

Industrial Revolution

How does innovation impact people's lives?

In the latter 1700s, inventions in the textile industry in Great Britain were the first signs of major changes in a revolution in production that greatly altered many aspects of society. Steam-powered machines began to do what animals or people had formerly done by hand. Textile mills could produce high quality cloth cheaply and in huge quantities. Factories sprang up, creating new jobs for factory workers but driving individual weavers who usually worked at home out of business and leading to the growth of cities. Industrialization spread to the iron industry, creating greater demands for mining of ore and coal. Soon the factory system spread to the rest of Europe and the United States. For their owners, factories could create great wealth. Workers, however, often toiled for long hours for low pay under harsh working conditions.

Industrialization of Agriculture

A tremendous growth of machine-power transformed agriculture in the 19th Century. Using factory-produced machinery like the steel plow, the reaper, mowers and threshing machines powered by horses, farmers were able to expand the size of their operations and produce far more than they could when farming was done by hand. The invention of the cotton gin to separate seeds from the cotton fiber made cotton-growing profitable and increased the demand for slaves in Southern states. Over the long term, it greatly reduced the number of people required to produce the nation's food and fiber. Around 1800, nearly 90 percent of Americans were farm families. Today, the number is under two percent. The growth of cities was a direct outcome of the Industrial Revolution as families left the farms to find work elsewhere.

Transportation, Electricity and More

By the mid-1800s, changes in transportation were making a big difference. Steam powered ships could travel much faster than those depending on the winds. Railroads were able to haul freight, mail and passengers long distances with greater convenience and reliability than horse-drawn vehicles. The invention of Morse code enabled rapid communication across great distances and helped draw the nation closer together. Telephones followed giving individuals the power to converse whenever they wanted regardless of whether they were together or not.

In the late 1800s, electricity began its revolution of the home and office. Light bulbs replaced smoky kerosene lamps, refrigerators replaced home deliveries of ice and electric washing machines and irons relieved some of the heavy drudgery of housework. At first, electricity was available only in towns because of the expense of stringing long lines through the countryside, but in 1936, Congress passed the Rural Electrification Act that helped to finance the creation of rural co-operatives to supply farm families with this advantage.

Beginning in the early 20th Century, gasoline-powered engines led to the development of automobiles and tractors that further reduced our dependence on horses. Henry Ford built a factory that broke down the manufacture of an automobile into many small steps and allowed him to mass produce the Model-T that had a major impact on American life. Now a reliable automobile was available to the average family, providing a mobility undreamed of only a few generations earlier. Families were no longer bound to travel from town to town by rail but could drive where they wanted on short trips or even long family vacations. Farm children could attend high schools and other activities in town.

Impact of the Industrial Revolution

With all the advantages of the Industrial Revolution that provides us with goods, services and opportunities unavailable to even our grandparents' generation, there are downsides, too. There is a much greater inequality in wealth, with some super-rich people while others live below the poverty level. Factories and industrialization make great demands on the environment for raw materials and often pollute the air by burning coal or the rivers with toxic dumps of toxic chemicals. Because Americans no longer produce (or even know how to produce) many of the items upon which they depend on, people are vulnerable to forces over which they have little control.

Supporting Questions

How did the Industrial Revolution change the production of goods?

- [Occupational Portrait of a Watchmaker, between 1840 and 1860 \(Image\)](#)
- [Occupational Portrait of a Blacksmith, between 1850 and 1860 \(Image\)](#)
- [Occupational Portrait of a Woman Working at a Sewing Machine, ca. 1853 \(Image\)](#)
- [Occupational Portrait of Two African American Chimney Sweeps, between 1860 and 1870 \(Image\)](#)
- [African-American Women Weaving Rug at Hampton Institute in Virginia, 1899 \(Image\)](#)
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- [Washing Machine Assembly Line in Maytag Plant in Newton, Iowa, 1949 \(Image\)](#)
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- [Barrel Makers in Union, Iowa, Date Unknown \(Image\)](#)
- ["Rise of Industrial America: Work in the Late 19th Century" from Library of Congress \(Document\)](#)

How did the changes in communication and transportation affect people's lives

- ["First Telegraphic Message" from Samuel Morse, May 24, 1844 \(Image\)](#)
- [Building of the Boone Viaduct \(Kate Shelley High Bridge\), December 8, 1900 \(Image\)](#)
- [First Flight of Wright Brothers in Kitty Hawk, North Carolina, December 17, 1903 \(Image\)](#)
- [Post Office in Solon, Iowa, ca. 1910 \(Image\)](#)
- [Alfred Solbrig Sitting on His Aviator Father's Curtiss Hydroaeroplane, ca. 1912 \(Image\)](#)
- [Downtown Intersection in Front of William Crewse Drug Company in Des Moines, Iowa, 1930 \(Image\)](#)
- ["Carrying the Load" Essay from *The Goldfinch*, November 1983 \(Document\)](#)
- [Excerpt from "Getting Away From It All" Essay from *The Goldfinch*, November 1983 \(Document\)](#)
- ["Railroads in Iowa" Essay from *The Goldfinch*, November 1983 \(Document\)](#)
- ["What Time Is It?" Essay from *The Goldfinch*, November 1983 \(Document\)](#)
- [Chicago & North Western Railway Viaduct \(Kate Shelley High Bridge\) at Boone Data Papers, August 1995 \(Document\)](#)
- [Workers Assemble Recreational Vehicles at Winnebago Industries in Forest City, 2013 \(Image\)](#)
- [Assembly Line Workers Under an RV at Winnebago Industries in Forest City, Iowa, March 2016 \(Image\)](#)
- ["Forest City-based Winnebago Industries turns 60" Newspaper Article, May 6, 2018 \(Document\)](#)
- [Elevation of Truss, from North, with Train, Date Unknown \(Image\)](#)

