## Annotated Bibliography

### **Primary Sources**

#### **Diary Entries**

"Wilbur Wright Diary." *Digital.lib.ecu.edu*, digital.lib.ecu.edu/exhibits/wright/diaries/w1g1/. Accessed 6 Jan. 2024..

This is a primary source because it's a diary clipping that was found on a college website so we know it's trustworthy. This source really helped us with the testing and results of the gliders part of the project and we got a really good source out of it.

Wright, Miton. "Milton Wright." *Digital.lib.ecu.edu*, digital.lib.ecu.edu/exhibits/wright/diaries/m3l/. Accessed 13 Dec. 2023..

This is a university website so we know that we will be able to find accurate and trustworthy information. This diary clipping is a primary source and helped with knowing how they tested and built their gliders and, eventually, the Wright Flyer.

Wright, Orville. "Orville Wright's Diary: December 17, 1903." Wright-Brothers.org, wright-brothers.org/History\_Wing/Wright\_Story/Inventing\_the\_Airplane/December\_17\_ 1903/Orville\_Wrights\_Diary.htm. Accessed 9 Jan. 2024.

This is a primary source because it is one of Orville Wright's Diary entries but it is typed out onto the page. It gave us a lot of information about what happened on December 17th, 1903.

#### **Interviews**

Wright, Orville and Wilbur. Kate Carew Interviews the Wright Brothers . Interview by Kate Carew, 23 Jan. 1910, www.wright-brothers.org/History\_Wing/Aviations\_Attic/Carew\_Interview/Carew\_Intervi ew.htm. Accessed 9 Jan. 2024.

This is a primary source because it is an interview of the Wright Brothers with things they actually said during the interview. They talked a lot about the plane and their opinions about various aspects. We got information about what the Wright Brothers thought about how safe planes are.

#### **Patents**

"821393 - Flying Machine - Wright Brothers." *Catalog National Archives*, National Archives, catalog.archives.gov/id/2524937. Accessed 5 Jan. 2024.

This is the US patent that Orville and Wilbur Wright got for their plane designs. It gave us information about the structure of the gliders/plane and included some of the innovative designs the Wright Brothers put in the plane.

#### Statistical Records

Brown, Willis C. Speed as a Factor in 50 Years of Aviation Progress. 1 Jan. 1955..

This was a primary source that we found at a college library so it wasn't something we could access every day. This really helped us with finding the sources on the records and innovation in the 50 years after the invention of the plane.

"Communications, Information, and Network Programs (CINP) | Federal Aviation Administration." *Faa.gov*, 28 Aug. 2020, www.faa.gov/air\_traffic/technology/cinp. Accessed 14 Jan. 2024.

This is a government website with numbers that were verified by the FAA so we know that all this information is correct. This really helped us with finding what the FAA does and the different jobs that it does.

Federal Aviation Administration. "Air Traffic by the Numbers | Federal Aviation Administration." *Faa.gov*, 31 Aug. 2022, www.faa.gov/air\_traffic/by\_the\_numbers. Accessed 9 Jan. 2024.

This is an article that provides a lot of airplane statistics. The article was very helpful for our research on the long term impact of the invention of the plane.

#### Army Files

LOC. "Image 30 of Subject File: United States--War Department--Army Signal Corps--Correspondence, 1908." *Library of Congress, Washington, D.C. 20540 USA,* www.loc.gov/resource/mss46706.04164?sp=30&st=pdf&r=-0.236%2C-0.024%2C1.472 %2C1.472%2C0&pdfPage=1. Accessed 10 Jan. 2024. This is a primary source because it is the pdf of actual letters from 1908-1909. The letters were about the first military plane and it was very helpful in our research of it and of the things that happened right after the invention of the plane.

#### **Newspapers**

Humanities, National Endowment for the. "Evening Star. [Volume] (Washington, D.C.) 1854-1972, August 29, 1950, Image 6." *Chroniclingamerica.loc.gov*, 29 Aug. 1950, p. A, chroniclingamerica.loc.gov/lccn/sn83045462/1950-08-29/ed-1/seq-6/#date1=1940&index =4&rows=20&words=first+First+Supersonic+supersonic&searchType=basic&sequence= 0&state=&date2=1950&proxtext=first+supersonic+&y=0&x=0&dateFilterType=yearRa nge&page=1. Accessed 11 Jan. 2024.

