

A *Dream*  
of PILOTS



# A *Dream* of PILOTS

By Philip Handleman  
Illustrated by Craig Kodera



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*With love to the little flyers in my family—  
Sonja Kostovic, Natasha Kostovic, Lauren Draland, Leah Draland,  
and Evan Drake.  
May all your dreams come true.  
—P. H.*

*To the memory of my mother, who encouraged me, and  
my uncle, who enabled me,  
I dedicate my wings and the legacy you created through me.  
—C. K.*



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## Introduction

By the early 1960s, the U.S. space program was making remarkable progress. Television programming was interrupted to broadcast grainy black-and-white images every time an astronaut blasted off into the distant sky. Assembled in the school gym to watch the historic launches on a rabbit-eared TV set, we stared in awe at the sight of booster rockets hurtling from their pads, carrying the brave explorers in tiny, tin-looking capsules. I and almost all of my junior-high-school classmates in suburban Cleveland wanted to be members of this elite corps of space travelers.

Even before the space race had captured the public's attention, my parents had told me the most captivating stories about aviation from their own lives. My mother regaled me often with her recollections of growing up near Cleveland's main airport. She climbed the airport's fence almost every Labor Day weekend in the 1930s and watched what was arguably the greatest of aerial exhibitions—the spectacular National Air Races. Drawn to the world of flight, she eventually went to work at that very airport. My father had served in the U.S. Army Air Forces during World War II, and though he was neither a pilot nor an aeronautically inclined person, he sometimes talked about what it was like to serve on an air base in wartime.

So for as long as I can remember, I had wanted to fly. Both Mom and Dad encouraged my desire for flight, and on a lovely spring day in 1963, they drove me to a charming grass airport not far from home. They bought me a fifteen-minute ride in a Piper J-3 Cub, the iconic little puddle-jumper that gave wings to a few generations of aspiring aviators.

On that memorable day, I recall shaking hands with a most accommodating instructor pilot who was attired in a snug-fitting steel-blue uniform as if he were an off-duty airline captain. All around us

were worn Cubs, not show planes but real working ships with sun-faded paint schemes and engines that dripped oil. The airport air was full of the sweet smell of highly refined avgas mixed with the strong odor of nitrate dope used for coating the fabric airplanes. Mechanics in grease-stained coveralls scurried about with great purpose.

To a twelve-year-old boy with unbounded aerial ambitions, this quaint airport, with its wide grass runways and array of high-wing, two-seat taildraggers, seemed the ideal place to fulfill my dream. Aloft and manipulating the controls for the first time under the watchful eye of the instructor, I felt exhilarated. Traversing the uncluttered blue sky as if sailing gentle ocean waves, and knowing that I could point myself in whatever direction that suited my fancy, gave me my first real taste of freedom. The world's infinite possibilities were within my grasp.

It felt right up there. I did not want to come down, back to the world below that was predictable, limiting, and artificial. Alas, there was no choice. Yet, I knew that the pleasures of flight would always stay with me. I would never be the same again.

Filled with excitement over my new discovery, I soon developed a colossal appetite for books that described the great pioneering pilots. I had not one dream but many dreams about those extraordinary men and women who conquered the poles by air, navigated over vast oceans, won air races, set speed and altitude records, duelled in fighters on their way to becoming aces, performed stunts at air shows, barnstormed across prairielands, flew the mail, developed comfortable and efficient airline service, and, just at that moment in time, rocketed into the uncharted void of space to change humankind's worldly vantage point forever.

The school library was a good source for books about the air combat of World War II, and the local bookshops stocked lots of titles on the emerging field of spaceflight. These books tended either to focus on one pilot or to provide a sweeping overview of aviation. I did not see a volume for children my age that told the stories of many of the leading aviators of those first sixty years of powered flight. So in later years, I decided to fill this gap with a single book containing the stories of a wide cross-section of aviation's heroes.

The lives of more than twenty aviation luminaries are presented here, in the hopes that children, their parents, and teachers will learn pivotal facts about the history of flight, some of the key contributors, and notable aircraft. It is equally hoped that readers will find inspiration in the stories of courage, perseverance, teamwork, and creativity.

The famous aviators whose exploits are covered in this book were each dreamers, too. Their extraordinary accomplishments, which entailed breaking with convention and overcoming major obstacles, started with a dream. In their aeronautical endeavors, many of them came up against seemingly insurmountable technical problems. At times, they were scoffed at and ridiculed. Some faced the challenge of physical handicap, while others were forced to confront the curse of discrimination. Undeterred, they followed their dream against the forces, both natural and manmade, that tried to hold them back. In the end, they broke through these barriers and achieved success.

Interestingly, these legendary aviation figures came from every walk of life. Some had comfortable upbringings, while others had to scramble just to make ends meet. There were Ivy Leaguers and there were high-school dropouts. High society shared the skies with newly arrived immigrants and even slave descendants. Aiming for the heavens took precedence over everything else. The common thread for these diverse flyers, inventors, and explorers seemed to be their embrace of the sky.

They were not without flaws, but their legacy reminds us of the heights to which humankind can rise. History's most accomplished aviators have proved that we are limited only by our own imagination. In the future, it will be today's little flyers, empowered by their dreams, who ultimately soar above virgin horizons, forging new chapters in the history of flight.



A *Dream*  
of PILOTS



## Chapter One

# Philsie Goes for an Airplane Ride

Being curious and adventurous, I wanted to go for an airplane ride. On a clear-blue Sunday morning in the early spring, my mother and father drove me to a small airport in the wide-open countryside.

We were greeted by Bankstall Smith, an off-duty airline captain, who tipped his cap and shook my hand. Before long, I was buckled into the cockpit of a delightful yellow Piper Cub.

The steady engine purred and the two-seat airplane began to roll across the flat meadow, slowly rising into the calm sky. I peered out of the window and realized that only the wing moving through the air kept us aloft.

“Philsie, take the controls,” the captain instructed me.

I wrapped my right hand around the control stick and placed my feet over the rudder pedals. I followed the commands of the captain. Together we climbed, glided, and turned the neat little Cub in the sky. I fell in love with flying. I had discovered a new kind of freedom. My joy was apparent from the smile on my face.

When the flight ended, I thanked the captain for the most wonderful time of my life. He responded with another tip of the cap.

At the start of the drive home, I thought about the great aviators who pioneered the sky. Overwhelmed by the day’s excitement, I soon dozed off in the backseat of the family car. Soundly asleep, I conjured up images of history’s heroic and inspiring flyers. I was having a dream of pilots.





## Chapter Two

# Wilbur and Orville Wright: *Inventors of the Airplane*

In 1878, when brothers Wilbur and Orville Wright were schoolboys, their father brought home a flying toy that resembled a helicopter. The two boys played with the cork-and-bamboo toy, winding up its rubber bands and letting it flutter before tumbling to the floor. The happy experience got the boys interested in flight, and they began working together to build their own miniature flying toys.

Wilbur was the older of the two brothers, having been born on April 16, 1867. Orville was born four years later, on August 19, 1871. Their father, Milton, a bishop in the Church of the United Brethren in Christ, eventually settled the family in a white frame house on Hawthorn Street in Dayton, Ohio.

Wilbur did well in school and planned to enroll at Yale University, but lingering injuries from a skating accident, and his wish to care for his ailing mother, Susan, prevented him from going to college. Wilbur turned inward to books and meditation. Orville liked to experiment, but sometimes he was inattentive and mischievous. In fact, Orville did not finish high school. Instead, he joined with Wilbur to form a printing business in town.

When their partner withdrew from the business, Wilbur and Orville opened a bicycle shop. The practical European bicycles had recently been introduced in America. At first, the brothers repaired bicycles, but by 1896, they were manufacturing their own. Around that time, news spread about successful glider flights in Europe, which rekindled Wilbur's childhood interest in flight.

In 1899, Wilbur wrote to the Smithsonian Institution expressing his belief in the possibility of human flight and asking for all available research information. He read everything on the subject of aeronautics that he could find. Although lacking formal scientific training, Wilbur

and Orville possessed keen intellect, strong reasoning powers, common sense, mechanical talent, determination, and a belief in themselves.

They figured out that for an airplane to be successful, it would need wings, power, and a control system. Development of their flying machine would require a location with high winds to assist in lift, soft terrain to cushion landings, and sparse population to avoid interference. The brothers concluded that the best place for their aerial trials would be the remote coastal sand dunes near the village of Kitty Hawk, North Carolina.

Able to break away from their bicycle shop only in the autumn months, the brothers first set up camp at Kitty Hawk in October 1900. They constructed double-winged gliders that soared in the shoreline's stiff winds. These glider experiments permitted the brothers to assemble a full-size airframe and to practice the art of flying. They returned to Kitty Hawk three more years in a row, making progress on each trip.

Wilbur figured out that any airplane would have to be controllable around its three axes. This meant there had to be elevator control surfaces for up-and-down movement, rudders for turning left and right, and warping wings for rolling. A gas-powered engine would turn two propellers in opposite directions, providing thrust. When pieces to this life-sized puzzle did not exist, the brothers designed and built them, sometimes with a little help. For example, there was no existing engine that fit their needs, so they drew up plans for a small, lightweight, twelve-horsepower engine and asked Charles Taylor, a skilled mechanic, to put it together for them.

The brothers encountered setbacks in their project. Yet, rather than becoming discouraged, they learned from their mistakes, each time improving the design. Also, the brothers received support from local folks. The postmaster's family in Kitty Hawk and the crewmen from a nearby sea-rescue station gladly lent helping hands.

On the morning of December 17, 1903, the brothers' airplane, called the *Wright Flyer*, was positioned on a track pointed into the wind. Orville stretched out across a cradle-like section of the lower wing, which served as the *Flyer's* primitive cockpit. Wilbur stood

alongside one of the wings, ready to help guide the airplane as it built up speed during takeoff.

At 10:35 A.M., the wood-and-cloth machine, the world's first true airplane, launched successfully into the sky. That famous flight lasted only twelve seconds and covered a mere 120 feet, but it meant that Wilbur and Orville had discovered the secret to practical human flight. Three flights followed that day, each longer than the one before. On the day's last flight, Wilbur piloted the *Flyer* a distance of 852 feet in fifty-nine seconds. There could be no doubt that the air age had been born and that the world would never be the same.

News of the achievement filtered out slowly, as the brothers were not anxious to share information about their amazing invention. Since they had unlocked the key to flight, they continued their experiments back in Dayton starting in 1904. A Dayton banker allowed them to use his dairy farm as their airfield. Known as Huffman Prairie, the 100-acre plot of flat land served their purposes very well. The brothers built an improved *Flyer* and tested it there. They also gained additional piloting experience and learned how to turn the airplane in a full circle during flight.

While Wilbur and Orville continued to improve their airplane mainly in private, others in America and Europe began to develop competing designs. Facing this pressure, the brothers decided to more publicly display their machine. In the summer of 1908, Wilbur expertly flew the latest version before large crowds in France. Those who had doubted the claim of the Wrights to be the first to fly were quickly converted by the sight of Wilbur circling above in long endurance flights.

At the same time, Orville demonstrated another of the Wright airplanes for the U.S. Army at Fort Myer, Virginia. Unfortunately, the aircraft crashed, killing passenger Lt. Thomas Selfridge and severely injuring Orville. The next year, a fully recuperated Orville returned to complete the army flying trials. Under the army's requirements, he had to stay airborne for more than an hour with an observer on board, and he had to fly at a speed of at least forty miles per hour. After Orville proved these capabilities, the army placed an order for its first airplane.

The brothers were on their way to receiving financial benefits, with orders placed by both private and military organizations. However, Wilbur and Orville felt that a competing inventor from Hammondsport, New York by the name of Glenn Curtiss was violating their patents. Years of legal bickering followed and the Wright brothers found themselves consumed by lawsuits. Some observers believed that the feud was hurting the American aviation industry.

Under all the strain, Wilbur became rundown. In the spring of 1912, he contracted typhoid fever. Wilbur died on May 30, at the age of forty-five. Younger brother Orville was then elevated to the presidency of the Wright Company. Orville, though, did not share Wilbur's ambition. In 1915, he sold out to a group of investors.

Orville lived in retirement at Hawthorn Hill, a stately home he had built in a Dayton suburb. He did not have further hands-on involvement with aviation, but he did attend aviation-related conferences and kept up with developments in the industry. He lived to see the airplane transformed into both a tool of commerce and a weapon in war.

On January 30, 1948, Orville died of a heart attack, at the age of seventy-six. He and Wilbur, as inventors of the airplane, had made a profound impact on the world. Since the Wright brothers' first short flight at the dawn of the twentieth century, humanity has smashed through the sound barrier, soared into space, and now prepares to visit another planet.

Not far from the Dayton cow pasture where the brothers conducted their flying experiments is a major air base that bears the Wright name and that is home to some of today's leading aeronautical research. On most days, modern fighter jets from the air base streak overhead near the historic field that is now preserved as a national park. The airplane that spurred this revolution is on exhibit at the Smithsonian Institution's National Air and Space Museum in Washington, D.C.

## Chapter Three

# Alberto Santos-Dumont: *Aerial Experimenter*

On July 20, 1873, Alberto Santos-Dumont was born in Brazil to a family of wealth and privilege. He grew up on his family's sprawling coffee plantation. The family recognized the advantages of mechanized farming and used newly developed machinery. Alberto's exposure to this heavy equipment led to a fascination with things mechanical. At the same time, he read the works of science-fiction writer Jules Verne and dreamed of flight under the wide-open, crystal-clear skies of his native country.

At eighteen years of age, Alberto was granted a considerable inheritance and was sent to study in Paris. Alberto hired a former professor to be his private tutor. His studies lasted five years and were concentrated in the physical sciences to help him reach his boyhood goal to fly. Alberto wanted to develop flying machines because he believed that they could someday provide transportation and also bring about more harmony, possibly even peace, among nations.

Ballooning had originated in France a century earlier, so Alberto's initial efforts at flight naturally involved balloons. Showing signs of genius, Alberto calculated that a spherically shaped balloon with a diameter of only twenty feet would be adequate for flight. He further reckoned that such a balloon could be stabilized by fastening longer suspension lines to the basket underneath. To make the balloon more efficient, he had it sewn with Japanese silk, a lighter material than that used in existing balloons.

Alberto's first successful ascent occurred in Paris on July 4, 1898. He was lifted up by his small lightweight balloon, which he named *Brazil* in honor of his homeland. Alberto did not rest, though. He addressed the challenge of how to steer balloons, since they floated at the mercy of wind currents. Alberto's answer was to develop a series



of dirigibles or powered airships—basically steerable balloons with onboard engines. Eventually, he produced over a dozen models, some more successful than others.

Alberto celebrated his accomplishments by dining with leading socialites at the elegant Maxim's restaurant in Paris. His amazing aerial exploits made him the talk of the town and a popular figure in high society. He was a dapper fellow who wore a panama hat almost everywhere he went.

Alberto accomplished a major feat on October 19, 1901, when he flew his sixth powered airship around the Eiffel Tower. The sight of the sausage-shaped airship, with its framework hanging below from which Alberto controlled the contraption as it circled the Paris landmark, caused a stir not just in France but around the world. With this flight Alberto won the Deutsch Prize, which came with an award of 100,000 French francs.

Alberto mentioned to his friend Louis Cartier, a trendsetting Paris jeweler, that he could not use his pocket watch while flying. He needed both hands to work the dirigible's controls. Cartier's solution was to mount a timepiece on a leather band. This was the first practical wristwatch for civilian use.

In the spring of 1903, Alberto flew his latest design, which he named *La Baladeuse* (*The Stroller*). This airship represented a breakthrough because, with its much smaller size, it was easier to maneuver. It was also more reliable than his earlier designs. Weather permitting, Alberto could fly to almost any location in and around Paris. For Alberto, the new airship was like a car. When he wanted to visit a friend or enjoy refreshments, he simply climbed aboard his airship, navigated to his destination, landed in the street, and either tied a guide rope to a post or handed the rope to a doorman. Alberto's advances indicated that airships might become commonplace.

After the Wright brothers succeeded in inventing the first powered and controllable airplane in 1903, Alberto turned his attention to heavier-than-air flight. His first effort was in 1905 when he constructed a crude helicopter. This proved to be unworkable.

Next Alberto focused on a winged vehicle, but one with an unusual box-kite configuration. Large square shapes, made of pine struts and

piano wire, formed a thirty-three-foot forward wing. Thrust came from a fifty-horsepower automobile engine turning a pusher propeller. There was no seat for the pilot. Alberto had to fly his strange-looking airplane standing up.

The flying machine was called the *14-bis*. (*Bis* means “encore.” The name derived from Alberto’s having previously designed an airship with the same numerical designation.) Throughout the summer of 1906, he refined and tested his peculiar airplane. To win the Archdeacon Prize of 3,500 francs he would have to cover at least 25 meters, and to win the Aero Club of Paris Prize of 1,500 francs he needed to track across 100 meters.

On October 23, with officials watching, Alberto managed to yank his design into the air a mere ten feet in altitude, but it was airborne over a spacious public park in Paris. He kept the *14-bis* aloft for about sixty meters, a remarkable performance. It was the first time anyone in Europe had succeeded in flying a heavier-than-air vehicle. Alberto was hailed as a hero in all of Europe and in every corner of the world that received news of the flight. His countrymen in Brazil were especially proud.

