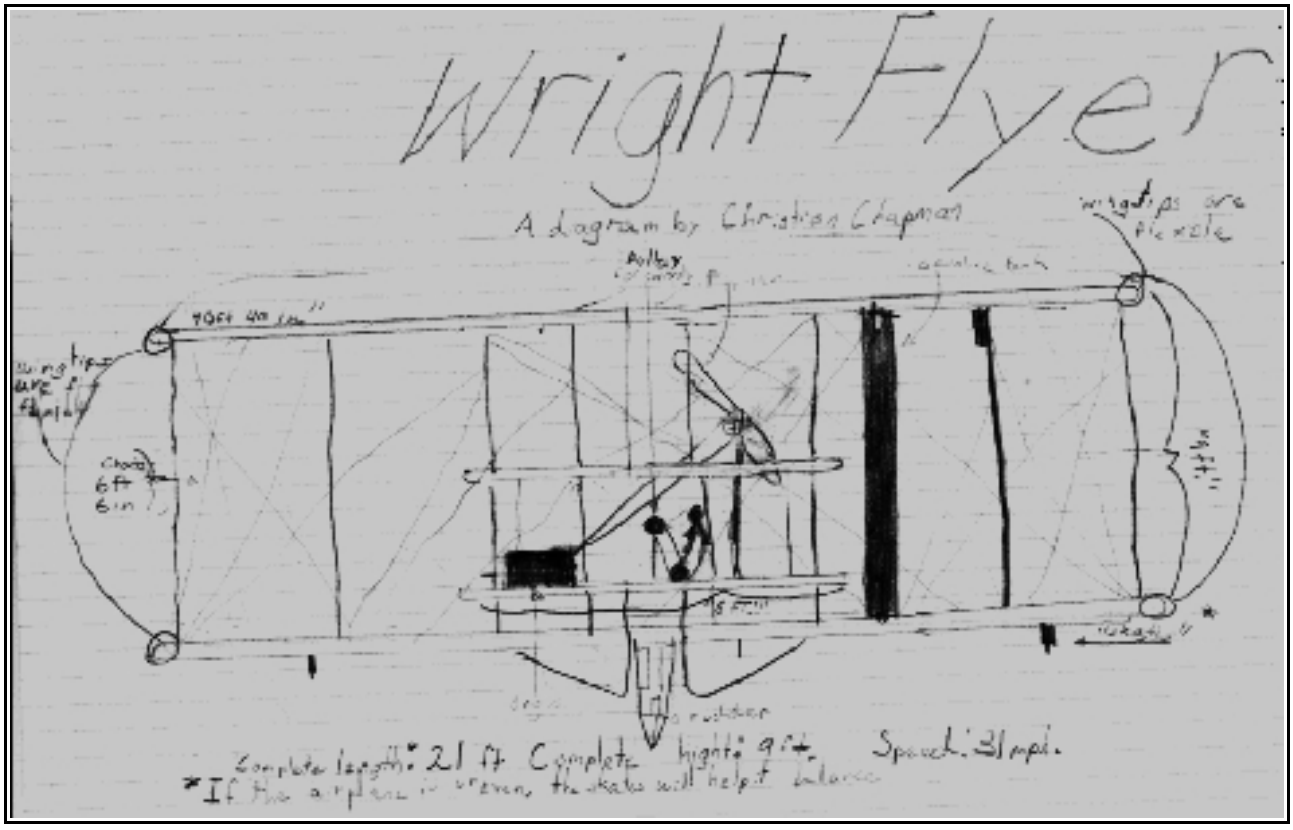
Flight

by Christian Douglas Chapman



Third Grade Research Report
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Flight

A report by Christian Chapman

Airplanes in General

An airplane is sort of a “flying car” that is powered by an engine. Airplanes are heavier than air machines, so they have to have wings to produce lift. Aircraft like blimps, balloons and everything of that sort, are lighter than air because of the gas or hot air inside. Most airplanes in the U.S. have two engines. Others have three. Double engine airplanes have one on the right wing and one on the left. Triple engine planes, however, have one on the back fin or the bottom. Engineers build airplanes according to the law of aerodynamics.

