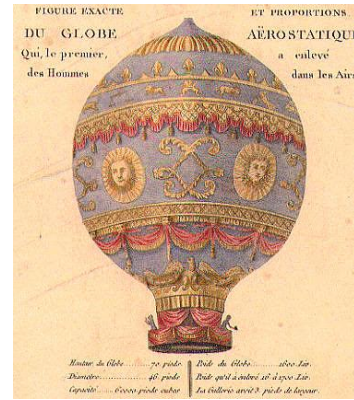


Ballooning History



The basic idea behind hot air balloons has been around for a long time. Archimedes, one of the greatest mathematicians in Ancient Greece, figured out the **principle of buoyancy** more than 2,000 years ago, and may have conceived of flying machines lifted by the force. In the 13th century, the English scientist Roger Bacon and the German philosopher Albertus Magnus both proposed hypothetical flying machines based on the principle.

But nothing really got off the ground until the summer of 1783, when the Montgolfier brothers sent a sheep, a duck and a chicken on an eight-minute flight over France. The two brothers, Joseph and Etienne, worked for their family's prestigious paper company. As a side project, they began experimenting with paper vessels elevated by heated air. Over the course of a couple years, they developed a hot air balloon very similar in design to the ones used today. But instead of using propane, they powered their model by burning straw, manure and other material in an attached fire pit.

The sheep, duck and chicken became the first balloon passengers on Sept. 19, 1783, in the Montgolfiers' first demonstration flight for King Louis XVI. They all survived the trip, giving the King some assurance that human beings could breathe the atmosphere at the higher elevation. Two months later, the Marquis Francois d'Arlandes, a major in the infantry, and Pilatre de Rozier, a physics professor, became the first human beings to fly.

Other hot air balloon designs and ambitious flights followed, but by 1800, the hot air balloon had been largely overshadowed by [gas balloons](#). One factor in this popularity decline was the death of Pilatre de Rozier in an attempted flight over the English Channel. The new balloon he built for the flight included a smaller hydrogen balloon in addition to the hot air balloon envelope. The fire ignited the hydrogen early in the flight, and the entire balloon burst into flames.

But the main reason hot air balloons fell out of fashion was that new gas balloon **dirigible** designs were superior in a number of ways -- chiefly, they had longer flight times and could be steered.

Another popular balloon type was the **smoke balloon**. These balloons were lifted by a fire on the ground, and did not have any attached heat source. They simply shot up in the air, and then sank back to the ground. Their main use was as an attraction at travelling fairs in the United States in the late 1800s and early 1900s. The balloonist would put on a parachute and attach himself to a canvas balloon. Then, several assistants would hold the balloon over a fire pit, getting the air hotter and hotter, and so increasing the upward force. When the force was great enough -- and if the balloon hadn't caught on fire -- the assistants would let go and the balloonist would be

launched into the air. When the balloon reached its highest point, the balloonist would detach and parachute to the ground.

Since the 1960s, traditional hot air balloons have enjoyed a renaissance, due in part to a man named Ed Yost and his company, Raven Industries. Yost and his partners founded Raven Industries in 1956 to design and build hot air balloons for the United States Navy's Office of Naval Research (ONR). The ONR wanted the balloons for short-range transportation of small loads. Yost and his team took the basic concept of the Montgolfier brothers' balloon and expanded it, adding the propane burner system, new envelope material, a new inflation system and many important safety features.

They also came up with the modern, light-bulb-style envelope shape. Yost first designed large, spherical balloons. These balloons worked well, but had an odd inflation pattern: When the air was heated, the top of the balloon filled up, but the bottom stayed under-inflated. For efficiency, Yost just got rid of the extra fabric at the bottom, developing the familiar "natural" balloon shape we see today.

By the early 1960s, the ONR had lost interest in hot air balloons, so Yost began selling his balloons as sporting equipment. Other companies soon sprang up, as more and more people got involved in ballooning. Over the years, designers have continued to modify hot air balloons, adding new materials and safety features, as well as developing creative envelope shapes. Some manufacturers have also increased basket size and load capacity, building balloons that hold up to 20 passengers!