What were the advantages and disadvantages of industrialization?

- [Breaker Boys at the Woodward Coal Mines in Kingston, Pennsylvania, ca. 1900 \(Image\)](#)
- [Push Cart Vendors on the East Side of New York, New York, 1900 \(Video\)](#)
- [Tenement Yard in New York, New York, between 1900 and 1910 \(Image\)](#)
- [Young Girls at Spoolers at Lincoln Cotton Mill in Evansville, Indiana, October 1908 \(Image\)](#)
- [Newsies in Hartford, Connecticut, March 1909 \(Image\)](#)
- [People Picking Cranberries in Pemberton, New Jersey, September 1910 \(Image\)](#)
- [Mortaria Family Makes Silk Flowers in New York, New York, February 1912 \(Image\)](#)
- ["Hymn for the Working Children," ca. 1913 \(Document\)](#)
- [Tenement Kitchen in Hamilton County, Ohio, December 1935 \(Image\)](#)
- ["Kids at Work" Essay from *The Goldfinch*, 1996 \(Document\)](#)
- ["Progress and Unemployment" Excerpt from *The Goldfinch*, 1996 \(Document\)](#)
- ["Working the Environment" Essay from *The Goldfinch*, 1996 \(Document\)](#)
- ["Iowa Inventors and Inventions from A to Z" Excerpt from *The Goldfinch*, 1998 \(Document\)](#)
- ["Rise of Industrial America, 1876-1900" from Library of Congress \(Document\)](#)

*Printable Image and Document Guide

Additional Resources

*Links to additional resources available in the [Industrial Revolution Primary Source Set](#)

How did the Industrial Revolution change the production of goods?

Industrial Revolution

This webpage from the History Channel provides some important historical context about the Industrial Revolution

Profiling Portraits: Occupational Portraits of the 19th Century

This resource from the Library of Congress provides more information about occupational portraits from the 19th Century and what they tell people about the past.

The Rise of the Industrial Revolution Video

This video focuses on the development of the spinning machine by Sir Richard Arkwright in England, which led directly to the rise of the Industrial Revolution, and a new world of manufactured products.

The Industrial Revolution Video

This video shows an assembly line at work during the Industrial Revolution. Beginning in the 19th Century, advances in manufacturing revolutionize the American way of life.

Inside Ford's Moving Assembly Line Video

In celebration of the 100th anniversary of the moving assembly line, introduced by Ford Motor Company and led by Henry Ford on October 7th, 1913, the automaker went inside its manufacturing facilities to document the fast-paced and efficient assembly lines.

History of Iowa Farmers - Living History Farms

This webpage from Living History Farms looks at the history of farming in Iowa and the people who are important to its growth.

"Inside the LEGO Factory: How robots & machines make LEGO" Video

This video focuses on the creation of a LEGO by robots and machines.

Invention of the Telegraph

This collection from the Library of Congress includes primary sources from Samuel Morse that follow his journey to creating the telegraph.

Industrial Revolution and Technology from National Geographic

This article from National Geographic highlights inventions created during the Industrial Revolution.

Full of Beams: Henry Ford Grows A Car by Peggy Thomas

This biographical story walks through Henry Ford's life and the challenges that came from it, from the failed tractor that Henry Ford made as a teenager, to the Great Depression, as well as the switch in production that came with the beginning of World War II.

How did the changes in communication and transportation affect people's lives?

Morse Code & the Telegraph

This webpage focuses on the creation of Morse Code and the telegraph during the Industrial Revolution.

Railroad Hotel Owney Tag - National Postal Museum

This webpage includes a photograph of Railroad Hotel Owney Tag that is on display at the National Postal Museum. Owney was a dog that eventually became the mascot for the U.S. Rail Mail Service.

Public Transit: Iowa Transit History

This webpage from the Iowa Department of Transportation looks at the history of public transit in Iowa.

Additional Resources

*Links to additional resources available in the [Industrial Revolution Primary Source Set](#)

***A Lucky Dog: Owney, U.S. Rail Mail Mascot* by Dirk Wales**

This book chronicles the travels of Owney, who arrived as a stray puppy at the Albany Post Office, and eventually became the official mascot of the U.S. Rail Mail Service and a solo national and world traveler.