This is a newspaper article about the first supersonic plane, the XS-1, piloted by Chuck Yeager. It explained how the plane achieved supersonic speeds as well as provided a history of later flights.

Humanities, National Endowment for the. "Evening Star. [Volume] (Washington, D.C.) 1854-1972, May 04, 1952, Image 3." *Chroniclingamerica.loc.gov*, 4 May 1952, p. \* A, chroniclingamerica.loc.gov/lccn/sn83045462/1952-05-04/ed-1/seq-3/#date1=1951&index =3&rows=20&words=commercial+first+jet&searchType=basic&sequence=0&state=&da te2=1953&proxtext=first+commercial+jet&y=0&x=0&dateFilterType=yearRange&page =1. Accessed 23 Jan. 2024.

This newspaper has an article about the first commercial jet airliner. It helped us in our research of some of the innovation of the plane and it shows how aviation has impacted the world in fast transportation.

Humanities, National Endowment for the. "Tabor City Tribune. (Tabor City, N.C.) 1946-1991, April 09, 1948, Image 4." *Chroniclingamerica.loc.gov*, 9 Apr. 1948, p. 4, chroniclingamerica.loc.gov/lccn/sn91068761/1948-04-09/ed-1/seq-4/#date1=1940&index =2&rows=20&words=first+supersonic&searchType=basic&sequence=0&state=&date2= 1950&proxtext=first+supersonic+&y=0&x=0&dateFilterType=yearRange&page=1. Accessed 12 Jan. 2024.

This is a newspaper with information about supersonic aircraft research and testing. It gave information about various innovations in aircraft.

Humanities, National Endowment for the. "Yorkville Enquirer. [Volume] (Yorkville, S.C.) 1855-2006, December 22, 1903, Image 2." *Chroniclingamerica.loc.gov*, 22 Dec. 1903, p. 2, chroniclingamerica.loc.gov/lccn/sn84026925/1903-12-22/ed-1/seq-2/#date1=1900&index =3&rows=20&words=brothers+Wright&searchType=basic&sequence=0&state=&date2= 1903&proxtext=wright+brothers&y=0&x=0&dateFilterType=yearRange&page=1. Accessed 10 Jan. 2024.

This newspaper was very helpful for our research about the structure of the Wright Flier. It also gave us information that was dramatized.

#### <u>Images</u>

Crouch, Tom. "First Flight?" *National Air and Space Museum*, 22 Mar. 2017, airandspace.si.edu/stories/editorial/first-flight. Accessed 22 Jan. 2024.

This source had an image that really complemented the style that we wanted to show with the first page of our project.

"Lilienthalscher Gleitflieger." *Library of Congress, Washington, D.C. 20540 USA,* www.loc.gov/item/90708225/. Accessed 26 Jan. 2024.

This image portrays Otto Lintheal testing one of his early glider designs. We used the image on our "Early Flight Pioneers" page of our website.

"NH 93732 SS GENERAL Y PESQUEIRA (Mexican Passenger Ship, 1892)."

Public2.Nhhcaws.local,

www.history.navy.mil/our-collections/photography/numerical-list-of-images/nhhc-series/ nh-series/NH-93000/NH-93732.html. Accessed 26 Jan. 2024..

This is a reliable source because it's part of the military and the picture is stored somewhere on that property so we know it's reliable. This was a great picture because it shows that Ocean Liners weren't just in Europe and the U.S., but almost everywhere in the world.

Magazine, Smithsonian. "The 1903 Wright Flyer." *Smithsonian Magazine*, Mar. 2003, www.smithsonianmag.com/air-space-magazine/the-1903-wright-flyer-3867542/. Accessed 31 Jan. 2024..

This source had an image of the Wright Flier which we put on our Homepage of our website.. It is a primary image because the Smithsonian is the owner of the photograph.

"[Otto Lilienthal Gliding Experiment]." *Library of Congress, Washington, D.C. 20540 USA,* www.loc.gov/item/2002722087/. Accessed 1 Feb. 2024..

The Library of Congress has been an amazing source throughout the project, and now during the final stretch, they have saved us with amazing pictures of Otto Lilitheal and his gliders.

"[Otto Lilienthal, with Wings of Glider]." *Library of Congress, Washington, D.C. 20540 USA,* www.loc.gov/item/2002722086/. Accessed 1 Feb. 2024..