But the basic design is still Yost's modified version of the Montgolfier brothers' original concept. This remarkable technology has enthralled people all over the world. Balloon tours are a multi-million dollar business, and balloon races and other events continue to attract crowds of spectators and participants. It's even become fashionable (among billionaires) to build high-tech balloons for trips around the world. It really says a lot about hot air balloons that they are still so popular, even in the age of [jet planes](#), [helicopters](#) and [space shuttles](#).

Hot Air Balloon History



The First Documented Hot Air Balloons

The Chinese are recorded as being the first to make use of lighter than air technology with small unmanned hot air balloons which are known as Kongming Lanterns or sky lanterns. These were developed around the 3rd century by originally used as military signalling devices but later became a tradition at Chinese festivals. Kongming Lanterns were made from oiled rice paper on a bamboo frame, the heat source used was a small candle made from a waxy, flammable material.

Hot Air Balloon History in Dispute

The claim for the first use of hot air balloons is hotly disputed. The Nazca Indians of Peru are thought to have used hot air balloons as an aid to creating the famous Nazca Line Drawings which were created in the period 700 B.C. to 200 A.D.

An 18th century issue of the newspaper '*La Gaceta de Mexico*' noted that in 1667, a citizen of Las Mendarios del Perro, Veracruz broke his leg in a fall following ascent in a strange device with fire.

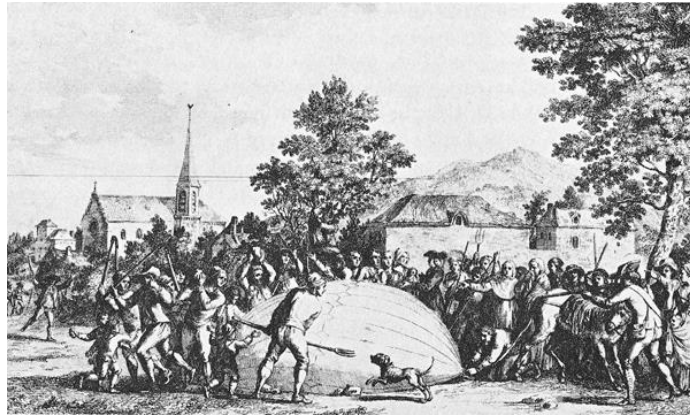
The Portuguese claim that a priest, Batholomeu Laurenco de Gasmao demonstrated a small working balloon model on the 3rd August 1709. He was subsequently awarded a Professor of Mathematics by King John V of Portugal for his efforts.

There are also reports of pre-montgolfier balloons from Russia in 1731. A young military officer Kria Kutnoi is reported to have launched a primitive balloon from Ryazan, about 120 miles south of Moscow. It reputedly flew over a grove of birch trees crashing into the tower of a church in the neighbouring town. The balloon is said to have been made from hides and filled with evil smelling smoke.

The Montgolfier Brothers

French brothers, Jacques and Joseph Montgolfier were the local paper manufacturers in the town of Alchemy in Southern France. The brothers noticed that when they burnt paper the ashes floated up in to the air. They thought that the heat and smoke from the flame had a special lifting power and they set their minds to inventing a craft that could capture the heat and smoke and lift them off the ground. It is recorded that on the 4th June 1783 the first large scale balloon flight was launched by the Montgolfier Brothers from Annonay, France. It was reported in a Paris newspaper on the 10th of July as having been witnessed by many people. The report says that the

balloon was 'about 36 feet long and 16 feet high and about as high', on landing about 7 - 8 minutes after takeoff the 'globe' was destroyed by peasant workers who believed it was the moon was falling from the sky.