***100 Inventions That Made History: Brilliant Breakthroughs That Shaped Our World (100 in History)* by DK**

This book presents an in-depth exploration of each invention in unprecedented detail with eye-catching visuals and informative text.

***The Revolution in Industry* by John Perritano**

The book takes a look at how machines changed history.

***The Industrial Revolution for Kids: The People and Technology That Changed the World* by Cheryl Mullenbach**

Learn about the new technologies and new forms of communication and transportation that impacted American life — through the people who invented them and the people who built, operated and used them.

What were the advantages and disadvantages of industrialization?

The Goldfinch: Automobile Age (November 1982)

Explore this edition of The Goldfinch magazine to learn more about the industrialization of Iowa.

“How Edison, Tesla and Westinghouse Battled to Electrify America”

This article looks at the rivalry in the United States as to the development and implementation of electricity.

Child Labor Across Primary Source Sets and the Library’s Collections

This primary source collection from the Library of Congress looks at the history of child labor in the United States.

National Child Labor Committee Collection

This Library of Congress collection features primary sources from the National Child Labor Committee.

Bandit’s Roost, 59½ Mulberry Street

This is a photo collection of Jacob Riis’ work capturing New York tenement life in the late 1800s.

Photographs of the Empire State Building Under Construction

This collection from the New York Public Library includes general and detailed views of the Empire State Building under construction showing workers performing various tasks including positioning, welding and riveting steel, hoisting materials and supplies and operating and repairing machinery.

Child Labor Laws

This webpage and video provides historical context about the use of child labor and the development of child labor laws.

Northwest Iowa’s Top Industries

This webpage includes pertinent information about Iowa’s top industries in the northwest.

Innovation, The Calling Card to the Future

This webpage from Iowa Economic Development looks the industrial future of the state.

Lewis Hine: Exposing Child Labor

This is a photo collection of the work of Lewis Hine to document child labor in the United States for the National Child Labor Committee.

Additional Resources

*Links to additional resources available in the [Industrial Revolution Primary Source Set](#)

Kid Citizen: Congress and Child Labor

This webpage offers educator resources about the history of child labor and child labor laws in the United States.

Kid Citizen: Snap a Photo: Agent of Change

This webpage looks at the work of photographer Lewis Hine and his work documenting child labor in the United States and its impact.

***The War Between Bosses and Workers* by Diana Star Helmer**

This book focuses on the changes in America's big cities due to the Industrial Revolution that created labor problems. By the end of the 1800s, these problems between bosses and workers were forcing much-needed reforms.

***The Child Labor Reform Movement: An Interactive History Adventure* by Steven Otfinoski**

This book is a kind of "choose your own adventure" scenario and it deals with the issues faced by children in the workforce.

***Mother Jones and Her Army of Mill* by Jonah Winter**

A picture book about Mary "Mother" Jones and the 100 children who marched from Philadelphia to New York in a fiery protest against child labor.

Occupational Portrait of a Watchmaker, between 1840 and 1860



Courtesy of Library of Congress, "Occupational portrait of a watchmaker, three-quarter length, seated at table with watches," between 1840 and 1860

Description

A watchmaker is a craftsman who makes and repairs watches by hand. Peter Henlein, a locksmith and clockmaker from Germany in the 1500s, was the inventor of the world's first watch. In the United States, the railroad chose their own time standards until 1883. Standard time was made a law in the U.S. until the 1918 Standard Time Act created standard time in time zones.