Seeking to win another major prize, on November 12 Alberto took off again in his airplane made of box-kite sections. He climbed as high as fifteen feet and flew approximately 220 meters before coming to an abrupt landing. It was another spectacular triumph. Alberto was hoisted atop a crowd of fans who paraded him through Paris for the rest of the day.

Alberto’s flights in his primitive airplane in 1906, although noteworthy, were really not controlled in a sustainable manner. He struggled to come up with a practical heavier-than-air design. It was not until three years later that he finally did so.

In 1909, Alberto produced a monoplane called the *Demoiselle*, the French word for dragonfly. The petite and aerodynamically shaped aircraft had a silk-covered wing and an eighteen-horsepower engine. This design became popular as a sport plane and hundreds were built in France. Some were even built in the United States.

In 1910, Alberto suffered a severe injury when his *Demoiselle* crashed violently. The incident ended his flying career. Also that



year, Alberto was diagnosed with multiple sclerosis, a nerve disease causing muscle weakness and loss of coordination. Adding to the reversals in his life, competitors were overtaking his aeronautical firsts. The attention Alberto had once enjoyed was now receding.

In 1902, Alberto visited the United States and met with Pres. Theodore Roosevelt at the White House. The president had an avid interest in flight and felt that there might be military applications. Alberto rejected this idea, believing that flying machines should be used only for peaceful purposes.

However, airplanes and dirigibles were employed in World War I as instruments of destruction. Alberto was heartbroken. He dropped his aviation pursuits and became withdrawn throughout the 1920s.

He returned to Brazil in the early 1930s, but his country was being torn apart by civil war. The government used airplanes to bomb its opponents, and Alberto found this terribly distressing. He had always believed that powered flight should not become an instrument of war but a means to peace. On July 23, 1932, he died suddenly. Citizens of Brazil were so grieved by Alberto's unexpected death that a ceasefire was arranged and participants from both sides of the conflict came from far away to pay their respects to the deceased hero.

Today Alberto is regarded universally as one of the foremost aeronautical pioneers. He not only advanced flight; he popularized it. In Brazil, Alberto is revered as a brilliant scientist/engineer who dreamed of the world becoming a more peaceful place because of aviation.





## Chapter Four

# Billy Bishop: *Fearless Flyer*

There was little in his early years to suggest that one day William Avery “Billy” Bishop would become Canada’s leading military aviator and one of the free world’s all-time greatest war heroes. Born in Owen Sound, Ontario on February 8, 1894, Billy was only a mediocre student and he did not like team sports. Through a membership at the local YMCA, Billy developed a knack for billiards, and thereafter he frequently cut classes in order to play in the pool halls in the seedy sections of town. At school, he was prone to fistfights.

Concerned about Billy’s future, the boy’s parents thought that the answer might be to send him off to the Royal Military Academy in Kingston. The Academy is Canada’s equivalent to Britain’s Sandhurst and America’s West Point. Billy’s parents did not think that he would have a military career, but they hoped the discipline at the Academy would straighten him out.

Some of Billy’s extracurricular activities might help his chances of acceptance. Through his love of hunting, he had developed into an expert marksman. In addition, Billy had a talent for riding horses. Presumably, any military organization in the early twentieth century would appreciate someone who could shoot and ride.

Billy was accepted into the Academy, but almost from the moment that he first set foot on the campus of stately old stone buildings in August 1911, things went awry. By his third year, Billy’s instructors said that he was the worst cadet that the Academy ever had, and they came close to expelling him. Just then, however, World War I erupted, and all the able-bodied men that Canada could spare were needed for the fight in Europe.

Billy sailed to England as a lieutenant in the Fourteenth Battalion of the Seventh Canadian Mounted Rifles. He had dreamed of dramatic



charges on horseback not unlike the glories of the knights of old, but on the overcrowded cattle ship plodding its way across the Atlantic, disillusionment set in. The voyage took two weeks, and along the way many of the men and even some of the 700 horses became seasick. At one point, German U-boats attacked the convoy. Several of its vessels sank, as the cattle ship's passengers looked on helplessly in horror.

When at last they arrived in England, Billy and his unit settled in at the Shorncliffe military camp near the English Channel. The sea breezes could be furious, and the rains turned the ground into a dirty mush. In a letter home, Billy complained that his surroundings were "an incredible morass of muck, mud and mire." Then, one day as he trudged through the soggy parade ground, he caught sight of an airplane that dipped down in an apparent effort to gather its bearings before darting off again into the distance. It was a brief but enchanting encounter that caused Billy to conclude that the only way to fight the war was "up there above the clouds and in the summer sunshine."

As a cavalry officer in England anxious to become a pilot, Billy sought and received a transfer to Britain's Royal Flying Corps, predecessor to the Royal Air Force. At first, he served as an aerial observer, which included looking out for enemy aircraft and firing at any that came into range. After a few months, Billy went through flight training and qualified as a pilot, though not without difficulty. He wrecked a number of training planes and was about to be dismissed, but the chief flight instructor gave him an extra chance to prove himself.

Billy was ordered to report to No. 60 Squadron at Filescamp Farm in France. The assignment thrilled Billy, because this was considered the greatest of all fighter squadrons. Moreover, the unit had been led by Albert Ball, one of the leading wartime British commanders.

To hone his skills as a fighter pilot, Billy asked the quartermaster for empty cans from the mess hall. Alone, Billy climbed in his Nieuport biplane to 15,000 feet and then released the cans into the frigid air. As they gyrated in the wind, he chased after them, firing bursts from his airplane's machine gun and scoring hits in this three-dimensional shooting gallery. He was practicing for when he would encounter enemy aircraft.

At dawn on Easter Sunday, April 8, 1917, Billy, by then having

scored three victories, led a patrol near Vimy Ridge. He and his squadron commander, Jack Scott, went after an enemy two-seater, but it was possibly a trap. Before they knew it, multiple German fighter planes appeared, and a melee broke out. Billy tore up the sky, climbing, diving, and then repeating the cycle, each time going after new targets swirling around him.

Billy had used up three ammunition drums in the day's air fighting and was officially credited with three victories. His score now totaled six victories, one more than was required for the status of ace. In honor of Billy becoming an ace, his crew chief, Walter Bourne, painted the Nieuport's conelike propeller hub a special shade of blue. From that point forward, Billy was known to his German foes as the "Blue-Nosed Devil."

On the last day of the month, Billy had the fight of his life. None other than the most successful ace of the war, Germany's great Manfred von Richthofen, known as the "Red Baron," was in the sky and ready for combat. He swept up and around in an Albatros fighter to challenge Billy, nearly scoring.

Billy turned the tables. He maneuvered into firing position for a few seconds and got off a burst that hit the Albatros. But in a feat of airmanship, the Red Baron broke away. He dropped down fast and then headed for home "with a defiant waggle of his wings." The clash between the two aces had been a draw.

One of Billy's most memorable engagements occurred on June 2, 1917, when he ventured twelve miles behind enemy lines. He spied the Estourmel Aerodrome, near Cambrai, where enemy Albatros fighters occupied the field. He peppered two with machine-gun fire as they were taking off. A third, which managed to get airborne, was destroyed in a skirmish. Billy fought off a fourth Albatros with a prolonged burst. For this lopsided outcome, which occurred in a mere six minutes, Billy was awarded the Victoria Cross, the British Commonwealth's highest military honor.

During leave, Billy returned to the Royal Military Academy in Kingston, where three years earlier he had almost been expelled. Now he was greeted warmly, wearing his country's highest military decorations. While being celebrated as a war hero in Canada in the

fall of 1917, he married his longtime sweetheart, Margaret Burden. She was the granddaughter of Timothy Eaton, founder of Canada's largest department-store chain.

The war was still raging, and Billy was given command of No. 85 Squadron, known as the Flying Foxes. He led by example, flying alongside his men in combat air patrols. But in June 1918, the General Staff decided that Billy was too important a public figure to risk losing in the air fighting, so he was recalled to London for administrative duties. He had twelve days to pack up his things and leave the front.

Billy flew his new British S.E. 5 fighter almost around the clock, trying to increase his score of downed enemy planes as much as he could in the limited time he had left. He roamed the sky in search of prey. In those last days, Billy shot down another twenty-five aircraft, bringing his total victory count to seventy-two. This number made him the highest-scoring Canadian ace.

At war's end, Billy retired from the service. He entered a new phase of his life as a socially prominent businessman and sportsman. As the next world war approached, Billy was made an honorary air vice marshal of the Royal Canadian Air Force.

Billy died on September 11, 1956, while at his Palm Beach, Florida home. He was buried in his hometown of Owen Sound. Billy "was the raider, always seeking the enemy wherever it could be found," the American ace Eddie Rickenbacker remarked. "I think he's the only man I ever met who was incapable of fear."

## Chapter Five

### Eddie Rickenbacker: *American Ace of Aces*

Edward Vernon “Eddie” Rickenbacker was born in Columbus, Ohio on October 8, 1890. Times were challenging for the Rickenbacker family during Eddie’s boyhood. The economy swung up and down, making it difficult for Eddie’s father to keep a job. Making matters worse, Eddie frequently got into trouble while growing up. Along the way, he developed a reputation for mischief.

Eddie did not pay attention in school and dreaded reading books. He even headed a gang that roamed the streets of Columbus, once provoking a serious confrontation with the local police. Eddie’s father punished his son with a harsh beating. Unfortunately, Eddie was often subjected to beatings by his stern father, but these thrashings never made a difference in Eddie’s behavior. He remained a rebellious boy.

Despite the hardship in his early life, Eddie had a happy-go-lucky streak and sought adventure amid his humble surroundings. One day, Eddie observed a dirigible passing over the town, and it inspired him to improvise a flying machine of his own. He and a friend carried a bicycle to the roof of a barn. Eddie planned to ride it down to the edge of the roof and then float through the air with an umbrella that he would grasp in his hand. The idea was doomed to fail. Eddie crashed into a mound of sand that he had poured as a cushion just in case. Someday, Eddie thought, he would really fly.

Tragedy struck the family when Eddie’s father was killed in a street brawl. Eddie suddenly realized that he had to care for his mother and siblings. Only thirteen years old, Eddie quit the seventh grade to go to work. The very next day he got a job at a glass factory, the first in a string of jobs involving manual labor. The weight of his new responsibilities caused him to quickly mature.





Eddie was fascinated with automobiles and got a job at a car-repair shop. From there he joined a car-manufacturing business. He learned much about how cars were built and he rose through the ranks. The sport of car racing was becoming increasingly popular and Eddie, always looking for excitement, became a professional racecar driver.

As soon as America announced its entry into World War I, Eddie proposed to the army that a squadron of fighter pilots be formed consisting of the country's leading racecar drivers, including himself. He believed that these highly skilled and mechanically gifted men would be perfect for the job. However, the army promptly spurned Eddie's suggestion.

Like many great flyers, Eddie had to overcome obstacles to get the chance to fly. At the time, Eddie was a successful racecar driver who wished to apply his automotive knowledge to military airplanes. However, at twenty-six years of age, he exceeded the age limit for acceptance into U.S. military flight training. Also, he did not have a high-school diploma, let alone a college degree, so his request for a pilot slot was frowned upon.

Even though he encountered stiff resistance from army aviation officials, Eddie still wanted to serve his country. In June 1917, he went to France as the personal driver of Billy Mitchell, a brigadier general in the Army Air Service and a leading air-power advocate. It did not take long for Eddie to persuade his boss to bend the rules and allow him to attend the newly established flight school at Tours.

After he obtained his wings, Eddie found that he experienced airsickness in his fighter plane during combat maneuvering. He forced himself to do stunts in the air day after day until finally he overcame his affliction. This determination to succeed became a hallmark of Eddie's life.

Eddie was assigned to the Ninety-fourth Aero Squadron, which was known as the Hat-in-the-Ring Squadron. He combined his daring with a talent for learning from others, and he carefully analyzed each of his aerial engagements. He began to emerge as an expert fighter pilot and respected combat leader.

Eddie sometimes patrolled the sky alone in his sleek SPAD fighter plane. On September 25, 1918, the day after being promoted to

commander of his squadron, he spotted five of the enemy's Fokker D VII fighter planes and two of their Halberstadt reconnaissance aircraft near Billy-sous-les-Cotes. Climbing in a corkscrew, Eddie outsmarted his adversaries. By gaining altitude, he got the advantage in the battle and dove on the Fokkers. He scored against one. He came around again, this time aiming for one of the Halberstadts, which he sent down with a burst of gunfire.

By war's end, Eddie had tallied twenty-six air-to-air victories, which made him the highest-scoring American ace of the war—the American Ace of Aces. While leading his squadron mates as a captain, he let them know that he would never ask them to fly a mission that he would not fly. For the bravery he displayed in the hostile skies over France, especially on that fall day when he singlehandedly attacked seven enemy planes, Eddie was awarded America's highest military decoration, the Medal of Honor.

After the war, Eddie pursued several careers. He formed his own automobile company and developed affiliations with the Indianapolis 500 Speedway and General Motors Corporation. But his best-known corporate position was as the head of Eastern Airlines. Starting in 1935, Eddie managed the company with vision and energy. He ordered new all-metal airliners, which he referred to as “the great silver fleet.” Routes were expanded to include flights from Northern cities to Miami, a popular destination during the winter season. Under Eddie's leadership, the airline became very profitable.

Eddie remained a strong patriot. During World War II, he volunteered his services to the war effort as a civilian. To boost morale, he traveled across the country speaking to military personnel, factory workers, and civic leaders. In October 1942, he was aboard a bomber heading across the Pacific Ocean so that he could deliver a top-secret message to Gen. Douglas MacArthur. The plane strayed off course and had to make a forced landing at sea. Eddie and the others aboard the stricken airplane were stranded in rafts for three weeks before being rescued. After recovering from this ordeal, Eddie continued his important wartime work, traveling extensively on behalf of the War Department.

When the war ended, Eddie was able to devote more of his attention

to Eastern Airlines. The company continued to grow, but by the early 1960s the airline industry had changed and competitors were eating into Eastern's business. As a result, Eddie was forced to retire.

Eddie's remaining years were spent writing, lecturing, and traveling with his wife, Adelaide. During a visit to Switzerland, Eddie fell ill. On July 23, 1973, he died in his sleep. Eddie's life was memorialized in many ways. For example, an airport in his hometown of Columbus was named after him. Perhaps the most touching honor occurred at the great airman's burial in Columbus when fighter jets from his old squadron flew over in formation.

Today, the squadron that Eddie helped to make famous defends America's skies flying the world's most advanced fighter, the stealthy F-22 Raptor. The tradition established by Eddie and his fellow World War I pilots remains alive. The same Hat-in-the-Ring insignia that decorated Eddie's SPAD can be seen on the side of the current squadron commander's Raptor.



## Chapter Six

### Bessie Coleman: *Aviation Pioneer and Stunt Pilot*

The first licensed African American pilot was a woman named Bessie Coleman. She was born in rural Texas on January 26, 1892. Although both of Bessie's parents were unable to read or write, they recognized the value of education. Therefore, when Bessie was six years old, her mother and father sent her off to the area's one-room schoolhouse. Each school day, little Bessie walked four miles to and from school.

Coping with poverty in her early years, Bessie had to labor in the cotton fields. In her spare time, she read about successful blacks. One of these was Harriet Tubman, who had been active in the Underground Railroad, helping slaves reach freedom. Such stories gave Bessie reason to believe there could be a better life. Bessie ached to escape her dreary surroundings, and in 1915 she decided to join an older brother who had moved to Chicago.

Bessie became a hairstylist and manicurist at beauty parlors and barbershops in Chicago's predominantly black South Side neighborhoods. However, transplanting herself from the Deep South to the so-called Black Belt of Chicago still left her feeling unfulfilled. One day, with goading from her brother, Bessie decided to pursue becoming the world's first black female pilot.

The problem was that no flying school in the Chicago area would give instruction to an African American woman. Undeterred, Bessie opted to go to France for flight training. She had the encouragement of Robert Abbott, founder and editor of the *Chicago Defender*, one of the country's leading African American newspapers.

Bessie sailed to Europe in late 1920 and soon started her flying lessons in a Nieuport Type 82. Seven months after arriving at the school, on June 15, 1921, she was issued her license by the Federation

Aeronautique Internationale, a European-based aviation organization whose standards were recognized around the world. Bessie returned home but concluded that merely flying an airplane was not enough to earn a living. She journeyed back to France for advanced instruction in aerobatic flight. Upon completing this course, she embarked on an adventurous and inspiring new life of flying at air shows.

She managed to scrape together enough money to purchase a Curtiss JN-4 Jenny, a surplus army trainer aircraft of World War I vintage. For the next five years, Bessie zigzagged across the United States, performing at aerial meets and flying displays. When she visited cities as part of her show schedule, she booked herself as a speaker at local black theaters, schools, and churches. She wanted to spread a message of hope, especially to children.

The African American media hailed Bessie as a role model for all blacks, and her hometown paper, the *Chicago Defender*, dubbed her "Queen Bess." Yet, while she enjoyed the freedom of the skies and the fame that came from her pioneer status, she was never far from reminders of the prejudice and hatred that existed in America. As an example, on Labor Day in 1923, Bessie was giving a flying exhibition in Columbus, Ohio. Only a few miles away at the state fairgrounds, there was a huge gathering of the Ku Klux Klan, the all-white hate group.