Gliders

A glider is an airplane which means that it is heavier than air. Gliders do not have any motors. They have to be towed in the air by other airplanes. Gliders fly by changes of temperature in the air called thermals. Now, gliders are used for recreation, but in WWI, they were used to carry soldiers or equipment to battlefields.

Airships

An airship is something that you usually call a blimp. They got that name because most airships in the U.S.A were nonrigid (limp) which means that they have no ”skull” to hold it them in shape. So they are shaped by air. They are said to be B-class. So when you say blimp, that means that it is a B-class nonrigid aircraft.

Mythology

You might think that everyone believed that you could flap your wings and fly in medieval ages. Actually, mythology was not even invented until somewhere around 200B.C. A Greek inventor named Archimedes found out how things float in water. It was understood at the time, but then, the scrolls that explained that got uncovered somewhere in the beginning of A.D. It was misunderstood, so everyone believed you could float in the air by flapping your arms. About 200 years before Archimedes' discovery, another Greek inventor named Archytas made a wooden flying pigeon. No one knows how it flew. About 100 years later, the Chinese invented kites. In 1290, a French artist wrote “air has solid to it.”

Leonardo Da Vinci

A few hundred years later an Italian inventor and artist named Leonardo Da Vinci made a machine that flapped wings like a bird. In 1680,

a French man named Borreli proved that you could not fly by flapping wings because you are to heavy to support flight with skinny arms.

First Flights

In 1783, Roizer and Arlandes, two French brothers who worked in a paper factory, made the first successful human flight. They had made a huge paper balloon in which they would work. They could not get any other material, so they used what wold work best with them. They were burning papers near by, when they were working in the balloon when it started to fill up. Then it started to rise because of the hot air on the balloon. They were the first people in the air. That proved that hot air rises.

Why Hot Air Rises

Hot air rises because when things get heated up, the bonds loosen in them. That is why plastic melts. when bonds get hot in air, they too, soften, and become very weak. The molecules move around faster and faster as they get hotter and hotter. The colder molecules on the outside have stronger bonds and are more tightly packed. the molecules on the inside are fast moving and less dense. So the balloon rises.

First Gliders

The first two successful gliders were made by Sir George Caylilly,

who was French. The first was not manned, but the second was. In 1891 to 1896, another Frenchman named Otto, made the first piloted glider that was more successful than Sir George Caylilly's.

Other Flights

In 1843, William S. Henston, a British inventor, made a steam flier. It took off fine, but produced little lift. That was enough to make William quit his career. In 1848, his friend John Stringfellow, just for fun, made an airplane. It flew high and perfectly, but not for a long amount of time. In 1890, a French mechanic made the first successful steam plane.

Orville and Willbur Wright

In America, most inventors were interested in low power airplanes. In 1890, Orville and Willbur Wright, two bicycle manufacturers, started to get interested in it. It started when their father got home from the market. He had bought them a toy. He called them and tossed the toy to them, but instead of falling down like they expected, it started going up. They were amazed. But they wanted to learn more than “It has to do with gravity” or “It's got to do with something you haven't leaned about yet”.

So they started to research. In 1899, they thought that they had enough research, so they started to make kites. They decided that the best way of learning was doing and learning from their mistakes. Because of

there efforts, they succeeded on making the airplane fly. On December 17, 1893, Orville successfully flew the first controllable flight. The plane flew about four feet high, and only twelve seconds, but it was the first controllable flight.

In all of their flights, they set a record of 852 feet. In 1905, they designed and made a version used by the military. Then finally in 1908, they made there first public flight. After 1910, they were much more than bicycle manufacturers. In 1908, another American inventor named Glen H. Curtis was the first person that made a famous airplane after the Wright brothers. He flew it on Independence Day.