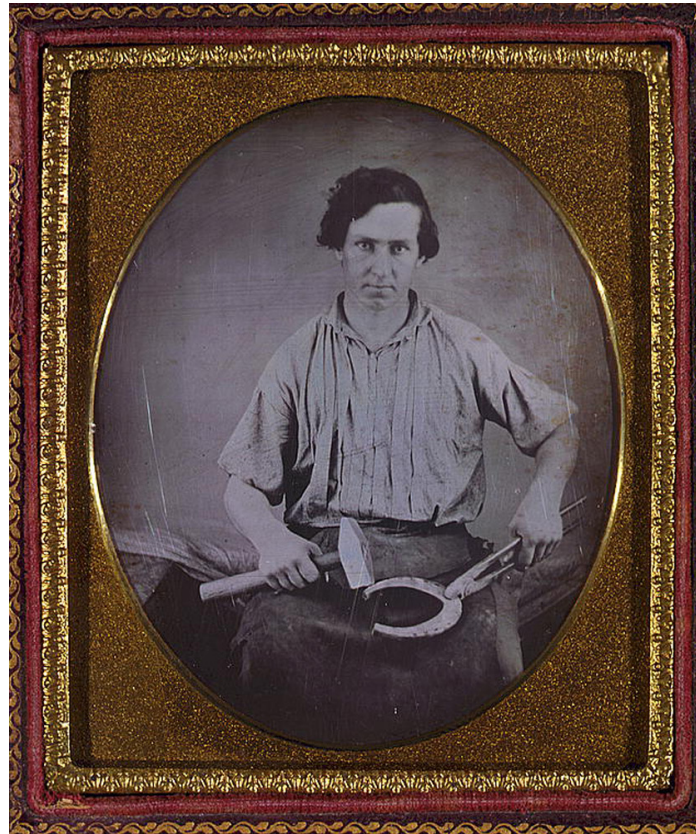
Source-Dependent Questions

- Look closely at the photo. Describe what the man is working on.
- Peter Henlein, the man in the photo, was a locksmith and clockmaker from Germany in the 1500s. He invented the world's first watch. Why would a watch be an important innovation for society?
- Before the Standard Time Act of 1918, the railroads in the United States could choose their own time standards for schedules. Why would it be beneficial for railroads to use a standard time to create the train schedules?

Citation Information

"Occupational portrait of a watchmaker, three-quarter length, seated at table with watches," between 1840 and 1860. [Courtesy of Library of Congress](#)

Occupational Portrait of a Blacksmith, between 1850 and 1860



Courtesy of Library of Congress "Occupational Portrait of a Blacksmith," between 1850 and 1860

Description

A blacksmith is a craftsman who creates things out of iron. They made many things used in everyday life: nails, screws, bolts and other fasteners; horseshoes, sickles, plowshares, axes and other agricultural tools; hammers, candlesticks and other household objects. They also made swords, shields and armor; wheel rims and other metal parts in wagons and carriages; fireplace fittings and implements; spikes, chains and cables used on ships.

Source-Dependent Questions

- Look closely at the photo and describe the tools the man is holding. What kind of job might this man have?
- This man is a blacksmith, a person who forces or creates tools out of iron using fire, hammers, tongs and anvils. How might the blacksmith use the tools he is holding to do his work?
- In early communities, blacksmiths were considered important parts of their communities because they could repair wagon wheels, sharpen farm equipment as well as shoe horses and oxen. How would life be different in early communities without a blacksmith?

Citation Information

"Occupational Portrait of a Blacksmith," between 1850 and 1860. [Courtesy of Library of Congress](#)

Occupational Portrait of a Woman Working at a Sewing Machine, ca. 1853



Courtesy of Library of Congress, "Occupational Portrait of a Woman Working at a Sewing Machine," ca. 1853

Description

A seamstress is a person who sews, someone who earns a living by sewing. At first, women's clothes were made at home by the ladies themselves, their servants or a professional seamstress. Fabrics, increasingly mass produced, became more affordable during the Industrial Revolution, and demand for clothes grew among the newly-wealthy, middle class women.

Source-Dependent Questions

- Look closely at the photo and describe what the woman is doing.
- Before the Industrial Revolution, people would make and sew their clothing by hand. Based on what was noticed in the photo, how did a seamstress' job change after the Industrial Revolution?
- With the invention of the sewing machine, clothing could be made more quickly and cheaply. How would this change the demand for clothes?

Citation Information

"Occupational Portrait of a Woman Working at a Sewing Machine," ca. 1853. [Courtesy of Library of Congress](#)

African-American Women Weaving Rug at Hampton Institute in Virginia, 1899



Courtesy of Library of Congress, Johnston, Frances B., "African-American women weaving rug in home economics class at Hampton Institute, Hampton, Va.," 1899

Description

This photograph shows African American women learning how to weave rugs in a home economics class. Devices like the weaving shuttles and bobbins were used to make cloth and rugs in larger looms, like the one in this photo. The bobbin carried the yarns to make the cloth. The weaver passed the shuttle from side to side, hand to hand, between the layers of the thread. The flying shuttle was invented in 1733, making it possible to weave wider fabrics, and to weave more quickly. This allowed for the invention of power looms, which were used in American textile mills. By the 1830's, textile mills employed many young women.

Source-Dependent Questions

- Look closely at the photo, what do you notice? Why would women be taught how to make rugs in school?
- Compare this photo to the [photo of the seamstress](#). Explain how these photos help answer the question, "How did the Industrial Revolution change the production of goods?" What evidence supports your answer?

Citation Information

Johnston, Frances B., "African-American women weaving rug in home economics class at Hampton Institute, Hampton, Va.," 1899. [Courtesy of Library of Congress](#)

Occupational Portrait of Two African American Chimney Sweeps, between 1860 and 1870



Courtesy of Library of Congress, "Occupational Portrait of Two African American Chimney Sweeps," Charles D. Fredricks & Co., between 1860 and 1870

Description

A chimney sweep is a person who clears ash and soot from chimneys. Chimney sweeping was one of the more difficult, hazardous and low-paying occupations of the time period. In the northern United States, this trade transitioned from primarily white chimney sweeps to African-American "sweep-boys" from the South.

Source-Dependent Questions

- Look closely at the photo. What do you notice about the two men?
- These two men are chimney sweeps, which is a person who clears ash and soot from chimneys for low wages. Why would this job be hazardous? Why would it pay so little?
- After the Civil War, in the northern United States the white chimney sweeps abandoned the profession and African Americans were hired from the South. Think about and discuss why this would take place.