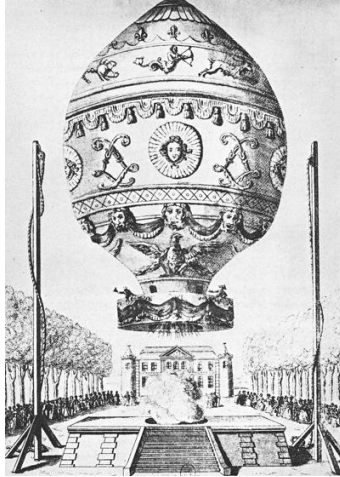
A Sheep, a Duck and a Rooster

On the 19th Sept, 1783 the Montgolfier brothers successfully launched their first load carrying hot air balloon made of paper and cloth. To inflate the craft they burned a combination of straw, chopped wool and dried horse manure underneath the balloon. As the straw burned it released heat that helped the balloon float. The wool and manure made lots of smoke and helped keep the burning flame low, which lessened the risk of setting the balloon alight. The brothers were too nervous to try out their invention themselves so they sent a sheep, a duck and a rooster to see what would happen. The balloon floated up into the sky and landed safely eight minutes later.

Once the Montgolfier brothers realised what they had achieved they approached the King of France to see if he would view their invention, with two people on board instead of farm yard animals. King Louis XVI agreed.

The First Manned Flight

On the 21st November 1783, a hot air balloon was launched in Paris for all to see. On board were two close friends of the Montgolfier brothers, Pilatre de Rozier and Francious Laurent. The balloon was successfully launched and rose about 500 feet / 150 metres above the rooftops of Paris, after a flight lasting about 25 minutes the flight eventually landing a few miles away in some vineyards.



Benjamin Franklin is noted to have been present at the launch and met with the Montgolfier Brothers later in the day to sign a witness report that was submitted to the Academy of Science.

The Birth of a Tradition

As the hot air balloon landed in the vineyard, local farmers raced towards it with pitchforks, ready to attack this strange object from the skies. To prevent the balloon being destroyed by the farmers Pilatre and Francious offered them a bottle of fine french champagne, as thanks for allowing them to land in the field. Today, in memory of that first flight it is common to drink champagne after a balloon ride.

The Origin of a Word

The word 'pilot' is derived from 'Pilatre', the name of the first person to command an aerial vehicle.

Development of the modern hot air balloon

Ed Yost is credited with developing the modern, propane burning hot air balloon. His development work was conducted under a US military contract. In October 1955, Ed flew his first prototype of a kerosene powered tethered balloon. This balloon which was made of plastic film had several problems which he worked on until 22nd October when he made his first free flight in a propane powered hot air balloon from Bruning Nebraska USA. This first flight is reported to have lasted for 1 hour 35 minutes. Ed continued to refine his design and in 1963 made the first crossing of the English Channel in a hot air balloon.

The First Balloon Flights in Australia

Joseph Dean, a british wire maker by profession made the first balloon ascent in Australia on the 1st February 1858 from Melbourne's Cremorne Gardens. The flight lasted 44 minutes and landed gently in Collingwood. This flight was followed up two weeks later on the 15th February with a flight by the balloons maker, Charles Brown. It was intended that Brown make the first flight but

by a quirk of good luck for Dean the ground staff who were restraining the balloon during inflation allowed the balloon to rise whilst Dean was aboard. These first flights were made in a gas (hydrogen) balloon.

The first manned hot air balloon flight was made many years later on the 4th July 1962 from Parkes NSW. The pilot was Terry McCormack, a student from St John's College of the University of Sydney. McCormack was the founder and first president of Australia's first balloon Club, the Aerostat Society of Australia. The balloon he flew was built by the society members from Mylar film held together with a fibreglass re-inforced adhesive tape. It was called Archimedes and had a volume of around 18,000 ft³ / 800 m³.

Sadly McCormack was also one of the first people to be killed in a hot air balloon in Australia when in November 1975, the 'New Endeavour' was caught in turbulence during an afternoon flight and deflated at low level crashing to the ground killing both McCormack and his passenger.

THE HISTORY OF HOT AIR BALLOONING

On the 19th September 1783 Pilatre De Rozier, a scientist, launched the first hot air balloon called 'Aerostat Reveillon'. The passengers were a sheep, a duck and a rooster and the balloon stayed in the air for a grand total of 15 minutes before crashing back to the ground.

