

How did lighter-than-air aircraft develop and what purpose did it serve?

Questions/Key Points	Notes
<p>Gusmao seems to have been the first to create a hot air balloon. Why didn't he get more recognition for his work?</p>	<ul style="list-style-type: none"> • Bartolomeu de Gusmão • Although Gusmao was the first to work with hot air balloons, well before the montgolfier brothers, he is not as well documented or appreciated as the brothers. <ul style="list-style-type: none"> ○ (abstract only) http://www.asbrap.org.br/documentos/revistas/rev14_art2.pdf ○ https://www.britannica.com/technology/balloon#ref108546 ○ https://www.loc.gov/item/2004665410/ ○ https://www.manresa-sj.org/stamps/1_Gusmao.htm ○ https://www.earlyaviators.com/egusmao.htm ○ Born in Brazil, which was a Portuguese colony at the time (1685) ○ Gusmao was the first to begin experimenting with balloons in 1709 ○ Demonstrated a small hot air balloon in front of the king ○ Fled to Spain after being persecuted by the Portuguese Inquisition and died there. ○ "He took up the idea of a lighter-than-air craft, described by Fr. Francesco Lana-Terzi, SJ, but used hot air rather than the vacuum Lana-Terzi had suggested. His first attempt on 8 August 1709 in the presence of King John V of Portugal was a success although it alarmed the servants who doused the balloon in fear that the house would catch fire. According to an eyewitness the balloon was constructed of thick paper, and fire material was in an earthenware bowl suspended beneath. This is long before the "first hot air balloon" of the Montgolfier brothers in 1783"
<p>What inspired the Montgolfier brothers to do their work? How did they then inspire others?</p>	<ul style="list-style-type: none"> • Montgolfier brothers <ul style="list-style-type: none"> ○ https://www.museumofflight.org/Exhibits/montgolfier-brothers-balloon ○ https://www.britannica.com/biography/Montgolfier-brothers ○ https://www.google.com/books/edition/_/gNX_AwAAQBAJ?hl=en&gbpv=1&pg=PP1&dq=montgolfier+brothers ○ Joseph-Michel and Jacques-Etienne Montgolfier ○ Made the first manned balloon flight in 1783 in France ○ Burned straw and wool under the balloon, much like modern day hot air balloons ○ Often referred to as the people who flew the first hot air balloon even though Gusmao already did it ○ Recognition - their work was more widely seen than Gusmao, and was more well documented because of this. As a result, more people read about it and probably had no idea that Gusmao even existed ○ This work wasn't a result of Gusmao's work and it probably wasn't related.
<p>How did Charles come up with the idea for a hydrogen balloon after seeing a hot air balloon?</p>	<ul style="list-style-type: none"> • <i>Le Globe</i> <ul style="list-style-type: none"> ○ https://www.britannica.com/biography/Jacques-Charles ○ https://www.earthmagazine.org/article/benchmarks-june-4-1783-era-aviation-launches-first-balloon-flight ○ Made by Jacques Charles, french scientist now known for Charles' Law ○ Le Globe was a hydrogen balloon, was inspired after seeing one of Montgolfier brothers' unmanned hot air balloons ○ Came as a result of discovery of hydrogen during chemical revolution and seeing the Montgolfier brothers

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<p>How did aviation first come to America?</p> <p>How was aviation first used in the military?</p> <p>How did the need for communication yield the first air force?</p>	<ul style="list-style-type: none"> ● Jean-Pierre Blanchard <ul style="list-style-type: none"> ○ https://www.britannica.com/biography/Jean-Pierre-Francois-Blanchard ○ Originally worked on heavier than air flight but was inspired by the Montgolfiers ○ At this point ballooning had become very popular ○ Made the first international air mail delivery ○ Made the first balloon flight in North America, from Philadelphia to Gloucester county NJ. <ul style="list-style-type: none"> ■ George Washington watched this flight ● Lavoisier, hydrogen balloon <ul style="list-style-type: none"> ○ https://www.tandfonline.com/doi/full/10.1080/00033790600610494 ○ https://www.historynet.com/first-military-aviator.htm ○ Worked with some other french scientists to develop a hydrogen balloon for the Revolutionary Committee of Public Safety ○ Begins the introduction for military usage ○ (Actually Lavoisier wasn't the main guy - it was Jean Marie Coutelle) ● Company of Aeronauts, France <ul style="list-style-type: none"> ○ https://www.google.com/books/edition/Military_Ballooning_During_the_Early_Civ/Z-us-l3qOVwC?hl=en&gbpv=0 ○ See also the historynet source above (originally published in a magazine) ○ <i>Compagnie des Aerostiers</i>, also known as French Aerostatic Corps ○ 50 members, led by gen. Jean-Baptiste Jourdan ○ Represents a military use of the balloon; was used to observe things that were happening on the ground. Could communicate back and forth. ○ Also represents the first air force in the world
<p style="text-align: center;">Summary</p> <p>The development of lighter-than-air aircraft came from the observation that hot air rises, and that things lighter than air would float. Although Gusmao was the first to make a hot air balloon, his work was not well documented, and as a result did not attract as much attention as the work of the Montgolfier brothers. The brothers' innovations in flight were well observed, documented, and seen by people. Their work inspired many other scientists to develop more balloons, which led to the creation of the first air force.</p>	

// answer questions and add more quotes; relationships b/w each achievement