Airplanes were still flimsy machines, and in the middle of her short career, Bessie suffered serious injuries in a crash near Santa Monica, California. Her aircraft's engine simply quit at a mere 300 feet above the ground. She recovered from the incident and continued flying, but the hazards of flight in those early days remained a constant threat. Sadly, on April 30, 1926, while preparing for a performance in the sky over Jacksonville, Florida, Bessie died. Her aircraft flipped over in flight due to a misplaced wrench that jammed the flight controls. Bessie was only thirty-four years old.

Bessie had dreamed of establishing a flight academy for African Americans, so that they would not have to go through the difficulties she did in order to learn to fly. This dream was dashed with her untimely death. However, Bessie's saga of reaching for the sky and getting there despite considerable obstacles inspired her fellow African Americans

who sought a life in aviation. A flight school for blacks was started in Chicago in the 1930s by Cornelius Coffey, a highly motivated black aircraft mechanic who was also a pilot. Coffey and his partner, Willa Brown, offered training through the school at Harlem Airport, on the city's South Side.

Flying clubs bearing Bessie's name sprang up in various locations. In 1931, a group of pilots started to fly over her gravesite in Chicago each year, dropping flowers in her memory. This annual tribute ceased for a time but was eventually revived.

In 1995, the U.S. Postal Service issued a commemorative postage stamp in recognition of Bessie's pioneering achievement. Today, passengers at Chicago's O'Hare International, one of the world's busiest airports, are reminded of the legacy of this remarkable aviator by the facility's primary roadway, named Bessie Coleman Drive.







## Chapter Seven

# Charles Lindbergh: *Lone Eagle*

Charles Augustus Lindbergh is one of the most famous names in aviation. Born in Detroit, Michigan on February 4, 1902, Charles was lonely as a child. His parents were apart for much of his youth and he grew up in three different places—a family farm in Minnesota, his grandfather's house in Detroit, and Washington, D.C., where his father served five terms as a congressman.

While at the farm, Charles enjoyed swimming and hunting in the surrounding countryside. When visiting his grandfather, he was introduced to the enticing world of science and invention, because his grandfather was a distinguished dentist who conducted a range of experiments in a home laboratory. In the nation's capital, he lived in a variety of boardinghouses and toured the many museums and monument sites.

Due to the shuttling between cities, Charles was unable to spend more than a year at any one school. This moving around prevented him from developing good study habits, and he did not like school in any case. In 1920, when he was eighteen years old, he enrolled in the University of Wisconsin to appease his parents.

But Charles, by then a shy, lanky young man, was an awful student. He also longed for a more adventurous life than that offered at a Midwestern university. He liked machinery, speed, and risk. After only three semesters, he failed most of his classes. In 1922, Charles wrote his mother that he was departing the university to learn to fly.

In the middle of Nebraska's cornfields, Charles was introduced to the basics of airmanship. He showed an aptitude for flying. Yet, before he could fly solo, his savings were depleted. Unwilling to give up, he stayed in aviation by first becoming a wing-walking stuntman and then an exhibition parachutist. Most of the time he was not earning



money, but it did not matter to him, since he just wanted to be around airplanes.

In the spring of 1923, Charles went into debt to buy a war-surplus Curtiss JN-4 Jenny trainer aircraft. In the days before a pilot's license was mandatory, Charles resumed his flying education on a self-taught basis in his rickety open-cockpit biplane. Called "Slim" by his friends and fellow pilots, Charles spent the summer flying across American prairies, performing stunts and selling five-dollar airplane rides at county fairs and air meets—a practice known as barnstorming. It was one of the most exciting and happy times of his life.

Charles joined the army so that he could fly the most advanced planes of the day. During training, he applied himself and graduated first in his class. However, flying positions for new fighter pilots were limited, prompting Charles to resign his commission as an officer.

The wages then being offered by some commercial airlines persuaded Charles to become an airmail pilot. The long, lonely mail flights on the route between St. Louis and Chicago presented many dangers. Frigid and stormy nights were not uncommon, and on four occasions Charles had to bail out to save his life.

Drawing on his experience, Charles, just twenty-five years old, set out to tackle the enormous challenge of becoming the first person to fly nonstop across the Atlantic Ocean solo. He chose a newly designed airplane based on the Ryan company's existing M-2 and Brougham models. Built in only two months and called the *Spirit of St. Louis*, the wood-and-fabric airplane had five fuel tanks and a periscope to see ahead.

By this time, a number of pilots were trying to make the nonstop flight from New York to Paris or from Paris to New York, in part because Raymond Orteig, a wealthy hotel owner, had offered a \$25,000 prize for the first pilot who succeeded. Through the third week of May 1927, all of the entrants had either failed or been delayed. Some had met with tragic ends when their planes disappeared over the ocean or crashed on takeoff.

At dawn on May 20, the *Spirit of St. Louis* was ready to go. Fueled to capacity, it weighed more than two-and-a-half tons, which was slightly over the design limit. Charles started down the rain-soaked

runway at Roosevelt Field on Long Island, gaining speed very slowly at first. He held the plane on the ground until he felt it was ready to fly. He pulled the control stick back and remained low to gain yet more speed. At the end of the airfield, he barely cleared a span of telephone wires. Charles was on his way to Paris.

The flight became a test of will and of man against the elements. Charles had hardly slept the night before, and now he faced a lengthy and demanding journey. At times, he started to doze off in the cockpit's wicker chair but forced himself to stay awake. He encountered towering cloud banks, which forced him to rely on instruments. Icing conditions also caused Charles to turn for breaks in the weather. Fortunately, his comparatively light engine, the air-cooled Wright Whirlwind J-5C, kept humming.

On May 21, 1927, Charles completed his epic flight from New York to Paris, covering 3,614 miles in thirty-three and a half hours. Upon his landing at Le Bourget Airport, 150,000 excited Parisians mobbed his airplane before he could even climb out. This historic solo transatlantic flight brought cheers from around the world and established Charles, now nicknamed the "Lone Eagle," as one of the greatest heroes of all time.

Among his many awards was an honorary doctor-of-laws degree from the University of Wisconsin, which had flunked him earlier in the decade. Charles was also presented with the Medal of Honor at a White House ceremony.

During a Christmastime visit to Mexico that eventful year, Charles met the U.S. ambassador's daughter, Anne Morrow. A shy college student at the time, Anne instantly fell in love with the handsome and now very famous aviator. They married in May 1929, he the prince of the sky and she the enchanted damsel. The world was delighted by this fairytale wedding.

Charles was an astute observer of the aviation scene and he knew there was much yet to be done in the emerging industry. He wrote, "America has found her wings, but she has yet to learn to use them." He applied his celebrity to advancing aviation. This included serving as a technical advisor to airlines that wished to expand their routes.

But with great triumph came great tragedy. In March 1932, in what

was termed “the crime of the century,” the twenty-month-old son of Charles and Anne disappeared from the Lindbergh estate in New Jersey. Eventually, the culprit was arrested and convicted in “the trial of the century.” The whole country followed the court proceedings, which the press covered in every detail. Charles and Anne despaired over the misfortune that had befallen their family.

War loomed on the horizon, and Charles felt strongly that America should resist involvement in the brewing foreign conflict. He expressed these views publicly and became very controversial. When war engulfed America in 1941, Charles reversed his position and even tried to obtain an assignment in the U.S. military. Because he had made political enemies with his outspoken opinions, his request for military service was denied.

Instead, Charles helped to run the huge Ford aircraft plant at Willow Run Airport near Detroit. After two years in the plant, he wanted to go to the war’s front lines. He arranged a trip to combat zones in the South Pacific as a technician-observer for United Aircraft, the parent company of engine manufacturer Pratt & Whitney.

In mid-1944, while on his tour of air bases, he managed to fly with U.S. Marine units in Vought F4U Corsairs, hefty but fast fighter planes, and with U.S. Army Air Forces squadrons in Lockheed P-38 Lightnings, heavily armed twin-engine fighter planes. Charles flew fifty combat missions and even downed a Japanese attack aircraft. While his performance on these missions was very impressive, Charles’ major contribution during his trip was developing fuel-management techniques that extended the combat radius of the P-38s by nearly two hundred miles.

Following World War II, Charles traveled extensively, wrote bestselling books, and lent his prestige to support the U.S. space program. He also championed the environment, arguing that it was important to balance science and nature. On August 26, 1974, Charles died of cancer. In accordance with his wishes, he was laid to rest in a simple ceremony not far from the home he had built in a secluded corner of an island in the Pacific Ocean.

Chapter Eight

Robert Goddard:  
*Rocket Scientist*

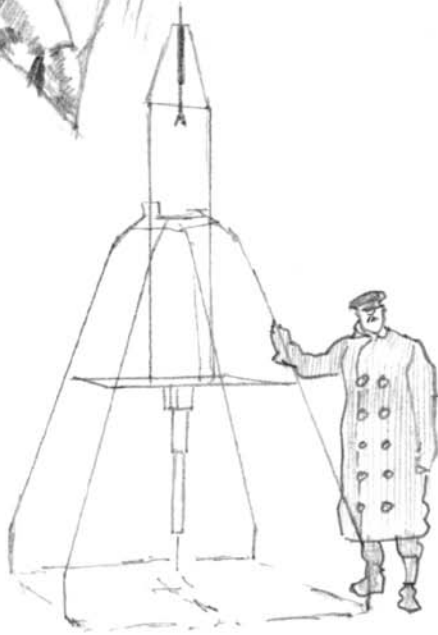
Robert Hutchings Goddard was born on October 5, 1882. Seventeen years later, at the dawn of the twentieth century, he climbed the cherry tree that stood behind the barn on the grounds of Maple Hill, his family's homestead in Worcester, Massachusetts. Looking out over the fields, Robert envisioned a whirling flying machine that powered itself upward through and beyond the atmosphere.

Robert had already read and been influenced by *The War of the Worlds*, H. G. Wells' science-fiction tale of a Martian invasion of Earth. From his vantage point in the tree, Robert dreamed of building a craft that might fly all the way to Mars. His diary entry for that day noted that he considered himself "a different boy" when he descended from the tree, as if his life had now become "very purposive."

Growing up, Robert seemed to be a sickly child, although some observers thought his parents simply mistook common childhood ailments as more serious health threats. In any event, Robert's parents sometimes removed him from school for medical reasons. As a result, he did not graduate from Worcester's South High School until he was twenty-one years old.

Robert spent much of his time alone at home devouring books from the local public library. He was a curious boy and he frequently used his microscope and telescope. When he finally completed high school, he shared top academic honors with a classmate. Robert delivered a graduation address in which he touched on the possibility of life on the Moon and Mars. He concluded his speech with the profoundly optimistic observation that "the dream of yesterday is the hope of today and the reality of tomorrow."

By studying science, especially physics, Robert believed he might find the answer to his far-flung dream of space flight, so after high



school he enrolled in the Worcester Polytechnic Institute to pursue a scientific education. He excelled in the academic environment, and in 1908 he graduated at the top of his class.

In the autumn, Robert began graduate studies in the physics department at nearby Clark University. During one of his rocket experiments, he ignited a powdered propellant, which caused smoke to billow in the basement of the physics building. Had his professors not been so understanding, Robert may have faced expulsion.

Because rocketry had not yet evolved into a recognized field of study, Robert's faculty advisors focused his formal research on radio-related physics. But in his spare time, he continued with his main interest of space flight, trying to determine the most efficient propulsion system. In 1911, Robert received his Ph.D. in physics, with honors.

During a fellowship at Princeton University, Robert contracted tuberculosis, which his doctors said would be fatal. Robert went bald and lost a lot of weight, but he refused to accept the dire prognosis. He overcame the disease, reflecting the strong spirit that would continue to flourish throughout his life.

Robert was invited to join the faculty at Clark University, where he refined his experiments and proved that rockets work in a vacuum. From his calculations, he also concluded that rockets offered the best propulsion to high altitudes. In 1916, Robert requested funds from the Smithsonian Institution to support his unusual research. Early the next year, he was delighted to receive a commitment of \$5,000, a lot of money in those days.

When America entered World War I, Robert offered his scientific expertise to the U.S. military. He developed various small rockets. One type showed promise as an air-launched weapon; others had application as anti-tank weapons. However, the war ended before any could go into production, and interest in Robert's rockets rapidly waned. His concept of a tube-launched rocket later evolved into the bazooka, which was extensively used in World War II.

Urged by one of his mentors at Clark University to publish his research on rockets, Robert arranged for the Smithsonian to do so in 1920. The sixty-nine-page report contained Robert's belief that it

would be possible to send a rocket to the Moon. However, the notion of flying all the way to the Moon was so far ahead of its time that much of the press, including the *New York Times*, poked fun at him. The dismissive reaction to his scientific paper caused Robert, already a private person, to become very secretive.

Robert immersed himself in his laboratory, continuing to seek funding for his experiments and quietly obtaining patents on his rocket-related inventions. His calculations told him that solid propellants, derived from chemicals such as gunpowder, would not produce the thrust necessary to lift rockets very far. He turned to a mix of liquid fuel and liquid oxygen.

In the chill of an early-spring morning, Robert set up a launching apparatus for this new liquid-propellant rocket on his aunt Effie's farm in Auburn, outside of Boston. It was March 16, 1926, and the quiet and remoteness of the location were just right for this important experiment. This would be the first time that such a dramatically different kind of engine would be tested. The rocket, which was a mere 10 feet long, shot up to an altitude of 41 feet and landed in a frozen cabbage patch 184 feet away in two and a half seconds. The primitive but successful test was to rocketry what the Wright brothers' first powered flight was to aeronautics. The short flight of the little rocket gave hope that great voyages into space would occur in the future.

Watching the experiment with Robert was his newlywed wife, Esther. They had met at Clark University, where she worked in the administrative office. From the beginning of their marriage, Esther was Robert's strongest supporter, preparing rockets for launch by sewing the recovery parachutes and recording test firings with a camera.

On July 17, 1929, Robert launched a larger rocket from the same family property in Auburn. It rose to about eighty feet, but the noise of the impact prompted local residents to call the police. A patrol car, two ambulances, and newspaper reporters came rushing onto Aunt Effie's farm. A series of inaccurate and unfavorable articles appeared. Also, because it was falsely reported that an explosion and fire occurred, Robert was forbidden from any more rocket launches in all of Massachusetts.



Luckily, the prior year Robert had made the acquaintance of the famed aviator Charles Lindbergh. At the time, Lindbergh was an advisor on aeronautical matters to Harry Guggenheim, a philanthropist deeply interested in aviation. Lindbergh saw the value in Robert's rocket research and advocated that Guggenheim provide financial support.

With generous funding from Guggenheim, Robert and Esther moved to Roswell, New Mexico, where the weather and landscape were ideal for their experiments. Through the 1930s, Robert and a small, devoted staff labored to perfect his rockets, each of which he called *Nell*. The rockets grew in size to eighteen feet, and when launched they reached altitudes higher than eight thousand feet.

During World War II, the U.S. military did not recognize the value of Robert's work. By contrast, the German government backed development of rockets, which led to the terrifying V-2 weapons that rained down on London starting on September 8, 1944. When the war ended, an American interrogator asked one of the German rocket scientists about the origin of the V-2. He reportedly responded, "Why don't you ask your own Dr. Goddard? He knows better than any of us." When Robert inspected a captured V-2, he confirmed it copied much of his designs. Shortly afterward, on August 10, 1945, he died.

Robert had opened the way for the exploration of space. After the space age began to unfold, Robert's contributions belatedly received recognition. On March 16, 1961, the thirty-fifth anniversary of Robert's first successful flight of a liquid-fueled rocket, NASA named its space-science laboratory in Greenbelt, Maryland the Goddard Space Flight Center.





## Chapter Nine

### Richard Byrd: *Polar Explorer*

Richard Evelyn Byrd was descended from one of Virginia's most prominent families. Born in Winchester, Virginia on October 25, 1888, he was encouraged to strive for ambitious goals by his strong-willed mother. When he was only twelve years old, Richard showed that he had the explorer's spirit by traveling by himself to South Asia.

When Richard was twenty, he entered the Naval Academy. As captain of the gymnastics team in 1911, Richard decided to try a new trick of his own creation that involved spinning out of the exercise rings into a somersault, with a few body pivots added in. The risky stunt worked the first few times in practice, but when many of his fellow midshipmen were watching, he failed to grab one of the rings after the final twirl. Richard fell to the floor and severely hurt his right leg, already injured in a football game.

Richard missed many of his classes because of his injury. So he had to work extra hard to finish his studies and graduate in 1912 with the rest of his class. He later stated that his ordeal taught him that "it is by struggle that we progress."

With America's entry into World War I in 1917, Richard wanted a meaningful assignment. He felt he could contribute to the war effort by flying, but he was rejected for flight training because of his impaired leg. Richard kept reapplying until the authorities granted him two months to get into better shape.

Knowing that a life in naval aviation awaited him if only he could pass the physical exam, Richard began exercising in a way that miraculously improved his leg. Later in the year, Richard earned his naval aviator's wings of gold. He served out the war in Canada as the commander of the U.S. naval seaplane base in Halifax, Nova Scotia.