Flight Across America

In 1911, Calbraith P. Rodgers made the first flight across America in a Wright Flier. He crashed over 70 times. It took him 40 days, but his actual flight time was three and a half days. By the time he got back, he had a completely new plane because of all of the repairs from crashing.

World War I

In 1913, a Russian engineer, made the first four engine plane. World War I made huge advances for the airplane. At the beginning, they could fly about 60 mph. At the end, they could fly over 120 mph. After World War I, the United States Postal Service found out they could use bombers

to carry mail. Air Acrobatics started in the 1920's to take people's minds off wars. The engineers found out how to make metal planes fly about the time air acrobatics started. A famous air acrobat named Colonel Roscoe Terner, flew with his pet lion, Gilmore. Gilmore was also equipped with his own parachute and a special litter, food, and seat.

Charles Lindbergh

In 1927, Charles Lindbergh, an American pilot, flew the Spirit Of St. Louis across the Atlantic Ocean. He flew a total of 3610 miles. His plane was something called a “Blind Plane”. A plane that you could not see anything in front back, or on the sides of you, so you had to determine whether you were on the right path by something called “Dead Reckoning”. Dead reckoning is what you do if there is no landmark visible in the horizon. You have to determine whether you are in the right place by time or radar. In this case time. In 1931, Hugh Hurdnon made the first flight around the world.

Pressurized Cabins

In the 1930's, flying boats became very popular for travel in the U.S. But as airplanes got faster, it got harder and harder to breathe. So the end of 1930's and all of the 1940's, that was what all of the engineers were concentrating on. They invented something called the pressurized cabin.

They took along enough carbon dioxide, oxygen, and all that was needed to make air for the cabin.

World War II

World War II was another golden age in flight. At the beginning, bombers dropped hand grenades or bullets packed close together and flew about 300 mph, 30,000 ft. high. At the end, they were much faster than 400 mph. and flew about 40,000 ft. above earth. Between 1928 and 1940, Germans developed rockets that could go over 600 mph. In 1933, Willey Post made the first flight around the world twice. The U.S.A. B-29 superfortress was probably the strongest airplane in World War II. It could carry 20,000 pounds of bombs alone. Tigers were painted on planes to show people that they were veterans. Sharks were for elite.

By the time of the Korean war, the U.S. and the Soviet Union had developed the first jets. In 1952, the the Germans had developed the first commercial jets. In the late 1950's the U.S. made its first commercial jets.

Supersonic Age

Then in 1943, America made the world's first supersonic plane. That was what started the supersonic age. Robert H. White flew it. He was the first astronaut too. He went into a very high part of the atmosphere, which is now considered space. About 67 miles high (the low Ionosphere). Mach

one is as fast as sound. He was going Mach six. That isn't even supersonic. Mach five and over is hypersonic.

In 1952 America made it's first supersonic bomber. Then in 1956, the USSR made the first commercial supersonic plane, but it was banned because it was too loud.

In 1999, the Bretling Orbiter made its first flight around the world nonstop. Today, the F-117A stealth fighter is designed to reflect radar, so the enemy is a target of itself. The F-117 can carry 2 tons of bombs alone.

What I Found Out

The most important points that I found out doing this report are that the U. S. made the first supersonic airplane, both Word War I and World War II were golden ages for airplanes, Charles Lindbergh flew over 3610 miles on a single flight across the Atlantic Ocean, the U.S.A. built the first pressurized cabins, Roizer and Arlandes built the first thing that man could use to fly, and when mythology was invented. I think that flight should be researched more so that flying can be faster, more comfortable, and more powerful.

My sources of information

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2. World Book 2004 Edition, Topic: Flying by Drew Steketee, A.B. Senior Vice President, Communications, aircraft owner and pilot. F. Robert Van Der Lincoln, M. A., Aeronautic or Curator of the National Air and Space Museum