Citation Information

"Occupational Portrait of Two African American Chimney Sweeps," Charles D. Fredricks & Co., between 1860 and 1870. [Courtesy of Library of Congress](#)

Sadie Pfeifer, Child Worker, at Lancaster Cotton Mills in South Carolina, November 30, 1908



Courtesy of Library of Congress, Hine, Lewis Wickes, "Sadie Pfeifer, 48 inches high, has worked half a year..." 30 November 1908

Description

Sadie Pfeifer, just four feet tall, worked half a year. She was one of the many small children at work in Lancaster Cotton Mills tending to a row of spinning machines. Spinning machines are set up in long rows that a spinner would walk along and piece together broken ends. Sadie would walk up and down the aisles, brushing lint from machines and watching the spools or bobbins for breaks.

Source-Dependent Questions

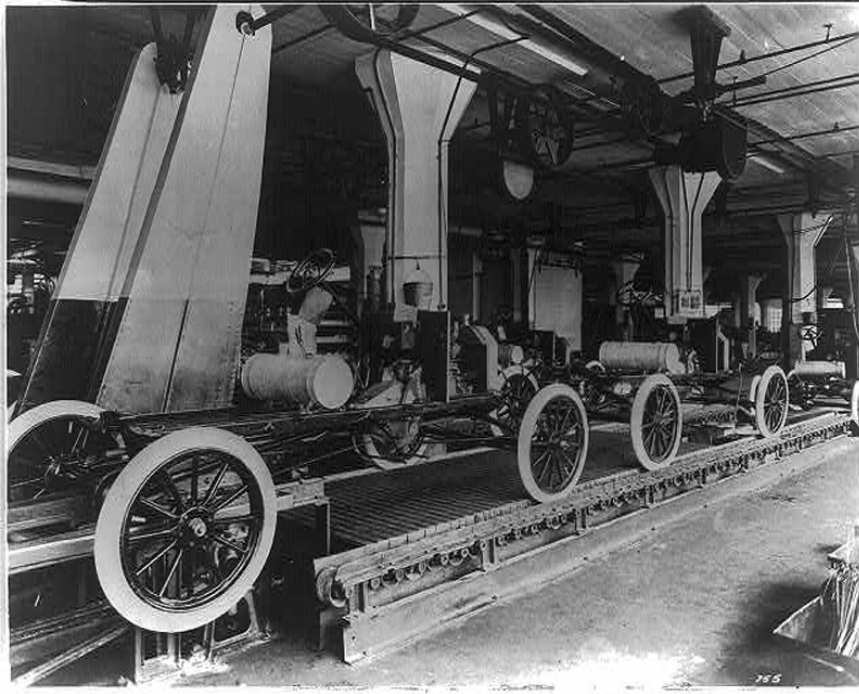
- Look closely at this photo. What do you notice about the girl in the foreground, Sadie? What do you notice about the factory?
- Sadie would walk up and down the aisles, brushing lint from machines and watching the spools or bobbins for breaks. Why would a young person be a good fit for this job?
- How did the Industrial Revolution make it possible for young children, like Sadie, to work? Is that fair? Why or why not?

Citation Information

Hine, Lewis Wickes, "Sadie Pfeifer, 48 inches high, has worked half a year. One of the many small children at work in Lancaster Cotton Mills. Nov. 30, 1908. Location: Lancaster, South Carolina. / L.W. [Hine]," 30 November 1908.

[Courtesy of Library of Congress](#)

“Assembly Line at the Ford Motor Company’s Highland Park Plant,” ca. 1913



Courtesy of Library of Congress “Assembly Line at the Ford Motor Company’s Highland Park Plant,” ca. 1913

Description

Henry Ford and his engineers constantly searched for ways to speed up car production and keep costs low. The integration of a moving assembly line in Highland Park Plant allowed the company to do just that. From 1908-1927, Ford Motor Company produced over 15 million Model T cars and the price dropped from \$850 to as little as \$260.

Source-Dependent Questions

- Look closely at this photo and describe what you see. What’s being made in this photo?
- This is a photo of a moving assembly line. Discuss how a moving assembly line would speed up the production of cars.
- How would the assembly line allow for the cost of the car to be lowered?

Citation Information

“Assembly Line at the Ford Motor Company’s Highland Park Plant,” ca. 1913. [Courtesy of Library of Congress](#)

Washing Machine Assembly Line in Maytag Plant in Newton, Iowa, 1949



Courtesy of State Historical Society of Iowa, "Washing Machine Assembly Line in Maytag Plant," 1949

Description

Employees at work on the washing machine assembly line in the Maytag plant in Newton, Iowa. During the 1950s, the laundry and kitchen appliance industry grew rapidly. Maytag was manufacturing washers and dryers for commercial self-service laundries and commercial operators. Since Maytag was a much smaller company, they decided to limit manufacturing of washers and dryers, alongside marketing ovens and refrigerators built by other companies. The company was known for its reputation and renamed the corporate office in Newton, Iowa, as "One Dependability Square."