The first manned attempt came about 2 months later on 21st November, with a balloon made by 2 French brothers, Joseph and Etienne Montgolfier. The balloon was launched from the centre of Paris and flew for a period of 20 minutes. The birth of hot air ballooning!!!

Just 2 years later in 1785 a French balloonist, Jean Pierre Blanchard, and his American co pilot, John Jefferies, became the first to fly across the English Channel. In these early days of ballooning, the English Channel was considered the first step to long distance ballooning so this was a large benchmark in ballooning history.

Unfortunately, this same year [Pilatre de Rozier](#) (the world's first balloonist) was killed in his attempt at crossing the channel. His balloon exploded half an hour after takeoff due to the experimental design of using a hydrogen balloon and hot air balloon tied together.

The next major pivotal point in balloon history was on January 7th 1793. Jean Pierre Blanchard became the first to fly a hot air balloon in North America. George Washington was present to see the balloon launch.

Now a large jump in time, of over 100 years: In August of 1932 Swiss scientist Auguste Piccard was the first to achieve a manned flight to the Stratosphere. He reached a height of 52,498 feet, setting the new altitude record. Over the next couple of years, altitude records continued to be set and broken every couple of months - the race was on to see who would reach the highest point.

In 1935 a new altitude record was set and it remained at this level for the next 20 years. The balloon Explorer 2, a gas helium model reached an altitude of 72,395 feet (13.7 miles)! For the first time in history, it was proven that humans could survive in a pressurized chamber at extremely high altitudes. This flight set a milestone for aviation and helped pave the way for future space travel.

The Altitude record was set again in 1960 when Captain Joe Kittinger parachute jumped from a balloon that was at a height of 102,000 feet. The balloon broke the altitude record and Captain Kittinger, the high altitude parachute jump record. He broke the sound barrier with his body!

THE ATLANTIC CHALLENGE

In 1978, the Double Eagle II became the first balloon to cross the Atlantic, another major benchmark in the History of Ballooning. After many unsuccessful attempts (see our section on [Atlantic Crossings](#) for more detailed accounts) this mighty Ocean had finally been cracked. It was a helium filled model, carrying 3 passengers, Ben Abruzzo, Maxie Anderson and Larry Newman. They set a new flight duration time at 137 hours. There is a full story breakdown [here](#) in the Atlantic Conquered part of the

site.

THE PACIFIC CHALLENGE

The first Pacific crossing was achieved 3 years later in 1981. The Double Eagle V launched from Japan on November 10th and landed 84 hours later in Mendocino National Forest, California. The 4 pilots set a new distance record at 5,678 miles. 3 years after this, Captain Joe Kittinger flew 3,535 miles on the first solo transatlantic balloon flight, setting yet another record.

In 1987 Richard Branson and Per Lindstrand were the first to cross the Atlantic in a **hot** air balloon, rather than a helium/gas filled balloon. They flew a distance of 2,900 miles in a record breaking time of 33 hours. At the time, the envelope they used was the largest ever flown, at 2.3 million cubic feet of capacity. A year later, Per Lindstrand set yet another record, this time for highest solo flight ever recorded in a hot air balloon - 65,000 feet!

The great team of Richard Branson and Per Lindstrand paired up again in 1991 and became the first to cross the Pacific in a hot air balloon. They travelled 6,700 miles in 47 hours, from Japan to Canada breaking the world distance record, travelling at speeds of up to 245 mph. 4 years later, Steve Fossett became the first to complete the Transpacific balloon route by himself, travelling from Korea and landing in Canada 4 days later.

Finally, in 1999 the first around the world flight was completed by Bertrand Piccard and Brian Jones. Leaving from Switzerland and landing in Africa, they smashed all previous distance records, flying for 19 days, 21 hours and 55 minutes. Follow [this](#) link for a more detailed description and breakdown of the flight in our Around the World Flights section.

It's interesting to see how the development of the the hot air balloon has gone full circle on itself. At the very start, the first balloonists burnt materials onboard the balloon to generate heat to propel the envelope into the air. This theory then became obsolete as gas and helium designs were introduced as it was considered safer and more reliable than flying with an open flame. It is only within the last 50 or so years that hot air balloons have come back into interest.