We found yet another image from the Library of Congress: they are a lifesaver. The picture that we found was a picture of Otto Lilitheal with "Wings"...

"[A Three-Horsepower Internal Combustion Engine That Ran on Coal Gas]." *Library of Congress, Washington, D.C. 20540 USA*, www.loc.gov/item/2006691790/. Accessed 26 Jan. 2024.

This picture portrays an internal combustion engine, invented by Etienne Lenoir in 1860. We used the picture on our "Early Flight Pioneers" page.

# Secondary Sources

"1903: Transportation." Www.skidmore.edu,

www.skidmore.edu/skidmorehistory/centennial/1903/transportation.php. Accessed 7 Jan. 2024..

Since Skidmore is a college, that means we know that it's a trustworthy source. This source also helped us greatly with finding different breakthroughs, inventions, and other transportation laws and regulations by cities and states.

"Aviation." Britannica School, Encyclopædia Britannica, 1 Jun. 2023. school-eb-com.content.elibrarymn.org/levels/high/article/aviation/1574. Accessed 8 Jan. 2024.

This source is an article about aviation in general and how planes have innovated throughout the years. It helped us understand how many turning points there are in the aviation industry.

Blakemore, Erin. "What Was It Like to Ride the Transcontinental Railroad? - HISTORY." *Www.history.com*, 16 Oct. 2020, www.history.com/news/transcontinental-railroad-experience. Accessed 24 Jan. 2024. This website article gave us information about the Transcontinental Railroad and its advantages and disadvantages. It helped us establish a historical context about the trip across the US, pre-aviation.

"Concorde -- Britannica School." *School-Eb-Com.content.elibrarymn.org*, school-eb-com.content.elibrarymn.org/levels/high/article/Concorde/471018. Accessed 3 Jan. 2024..

This source was from a database so we can be sure that we're getting true and accurate information. This source helped us with the long-term development of the airplane industry and the supersonic side of it.

Crouch, Tom, et al. "History of Flight -- Britannica School."

*School-Eb-Com.content.elibrarymn.org*, Encyclopædia Britannica, 1 June 2023, school-eb-com.content.elibrarymn.org/levels/high/article/history-of-flight/390563. Accessed 9 Jan. 2024.

This is a really long article that provides an extremely detailed history of flight. We got lots of useful information from it about the first military plane and the innovation of the airplane. We also got some information about what other inventions impacted the invention of the airplane. The Article has a lot of images too, some of which we used in our project.

Crouch, Tom. "Wright Military Flyer of 1909 -- Britannica School." School-Eb-Com.content.elibrarymn.org, Encyclopædia Britannica, school-eb-com.content.elibrarymn.org/levels/high/article/Wright-military-flyer-of-1909/2 76. Accessed 8 Jan. 2024.

This article provides information about the first military plane, invented by the Wright Brothers in 1909. It helped us understand what planes can be used for other than transportation. It also listed attributes and statistics of the plane and has a video of the first military plane flying.

DRYE, WILLIE. "First Flight: How Wright Brothers Changed the World." *Science*, 17 Dec. 2003, www.nationalgeographic.com/science/article/air-travel-wright-brothers-history. Accessed 8 Jan. 2024.

This is an article about the invention of the plane, what led to it, and some of the effects of aviation. It helped us gain a better idea of what happened on December 17th, 1903 and some ways it was a turning point.

"The Early Airlines You Might Not Have Heard Of." *Airandspace.si.edu*, 28 Dec. 2021, airandspace.si.edu/stories/editorial/early-airlines-you-might-not-have-heard. Accessed 9 Oct. 2024..

This is the Smithsonian Air and Space Museum website so we know that the website and information is trustworthy. This source helped us find information on the first airline and the impact it had on the developing aviation industry.

"Early Commercial Aviation." *Airandspace.si.edu,* airandspace.si.edu/explore/stories/early-commercial-aviation. Accessed 11 Jan. 2024..

This was written by the National Air and Space Museum so we know that we can trust what they say. This source helped us with finding out what happened during the first airlines and the first female flight attendant.

Engler, Nick. "Expert Interview." *Www.wright-Brothers.org*, www.wright-brothers.org/Information\_Desk/Help\_with\_Homework/Expert\_Interview/Ex pert\_Interview.htm. Accessed 9 Jan. 2024.