Source-Dependent Questions

- Look at the photo and describe what is happening.
- The Maytag company limited their manufacturing to washers and dryers. For a small company, why would this be an economically smart move?
- Compare this assembly line at Maytag to the [assembly line at the Ford factory](#). What is the same? What's different?

“More Than Just Washing Machines” Article about Maytag Plant in Newton, Iowa, June 21, 2019

More than just washing machines

Museum delves into Maytag's varied production history

By Christopher Braunschweig *Newton Daily News*
June 21, 2019

Surrounded by, at one time, nine similar businesses in Newton, a place that many folks considered to be the “washing machine center of the world,” the Maytag Corporation emerged on top as the premiere company that outlasted its competition, until it was purchased by Whirlpool Corporation in 2006 and subsequently closed its facilities.

As one might expect, the longtime manufacturer's flagship products — wooden, aluminum and metal variants alike — take up a lot of space at the Jasper County Historical Museum, but as do its other, lesser known appliances and items.

Jack Streeter, board president of the Jasper County Historical Society, said the Maytag factories used to produce agricultural equipment and other home appliances. A seed grader and an old vacuum are on display at the local museum to prove it. One item the museum doesn't have is an old Maytag tractor, which are very difficult to come by. For now, a picture will suffice.

“We started out making farm equipment and made threshing machines and things like that, and then they dabbled into washing machines,” Streeter, 92, said Thursday. “And finally they found out the market for washing machines was a lot better than the market for farm equipment.”

Founded 126 years ago by F. L. Maytag, the Newton business was once the workplace of the 92-year-old Streeter, who became head of the maintenance department for Maytag Plant 2. He retired from the company after 39 years. Streeter's mother and father had also worked at Maytag. Now, he gets to revisit his old employment and teach others about the company at the museum.

Maytag was the first company, Streeter added, to build a cast aluminum washing machine body in the 1920s, a style that was very popular among customers and would eventually kickstart the company into national recognition. Streeter said his parents had a similar model in their basement for “20-some years.”

Bill Perrenoud, executive director of the Jasper County Historical Museum, said Maytag was known for its dependability, at least that's how the company sold itself as. Calling it a “top

Courtesy of Newton Daily News, Braunschweig, Christopher, “More Than Just Washing Machines,” Newton Daily News, 21 June 2019

Description

This newspaper article from the *Newton Daily News* looks at the 60-year production history of Maytag. The Jasper County Historical Society helps preserve important objects and historical milestones of the company.

[Full Transcript of “More Than Just Washing Machines” Newspaper Article](#)

[Transcribed Excerpts from “More Than Just Washing Machines” Newspaper Article](#)

Source-Dependent Questions

- How did the production of goods change over time for Maytag?
- “One of the catchphrases was: ‘Newton needs Maytag,’ ” Perrenoud said. “...And I think there's a lot of truth to that. Newton would not have been half the community it would have.” What text evidence supports this statement from Perrenoud?

Citation Information

Braunschweig, Christopher, “More Than Just Washing Machines,” *Newton Daily News*, 21 June 2019. [Courtesy of Newton Daily News](#)

Barrel Makers in Union, Iowa, Date Unknown



Courtesy of the State Historical Society of Iowa, "Barrel Makers in Union, Iowa," Date Unknown

Description

Barrel making or being a cooper is a skilled trade. Everything was stored in these wooden containers; flour, grains, salted meats and fish, water, nails, beer, spirits, whale oil and many more.

Source-Dependent Questions

- Look closely at the photo and describe what you see.
- What are the barrels used for?
- When you think about all the uses of the barrels, why do you think being a cooper craftsman would be a good job?

“Rise of Industrial America: Work in the Late 19th Century” from Library of Congress

Rise of Industrial America

[Work in the Late 19th Century](#)

The late 19th-century United States is probably best known for the vast expansion of its industrial plant and output. At the heart of these huge increases was the mass production of goods by machines. This process was first introduced and perfected by British textile manufacturers.



In the century since such mechanization had begun, machines had replaced highly skilled craftspeople in one industry after another. By the 1870s, machines were knitting stockings and stitching shirts and dresses, cutting and stitching leather for shoes, and producing nails by the millions. By reducing labor costs, such machines not only reduced manufacturing costs but lowered prices manufacturers charged consumers. In short, machine production created a growing abundance of products at cheaper prices.

Mechanization also had less desirable effects. For one, machines changed the way people worked. Skilled craftspeople of earlier days had the satisfaction of seeing a product through from beginning to end. When they saw a knife, or barrel, or shirt or dress, they had a sense of accomplishment. Machines, on the other hand, tended to subdivide production down into many small repetitive tasks with workers often doing only a single task. The pace of work usually became faster and faster; work was often performed in factories built to house the machines. Finally, factory managers began to enforce an industrial discipline, forcing workers to work set—often very long—hours.