Soon after the war ended, Richard played an important role in the



first transatlantic flight. He helped to plot the route and devise new instruments, such as a wind-drift indicator and a modified sextant that would provide accurate navigation on the long overwater journey.

On May 16, 1919, Richard watched from the shore as three massive Navy Curtiss flying boats took off into a cloudless sky from Trepassey Harbor, Newfoundland on their way to Europe. Eleven days later, after making stops in the water along the way, one of the three aircraft reached Lisbon, Portugal. It was a historic crossing of the Atlantic Ocean, which inspired later crossings such as Charles Lindbergh's solo, nonstop flight.

Competition was heating up for who could become the first person to fly over the North Pole. A team led by famed Norwegian explorer Roald Amundsen was preparing an attempt in a dirigible in the spring of 1926. Richard wanted to be first, but he indicated that his main motivations were the advancement of science and the promotion of aviation.

On May 9, Richard and a highly capable pilot/mechanic by the name of Floyd Bennett took off from King's Bay on the Norwegian island of Spitzbergen. They headed for the top of the world 800 miles away. Their aircraft was a Fokker trimotor named the *Josephine Ford* in honor of the then three-year-old daughter of automotive heir Edsel Ford, who had sponsored the project.

Not quite sixteen hours later, the trimotor returned to the base camp and Richard declared that he and his crewmate had circled the North Pole. The announcement brought him fame, but almost as quickly some skeptics expressed doubt that the pole had been reached. They did not see how the slow-moving trimotor could have covered the distance in that time. Despite the controversy, which lingers to this day, Richard was greeted as a hero upon his return to the United States.

Next, Richard set out to fly nonstop from New York to Paris. Again, he downplayed the competitive aspect. He emphasized instead the need to develop a practical airplane for regular Atlantic crossings, as well as the need to foster good relations between the U.S. and Europe. Funding for this project came from department-store owner Rodman Wanamaker. Reflecting his patriotism, the retailing magnate directed that the Fokker trimotor be named *America*.

On June 29, 1927, less than six weeks after Charles Lindbergh's record flight across the Atlantic, Richard and his crew lifted off on their way to Paris. En route to Le Bourget Airport, the weather turned miserable, with strong winds and heavy, low-lying fog. After flying for nearly forty-two hours, the crew used the beacon of a lighthouse as a guide. The trimotor landed in the French coastal waters near the village of Ver-sur-Mer. Amazingly, everyone on board survived, even though the trimotor was not equipped for water landings.

Richard, whose main skills were as organizer, fundraiser, and navigator, saw Antarctica as the last great aeronautical challenge. He set out to explore the vast and barren continent at the bottom of the planet in what many consider his most valuable research activity. A formidable expedition sailed for Antarctica in 1928. An outpost, named "Little America," was established on the rim of the landmass. About fifty volunteers, who had come with Richard, worked at the camp, where temperatures dropped as low as minus seventy degrees Fahrenheit, and winds sometimes howled with gale force.

On November 28, 1929, Richard departed Little America in a Ford trimotor that he had named the *Floyd Bennett*, in memory of his dear friend and former chief pilot who had died from pneumonia the year before. Richard's chief pilot on this flight was Bernt Balchen, a talented airman from Norway. Another pilot and a photographer were also aboard.

During the flight, the airplane came upon a mountain ridge that rose 10,000 feet, with higher peaks on either side. The airplane was cruising at a slightly lower altitude and was not able to climb any higher. The order was given to lighten the load. Over went the crew's emergency food supply and other provisions. The removal of those items, which weighed a few hundred pounds, made the difference, and the lightened trimotor cleared the impasse by a margin of 500 feet.

At a little less than ten hours' flight time, the airplane reached the South Pole, qualifying Richard and his crewmates as the first humans to fly over the remote landmark. Richard confirmed the location with his navigational instruments. The flight was an extraordinary feat of courage, determination, and careful planning. Richard was again welcomed as a hero when he returned to the U.S.

Since his main exploratory challenges had been conquered and since enthusiasm in polar flights started to fade, Richard believed that he must do something special to regain public interest. In 1933, he led a second expedition to Antarctica with the intention of staying in a small shelter by himself through the harsh and sunless winter, taking and recording various scientific measurements. The plan did not work. Richard suffered carbon-monoxide poisoning and had to be rescued by a team on foot from Little America.

Despite being weakened by the lingering effects of his illness, Richard remained interested in exploration, and he returned to Antarctica four more times. These subsequent trips, however, did not generate the same public interest as his earlier trips. Richard died on March 11, 1957, at the age of sixty-eight.

Part of Richard's record of accomplishment can be seen on maps of Antarctica, which depict a portion of that vast expanse as "Marie Byrd Land," a gesture to his wife. Also, on May 15, 2007, Richard's daughter christened a new ship in the U.S. Navy's Lewis and Clark class that fittingly bears the name of the distinguished polar explorer.

## Chapter Ten

### Wiley Post: *Round-the-World Pathfinder and High-Altitude Researcher*

Wiley Hardeman Post grew up on his family's farms, where he rejoiced in the independence of life on the wide-open prairies. Born near Grand Saline, Texas on November 22, 1898, Wiley was pretty much left alone by his parents as long as he did his chores. When working the land, he got to know farm machinery, such as planters and harvesters, to the point where he became familiar with every part.

In 1913, word of an airplane on exhibit at the county fair reached the Post household in Maysville, Oklahoma, where the family had settled. Wiley was excited by the news and he persuaded his parents to let him go to the fair with one of his older brothers. At the fair, Wiley saw a flimsy Curtiss pusher, the first airplane he had ever laid eyes on. He later said that the sight of that contraption had "taken my breath away."

Wiley's interest in mechanics far outweighed his interest in the subjects covered by his teachers. In eighth grade, Wiley dropped out of school to pursue a course in automotive mechanics. He also studied mathematics and chemistry on his own, since he felt that these subjects were useful in the real world. When the U.S. entered World War I, he changed his plans and enlisted in the army. Wiley received instruction in radio communications, but the war ended before his knowledge could be used on the battlefield.

Back in Oklahoma after the war, Wiley needed to earn a living. He went to work as a "roughneck" in the oilfields, using his mechanical skills to operate drilling rigs. One day in 1924, Wiley gazed at an airplane that happened to be flying over the oilfields of eastern Oklahoma. He decided that it was time to change careers, for he believed that aviation offered more promise.





Wiley asked to join a local flying circus. It so happened that the regular parachute jumper had recently suffered a minor injury, forcing him to sit out his scheduled performances. Though Wiley had never made a parachute jump, he yearned to do so, and the men of the flying circus granted his wish.

Wiley made the jump, and that is what started his aviation career. He performed as an exhibition parachutist for the next few years. With all the time he spent in airplane cockpits, he learned how pilots manipulated the controls. Occasionally, the pilots gave him lessons.

Wanting to become a pilot, Wiley chose to go back to the oilfields to earn enough money to buy a plane of his own. Sadly, in 1926, while managing a drilling operation, a mishap occurred and a metal shard flew into his left eye. A serious infection followed, and the eye had to be surgically removed.

Wiley refused to give up on his dream. He received a disability payment of \$1,800, and he promptly used part of it to buy a Canuck, the Canadian version of the Curtiss JN-4 Jenny. Having only one eye impaired Wiley's ability to judge heights. To overcome this disadvantage, he repeatedly practiced his landings. With time, he could accurately estimate his altitude on descent.

Wiley built up his flying hours by giving instruction, transporting oilmen, and participating in flying displays on the weekends. While giving rides one day, he met seventeen-year-old Mae Laine, with whom he fell in love. They married in June 1927, and for their honeymoon, they flew off together in Wiley's biplane.

But barnstorming could not provide enough income to support Wiley and his new bride. Facing up to this reality, Wiley sold his biplane and in 1928 went to work as the personal pilot for prominent Oklahoma oilman F. C. Hall. Wiley flew the corporate aircraft, a Lockheed Vega. Hall directed that the powerful high-wing monoplane have his daughter's name, Winnie Mae, painted on the fuselage. Soon after, however, Hall's oil business suffered setbacks and he had to return the plane to the manufacturer.

In 1930, when Hall's business picked up, he rehired Wiley and bought a new Vega, which he also named the *Winnie Mae*. Hall knew

that Wiley wanted to make a mark in aviation, so he gave Wiley permission to enter the airplane in a cross-country race. On August 30, Wiley piloted the *Winnie Mae* from Los Angeles to Chicago as part of the National Air Races. He won the grueling contest in a little over nine hours.

The next big challenge Wiley set for himself was to fly around the world in record time. With the backing of his employer, he carefully prepared for the flight. Because he would be doing the flying, he asked Australian Harold Gatty, then running a navigation school in Los Angeles, to accompany him and provide the necessary en-route guidance.

On June 23, 1931, the two men climbed into the *Winnie Mae* and departed Roosevelt Field on New York's Long Island. Eight days, fifteen hours, and fifty-one minutes later, they landed back at their starting point, having slashed the standing record by more than half. They had covered 15,477 miles and made only thirteen stops.

Some people believed that Wiley played only a secondary role to navigator Gatty in the flight around the world. Wiley decided to prove otherwise by flying without an onboard navigator on a similar globe-girdling route. In preparation for this daring flight, Wiley installed new instruments that made it possible for him to conduct the flight of the *Winnie Mae* by himself.

On July 15, 1933, he took off from Long Island's newly constructed Floyd Bennett Field. Incredibly, he overcame the many obstacles, including lack of sleep, to complete the flight in seven days, eighteen hours, and forty-nine minutes, nearly a day less than his previous record global flight. As the first person to fly solo around the world, he was greeted by 50,000 fans upon his return.

Wiley next determined to win the upcoming MacRobertson race from England to Australia, but by then the *Winnie Mae* was outclassed by brand-new planes. Wiley's answer was to fly higher than anyone else—in the stratosphere, where the air would be less dense and the prevailing wind currents very helpful. He knew that the answer to sustaining flight at such heights was a pressurized cabin.

Since the *Winnie Mae* was made of wood, its fuselage was not

airtight, so a pressurized cabin was out of the question. Instead, Wiley developed a pressure suit. This would allow him to operate for long periods in the thin air of the high altitudes.

A practical pressure suit, resembling a deep-sea diver's suit, was produced with the assistance of the B. F. Goodrich Rubber Company. It was too late for the MacRobertson race, but Wiley went about testing the new suit by taking the *Winnie Mae* up to extreme altitudes. In September 1934, he reached 40,000 feet, and by some reports he got up to nearly 50,000 feet a few months later. Seeking to prove that there would be a speed advantage at high altitudes, he set out to beat the existing transcontinental speed record.

In four attempts over five months, Wiley failed to complete the flight, due to various technical problems. On one of these attempts in February 1935, Wiley had to shut off the engine. He glided to a safe landing at Muroc Dry Lake in southern California. Unable to get out of his cumbersome pressure suit, Wiley hobbled from the airplane to fetch help. He came upon a stranded motorist, whose first instinct was to run for cover, fearing that Wiley, in the strange-looking pressure suit, was a creature just landed from another world.

Despite the problems that prevented his setting a new cross-country speed record, Wiley reached 340 miles per hour on one of the attempts. This proved his theory that an airplane's speed could be vastly improved if it could fly high enough to take advantage of the naturally occurring jet stream. Wiley's pressure suit was the precursor to the spacesuits worn by astronauts. Many historians believe that Wiley's development of the pressure suit and his high-altitude experiments were his greatest contributions to aviation.

After his first global flight, Wiley became friends with the beloved American humorist, aviation booster, and fellow Oklahoman Will Rogers. In the summer of 1935, the two flew to Alaska in a hybrid plane made from the parts of two damaged Lockheed aircraft, an Orion and an Explorer. Unapproved pontoons were installed on the airplane, which made it dangerously unbalanced.

On August 15, the engine sputtered shortly after takeoff from a lake twenty miles from the destination of Point Barrow on Alaska's

northern coast. Unfortunately, the airplane crashed, killing both men. The loss of the two great Americans stunned the nation and a period of mourning was observed. Airports in Oklahoma City were named in memory of each of them.

## Chapter Eleven

### Amelia Earhart: *Trailblazer in the Air*

On July 24, 1897, Amelia Mary Earhart was born to a prominent family in Atchison, Kansas, a small town on the banks of the Missouri River. Freckle faced, rail thin, and taller than most of her friends, Amelia was a daring tomboy. In the warmer months, she climbed trees and hunted. In wintertime, she went sledding and was unafraid to aim headfirst down the hill.

Amelia attended a small private school in Atchison. She was considered a very good student, though at times her mind would wander. The many books she read fired up her imagination. Amelia was especially fond of a book about a beautiful horse, and she developed a lifelong love of horses and animals in general. From an early age, she was taught that those who came from a background of privilege have an obligation to help the less fortunate.

Economic circumstances changed for the Earhart family. Amelia's father had to find work in various cities, taking his family with him. Amelia ended up graduating from the highly regarded Hyde Park High School in Chicago. From there she enrolled in a finishing school in Philadelphia. During this time, she maintained a scrapbook of newspaper clippings about the accomplishments of famous women.

For Christmas 1917, Amelia traveled to Toronto to visit her sister at college. On her trip, Amelia happened to see soldiers recuperating from serious wounds sustained in fighting in Europe. Touched by the sight, she dropped out of school and devoted herself to caring for wounded military personnel. At Spadina Military Hospital in Toronto, she met aviators who thrilled her with their stories of flying death-defying combat missions in open-cockpit biplanes.

After the war, Amelia pondered a career as a doctor and began her medical studies at Columbia University in New York City. But



in 1920, she decided to rejoin her parents, who had relocated to Los Angeles. Southern California was the center of aviation and Amelia, recalling the flying stories she had heard in the hospital, attended air shows in the area. Before long, she went up for her first airplane ride with barnstormer Frank Hawks. About this flight Amelia later wrote, “As soon as we left the ground, I knew I myself had to fly.”

By early 1921, Amelia was taking flying lessons. She worked extra jobs to supplement her pay as a mailroom clerk with the telephone company. It was the only way she could afford her flight training. At the airport, some of the male pilots ridiculed her. The hardship was worth enduring, though, because on May 16, 1923, Amelia earned her pilot’s license.

Soon, to Amelia’s dismay, money woes forced her to put flying on hold. Wanting to help others, Amelia settled into a life as a social worker at Denison House, a home for immigrants in Boston. She taught English to the newly arrived foreigners at night and cared for their children during the day.

Amelia received a fateful telephone call in the spring of 1928. She was asked by the representative of a coordinating committee if she wanted to apply for participation in a flight across the Atlantic Ocean. Only a year before, Charles Lindbergh had soloed across the great body of water, gaining fame and igniting interest in aviation. Amelia jumped at the opportunity. After her interview, the flight’s coordinators quickly chose her. She shared many qualities with the great Lindbergh.

On June 17, 1928, Amelia was on her way aboard a Fokker trimotor, christened the *Friendship*. She was only a passenger, but she was about to become the first woman to cross the Atlantic in an airplane. The *Friendship*, carrying extra fuel and rigged with pontoons for the overwater flight, was piloted by Wilmer Stultz and Louis Gordon.

Over the ocean, they encountered clouds, mist, fog, and even snow. Then the airplane’s radio conked out. When the lumbering airplane set down at Burry Point, Wales nearly twenty-one hours after takeoff, Amelia became an instant sensation. The historic flight had catapulted her to stardom, and her life would now be linked forever to her first love: flying.

With her newfound fame, Amelia lectured around the country and promoted aviation. As part of her publicity tour, she flew solo back and forth across the United States, becoming the first woman to do so. In August 1929, Amelia was one of nineteen female pilots who participated in the first Women's Air Derby, jokingly called the Powder Puff Derby, from Santa Monica, California to Cleveland, Ohio. She finished third in a Lockheed Vega.

Afterward, some of the women pilots gathered in Amelia's hotel room. They discussed forming a national organization to support women in aviation. A formal meeting was held in an airport hangar on Long Island, New York on November 2, 1929, to establish the organization. Called the Ninety-Nines because of the number of women pilots who initially joined, Amelia became the group's first elected president.

Amelia met George Palmer Putnam, a prominent New York publisher, in 1928 when he interviewed her as one of the transatlantic flight's organizers. Almost from the moment they were first introduced to one another, he had taken a personal interest in managing the public aspects of Amelia's flying career. In 1931, the couple married, and George continued thereafter to handle Amelia's publicity.

Wanting to prove that she could cross the Atlantic on her own, Amelia took off from Harbor Grace, Newfoundland on May 20, 1932, five years to the day since the launch of Lindbergh's legendary transatlantic flight. Amelia was at the controls of a newer, more powerful Vega than the one she had flown previously. Also, this one was specially modified for her attempt to fly over the ocean.

During the flight, Amelia encountered icing conditions and mechanical failures, but she pressed on toward her destination, Paris. Also, the winds aloft did not correspond to the weather forecast she had received prior to her departure. Somehow she managed to stay on course. Yet, the look of the sky ahead was not promising and Amelia decided to land near Londonderry, Ireland. She spotted a level pasture and swooped in for a landing, scaring the cows in the process. The flight had taken fourteen hours and fifty-six minutes.