This was a very helpful article/interview that addresses a lot of aspects of flight. It helped us by providing a lot of ways the first plane was a turning point and addressed how the Wright Brothers invented the plane and talks about other innovations of the plane.

"The First Flight (U.S. National Park Service)." *Nps.gov*, 15 Aug. 2017, www.nps.gov/articles/firstflight.htm. Accessed 7 Jan. 2024..

This is a government agency so we know that we can trust all the facts they give us. This really helped us find out how the Wright Brothers flew the flyer on that day.

Ganz, Cheryl R. "Airplane Mail." Postalmuseum.si.edu,

postalmuseum.si.edu/exhibition/about-philately-covers-and-letters-air-and-space/airplane -mail. Accessed 9 Jan. 2024.

This article gives a history of mail being sent on airplanes. It includes a few arguments that the first plane was a tuning point and gives information about how mail is carried by airplane.

Geographic, National. "Taking Flight with the Wright Brothers." *History*, 14 June 2019, kids.nationalgeographic.com/history/article/wright-brothers. Accessed 8 Jan. 2024.

This website is an article about the Wright Brothers. It provides a useful history of them and what made them want to design a flying machine. It explains their childhood dream to fly in a powered plane.

Keitch, Charlie, and Josh Blair. "What Impact Did the First World War Have on Aircraft and Aerial Warfare?" *Imperial War Museums*, 7 Dec. 2017, www.iwm.org.uk/learning/resources/what-impact-did-the-first-world-war-have-on-aircraf t-and-aerial-warfare. Accessed 31 Jan. 2024..

This article included a lot of information about the roles aviation has in warfare. This helped us get a firm reason about how aviation was a turning point in warfare.

"Liner Transatlantic Crossing Times, 1833 – 1952 (in Days) | the Geography of Transport Systems." *The Geography of Transport Systems* | *the Spatial Organization of Transportation and Mobility*, 15 June 2022, transportgeography.org/contents/chapter1/emergence-of-mechanized-transportation-syste ms/liner-transatlantic-crossing-time/. Accessed 9 Jan. 2024.

This website has a graph showing liner crossing times of the Atlantic Ocean. This helped us establish a historical context of how long it took to cross the Atlantic by boat before the airplane was invented.

Macquarie University. "Journeys in Time: Ships." *Www.mq.edu.au*, www.mq.edu.au/macquarie-archive/journeys/ships/. Accessed 9 Jan. 2024.

This article is about sailing ships and how dangerous they could be. It furthered our research on the historical context of the invention of the plane, as planes could take away the long and dangerous journey across an ocean.

Magazine, Smithsonian, and Alicia Ault. "After the Wright Brothers Took Flight, They Built the World's First Military Airplane." *Smithsonian Magazine*, 3 Oct. 2022, www.smithsonianmag.com/smithsonian-institution/after-wright-brothers-took-flight-they -built-worlds-first-military-airplane-180980807/#:~:text=October%203%2C%202022-. Accessed 9 Jan. 2024.

This article gives a lot of information about the first military plane. The information furthered our research about the immediate impact the invention of the plane had on wars and gave some of the attributes of the plane.

"Mail Delivery Times between New York and San Francisco, 1840-2000 (in Days) | The Geography of Transport Systems." *Transport Geography*, 25 Dec. 2017,

transportgeography.org/contents/chapter1/transportation-and-space/time-mail-delivery-ne w-york-san-francisco/. Accessed 5 Jan. 2024.

This website has a graph and description of the time it takes for mail to travel across the United States. It includes how mail was carried at the time and some innovations of the plane. It helped us establish a good historical context of the invention of the plane.

McGee, Jade. "The War in the Skies: How the First World War Changed Aviation." *History Guild*, 12 Jan. 2022, historyguild.org/the-war-in-the-skies-how-the-first-world-war-changed-aviation/. Accessed 9 Jan. 2024.

This article gives a history of the use of planes in wars and shows the impact planes had on life. It gave us a lot of helpful information about how aviation is a turning point.

Michaels, Will. "The Story of the World's First Airline." *Www.iata.org*, 2012, www.iata.org/en/about/history/flying-100-years/firstairline-story/#:~:text=The%20world. Accessed 10 Jan. 2024.