One result of mechanization and factory production was the growing attractiveness of labor organization. To be sure, craft guilds had been around a long time. Now, however, there were increasing reasons for workers to join labor unions. Such labor unions were not notably successful in organizing large numbers of workers in the late 19th century. Still, unions were able to organize a variety of strikes and other work stoppages that served to publicize their grievances about working conditions and wages. Even so, labor unions did not gain even close to equal footing with businesses and industries until the economic chaos of the 1930s.

To find other documents in American Memory relating to this topic, you might use the terms work or workers, factories, or specific occupations such as miner, machinist, factory worker, or machine operator.

Courtesy of Library of Congress, “Rise of Industrial America: Work in the Late 19th Century,” Date Unknown

Description

This brief essay from the Library of Congress explains how jobs changed in the time of industrialization.

[Full Transcript of “Rise of Industrial America: Work in the Late 19th Century”](#)

[Transcribed Excerpt from “Rise of Industrial America: Work in the Late 19th Century”](#)

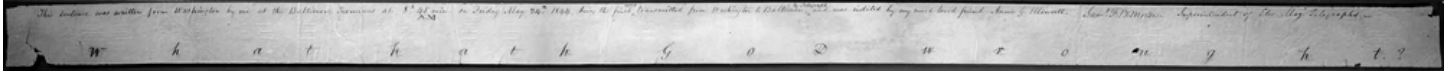
Source-Dependent Questions

- How did the Industrial Revolution affect craftspeople?
- What evidence in this essay supports machines as a positive of the Industrial Revolution?

Citation Information

“Rise of Industrial America: Work in the Late 19th Century.” [Courtesy of Library of Congress](#)

“First Telegraphic Message” from Samuel Morse, May 24, 1844



Courtesy of Library of Congress, Morse, Samuel, “First Telegraphic Message,” 24 May 1844

Description

When decoded, this paper tape recording of the historic message transmitted by Samuel F. B. Morse reads, “What hath God wrought?” Morse sent it from the U.S. Supreme Court room in the U.S. Capitol in Washington, D.C. to his assistant, Alfred Vail, in Baltimore, Maryland. Morse’s early system produced a paper copy with raised dots and dashes, which were translated later by an operator. Across the top of this artifact of his historic achievement Morse has given credit to Annie Ellsworth, the young daughter of a good friend, for suggesting the message he sent, which she found it in the Bible.

The electric telegraph transformed how wars were fought and won and how journalists and newspapers conducted business. Rather than taking weeks to be delivered by horse-and-carriage mail carts, pieces of news could be exchanged between telegraph stations almost instantly. The telegraph also had a profound economic effect, allowing money to be “wired” across great distances.

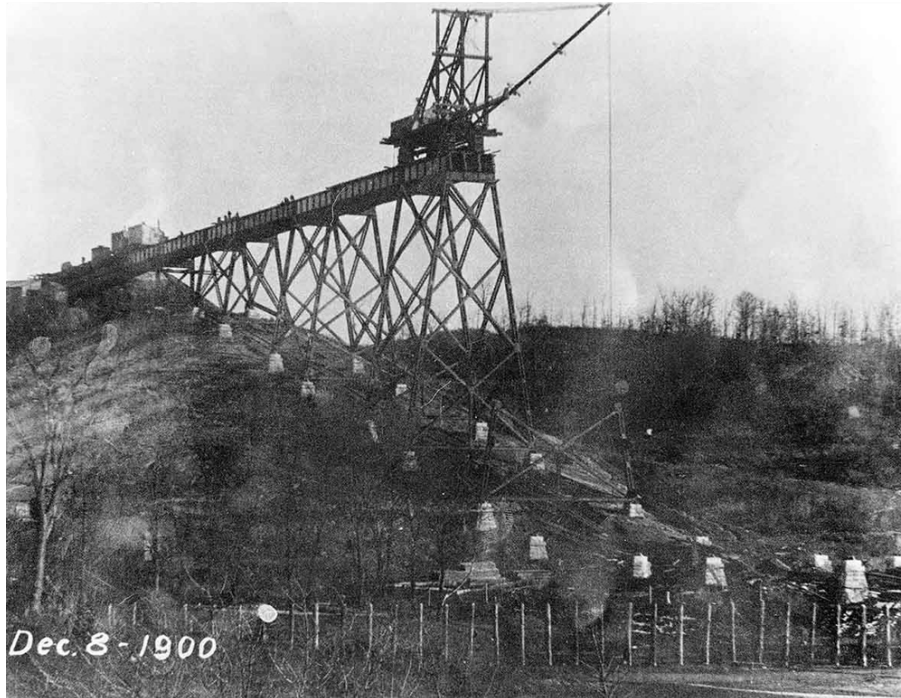
Source-Dependent Questions

- Look closely at the message and describe what you see. Why do you think the telegraph machine used long, skinny paper?
- The messaging system, or Morse code, is made up of raised dots and dashes which were then translated by a person. How did the Industrial Revolution help improve communication? How did this innovation still rely on humans to help with the message?
- Telegraph stations allowed messages to be shared quickly across great distances. How did the telegraph affect people’s lives?

