**Image Annotated Works Cited**

*A Typical Train that would Pass through Woodbridge – 1800’s*. Late 19th century. Woodbridge Township, New Jersey. *Woodbridge Township NJ.* Web. 31 Jan 2013.

 This is a typical passenger train of the 1800’s that Westinghouse put his brakes on.

Alibrandi, Dr. Marsha, et al. *Railroad Crossties.* Graph. *Forest History Society.* Web. 16 Feb. 2013.

This is a graph on the amount of railroad track. Notice the large boom during the time that air brakes were invented.

Alibrandi, Dr. Marsha, et al. *Miles of Railroad Tracks.* Graph. *Forest History Society.* Web. 16 Feb. 2013.

This is a graph on how railroad ties were needed for rail lines. The decrease is from during the World Wars when lots of unused track was taken up to use the steel.

Chuckman, John. *TRAIN – PENNSYVANIA TRAINS – TRACKS BEHINGD UNION STATION –CITY BACKGROUND – 1957*. 1957. *CHUCKMAN’S PHOTOS ON WORDPRESS: CHICAGO NOSTALGIA AND MEMORABILIA*. Web. 2 Feb. 2013.

This is an image of the Union Station in Pennsylvania. It is served even unto this day. Thousands of passengers are able to safely and fastly pass through there every day thanks to air brakes.

*Cornelius Vanderbilt.* Late 19th century to early 20th century. *Library of Congress, Washington D.C.* Web. 13 Feb. 2013.

This is a photo of Commodore Cornelius Vanderbilt. He was a large threat to Westinghouse because he was used to the old style of braking.

Detroit Publishing Co. *General Offices, The Westinghouse Air-Brake Co., Wilmerding, Pa.* 1905. *Detroit Publishing Company Photograph Collection.* Web. 13 Feb. 2013.

This is a photo of one of the locations of the Westinghouse Air Brake Company, (WABCO). Westinghouse’s air brakes had become so popular that the offices had to be moved to bigger facilities more than once. They even went international, with more than ten international offices.

George Westinghouse. Photographer. Encyclopædia Britannica Image Quest. Web. 27 Jan 2013.

George Westinghouse was nearly always at his desk, developing the newest safety devise, as shone in this photograph.

"Graph, Railroads, miles of track laid per year, 1830-1930." *Gale Encyclopedia of U.S. Economic History*. Ed. Thomas Carson and Mary Bonk. Detroit: Gale, 2010.*Gale U.S. History In Context.* Web. 5 Feb. 2013.

 This is a graph showing that there was a great US railroad expansion after air brakes came around, the Civil War ended, and standardization came into effect.

*Great Train Wreck.* 1876. *Train Wrecks From the Old Times – Train Wreck History.* Web. 3 Feb. 2013.

This is a photo of a train wreck. A wreck like this is very common to the time before air brakes because they were caused from inadequately being able to stop.

Hart, Alfred A. *Photo of Chinese Central Pacific construction crews along the Humboldt Plains in Nevada.* 1865. *Linda Hall Library*. Web. 16 Feb. 2013.

These are workers for the Central Pacific Railroad that came from China to have a better life. The Central Pacific employed them to build the Transcontinental Railroad.

Heeren, Matt. *UP 1996 on Tehachapi Loop.* 2007. *North Western Illinois Chapter – NRHS.* Web. 3 Feb. 2013.

This is an image of a large train going down the Tehachapi Loop in California. It is a very large descending grade going downhill, and a large climb upwards. The trains also range in length comparable to two standard sized trains. It takes the pure excellence of the braking power of air brakes to control that large of a train.

Intermountain. *CCS1065-07.* 21st century. *Intermountain Railway Company.* Web. 2 Feb. 2013.

This is an image of a Union Pacific Railroad caboose. The Union Pacific railroad had many safety slogans on their cabooses, locomotives, and other rolling stock. The slogan on this car is, “Let’s not Meet on Accident.” I thought that this was a nice saying for railroad safety. I cropped this image to only show the slogan.

Larson, Nancy. The Great Train Wreck. Late 19th century. The Soft Wind Whispers. *The Soft Wind Whispers.* Web. 1 Feb. 2013.

This is a photo of a train wreck in the 1800 to 1900’s era. These were very common to the life before air brakes. I thought this was fitting for my “Impacts,” part because the train received an impact in this photo!

Minnis, Earl. *Canadian Pacific Welded Rail train*. 21 Nov. 2012. *RailPictures Canada.* Web. 3 Feb. 2013.

 This is an image of a welded rail train, a special type of train that is used to transfer a long piece of track, nearly a mile long, to its destination. The engineer can control these long trains through his train. Also, welded rail is a turning point in history that happened.

Olson-Raymer, Dr. Gayle. Map. Humboldt University. Web. 15 Feb. 2013.

 This is a map of the amount of rail lines of the US in the 1830’s, 1840’s, and 1850’s.

Olson-Raymer, Dr. Gayle. Map. Humboldt University. Web. 15 Feb. 2013.

 This is a map of the amount of rail lines of the US in the 1860’s.

Olson-Raymer, Dr. Gayle. Map. Humboldt University. Web. 15 Feb. 2013.

 This is a map of the amount of rail lines of the US in the 1870’s.

Olson-Raymer, Dr. Gayle. Map. Humboldt University. Web. 15 Feb. 2013.

 This is a map of the amount of rail lines of the US in the 1880’s.

Olson-Raymer, Dr. Gayle. Map. Humboldt University. Web. 15 Feb. 2013.

 This is a map of the amount of rail lines of the US in the 1890’s.

Passengers Aboard A Passenger Train. Photography. Encyclopædia Britannica Image Quest. Web. 16 Feb 2013.

These are passengers. Notice their smiling faces? Riding on trains that had proper braking power made them much nicer to ride in. It was fun, safe, and relaxing.

RAILROAD: BRAKEMAN, 1877. - Brakeman On A Freight Train. Wood Engraving, American, 1877. Fine Art. Encyclopædia Britannica Image Quest. Web. 16 Feb 2013.

This is a brakeman on a train car. This is what the brake man had to do before air brakes. He also had to do it in all weather. According to the date for this drawing, 1877, the railroad must not have bought the air brakes yet because of the high expense.

Railroad Crossing Sign. Photography. Encyclopædia Britannica Image Quest. Web. 5 Feb 2013.

This is a railroad crossing that is part of the many railroad safety procedures that has been instated to the railroads.

Shuker, Ken. *Postcard view of Hopewell Junction yard about 1910.* 1910. Collection of Ken Shuker. *Central New England Railway.* Web. 1 Feb. 2013.

This is a typical, small town freight yard of the 1800’s, to early 1900’s. This is in New England, but is quite similar to the ones in Pennsylvania and New York, like where Westinghouse did his tests.

Train Track Switches. Photo. Encyclopædia Britannica Image Quest. Web. 6 Feb 2013.

This is a photo of a railroad frog that is a major part of a switch on a railroad. Westinghouse invented the railroad frog, which is another invention toward railroads.

Wood, William Wallace. *Control valve and handle of a Westinghouse Air Brake system.* 1909. The Westinghouse E-T Air Brake Instruction Pocket Book. Wikipedia. Web. 27 Jan 2013. This is the devise that is used to operate the air brakes. This is an example of an early one, most likely used on a steam locomotive.

Worldwide, ACM. *Overview of the Port Of Oakland Intermodal.* Late 20th century. ACM Worldwide, Coeur d Alene, Id. *ACM Worldwide.* Web. 2 Feb 1013.

This is the Port of Oakland which is a major economic hub for the world. Thousands of tons of merchandise travel through there every day.