This article gave the story of the World's first regularly scheduled airline. It provided a detailed description of the airline as well as some information about what it was. It aided us in our research of the innovation of the plane and the immediate impact the invention of it had.

"Milestones of Flight: The Lindberghs." *Airandspace.si.edu*, Simthsonian, 27 Jan. 2016, airandspace.si.edu/events/milestones-flight-lindberghs-0. Accessed 10 Jan. 2024.

The video on the website explains a lot about Charles Linderburg and his various aviation achievements. It helped us with our research of the impact the invention of the plane had.

"NASA's Aero Spacelines Super Guppy Lands at Maxwell." *Maxwell Air Force Base*, 22 Apr. 2015,

www.maxwell.af.mil/News/Display/Article/704295/nasas-aero-spacelines-super-guppy-la nds-at-maxwell/. Accessed 31 Jan. 2024..

This source is part of the military and NASA so we know that it's trustworthy. This source really helped with some last-minute information that we needed. We also got a good photo out of it for the modern cargo section of the website.

OpenStaxCollege. "On the Move: The Transportation Revolution." *Pressbooks-Dev.oer.hawaii.edu*, May 2014, pressbooks-dev.oer.hawaii.edu/ushistory/chapter/on-the-move-the-transportation-revoluti on/. Accessed 5 Jan. 2024.

This website was a university website so it was very trustworthy. The website was also really helpful in finding out the transport techniques that were used during the late 1800s.

Sawford, Philip, and Katharine Alston. "How Has War in the Air Changed over Time?" *Imperial War Museums*, 7 Dec. 2017, www.iwm.org.uk/learning/resources/how-has-war-in-the-air-changed-over-time. Accessed 11 Jan. 2024.

This website gave a lot of details about the many impacts aviation had on warfare. It also explained the different roles of airplanes in wars as well as explaining how the invention was a turning point in history.

"A Science Odyssey: People and Discoveries: Ford Installs First Moving Assembly Line." *Pbs.org*, 2019, www.pbs.org/wgbh/aso/databank/entries/dt13as.html. Accessed 9 Jan. 2024.

This source is an article about cars and the Ford Moving Assembly line. This gives us helpful information about what other advances in technology were happening at the same time as aviation.

"A Science Odyssey: People and Discoveries: Wright Brothers Fly First Motorized Plane." *Www.pbs.org*,

www.pbs.org/wgbh/aso/databank/entries/dt03wr.html#:~:text=Orville%20and%20Wilbur %20Wright%20were. Accessed 5 Jan. 2024..

This is an article about the Wright Brothers and the first flight. It gave us some helpful information about what inspired the Wright Brothers to invent the plane.

Smithsonian. "Flight before the Airplane." *Airandspace.si.edu*, Simthsonian, airandspace.si.edu/explore/stories/flight-airplane#:~:text=Sir%20George%20Cayley%20( 1773%2D1857. Accessed 4 Jan. 2024.

This source provides a history of flight, including gliders, zeppelins, hot air balloons, and other flying machines. It helped us in our research of flight before the first plane and for what other flying were invented. We also used an image of a hot air balloon and an airship on our website.

Stanford University. "Jet Engines." Stanford.edu, 16 Mar. 2004,

cs.stanford.edu/people/eroberts/courses/ww2/projects/jet-airplanes/planes.html. Accessed 31 Jan. 2024.

This article provides a history of jet engines and jet planes. It gave us helpful information about jet planes and what the earliest designs of them were. This is a trusted source because it is a university website.

*They Wouldn't Believe The Wrights Had Flown*. (n.d.). Www.wright-Brothers.org. Retrieved May 11, 2024, from

https://www.wright-brothers.org/History\_Wing/Aviations\_Attic/They\_Wouldnt\_Believe/ They\_Wouldnt\_Believe\_the\_Wrights\_Had\_Flown.htm#:~:text=Though%20hundreds%2 0of%20people%20by.

This source has a bunch of other perspectives on the plane and against the Wright Brothers. We used it to gain a good quote from Alexander Graham Bell against the plane. This helped us gain more perspectives on the plane.

U.S Air Force. "Chronology: 1910-1919." *Air & Space Forces Magazine*, 24 Nov. 2018, www.airandspaceforces.com/chronology-1910-1919/. Accessed 4 Jan. 2024..

