than in the cockpit.

Zeppelin

This rigid airship was named for its inventor, the German general, Count Ferdinand von Zeppelin. In 1863, Zeppelin served as an official observer for the Union Army during the Civil War. During his time as an observer von Zeppelin met the famed Thaddeus Lowe and his Army of the Potomac's balloon corps. Von Zeppelin requested that he accompany Lowe as an aerial observer, but this was not allowed since he was a civilian at the time. Lowe was able to put von Zeppelin in touch with another famous balloonist, a German named John Steiner. Steiner's balloon had also been in service as an observation balloon during the Civil War. Steiner took Zeppelin for his first ride. Years later, Zeppelin would credit this singular experience as responsible for his interest in aeronautics. His first successful flight with the rigid airship was made in 1900. By the time of the First World War, dirigibles were being utilized as bombers and scouts. But after the Hindenburg disaster in 1937, the public no longer trusted the big airships and by 1938, Germany had grounded the last of the fleet.