One of the local ranchers was first to greet Amelia, not knowing that she had come all the way from the other side of the Atlantic. He



was stunned to find out. Amelia had landed on farmland belonging to James Gallagher, and the Gallagher family invited the unexpected visitor into their farmhouse to freshen up and enjoy a cup of tea. As word spread, the townspeople turned out in large numbers to gape at the sight of Amelia's airplane parked in the open field. This flight cemented Amelia's stature as the world's most famous female pilot.

Following her highly publicized transatlantic flight, Amelia set a number of other records in the air, most notably the first solo flight between Honolulu, Hawaii and Oakland, California in 1935. In the same year, she made memorable flights from Los Angeles to Mexico City and from Mexico City to Newark, New Jersey. But the biggest challenge of all still awaited her—flying around the world.

On June 1, 1937, Amelia and her navigator, Fred Noonan, rose from the Miami, Florida Municipal Airport in a silvery, twin-engine Lockheed Electra. They planned to circumnavigate the globe, flying in a generally eastward direction to follow the prevailing wind patterns. In a month's time, they made it as far as Lae, New Guinea.

The next stop was to be tiny Howland Island, more than 2,500 miles away. The flight was estimated to take eighteen hours, but the Electra, which took off on July 2, disappeared after flying for more than twenty hours. It probably strayed off course, ran out of fuel, and went down into the ocean.

An extensive search was ordered, but no trace of Amelia or her navigator was found. Amelia was just thirty-nine years old when she disappeared, yet she had achieved so much. She was a wholesome role model whose many firsts as a female aviator opened the skies to other women seeking to fly. The airport in her hometown of Atchison is named in her memory.



## Chapter Twelve

# Donald Douglas: *Aircraft Designer and Industrialist*

From his earliest days, Donald Wills Douglas relished ships and the sea. Born in Brooklyn, New York on April 6, 1892, he was encouraged to pursue a nautical life by his father, William, an assistant bank cashier.

During his youth, Donald's horizons expanded when he visited the Smithsonian Institution in Washington, D.C. He was fascinated by an experimental aircraft engine on display. Suddenly, flying appealed to him more than sailing. Donald pursued his new passion by reading whatever he could find on the still-uncertain science of heavier-than-air flight.

The Wright brothers' achievement of powered flight in December 1903, when Donald was eleven years old, further stimulated his already intense interest in aviation. In July 1909, he was present and watching attentively when the Wright biplane circled over Fort Myer in Virginia during army qualification trials. It was the first time that Donald saw an airplane in flight, and it deeply inspired him.

In accordance with his father's wishes, Donald entered the Naval Academy as a midshipman later that year. Although he retained his love of the sea, the sky was a greater draw, and the Academy did not have any aviation courses to satisfy Donald's appetite. In a bold move, he resigned from the Academy in 1912 and started taking aeronautics-related engineering classes at the Massachusetts Institute of Technology. In only two years, Donald earned his bachelor of science degree. His professors were so impressed by his talents that they invited him to stay as an assistant professor and help build the Institute's first wind tunnel.

Various jobs followed, the most important of which was with the Glenn L. Martin Company, a Los Angeles-based manufacturer

of planes for the army. The Martin operations eventually moved to Cleveland, which bothered Donald, since he preferred the year-round sunny climate of southern California. His dissatisfaction also stemmed from the fact that he wanted to start his own aircraft manufacturing company.

With a family to raise and only \$600 to his name, but with big dreams for the future of commercial air transportation, Donald moved back to the Los Angeles area in 1920 and founded the Douglas Aircraft Company. Donald and his early employees shared the excitement of being on the cutting edge of an industry that would open up new vistas for the world. As one of the early employees stated many years afterward, “We were having too much fun to know that we were making history.”

The initial order came from the United States Navy for a torpedo plane, designated the DT-1, which stood for Douglas Torpedo—First. Additional orders for military aircraft started to come in. The company soon had to expand, and in 1922 it moved into the buildings of an old movie studio on Wilshire Boulevard in the suburb of Santa Monica.

The head of the Army Air Service, Maj. Gen. Mason Patrick, wanted to demonstrate the value of air power in a way that would grab the public’s attention. He approved a plan for an around-the-world flight. After surveying available aircraft, it was decided that a modified version of the latest model of the Douglas Aircraft Company’s torpedo plane would be the best choice for the demanding mission.

Four of the airplanes were built and rigged so that they could accommodate either wheels or pontoons. Support personnel and supplies were stationed in twenty-two countries around the globe in advance of the aerial adventure. In April 1924, the airplanes, called Douglas World Cruisers, took off from Seattle, Washington and headed west.

Each World Cruiser was flown by an army pilot accompanied by a mechanic. Two of the World Cruisers completed the journey in September, having taken a full six months to return to the starting point of Seattle. The Douglas name gained favorable recognition around the world.

Building on the strength of his early designs, Donald produced

military cargo and observation planes. He also developed an economical plane to carry the mail. Donald knew that the days of the biplane were numbered and that new materials such as aluminum had advantages over wood in aircraft construction.

A new day was dawning in the air-travel marketplace. The Douglas Aircraft Company's competitors, Boeing and Lockheed, produced twin-engine metal monoplanes for passenger-carrying airlines. Seeking an advantage, in 1932 Transcontinental and Western Airlines (the forerunner of Trans World Airlines) asked Donald to develop an even better airplane. The company went to work and devised the DC-1, the first in a new line of Douglas commercial airliners.

The DC-1 was ready the following year, and it became the standard against which all others were judged. It was a streamlined, all-metal twin-engine airliner that looked big, rugged, and modern. To improve the airplane's economic potential, the fuselage was lengthened to carry more passengers. This modification led to a new designation, the DC-2. Not to be outdone by TWA, American Airlines approached Donald about an even bigger version that could hold fourteen sleeping berths for overnight flights.

The enlarged airliner, known as the DST or Douglas Sleeper Transport, was a technological marvel, but there was not much of a market for sleeper service. Instead, the airframe was converted to a conventional seating arrangement for twenty-one passengers. This airplane was designated the DC-3 and it became one of the most famous airplanes ever produced.

From the moment the DC-3 first rolled out into public view on June 10, 1936, it heralded a new level of comfort and reliability in air travel. Also, it enabled airlines to earn a profit on passenger-ticket sales alone, rather than having to rely on airmail contracts. A total of 455 DC-3s were built for the airlines. By 1939, more than 90 percent of the nation's airline passengers flew on either the DC-3 or its smaller sister ship, the DC-2.

The military saw the value of the DC-3 as a cargo and troop hauler. A sturdier floor and a cargo door were added so that up to twenty-eight fully equipped combat troops could be carried. In Army Air Forces service the transport was known as the C-47 and in United States

Navy service as the R4D. During the war years, plants churned out more than ten thousand military versions. The transport was praised as a key contributor to the Allied victory.

In the Pacific, new Douglas SBD Dauntless dive bombers reached the fleet in time to enable a decisive naval triumph in the June 1942 Battle of Midway. This win turned the tide of the war against Japan. Donald's company had grown, with factories sprouting up across the country, ultimately employing more than 160,000 people. Reflecting his humble character, Donald continued to work out of a small, sparsely decorated office.

In 1949, old C-47s and newer four-engine C-54s provided an aerial lifeline to Berliners who were isolated by a Soviet blockade. The cargo planes brought in vital supplies around the clock in this early showdown of the Cold War. The humanitarian relief effort, known as the Berlin Airlift, eventually broke the Soviet chokehold on the German city.

Jets, developed during World War II for military applications, were thought to have application in the postwar civilian world. Donald was slow to make the move into such a development, and by the time the Douglas DC-8 jetliner came onto the market in 1958, it was already a year behind the introduction of its rival. Douglas, which also expanded into the missiles and space business, never really caught up to its chief airliner competitor in the jet era.

In order to ease the company's financial distress, Donald was forced to merge his company with McDonnell Aircraft in 1967. Donald remained honorary chairman of McDonnell Douglas until he died on February 1, 1981. Donald's life spanned much of the first century of powered flight, from the early tentative stirrings in the air to men walking on the Moon. He designed many extraordinary airplanes, and in doing so he advanced the aerospace industry to new heights.

Chapter Thirteen

Roscoe Turner:  
*Air Racer and Showman*

On September 29, 1895, Roscoe Turner was born near the small farming community of Corinth in the northeast corner of Mississippi, the first of eight children. His earliest memories were of waking up on the family farm in the wee hours of the morning to feed the hogs, cows, chickens, and mules. Roscoe's daily routine then called for a long day at a one-room school, which required a three-mile walk each way. Depending on the season, he would also plow the fields.

Roscoe liked working with tools on the farm and as he got older this attraction to mechanical things evolved into an interest in automobiles. After tenth grade, Roscoe dropped out of school and pursued a variety of jobs, not sure what he wanted to do. While he was working as a car mechanic in 1916, some army pilots landed in Memphis, Tennessee, just across the state border. Roscoe went to look at the airplanes and struck up a conversation with the aviators. At that moment, he decided that he wanted to be one of them.

Roscoe tried to enlist, but he found out that the army was not accepting applicants for flight training unless they had some time in college. In the spring of 1917, when America entered World War I, Roscoe joined the army anyway. He figured that with his automotive experience he would be an ambulance driver. Yet, because Roscoe really desired a flying spot, he asked for a transfer to the Army Air Service.

Roscoe's wish was partially fulfilled. He got assigned to a balloon unit. By the time Roscoe completed his training and arrived in France, the war was almost over. He did not go into combat and was discharged from the army the next year at the rank of first lieutenant.

Wanting to continue in aviation back home after the war, Roscoe teamed up with another former army officer to perform at air shows





in a surplus Canadian JN-4, known as a Canuck. Roscoe's partner flew the biplane while Roscoe walked on the wing and parachuted to the ground. The two performers barnstormed across much of the East and South, exciting townspeople with their show at every stop.

In 1924, Roscoe went into business for himself. He bought his own biplane, an American-built Jenny, and continued to teach himself how to fly. When he felt confident enough, he started flying in air shows with a newly hired stuntman under the banner Roscoe Turner's Flying Circus.

Typically, Roscoe would fly into a small town low on both fuel and cash. He would land in a hayfield and offer the property owner a plane ride in exchange for fuel. In this way, he was able to keep performing and keep his business going.

From time to time, Roscoe learned a lesson the hard way. One night he parked his Jenny in a cow pasture. When he returned the next day, he found that the cows had eaten the fabric off the biplane's wings. He never left his aircraft unattended in cow pastures after that.

In 1928, Roscoe went to Hollywood to fly scenes in a major motion picture about World War I air combat, titled *Hell's Angels*. Produced by wealthy businessman and pilot Howard Hughes, the film used eighty-seven airplanes to portray the war's aerial encounters as realistically as possible. Roscoe's outgoing personality made him a favorite among the many celebrities. Often, he was asked to fly these bigwigs, and he even gave flying lessons to some of them.

Always conscious of the value of good publicity, Roscoe decided to adopt a newborn lion as his pet and mascot. Named Gilmore after a sponsoring oil company, the lion accompanied Roscoe during photo sessions, and sometimes the two even flew together. Roscoe went so far as to have a special parachute made for the lion cub in case it became necessary to bail out.

Roscoe was drawn to air racing because of the thrilling action and the chance of huge paydays. He was a standout among the racing pilots, combining his superb piloting skill with his Hollywood flair. Roscoe often wore a custom-made military-style tunic, jodhpurs, and high boots. To top off this ensemble, he sported a waxed mustache and a perpetual big-toothed smile.

Roscoe's first significant victory was in the 1933 cross-country Bendix Trophy Race. He chose to fly a Wedell-Williams racer based on a design by Jimmy Wedell, a self-taught engineer and pilot in Patterson, Louisiana. Outfitted with a souped-up Pratt & Whitney Wasp Sr. engine generating 800 horsepower, the racer zipped across the country from New York to Los Angeles in eleven and a half hours, a new record for an east-to-west transcontinental flight.

Flying such aircraft was expensive, and Roscoe frequently lacked funds. Throughout his barnstorming and air-racing career, he was often only one step ahead of bill collectors. On the day he was preparing to take off for his victorious flight in the Bendix Trophy Race, a bank representative appeared at the airport in New York to impound Roscoe's racing plane for unpaid bills. Jimmy Wedell, who was friendly with Roscoe, diverted the man for awhile, allowing Roscoe to jump in the racer and hurriedly throttle up. With the winnings from his first-place finish, Roscoe could pay off some of his debts.

Each September from 1929 to 1939, the world of aviation focused its attention on the Thompson Trophy Race. This event pitted the fastest airplanes against each other, flying very low to the ground in a series of contests on closed courses marked by pylons. Usually held at the Cleveland Municipal Airport, these competitions generated newspaper headlines and newsreel footage around the country.

In 1934, Roscoe flew the Wedell-Williams racer, equipped with a new Hornet engine, to an easy victory in the Thompson race. In an attempt to win an international air race, Roscoe borrowed a Boeing 247 twin-engine airliner from United Airlines. The MacRobertson race from London, England to Melbourne, Australia was a grueling long-distance contest. Roscoe and his crew did not win, but they were the only American team to complete the race.

Roscoe's next triumph came in 1938. Determined not only to win but to set a new record for the Thompson race, he collaborated with engineers to produce the Turner Special. This was the first racer to incorporate the huge fourteen-cylinder Twin Wasp engine. At Cleveland, Roscoe roared around the pylons, edging ahead of the other racers one by one as 270,000 spectators looked on from the grandstands. When he zoomed past the checkered flag to win the

race, he was clocked at an average speed of 283.4 miles per hour, a new closed-course record.

In 1939, Roscoe again captured the Thompson trophy. Flying in his successful racer of the year before, he came close to beating his own record. But confusion over the location of a pylon slightly reduced his average speed. Roscoe became the only pilot to win the Thompson race three times. Concluding that he was at the top of the heap and that he needed a steadier line of work, he retired from air racing.

Roscoe established an airplane servicing center and flight/mechanics school at the Indianapolis, Indiana airport. For the rest of his life, he used his prestige to promote commercial flight in America, emphasizing the point that airplanes are a safe and efficient means of transportation.

Roscoe died on June 23, 1970, at age seventy-four. His legacy was written in the sky, where so many people had seen his remarkable performances. Through his dashing personality, brilliant showmanship, and masterful flying, Roscoe, as much as any aviator, inspired youngsters to enter the wondrous world of flight.



Chapter Fourteen

Douglas Bader:  
*Gallant Warrior*

Douglas Robert Steuart Bader was born in London, England on February 21, 1910. His father was a British soldier who served in India and later fought in World War I. At age thirteen, Douglas visited an uncle who was an officer at the Royal Air Force College at Cranwell, north of London. During his weeklong stay, Douglas spent countless hours watching the military training airplanes operate from the college's airfield. From that time on, he was determined to become an RAF pilot.

Because he was short, Douglas often got picked on by larger boys in preparatory school. This forced him to learn how to defend himself. He had the last laugh, however, becoming a champion boxer. In 1923, Douglas enrolled at St. Edward's School in Oxford. At St. Edward's, he excelled in sports generally and was captain of the rugby team. In academics, he was considered very bright but not highly motivated.

When it came time to apply to the Royal Air Force College, Douglas studied hard and received one of only six scholarships. But his brash personality rubbed many faculty members the wrong way, and he was almost expelled. Also, Douglas did not apply himself in the classroom. After being warned of the possible consequences, he improved dramatically. In 1930, he graduated second in his class, and just a year later he was selected as an aerobatic display pilot.

As a Royal Air Force officer and member of a formation aerobatic team, Douglas dazzled 175,000 spectators at the annual flying display at Hendon, outside of London. Pulling back on the stick of his Gloster Gamecock, a nimble open-cockpit biplane, the zestful aviator climbed straight up. He was elated as he felt the wind rush against his face. Eager to fly ever since he was a teen, Douglas saw no limits to his charmed life in the sky.

On December 14, 1931, Douglas's positive attitude was severely tested. On that chilly morning, he followed a couple of squadron mates to an airfield near Reading in the English countryside. They were all flying the squadron's newly received fighter planes, Bristol Bulldogs. Although capable of higher speeds, these tubby aircraft lacked the agility of the old Gamecocks.

While visiting the local aero club, Douglas was recognized as one of Hendon's celebrity air-show performers. Someone asked him if he would put on a repeat performance at the local airfield that day. Douglas refused, knowing that he was not to do low-level aerobatics without authorization. Then, another person suggested aloud that Douglas might be faint of heart.

Taking that as a dare, when he got airborne Douglas turned back toward the airfield, bearing down low for a pass. He planned to give that impish chap on the ground a memorable aerial display. With hardly any altitude, Douglas swung the Bulldog over into a roll. But it was unlike the Gamecock, and the airplane sank perilously low. The fighter floundered and smashed into the ground.

Douglas was badly hurt in the wreck. The doctors gave him little chance of surviving. The only hope was to amputate both of his gravely injured legs. Miraculously, after his legs were surgically removed, Douglas rebounded. He allowed himself hardly a moment of self-pity. Instead, he resolved to walk again—without crutches or a cane—on two artificial legs.

For the next eight years, Douglas was barred from RAF flight status because of his disability. During that time, he never gave up his dream of flying again. It was too important to him. In 1939, with war raging across parts of Europe and the RAF in need of seasoned pilots, the situation changed.