This is an air and space forces magazine so we would think that they know their fair share of things about the military. This source helped us with finding out what the Wright Brothers did after they flew their flyer for the first time.

"Wright Brothers Flight, 1908 | NZHistory, New Zealand History Online." *Nzhistory.govt.nz*, nzhistory.govt.nz/media/video/wright-brothers-first-flight-1903#:~:text=In%201903%2C %20Americans%20Orville%20and. Accessed 9 Jan. 2024.

This article gives information about what happened during the first flight and has very helpful information about why other inventors hadn't invented a plane before the Wright Brothers. It furthered our research in the right before and during

#### <u>Books</u>

Howard, Fred. *Wilbur and Orville : a biography of the Wright brothers* (1st ed.). New York : Knopf, 1987

This is a biography of Wilbur and Orville Wright, detailing their lives, accomplishments and involvement in flight. We gained a lot of helpful information from it including information on other attempts at powered flight and we found some photos in the book. Olivier Poivre d'Arvor, and Patrick Poivre d'Arvor. *Courriers de Nuit*. Partenaires-Livres, Oct. 2002.

This book is written in french and translates to "Night Mail" in english. This book helped us find out what the immediate outcome of the plane was in Europe, not just in the US. This book also includes many pictures.

#### **Websites**

"30 Best Orville Wright Quotes with Image | Bookey." Www.bookey.app, www.bookey.app/quote-author/orville-wright..

This website had many of the Orville Wright quotes that we used in our website. One

Famous Quotes at BrainyQuote. (n.d.). BrainyQuote. https://brainyquotes.com.

This website contains a collection of quotes. We used it to find quotes to support our writing and information.

"The Motor Museum in Miniature." Www.themotormuseuminminiature.co.uk, www.themotormuseuminminiature.co.uk/inv-jeanjoseph-etienne-lenoir.php#:~:text=As% 20was%20common%20on%20steam. Accessed 10 May 2024..

This website gave us a good quote from Étienne Lenoir that we could use about his engines. We used this quote on our Early Flight Pioneers page and it supporters our research about the first combustion engine which led to the airplane.

#### <u>Images</u>

"Aerial Stunts 1920'S Style - UK Airshow Review Forums." Forums.airshows.co.uk, forums.airshows.co.uk/viewtopic.php?t=49070. Accessed 13 May 2024.

We used this website to find a good photo of a stunt flier to use in our image slider on our Expansion of Flight page.

"Harbor Mail Boat Service." Postalmuseum.si.edu,

postalmuseum.si.edu/exhibition/customers-and-communities-serving-the-cities-overcomi ng-congestion/harbor-mail-boat. Accessed 25 Jan. 2024..

This was one of the many pictures of mail ferries but this was one of the only ones that the National Postal Service had. This helped with comparing the travel speeds at the time.

History.com Editors. "Transcontinental Railroad." *History.com*, A&E Television Networks, 20 Sept. 2018, www.history.com/topics/inventions/transcontinental-railroad. Accessed 26 Jan. 2024..

This is a reliable website because it's the history channel. This was a good picture of the building of the transcontinental railroad.

LIBRARY, HAGLEY MUSEUM AND ARCHIVE/SCIENCE PHOTO. "Stunt Plane Flight, 1920s - Stock Image - C042/1761." Science Photo Library, www.sciencephoto.com/media/977801/view/stunt-plane-flight-1920s. Accessed 13 May 2024..

This website helped us find an image of how early stunt flying impacted entertainment.

LLC, Airnav Systems. "Lufthansa Will Retire Its A380 and 747-400 - RadarBox.com Blog." *AirNav Radarbox*, 9 Mar. 2021, www.radarbox.com/blog/lufthansa-will-retire-its-a380-and-747. Accessed 31 Jan. 2024..

This website helped us find an image of a 747 and a a380 in the same picture so we really liked that. We used that image in our Post-War Aviation page of our website.

Spector, Ronald H. "Vietnam War - Firepower Comes to Naught | Britannica." *Encyclopædia Britannica*, 2019, www.britannica.com/event/Vietnam-War/Firepower-comes-to-naught. Britannica. Accessed 31 Jan. 2024..

This is a trustworthy website that we used elsewhere in our website, but this time we found a great image of a bomber in the Vietnam war to show that the invention of the plane wasn't all good.