

THE FASCINATION OF FLIGHT

Flying has fascinated mankind throughout the ages.

The history of ballooning is the early history of aviation itself. It finally allowed mankind to shrug his earthly bonds. In the United States today there are over 7,000 licensed balloon pilots and thousands more joining in the sport as crew members, passengers and spectators. Approximately 4,000 FAA certified balloons fill the skies in this country and there are many more worldwide.

It all started in France in 1783 when two paper-makers, Joseph and Etienne Montgolfier, noticed that burning paper and smoke rose up the chimney and wondered if they could apply that phenomenon to build a flying machine. After secret research and experimentation, they built the first balloon. Constructed of paper and fabric and glue, it was fueled by a very smoky fire. Indeed, until their death, the Montgolfier's thought that smoke, rather than hot air, was the lifting force.

A rooster, a duck, and a sheep were chosen as the first passengers aloft in order to test the effects of higher altitudes on living creatures. The success of that flight led to the first manned flight in Paris on November 21, 1783 before a crowd of 400,000.

Soon afterward, the first gas balloon was flown, using hydrogen gas to create lift. Gas balloons had more lift and stability than the early smoke filled balloons, and gas ballooning remained popular until the development of the airplane. Even then, balloons were still used for high altitude research and some military applications.

Modern hot air ballooning began in 1940 when Ed Yost, an American now known as the father of modern ballooning, developed a fuel and heating system using common household propane. This, combined with strong, new lightweight fabrics led quickly to the resurgence of hot air balloons. For the first time ballooning

was both safe and relatively inexpensive. Hot air ballooning for sport and recreation was born.

THE MOST FREQUENTLY ASKED QUESTIONS ABOUT HOT AIR BALLOONING

What are they made of?

A balloon system consists of three major parts: the *envelope* (the 'balloon' part); the *basket*, or *gondola*; and the *burner*.

The envelope is made of lightweight ripstop nylon or dacron, which is coated, with polyurethane to reduce porosity. It contains approximately 1,000 to 1,200 yards of fabric and more than 3 miles of thread.

The basket, made of wicker or rattan, is both strong and flexible.

The burner is the powerplant of the system. It is fueled by liquid propane carried onboard the balloon and generates up to 20 million BTU's of hot air per hour.

How big are they?

Hot air balloons range in size from small, one person systems to balloons that can carry 20 people. The most common sizes are from 65,000 to 105,000 cubic feet and carry 3-6 people. When fully inflated they vary from 60 to 90 feet high and 45 to 60 feet in diameter. The average size balloon carries 30 to 40 gallons of fuel and weighs anywhere from 400 to 700 pounds on the ground. In the air, the complete system, including the air inside the envelope, has a mass of 2-4 tons.

How do they work?

Hot air rises. If the air inside the envelope is heated by the burner, the balloon will rise. If the air in the envelope is allowed to cool or if the hot air is 'vented' (allowed to escape) from the balloon, the balloon will descend. An altimeter, a rate-of-climb meter, and an envelope temperature gauge are instruments used in the balloon.

How are they steered?

It is not possible to steer a balloon since it goes where the wind goes. However, wind conditions vary at different altitudes and provide the balloonist some limited ability to control the flight path.

How are they inflated?

The basket is laid on its side and attached to the envelope, which is then spread out on the ground. A portable (gasoline powered) fan pushes air into the envelope. When the envelope is almost filled with cold air, the propane burner is ignited and the air inside is heated enough for the balloon to rise to an upright position. With a small amount of additional heat the balloon will become buoyant. The inflation usually takes about 15 to 20 minutes.

How many people does it take to fly one?

It takes only one pilot to fly it, but the pilot needs 3-4 crew people to safely launch a balloon. Duties of the crew include launch preparation, following the balloon in the chase vehicle, obtaining permission from the landowner for landing, and retrieval of the balloon after the flight. Safety is the primary concern of both pilot and crew; followed closely by concern for the rights and protection of property owners on the ground.

How fast? How high? How long?

Many variables in the weather influence a pilot's decision to fly. Most pilots agree that a breeze of 4 to 8 miles per hours is acceptable.

Balloons usually stay within 500-1500 feet of the ground, but can go much higher. A few have attained altitudes of well over 60,000 feet.

The length of a balloon flight is determined by many factors, including the outside temperature and the weight carried. On a cold day, with only one person flying, a longer flight is possible.

Who can fly a balloon?

Anyone who earns a balloon pilot rating from the FAA can fly a balloon. To get the rating, one has to fly a minimum number of hours with an instructor, make a solo flight, and pass written, oral and flight tests. There are two categories of license, Private and Commercial.

When is the best time to fly?

The best times to fly are early morning (sunrise) and about 2 hours before sunset. The winds are usually the calmest then.

Ballooning is a fair weather sport that can be enjoyed year 'round.

Where do they land?

Since a balloon travels with the wind, it is not possible to determine an exact landing site before the flight. A pilot's first concern is safety. A typical landing spot is clear of crops, livestock, small trees, powerlines, or other obstructions. Whenever possible, permission of the landowner is obtained before landing.

How do you get home again?

After the balloon is launched, the chase crew follows in a chase vehicle. Using maps, two-way radios, and visual contact, they try to be present when the balloon lands. The crew helps the pilot deflate and disassemble the balloon, Then the balloon and all people are driven back to the launch site in the chase vehicle.

Must you be rich to fly a balloon?

Absolutely not! Balloons are owned and flown by teachers, clerks, secretaries, engineers, farmers, construction workers, police, and firemen; just to name a few. If you can afford a nice boat, a new car, or annual vacations, you can own a balloon. Or you may become a crew member for someone else who owns a balloon. Most crew members get to fly.

THE GREAT EASTERN BALLOON ASSOCIATION, INC.

The Great Eastern Balloon Association (GEBA) is a non-profit organization of balloonists in a region, which includes New Jersey, Pennsylvania, and adjacent states. The great majority of regional balloonists, including crew and friends, are members. GEBA is dedicated to the principles of flight safety, balloon sportsmanship and good citizenship by all balloonists. Through meetings, newsletters, and other activities, GEBA provides a central source of communications, education and information about ballooning.

If you have any further questions about ballooning, contact a GEBA member, or write to:

THE GREAT EASTERN BALLOON ASSOC., INC.
1049 North Sekol Road, Scranton PA 18504
Website: <http://www.gebabilloon.org>



PLEASE!

Whether you are a balloon pilot who has flown hundreds of flights, or a first-time spectator, GEBA urges that you always respect the rights and property of landowners over which a balloon flies and where it lands. Remember we are always guests on or near their property and we must act accordingly. Without the cooperation of these landowners, the magic and beauty of ballooning could not exist at all.

THE MAGIC OF HOT AIR BALLOONING



presented by...

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