Returned to flight duty, Douglas was more mature but still an aggressive fighter pilot. He quickly attained the rank of squadron leader. Assigned to command No. 242 Squadron at Coltishall, he was met with widespread skepticism by the squadron's pilots, who were aware of their new leader's handicap. Rather than trying to reassure them verbally, Douglas clambered into the cockpit of one of the Hawker Hurricanes and for the next half-hour engaged in a

spectacular flying demonstration. No one in the squadron doubted his ability from that point on.

Douglas's squadron was transferred to Duxford, where its fighter planes scrambled to intercept enemy aircraft during the Battle of Britain in the summer of 1940. The outcome hinged on the RAF's performance in the skies above the homeland. Always taking the lead, Douglas advocated sending huge formations of fighters at the attacking German aircraft.

It was the courage and airmanship of men like Douglas that succeeded in repulsing the intruders. That fateful summer, the RAF saved Britain from being overrun and gave all freedom-loving people hope that the forces of evil might be stopped. On August 20, 1940, British prime minister Winston Churchill remarked in a memorable tribute to the relatively small number of pilots in the command, "Never in the field of human conflict was so much owed by so many to so few."

The so-called "Big Wing" strategy of deploying lots of fighters at once gained favor, and Douglas was promoted again, this time to wing commander at Tangmere. The tide of war had turned, and the RAF was now staging its own raids over occupied France. Douglas was on his way to becoming Britain's fifth-highest scoring ace of the war, with twenty-two and a half victories.

During an aerial engagement on August 9, 1941, Douglas's Supermarine Spitfire suffered devastating damage. It was either sheared through by a colliding enemy fighter plane or shot up in a chaotic air battle. No one is really sure. In any case, the disabled Spitfire nosed down in a screaming dive. Douglas slid the canopy open to bail out. But his right artificial limb jammed in the cockpit. He tugged helplessly until the force of the slipstream tore him loose from his stuck metal leg.

Douglas parachuted to a safe landing and was promptly captured by German soldiers. Hospitalized in the French town of St. Omer, he struck up a rapport with nearby enemy fighter pilots who admired his spunk. In fact, they recovered his artificial limb from his crashed airplane and repaired it. As soon as Douglas got his missing limb back, he attempted a dramatic escape from his hospital room. However, he did not get far before being recaptured.

Meanwhile, despite the German repair, the right leg did not fit very well. In a surprising display of wartime courtesy, the Germans offered to provide safe passage for an RAF plane to drop a spare right leg. True to form, the RAF was too proud to accept the German offer. Instead, the RAF flew as it normally would on a combat mission. A bomber dropped the substitute leg by parachute.

During the air drop, German anti-aircraft fire filled the sky. Thankfully, the bursts all missed, and the crate containing the replacement metal leg floated down intact. The Germans retrieved Douglas's newly arrived artificial limb and presented it to him.

Douglas was grateful for the respect he received from the fighter pilots on the opposite side of the war, but he totally rejected Germany's attempt at world domination. He continually tried to escape for the duration of the war. Frustrated, the German captors sometimes confiscated Douglas's artificial limbs. Eventually, Douglas was sent to the Germans' highest-security prison, Kolditz Castle, near Leipzig.

At war's end, Douglas was liberated. Back in Britain, he was promoted to group captain and given the honor of leading a victory formation of 300 RAF aircraft over London. In 1946, he retired from the RAF and went to work for Shell Oil. Douglas became the managing director of the company's British aviation department. Later, he joined the British Civil Aviation Authority.

Douglas devoted much time to visiting amputees in rehabilitation centers. He offered them encouragement with pep talks. His many achievements also showed what was possible for the handicapped. He continued to fly a private plane, and he swam, danced, played tennis, and perfected his golf game. For his charitable activities and inspirational example, Douglas was knighted by Queen Elizabeth II in 1976.

On September 5, 1982, Sir Douglas Bader died of a heart attack after speaking at the ninetieth birthday celebration of an RAF colleague at London's Guildhall. Douglas was seventy-two years old. The legless ace and gallant warrior had become a legend in his own time.





## Chapter Fifteen

### Claire Chennault: *Flying Tigers Commander*

Claire Lee Chennault was a product of the American South. He was born in Commerce, Texas on September 6, 1893, and raised in Gilbert, Louisiana. Growing up in a rural setting, he learned to love the outdoors. When he was only eight years old, he began to hunt in the backcountry. The vast amount of time that Claire spent alone in the wilderness around his home helped to develop his self-confidence.

Claire attended Louisiana State University for three years, where he participated in a military cadet program. He purposely built up demerits to get suspended a few weeks before the end of each term, so he could go fishing on the Tensas River. No one seemed to mind since Claire kept earning good grades.

An uncle was a schoolteacher, and he encouraged Claire to become an educator. Also, Claire's stepmother, whom he loved dearly, had been his grade-school teacher. With these influences, Claire attended Louisiana State Normal College in order to obtain teaching certification. Upon graduation, Claire began teaching, but that lasted only a few years. The military was his true calling.

Claire was descended from notable military leaders. On his father's side, he could trace his lineage to the defender of Texas, Sam Houston, and on his mother's side, to the Confederate army's commander, Robert E. Lee. When the United States entered World War I, Claire followed family tradition by pursuing a military career. He enlisted in the army and was commissioned as a second lieutenant in the infantry reserve.

In his youth, Claire had seen a Curtiss pusher biplane perform at the Louisiana State Fair in Shreveport, and that ignited a passion for flight. He strove to fulfill his dream of flying by transferring to the army's aviation branch. However, an officer rejected Claire's application





for flight training with the notation: "Applicant does not possess necessary qualifications for a successful aviator." Claire refused to accept no for an answer. He applied three more times before finally being admitted. While glad to be on his way to a flying career, he was disappointed that the acceptance came after the war had ended.

Once Claire earned his pilot's wings in 1919, he was granted a regular commission. He received various assignments and was promoted to captain in 1929. The next year, he went to the Air Corps Tactical School at Langley Field in Virginia to attend classes with select officers interested in harnessing air power. He graduated in June 1931 and remained at the school as an instructor.

Claire loved to fly, and during this time he asked for permission to start an aerobatic team. Upon approval, he selected two excellent pilots to join him. Named the Three Men in the Flying Trapeze, the team was a forerunner of today's U.S. Air Force air-demonstration squadron, the Thunderbirds. Flying Boeing P-12s, the last of the army's biplane fighters, the team performed precision formation maneuvers for air-show audiences and also perfected fighter tactics.

By the time he was in his forties, Claire had become hard of hearing from all the flying he had done in noisy aircraft. He also suffered breathing problems because he was a chain smoker. Compounding his shaky standing in the Air Corps, he stubbornly defended the then-unaccepted view that the fighter plane would be the key to victory in air battles. For all these reasons, Claire was forced into retirement in 1937.

Representatives of China had seen Claire's aerobatic team perform at an air show and were aware of his reputation as an air tactician and military leader. He was just the man needed to advise and help train China's new air force. Claire had doubts about the job offer but sailed to China to investigate. When he met Madame Chiang, the wife of China's Nationalist leader, all his doubts evaporated.

Madame Chiang was beautiful, shrewd, and devoted to the cause of modernizing China. She had been raised in the American South and educated at Wellesley College in Massachusetts. She was fluent in English, and because of her traditional Southern upbringing, she spoke with a refined Southern accent. More importantly, she possessed the

Southerner's esteem for military officers. Claire and Madame Chiang developed a good working rapport from their first meeting.

The invading Japanese had cut off China's access to ports, and Generalissimo Chiang Kai-shek needed to keep the remaining supply line open at all costs. Stretching 700 miles from Lashio in Burma through the mighty Himalayas to Kunming in China, the Burma Road was vital to China's survival. It was decided to seek American pilots and airplanes to protect this crucial link. Pres. Franklin Roosevelt gave his okay.

On August 1, 1941, three squadrons of American volunteers, known as the American Volunteer Group (AVG) and commanded by Claire, were activated north of Rangoon in Burma. Later that year, most units deployed to Kunming. They flew Curtiss P-40B Tomahawks, which were painted with shark's teeth on their noses. This artwork was actually copied from the decorations on British P-40s in North Africa. Oddly enough, the British had copied the nose art from fighter planes in the *Luftwaffe*, the German air force. Despite the unlikely origins of the artwork, the shark's teeth became a recognizable symbol of Claire's squadrons.

At a Chinese government office in Washington, D.C., discussions were held on what to call the AVG. Madame Chiang's brother suggested a name based on the old Chinese saying "giving wings to the tiger." Upon further discussion, it was decided to refer to the American volunteers as the Flying Tigers. It did not make sense to Claire since the aircraft in question had shark's teeth. But after *Time* magazine printed the name in its December 29, 1941, issue, it stuck. Also, an emblem with a winged tiger was devised for the pilots to wear on their flight jackets.

The Tomahawk was an obsolete fighter by this time, but it offered high speed, a fast dive, and lots of firepower. The main type of Japanese fighter facing the Flying Tigers was the Oscar, which resembled the famed Zero. This plane could climb faster and higher than the Tomahawk as well as outmaneuver it.

Claire lectured his pilots on how to take advantage of the differences between the aircraft types. His instructions were to avoid getting into one-on-one clashes and instead "hit hard, break clean" in a single pass. "Make every bullet count," he said.

In early 1942, superior Japanese forces overwhelmed Allied troops and moved up the Burma Road to the Salween River, gateway to Kunming and southern China. The only available tool to blunt the advance was the Flying Tigers. In daring missions, Claire's pilots strafed the enemy positions along the river using newly received P-40E Kittyhawks with bomb-carrying capability. They stopped the Japanese from crossing the Salween.

In July 1942, the aircraft of the Flying Tigers were transferred to the U.S. Army Air Forces. Claire was re-commissioned and given command of the Fourteenth Air Force, the American air presence in China. He attained the rank of major general, but he and his commanding officers did not see eye to eye. By the summer of 1945, shortly before Japan surrendered, Claire was forced into retirement for the second time in his military career.

It is reported that when he made a ceremonial drive into Chungking to bid farewell, hundreds of thousands of Chinese well-wishers flocked to the streets to show their admiration for the old leather-faced fighter pilot whose controversial leadership helped to free China of invaders. Claire's driver simply turned off the engine and let the throngs push the car to a public square. There, the adoring citizens of China spent the day filing past the victorious commander, offering their personal thanks.

The Flying Tigers are officially credited with scoring 299 victories while losing only twelve of their own fighters. Some historians dispute that score. But even if the most conservative numbers are used, the ratio still works out to a remarkable ten to one. Claire had started the air force in China with only 250 men and fewer than 100 airplanes. It grew to a massive organization of 20,000 men with 1,000 airplanes that profoundly affected the outcome of World War II.

In 1946, Claire returned to China as head of a new airline. Political upheaval in China caused him to flee in early 1950. Breathing problems continued to plague him and he died on July 27, 1958. Nine days earlier, he was promoted to lieutenant general through a special act of the United States Congress. He is buried at Arlington National Cemetery.



## Chapter Sixteen

# Jimmy Doolittle: *Daredevil and Military Leader*

James Harold “Jimmy” Doolittle was born in Alameda, California on December 14, 1896. The next year, his father, Frank, temporarily left to join the gold rush in Alaska. But gold was less plentiful than generally believed. In 1900, Jimmy and his mother, Rosa, moved up north to be with Frank, who had turned to his talents as a carpenter to make a living.

The family settled in the small, isolated community of Nome, Alaska. Jimmy attended the first school that opened in town. Because he was short, he was targeted by bullies. Jimmy fought back, usually landing decisive blows early in his scuffles. His solid defense caused the other boys to stop taunting him.

When Jimmy got a little older, Frank gave him a toolkit. He enjoyed working with his hands and helping his father craft furniture and construct homes. Jimmy liked the vastness of the land, and in his spare time he hunted on the outskirts of Nome. His other activities included running and acrobatics.

In 1908, Rosa took Jimmy to live with her in Los Angeles, where she felt that her son would have more opportunity to flourish. Two years later, he enrolled in the city’s Manual Arts High School. Also at that time, Jimmy attended the first air meet on the West Coast. At Dominguez Field, near Compton, California, he saw flying demonstrations by a number of pilots, including Glenn Curtiss and Lincoln Beachey. It was a magnificent introduction to the world of flight.

At age thirteen, Jimmy decided to build a glider. He fashioned a wood frame and covered it with fabric. Jimmy climbed in and the fragile device was hooked to a car to give it speed, but it did not get off the ground. He was dragged along the road as his creation split

into pieces. While Jimmy's first attempt at flight did not work, his time in the air would come.

In 1917, Jimmy interrupted his college studies to enlist in the army. He wanted to contribute to victory in World War I by becoming a pilot. That year on Christmas Eve, with his military career well on its way, Jimmy married his high-school sweetheart, Josephine Daniels. Their marriage was destined to last seventy-one years.

After earning his pilot's wings, Jimmy was assigned to train other pilots. This gave Jimmy much more flight time and the chance to develop his airmanship skills. During his first year or so, he remained overconfident and reckless. However, his core piloting abilities were outstanding, and with time he matured. Jimmy was on the verge of carving out a lasting place in aviation history.

In June 1925, as a U.S. Army test pilot assigned to studies at the Massachusetts Institute of Technology, Jimmy received one of the first doctorate degrees in aeronautical science. He also conducted "blind flying" tests that paved the way for modern instrument flying and precision landings in bad weather.

Jimmy boldly sought to fly at the fastest speeds, and it was his success in air racing that brought him worldwide attention. In the 1920s and early 1930s, he won the great speed competitions—the Schneider, Bendix, and Thompson races. On September 3, 1932, Jimmy capped his air-racing career in the red-and-white, barrel-shaped Gee Bee R-1. He throttled around the required ten laps of the ten-mile triangular pylon course at Cleveland, setting a new course record of over 252 miles per hour.

Following his winning performance at Cleveland, Jimmy retired from racing. Through the 1930s, he worked for Shell Oil, where he helped to promote the company's aviation lubricants and fuels. Jimmy insisted that Shell develop a higher octane fuel to enhance aircraft engine performance.

Even before America's entry into World War II, Jimmy was motivated by a deep sense of patriotism to rejoin the Army Air Corps. Shortly after the Japanese attack on Pearl Harbor, he was tasked with planning a retaliatory strike. Since navy attack planes had a relatively limited range and bomb capacity, it was determined that it would be



best to use a type of army medium bomber, the North American B-25 Mitchell, launched from the deck of a navy aircraft carrier.

It was an unconventional plan, and Jimmy wanted to be in charge when it was put into action. Jimmy's request to lead the daring mission was granted. Like him, all of the other seventy-nine flight-crew members on this risky undertaking were volunteers.

The carefully devised plan called for sixteen Mitchell bombers. These planes were to launch from the aircraft carrier when it cruised to within four hundred or five hundred miles of the Japanese coast. But as the aircraft carrier steamed toward Japan, enemy picket boats were detected patrolling at greater distances from the shore. Fear that the aircraft carrier may have been spotted prompted an earlier than desired launch.

On April 18, 1942, with the deck of the USS *Hornet* pitching furiously in rough seas, Jimmy led his dedicated men into the dark sky. As the first in line for launching from the cramped deck, Jimmy had only 467 feet of usable space for the takeoff roll in his heavily loaded B-25. All of the remaining bomber crews knew that if their leader could get airborne, then so could they. One by one, the B-25s lifted from the carrier.

Most of the bombers reached their targets in and around the Japanese capital of Tokyo. While the mission did not cause much physical damage, it was a success in other ways. The strike from the air forced Japanese military and government officials to realize that their country could be attacked at any time. Also, morale in the U.S. and among its allies was boosted, since Japan was no longer seen as invincible. The mission had been a high-stakes gamble, and Jimmy's detailed planning proved that he was a master of calculated risk.

Unable to reach their intended landing sites in China, all but one of the sixteen crews had to either bail out or crash land. At the time, Jimmy thought he had failed, because he was unaware that most of his men had survived and that the mission produced positive results. He confided in his loyal crew chief that he feared he would face disciplinary action upon his return home. Jimmy's crew chief tried to cheer up his dejected boss by telling him that instead he could

count on a hero's welcome that would include promotion to brigadier general and a Medal of Honor.

In fact, Jimmy's promotion came through before he even returned. When he finally arrived, he was whisked to the White House, where Pres. Franklin Roosevelt personally awarded him the Medal of Honor. Also taking part in the ceremony were Jimmy's wife, Josephine; Gen. H. H. "Hap" Arnold, Army Air Forces chief; and Gen. George Marshall, U.S. Army chief of staff. By successfully leading the first raid on Tokyo, Jimmy was recognized throughout America as among the country's greatest war heroes.

Jimmy successively commanded the Twelfth, Fifteenth, and Eighth Air Forces throughout the remainder of the war, rising to the rank of lieutenant general. He was a great wartime commander whose decision to unleash escort fighters on enemy interceptors helped the Allies gain the upper hand in the air war over Europe. By war's end, Jimmy was one of the most respected airmen in U.S. military aviation history.

Jimmy remained active in aeronautical matters. He became the first president of the Air Force Association, chairman of the Air Force Scientific Advisory Board, and chairman of the National Advisory Committee for Aeronautics (the predecessor of NASA). Late in his life, he received a rare honor at the White House when a fourth general's star was pinned to his air force uniform.

Despite all of the fame and the many titles, Jimmy always adhered to the airman's values. Each year after World War II, on the anniversary of the historic mission to Tokyo, he made a point of rejoining his fellow volunteers. At these reunions, Jimmy and his men—the Doolittle Raiders, as they became known—raised a toast to their fallen comrades. On September 27, 1993, Jimmy died at age ninety-six. The few surviving Doolittle Raiders still gather annually and, in keeping with their custom, they lift their goblets in tribute to those who are gone, including their beloved commander.

## Chapter Seventeen

### Benjamin Davis, Jr.: *Fighter for Freedom*

When Benjamin Oliver Davis, Jr., was born in Washington, D.C. on December 18, 1912, his father was a lieutenant in the U.S. Cavalry. Eight years later, Ben's father, by then a lieutenant colonel, was transferred to the Tuskegee Institute in Alabama, where he became a professor of military science and tactics. The Institute, founded by Booker T. Washington, had already established its reputation as a world-renowned center of higher education, providing African American students with skills to succeed in daily life.

As an African American in the Deep South of the 1920s, Ben experienced firsthand the evil of racial discrimination. One night, a mob of prejudiced white men belonging to the Ku Klux Klan hate group staged a terrifying march through his neighborhood. All the blacks living in the vicinity had been warned to turn off their house lights and close their doors so as not to provoke the marchers.

But Ben's father was a proud military officer, and he refused to hide. On the night of the march, the elder Davis put on his dress uniform, gathered his whole family on the front porch, and turned on the porch light. The quiet defiance demonstrated that night by the Davis family was to be a hallmark of Ben's life.

Although his father was denied an appointment to the U.S. Military Academy at West Point because of his race, Ben gained entry in 1932. He was the lone African American in the corps of cadets, and none of his classmates ever spoke to him except when performing official duties. Of course, Ben did not like these circumstances, but he focused on other aspects of his life.

During a holiday break in 1934, Ben met Agatha Scott, an attractive student at a Connecticut college. They fell in love and visited each other often. Because of Agatha's encouragement and his father's



example, Ben never felt sorry for himself. Instead, he applied himself diligently to every assignment.

Ben graduated from West Point in 1936, one of the few African Americans to do so up to that point. He distinguished himself academically, graduating 35th in a class of 276. Two weeks later, he and Agatha were married, and remained so for the next sixty-six years.

Right away, a hurdle loomed. Ben, who held a commission as a second lieutenant, found that the army's flight training was still closed to blacks. He had longed to become a military pilot ever since his first flight in a barnstormer's biplane at age thirteen. He had come too far for anything to interfere with his dream of a military flying career. However, Ben was forced to bide his time for several years as an infantry officer.

By early 1941, with political pressure building on the War Department to allow blacks an opportunity to fly, Ben received orders to report to Tuskegee, Alabama, where an army airfield was being constructed. The skies had finally opened up to African Americans seeking to fly military aircraft. Still, throughout World War II, Army Air Forces pilots were made to fly in units separated by race.

When at long last Ben got to fly, he delighted in it. He progressed steadily to advanced training. He and four of his classmates made history on March 7, 1942, when they graduated and became the first African Americans to receive Army Air Forces silver pilot's wings.

With his West Point background and rank of captain, Ben was the logical choice to lead the first black flying unit, the Ninety-ninth Pursuit Squadron. In May 1943, after an unusually long delay, the unit was sent to a combat zone—North Africa. Ben knew that his superiors would be paying special attention to his squadron's performance, so he made sure his men gave their all.

More pilots were graduating from the all-black flight school at Tuskegee. Three additional fighter squadrons were activated, eventually consolidating into the newly formed 332nd Fighter Group. Known as the Red Tails because of the distinctive red markings on the tail sections of their fighter planes, North American P-51 Mustangs, this unit flew into fame and glory under Ben's command.

From an air base in Ramitelli, Italy, the Red Tails provided the escort for bombers flying into enemy airspace. On March 24, 1945, the pilots of the 332nd protected a formation of American B-17 bombers during an exceptionally long 1,600-mile mission to Berlin. The Red Tails fended off interceptor attacks, downing three Messerschmitt Me 262s, the new German jets. For their valor during this mission, the Red Tails received the Distinguished Unit Citation.

These brave and noble African American pilots compiled a remarkable record, protecting friendly bombers against enemy fighter planes on more than two hundred escort missions. In briefings before the missions, Ben emphasized to his men the need to safeguard the aircraft flying under their escort. He sternly said, “Gentlemen, stay with the bombers.”

Word spread of the 332nd’s outstanding escort record. Before long, some of the bomber crews, which were comprised solely of whites, sought out the planes and pilots of the 332nd as their escorts. As demand grew for the 332nd to fly cover, Ben was obliged to change the nickname painted on the nose of his fighter to *By Request*.

One day in the final months of the European air war, twenty B-24 bombers were forced to land at the air base in Italy due to poor weather. The bad flight conditions did not improve for several days, which meant that the white bomber crews and black fighter pilots had no choice but to intermingle in close quarters. By the time the weather cleared and the bomber crews departed, there was a general feeling that the white crews had enjoyed their stay with the black unit. This random occurrence was a reminder of the shared humanity of whites and blacks. As one of the African American pilots put it, “There’s no such thing as segregation when you’re fighting side by side.”

In the face of unequal treatment, the members of the 332nd put aside the matter of race and fought resolutely for their country. The African American pilots and support personnel achieved a double victory—against tyranny abroad and prejudice at home. These black patriots who served so brilliantly in the Army Air Forces during World War II would come to be known as the Tuskegee Airmen, reflecting the roots of their military service.

After the war, Ben held additional command positions, including

at a fighter wing in Korea. In 1954, he was promoted to brigadier general. This made him the first black general in the U.S. Air Force, the successor service to the Army Air Forces. He rose to command the Thirteenth Air Force and concluded his active-duty career in 1970 as deputy commander of U.S. Strike Command at the rank of lieutenant general.

In his civilian life, Ben joined the Department of Transportation as director of civil aviation security. A rash of airliner hijackings had occurred, but with Ben's excellent leadership, the problem was soon controlled. He impressed people everywhere with his sense of high purpose, unwavering discipline, sharp mind, and devotion to his country. Ben's principled vision was captured in his statement: "The privileges of being an American belong to those courageous enough to fight for them."

On December 9, 1998, at a White House ceremony, Ben was advanced to the rank of four-star general, a rare honor for a retired officer. A few years later, on July 4, 2002, Ben died. He was buried with full military honors at Arlington National Cemetery. A formation flyover was performed that included both modern fighter jets and P-51s, the type of fighter planes that Ben and his fellow Tuskegee Airmen had flown in combat more than a half-century earlier.

The Tuskegee Airmen continue to be recognized for their amazing deeds. On March 29, 2007, governmental leaders presented them with the nation's highest civilian honor, the Congressional Gold Medal. Approximately three hundred of the aged black heroes were still alive and able to attend the elegant ceremony in the Capitol's Rotunda. Among the assembled honorees, it was possible to feel the spirit of their late commander and his powerful belief in the dignity of all people.





Chapter Eighteen

Igor Sikorsky:  
*Plane Maker and Developer  
of the Helicopter*

On May 25, 1889, Igor Ivanovich Sikorsky was born in Kiev, Russia (today's Ukraine). Igor's father was a respected physician and professor who filled the family home with books and art. The atmosphere encouraged study, and Igor spent many hours reading. He particularly liked the works of Jules Verne, the popular science-fiction author, and Leonardo da Vinci, the Renaissance master. Verne's descriptions of imaginary flight and da Vinci's concepts of vertical flying machines influenced young Igor's outlook regarding the possibility of a helicopter.

Indeed, when only twelve years old, Igor made a toylike helicopter powered by a rubber band. Even at that early age, he believed that human flight was possible. Igor planned to explore the field of aeronautics when he grew up.

In 1903, Igor entered the Imperial Russian Naval Academy in St. Petersburg. After three years, he left to study engineering, first in Paris and then Kiev. However, he felt that the courses were too theoretical, so he stopped after one year.

On a trip back to Paris in 1909, Igor made a point of visiting the surrounding countryside, where he toured airfields and saw many of the latest airplanes. He met some of the leading pilots of the day. The experiences on this trip inspired him even more to make aviation his life's work. He believed in the idea of vertical flight and wanted to build a helicopter. His new French acquaintances discouraged him, but he was determined to try it upon his return to Russia.

Igor's first helicopter was a primitive contraption, and it was doomed to fail. He believed that with more time and a greater investment, it could work. But first it would be easier to build a

conventional, fixed-wing airplane. Igor then went about designing the first of a long line of airplanes to be known as his “S” series.

The S-1 never flew. The next three designs were flawed but progressively better. He first flew his S-5 in April 1911. It was a good, flyable airplane, and Igor felt that all his labors on the earlier models had paid off. He kept flying throughout the summer, becoming more comfortable at the controls as he went for longer flights. By the autumn, Igor was formally licensed as a pilot.

In 1913, the Russian Baltic Railroad Car Factory hired Igor to be the designer and chief engineer of its new airplane-manufacturing company in St. Petersburg. He worked on a completely new kind of plane—very large, with four engines. The fuselage measured over sixty-five feet, and the span of its dual wings was more than eighty-eight feet. It weighed an incredible four and a half tons. The plane had a spacious cabin and even an open-air observation balcony in the front.

Because the aircraft was so large, factory employees called it the *Grand*, and the name stuck. When the giant plane first flew on May 26, 1913, it made history. It was the first time a multi-engine aircraft had ever flown. Igor’s success with the *Grand* proved that such planes could be safe and practical.

A larger version of the *Grand* was produced. Called the *Ilia Mourometz*, the name of a Russian folk hero of the tenth century, the giant plane took to the skies in early 1914. It soon set world records for weight carried and length of time in the air. Igor built a second *Ilia Mourometz* with more powerful engines, which performed even better than the original model.

Igor decided to fly the new *Ilia Mourometz* from St. Petersburg to his hometown of Kiev, a distance of 1,600 miles. He planned to make only one refueling stop. This would further demonstrate the value of large, multi-engine planes.

On June 30, 1914, Igor, two pilots, and a mechanic took off from St. Petersburg. The first segment of the flight went well, but during the second, a fire erupted in one of the engines. While the airplane was still in flight, two of Igor’s crewmates climbed onto the wing and snuffed out the flames with their overcoats.

Igor landed his mammoth aircraft at the same airfield in Kiev where he had learned to fly only three years earlier. This epic flight took nearly thirteen hours. In July, the *Ilya Mourometz* made the return flight to St. Petersburg, where Emperor Nicholas II praised the accomplishment.

World War I broke out shortly afterward. Recognizing the potential of Igor's huge plane as a bomber, the Russian Army had seventy built for a special unit, the world's first bomber squadron. Small munitions and inaccurate delivery left much room for improvement in those early days of aerial bombardment. However, Igor's bombers excelled in gathering photographic intelligence.

When the Bolshevik Revolution brought Vladimir Lenin to power in November 1917, Igor fled Russia for Paris. Sensing more opportunity in America, Igor sailed to New York in 1919. He had lost his fortune due to the revolution. In New York, he was barely able to make ends meet. To supplement his income, he taught night classes to Russians in mathematics and astronomy.

In 1923, with a lot of support from his fellow émigrés, Igor founded a new aircraft company. A friend offered his farm on Long Island as the location for Igor's work, and the chicken coop was turned into a machine shop. Igor's greatest success during this time was the design of the first of his Clippers, the S-40 flying boat, which was an elegant airliner for flights between coastal cities.

Juan Trippe, the president of Pan American Airways, needed newer airplanes to service the airline's routes. An improved version of the S-40, the S-42, was just right for the job. The new airliner rolled out in 1934. It was all metal with four engines on a high wing. The fuselage was like the hull of a ship, and the cabin was a picture of elegance. Seating up to twenty-four passengers, the interior sported fine woods and a high ceiling. Pan Am ultimately bought ten S-42s and used them on routes in Latin America and across the Atlantic and Pacific oceans.

By the late 1930s, the Great Depression was taking a toll on American businesses. To keep his company going, Igor decided it was time to focus on developing a helicopter. On September 14, 1939, Igor's longstanding desire to build and fly a practical helicopter

took a major step forward when he piloted his VS-300 outside his company's factory, then located in Stratford, Connecticut. The design consisted of a tubular airframe with both the main and tail rotors powered by a small Lycoming piston engine.

The main rotor shaft was connected to a transmission made out of old truck gears. For safety during the flight tests, the helicopter was tethered to the ground when it lifted off and hovered. To stay warm in the open airframe, Igor wore a topcoat and fedora. The first flight lasted only seconds, but it was a start.

After much experimentation, the VS-300 was fitted with a single anti-torque tail rotor and flown on December 8, 1941. It was a success. The U.S. Army saw the potential. As Igor refined the basic design, greater numbers of the helicopter were ordered for military use. In May 1942, the army's first practical helicopter, the Sikorsky XR-4, was delivered.

As the helicopter crossed over from concept to reality, Igor said, "I believe that no other instrument could contribute as much toward helping persons in need or saving lives under the most adverse conditions." He added, "The helicopter would undoubtedly prove to be a faithful servant of the peaceful progress of humanity."

Igor continued to improve the helicopter. He fostered the development of larger helicopters, including those powered by turbine engines. In 1957, he retired. The brilliant designer who had enjoyed fabulous aviation successes in Russia with the first multi-engine airplanes and in America with flying boats and helicopters died on October 26, 1972. Igor's genius had permanently altered the aeronautical world.

Chapter Nineteen

Chuck Yeager:  
*Test Pilot*

Charles Elwood “Chuck” Yeager was born on February 13, 1923. He grew up in the small town of Hamlin, located in the hill country of West Virginia. Chuck’s father, an operator of natural-gas drilling equipment, worked very hard to provide for the family. Chuck, along with his brothers and sisters, had to help out by doing chores around the house.

Despite his humble background, Chuck enjoyed his youth. He ran barefoot across the rustic landscape, exploring the nearby woods and river. He liked to fish and hunt. Sometimes this caused him to be late for school and the principal would discipline him.

Overall, Chuck was not a good student, but he excelled at math. Also, his good physical coordination caused him to shine in sports. In his spare time, he labored alongside his father on drilling projects, where he learned the inner workings of motors and related equipment. During this period, Chuck developed his way of bluntly speaking his mind and of striving to reach his goals. These traits and his exposure to mechanical devices proved helpful later when he became a military pilot.

After graduating from high school, Chuck did not have either the grades or the money to go to college. In the summer of 1941, he was simply hanging around the pool hall, wasting away the days. When an Army Air Corps recruiter came to town, Chuck enlisted for a two-year term, thinking the service would be personally rewarding and a way to see the world.

At first, Chuck was an aircraft mechanic. It was a natural assignment because of his experience helping his father with machinery. As soon as America entered World War II, it became apparent that more pilots were needed in the Air Corps and a special program known as the



“Flying Sergeants” was started. The program allowed sergeants to enroll in flight training. Chuck, now a sergeant, volunteered.

In August 1942, Chuck began his flight training in California. He had taken a couple of plane rides before and had suffered motion sickness. It was not a promising start to a flying career. With persistence, he overcame his queasiness, and he earned his pilot’s wings in March 1943. A year later, while flying a North American P-51 Mustang on a bomber escort mission from an English airfield, he downed his first enemy aircraft.

On only his eighth mission, three German fighter planes attacked Chuck and shot him down. Chuck parachuted into a pine forest in southwestern France. He was quickly aided by members of the French Resistance. Eventually, Chuck was able to escape on foot across the Pyrenees Mountains into neighboring Spain, which was not taking sides in the war.

By May, Chuck had returned to his unit, the 357th Fighter Group, in England. He was informed that he would not be able to fly any more combat missions. This was the official policy, because a pilot previously assisted by the French Resistance might reveal the identities of those who had helped him if he were captured again. Chuck appealed all the way up to Gen. Dwight Eisenhower, the Supreme Allied Commander in Europe. An exception was made, and Chuck was permitted to fly with his unit again.

Chuck went back to flying the P-51, which he nicknamed in honor of his sweetheart and future bride, Glennis Dickhouse. On a single day in the autumn of 1944, Chuck downed five Messerschmitt Me 109s. On another day, he destroyed a Messerschmitt Me 262 jet—an amazing feat considering that Chuck’s P-51 was a propeller-driven plane.

By war’s end, Chuck had flown sixty-one missions. He had become an ace with the downing of eleven enemy aircraft. For his bravery and outstanding performance as a fighter pilot, Chuck received the Distinguished Flying Cross, the Bronze Star, two Silver Stars, and the Purple Heart. In addition, he was promoted to captain.

Chuck had an obvious knack for flying. Also, his experience added to his understanding of high-performance aircraft systems. Largely for these reasons, he spent his early postwar years as a test pilot.

This was an especially exciting period of technological advances in aviation. One-of-a-kind aircraft were being built to explore the limits of human flight, and the test pilots were often confronting the unknown. It was still an open question as to whether anyone could fly faster than the speed of sound, known as Mach 1. Trying to penetrate the “sound barrier” was considered a dangerous mission.

On the morning of October 14, 1947, the sun-baked, windswept expanses of the Mojave Desert in southern California were shaken like never before. A sound resembling distant thunder momentarily pierced the vastness, signaling to a handful of engineers and air force personnel on the ground that the dawn of a new era had arrived. The drive to attain supersonic flight was fulfilled that day when Chuck zoomed faster and faster until he exceeded Mach 1 and, in the process, created a sonic boom. At the time, Chuck was only twenty-four years old.

Chuck had cracked two of his ribs only a couple of days before the flight when the horse he was riding threw him to the ground. Though in severe pain, Chuck hid his injury from his superiors so that he would not miss the opportunity to become the first person to fly faster than the speed of sound. Because it hurt so much to use his arms, he had to close the hatch with a broomstick after he climbed into the cockpit for his historic flight.

The bullet-shaped Bell X-1 rocket plane, which Chuck called *Glamorous Glennis* in a tribute to his wife, was carried by a Boeing B-29 Superfortress “mother ship.” Once released by the mother ship at 20,000 feet, Chuck ignited the rocket engine, which shot him up to 40,000 feet. From there, he reduced his climb angle and accelerated, with three of the rocket’s four chambers firing. At 43,000 feet, he broke through the sound barrier.

Chuck shut off the engine and coasted up to 45,000 feet. He then steered the bright orange rocket plane to a safe landing on the large dry lake bed at what is now Edwards Air Force Base. Cheers greeted Chuck for his spectacular achievement.

The conquest of the sound barrier was kept a secret, so that America’s potential enemies would not have access to technologies that might have a military use. However, word leaked out in December. The following June, the air force confirmed the successful flight.



Proving that a manned air vehicle could fly faster than sound spurred development of supersonic fighter aircraft.

Chuck stayed in flight-test operations at Edwards until 1954. He piloted many experimental aircraft, known as X-planes, setting additional speed records. Afterward, Chuck received squadron leadership posts in the U.S. and abroad, but he was again assigned to Edwards in 1962. This time he was placed in charge of the Aerospace Research Pilot School, which trained a number of pilots who became NASA astronauts.

Chuck's later assignments included commanding a fighter wing in Southeast Asia during the Vietnam War. In 1975, he retired from the air force as a brigadier general, concluding a distinguished twenty-eight-year military career. The next year, Chuck was awarded a special Medal of Honor for his famous supersonic flight.

In retirement, Chuck has served as a spokesperson and consultant for a wide range of companies. He has also been the subject of many books, television programs, and movies about test pilots and research aircraft. Until he was seventy-five years old, Chuck enjoyed flying privileges at Edwards. At the air base's annual air show, he sometimes used a modern fighter jet to recreate his first supersonic flight, causing a sonic boom to echo across the air-show ramp and the desert around it.

Chuck has lent his name to a nationwide effort to give youngsters their first airplane rides. At air shows across the country, Chuck can be seen giving boys and girls a taste of flight by taking them up in everyday light planes. Possible future test pilots are introduced to the wonders of the sky by one of the greatest aviators who ever lived.





Chapter Twenty

Jacqueline Cochran:  
*Record-Breaker*

Jacqueline “Jackie” Cochran’s bleak beginnings gave hardly a clue to her future accomplishments. Born on May 11, 1906, Jackie grew up amid poverty and heavy labor. Her parents drifted among the cotton and sawmill camps in northern Florida and adjoining states, never allowing Jackie to have much of a childhood.

With essentials like food and clothing in short supply, Jackie went to work with her parents in a Georgia cotton mill when she was just eight years old. The pay was only six cents an hour and the work day lasted twelve hours. She later claimed that it was at this stage in her life that she received her very first pair of shoes.

One of the camps operated a little schoolhouse, and Jackie developed a close relationship with her teacher. Jackie learned basic skills, such as reading, but more importantly, her teacher opened up a world rich with possibilities. Young Jackie’s ambition had been sparked.

One day, Jackie noticed a beautiful doll for sale in a camp store. Because it cost so much, she could only hope to win it in a raffle. She worked extra hours and saved her pennies to buy not one but two raffle tickets. When the raffle results were announced, she learned that she had won the doll. Jackie was absolutely thrilled. But when she got home, her mother made her give the doll to her two-year-old niece. Now Jackie was devastated. Her win had almost instantly turned to defeat. She vowed to get that doll back, no matter how long it took.

When Jackie was in her teens, one of the camp workers recognized her intelligence and encouraged her to follow a new path. The owners of a successful hairstyling business took her in as an apprentice. She learned how to be a beautician and attracted a growing clientele.

With her earnings, Jackie bought a car. She soon taught herself how to repair it, in order to save money. This skill would aid her later



when she became interested in aviation. For a few years Jackie tried nursing, but she returned to hairstyling.

Jackie wanted to make it big. Her jobs in small Southern cities made her feel that she was not getting ahead. She decided to try her luck in New York. She moved there by herself and found a job at one of the top beauty salons on Fifth Avenue. Because of her energy and drive, she was soon socializing with some of the city's most prominent families.

At this time, members of Jackie's family, including her niece, had lost all their money and needed a place to stay. They asked if they could live with her. Jackie agreed, on the condition that her prized doll would be returned to her. In this way, Jackie regained possession of the doll that she cherished so much.

Jackie was invited to a party by some of her salon clients and there she met Floyd Odlum, a business tycoon. Like Jackie, he had started with nothing but his dreams and ambition. Jackie confided in him that she had visions of creating a national cosmetics business. He suggested that she could more effectively market her products if she could fly from city to city on her own schedule. Acting on that advice, in the summer of 1932, she took flying lessons. In the span of a three-week vacation, Jackie earned her pilot's license.

Flying soon became Jackie's passion and primary activity. Jackie established her cosmetics business, but she concentrated on developing her flying abilities. She traveled to San Diego, California, where she received several months of advanced instruction from a navy friend. Later, back in the New York area, she completed extensive instrument flight training. Before long, Jackie wanted to participate in aerial contests and gain national attention.

Meanwhile, Jackie's personal life took a dramatic turn. Jackie had been married for a short time when she was very young. She decided to marry again in 1936. Jackie married Floyd Odlum, who had encouraged her to fly. The two built a lovely ranch in the California desert that became a destination for many leading figures in aviation, business, and government. Jackie wrote that every spring she could tell when she was flying over the ranch just from the sweet fragrance of the property's desert flowers and citrus fruits wafting into the air.

In 1938, Jackie competed in the Bendix Trophy Race from Burbank, California to Cleveland, Ohio. At the controls of a new version of the Seversky P-35 fighter plane, Jackie got off to a good start, but bad weather forced her to climb higher than planned. At 23,000 feet, while she was breathing oxygen through a tube, the airplane's engine stopped.

Fuel flow from one wing had been blocked. Jackie banked the airplane so that the fuel in the full wing would drain into the empty wing and from there feed the starved engine. Despite the malfunction, Jackie finished the race before anyone else. She captured the coveted Bendix trophy against a field of competitors dominated by men. Her nonstop flight covered 2,042 miles in eight hours, ten minutes, and thirty-one seconds at an average speed of about 249 miles per hour.

With war looming, Jackie advocated that women pilots be organized in the U.S. to substitute for the male pilots who would be shipped to combat zones overseas in massive numbers. The Army Air Forces valued her expertise and adopted her idea after America entered World War II. Jackie then directed the Women's Airforce Service Pilots program, whose members were known as WASPs. She ordered uniforms made of a special Santiago blue fabric for those under her command.

During the war, approximately a thousand women were trained as military pilots at an airfield in Sweetwater, Texas. They served in virtually every noncombat flying position—from ferrying to flight testing and from instructing to target towing. When the program was deactivated in late 1944, Gen. H. H. "Hap" Arnold, chief of the Army Air Forces, acknowledged that the WASPs had proven that women could fly as well as men. These women contributed greatly to the war effort. Also, their record of splendid service eased the way for females to serve again as military pilots some thirty years later.

The jet age presented another exciting challenge to Jackie. Airplanes could now fly faster than she could have ever imagined. In 1953, Jackie, with pointers given by her friend Chuck Yeager, became the first woman to break the sound barrier. Piloting a Canadian model of the North American F-86 Sabre fighter jet, she achieved supersonic flight when she executed a vertical dive from 45,000 feet over the Mojave Desert.

Jackie continued her record-breaking flights at an age when most people consider a quiet retirement. On May 4, 1964, when she was fifty-seven years old, Jackie throttled up a slender fighter jet, the Lockheed F-104G Starfighter, in a straightaway and attained the scorching speed of 1,429 miles per hour. She thus became the first woman to fly faster than twice the speed of sound.

Jackie remained friendly with many air force generals and always used her fame and position to advocate a strong national defense. She and her husband also hosted Presidents Dwight Eisenhower and Lyndon Johnson at their desert ranch. At the peak of her celebrity, Jackie wrote her memoirs, in which she described her life as having gone “from sawdust to stardust.”

She wrote, too, about how she climbed on her historic supersonic runs to such extreme altitude, at a point where the sky turns dark in the middle of the day, that she could see “the stars at noon.” This possibility and ones like it, she believed, are open to both men and women who aspire to do great things and are willing to apply themselves.

By the early 1970s, age and illness prevented Jackie from any further flying, but by then she held more aviation records than any other pilot, male or female. Jackie died on August 9, 1980, at her home in California. In accordance with her wishes, she was buried with her treasured doll, the symbol of her life’s struggles and triumphs.

## Chapter Twenty-One

# Alan Shepard, Jr.: Space Explorer

Alan Bartlett Shepard, Jr., was born on November 18, 1923, in the quaint farming town of East Derry, New Hampshire, about forty miles northwest of Boston, Massachusetts. His family was prosperous and deeply rooted in the community. While his parents imbued him with a strong work ethic, Alan also found time for fun and games. Short for his age, he concentrated on solo sports such as swimming, skating, and skiing. New England's picturesque countryside provided a delightful setting for Alan's outdoor activities.

Among Alan's favorite hobbies was crafting model boats and other playthings in his grandfather's basement workshop. Alan enjoyed working with his hands and used tools and machinery with ease. With uncommon energy and curiosity, he applied himself in school and skipped ahead two grades. By the time Alan entered high school at just twelve years of age, he worshipped famed aviator Charles Lindbergh, who had been the first to fly solo, nonstop across the Atlantic Ocean nine years earlier. Alan wanted to be a pilot like his hero and even built a model of Lindbergh's famous *Spirit of St. Louis*.

One day Alan attempted to fly a friend's fragile mock glider. Alan barely lifted off when the wind twirled him into the ground, shattering the glider. Alan's desire to fly still remained strong. The next year, his mother drove him to an airport for his first airplane ride. He flew aboard a Douglas DC-3 airliner to Boston and back. The roundtrip was short but inspirational for young Alan.

Starting in 1939, Alan and a neighborhood friend pedaled their bikes as often as possible to a rural airfield about twelve miles from home. There they performed menial chores in exchange for occasional flights in light private airplanes. These rides introduced Alan to hands-on flying.





With war unfolding abroad, Alan's father, an army veteran of World War I, wanted him to be trained as an army officer at West Point. But Alan, who loved the sea as well as the sky, preferred the Naval Academy. He was a midshipman at Annapolis from 1941 to 1944. Alan made the rowing team, but his antics kept getting him in trouble. Not very studious until his final year, Alan ended up graduating in the middle of his class.

In the last year of World War II, Alan served on a navy destroyer. During a stop in California for ship repairs, he married Louise Brewer, whom he had met while at the Academy. When his leave concluded, Alan reboarded his ship and sailed back across the Pacific Ocean. At the Battle of Okinawa, he helped to defend his ship against the Japanese airborne suicide attackers known as kamikazes. Alan saw U.S. naval fighter planes overhead battling against the Japanese aircraft, and that sight reinforced his desire to become a naval aviator.

When the war ended, Alan got his wish. He earned his naval aviator's gold wings in 1947. Alan thrived as a carrier-based fighter pilot and sometimes demonstrated his supreme self-confidence by performing unauthorized stunts. His skill, courage, and motivation led to his being selected for the navy's test pilot school at Patuxent River, Maryland. Following graduation, he spent many hours developing in-flight refueling systems and testing a new type of carrier flight deck.

Alan had a couple of additional tours aboard an aircraft carrier and then he returned to Patuxent River. As a test pilot, he got to fly some of the navy's most advanced fighter planes of the 1950s. His experience was considered so valuable that he spent his last five months there as an instructor. When a call went out seeking astronaut applicants for the new U.S. manned space program, Alan was interested. He made an ideal candidate and was chosen along with six others.

Much fanfare accompanied the introduction, in 1959, of the seven original American astronauts. All were military test pilots—the best flyers in the nation for the demanding flights to come in the new frontier of space. Each was slated to be rocketed beyond Earth's atmosphere in a cramped, bell-shaped Mercury capsule.

The honor of being tapped for the first ride by an American into space went to Alan. At Cape Canaveral on the morning of May 5, 1961,

he climbed into his tiny spaceship, which he had named *Freedom 7*. Only three weeks earlier, the Soviet Union had launched cosmonaut Yuri Gagarin into an orbital flight. The world's two superpowers—the United States and the Soviet Union—were locked in a space race.

As NASA counted down the seconds to Alan's blastoff at the Cape, people around the globe came to a standstill, gathering around television sets to witness history in the making. For those moments leading up to and including the fiery rise of the cylindrical Redstone booster, the hopes and prayers of all good-hearted souls rode with Alan in that petite capsule atop the rocket. Thankfully, the flight proceeded according to plan.

The Mercury capsule arced in a ballistic trajectory, reaching an altitude of 116.5 miles. The flight lasted only fifteen minutes and twenty-two seconds. Though brief, it was America's first step for humans in space.

Alan was plucked out of the Atlantic Ocean 302 miles from the Cape by a helicopter that was poised for the recovery. The new frontier had beckoned, and thanks to all involved—Alan and the thousands of engineers and technicians—the journey into the cosmos had begun and America's quest to probe the universe reached a new milestone.

Alan became a celebrity. People compared him to his boyhood hero and newspapers called him "the Lindbergh of space." Unfortunately, Alan was diagnosed with an inner-ear disorder that prevented him from venturing back into space for the rest of the decade. Finally, after surgery, Alan went back on flight status.

Happy to be on the list of astronauts scheduled for future space flights, Alan attended the 1969 launch of the epic Apollo 11 rocket, which was destined to reach the Moon. While he was standing in the VIP section at Cape Canaveral, waiting for his colleagues to blast off on their memorable mission, he heard a voice call out to him. When Alan turned around, an old balding man extended his arm to shake hands. The old man said, "I'm Charles Lindbergh." For the next half-hour, the two famous pilots talked about the similarities between their aviation firsts—across the Atlantic and into space. It was a special moment for Alan to be in the company of the aviator who had inspired him in his youth.

Alan returned to space in 1971 as the commander of the Apollo 14 mission. As a tribute to the Wright brothers, on this flight the three-man Apollo capsule was called the *Kitty Hawk*. Flying in a lunar module, Alan touched down on the Moon. Wearing a specially designed spacesuit, he was only the fifth person to walk over the pockmarked lunar landscape. He collected rock samples for scientific study.

Being an avid golfer and a practical joker, Alan had brought a makeshift golf club with him to the Moon. He swung the club as if he was, as he said, making a “sand-trap shot” during a round of golf. Smacking the second of two golf balls in the Moon’s low-gravity environment, he propelled it 200 yards. The comical gesture revealed the explorer’s humanity as he stood at the gateway to a new world.

Alan and his Apollo crewmates were embraced as heroes upon their return to Earth. Alan had retained his affiliation with the navy and was promoted to rear admiral. He served as chief of the Astronaut Office until his retirement from NASA and the navy in 1974.

In the private sector, Alan managed a variety of Texas businesses. He also donated time and money to charitable causes such as the Mercury Seven Foundation, which provided scholarships to disadvantaged students interested in the sciences. In 1989, Alan and Louise moved to Pebble Beach, California, where he spent much of his time playing golf.

Before he died on July 21, 1998, Alan received much recognition. His high school named one of its buildings after him, and the Naval Academy’s rowing team christened a racing shell in his honor. After Alan’s death, his Mercury capsule, in which he had become America’s first citizen in space, went on display at the Academy. Located in a public area on campus, the early spacecraft serves as a reminder to midshipmen, faculty, and visitors that persistence pays off and dreams can come true.



## Chapter Twenty-Two

# Philsie Looks Skyward

The car gently pulled into the driveway. When we had arrived back home, my parents called out to me, “Philsie, it’s time to wake up.”

Waking from my dream, I heard an approaching plane, and I looked up at the sky. I could see a big airliner heading my way. I jumped out of the car, and with my mother and father at my side, I craned my neck to watch the passing plane.

The gleaming airliner sailed overhead, striking a majestic pose against the bright sky. Sure enough, it was Captain Smith in command of the airliner. We waved to our friend in the cockpit. As the plane whooshed past, I ran to the backyard to watch the magnificent airliner a few moments longer. I wished that I could be flying again.

Later, I gazed at my many airplane models representing much of the history of aviation. I picked up my favorite and stared at it for a long time. As the sun sank to the edge of the horizon, casting a warm glow, I peered out the window and thought: Although I am a little flyer now, I want to be like the great aviators in my dream and, like them, soar skyward into the heavens.



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