Citation Information

Morse, Samuel, “First Telegraphic Message,” 24 May 1844. [Courtesy of Library of Congress](#)

Building of the Boone Viaduct (Kate Shelley High Bridge), December 8, 1900



Courtesy of James H. Andrew Railroad Museum & History Center, 8 December 1900

Description

Also known as the Kate Shelley High Bridge, the Boone Viaduct was completed in 1901 and was one of the highest and longest double-track railroad bridges in the United States. It is located approximately three miles west of Boone, Iowa. According to the Historic American Engineering Record, this viaduct is about 3,000 feet long, 185 feet above the Des Moines River, made of 6,196 tons of steel and has a double track. At that time, there were only three other viaducts similar to this one in the world: Pennsylvania, Texas and Bolivia, and all were smaller than this one. The bridge was designed by George S. Morison for the Chicago & North Western Railway and took about two years to construct.

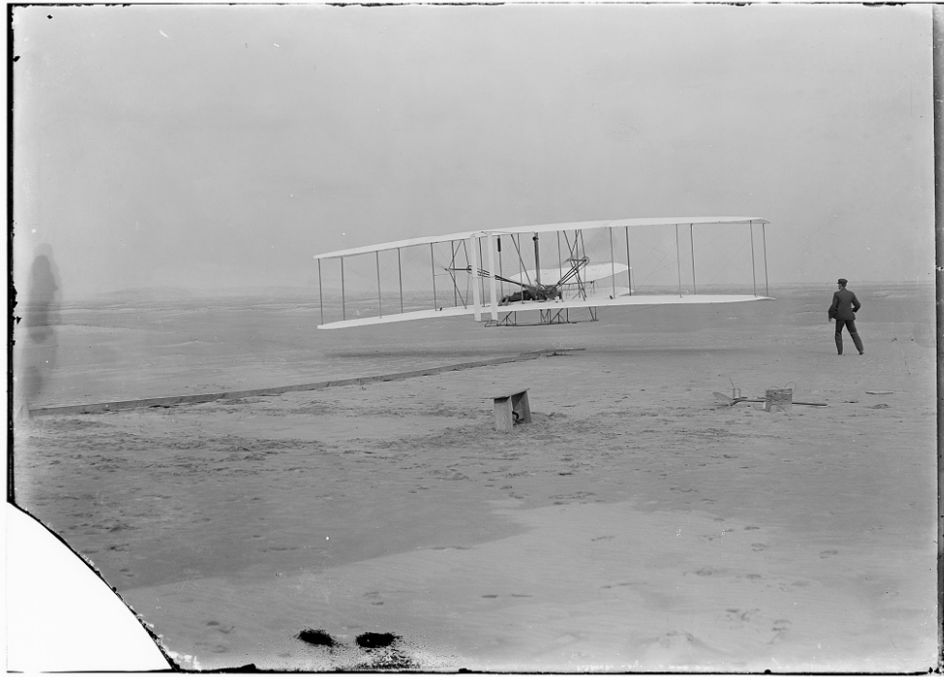
Source-Dependent Questions

- Look closely at the photo. Describe what you see. How are the machines being used to assemble the pieces of the bridge?
- After looking at this photo, read the [Railroads in Iowa essay](#). Why were railroads so important?
- The Kate Shelley High Bridge was completed in 1901, and it was one of the highest and longest double-track railroad bridges in the United States. Why would having two railroad tracks be important on a bridge like this?

Citation Information

Courtesy of James H. Andrew Railroad Museum & History Center, December 8, 1900.

First Flight of Wright Brothers in Kitty Hawk, North Carolina, December 17, 1903



Courtesy of Library of Congress, Daniels, John T., "First flight, 120 feet in 12 seconds, 10:35 a.m.; Kitty Hawk, North Carolina," 17 December 1903.

Description

The photograph shows the first powered, controlled and sustained flight. Orville Wright is at the controls of the machine, lying prone on the lower wing with hips in the cradle which operated the wing-warping mechanism. Wilbur Wright running alongside to balance the machine, has just released his hold on the forward upright of the right wing. The starting rail, the wing-rest, a coil box and other items needed for flight preparation are visible behind the machine. Orville Wright preset the camera and had John T. Daniels squeezed the rubber bulb, tripping the shutter.

Source-Dependent Questions

- Look closely at the photo. Describe what you see.
- What evidence in the photo supports that the Wright brothers were innovators in the field of transportation?
- How did the Wright brothers' plane lead to changes in flight transportation today?

Citation Information

Daniels, John T., "First flight, 120 feet in 12 seconds, 10:35 a.m.; Kitty Hawk, North Carolina," 17 December 1903.
[Courtesy of Library of Congress](#)

Post Office in Solon, Iowa, ca. 1910



Courtesy of State Historical Society of Iowa, ca. 1910

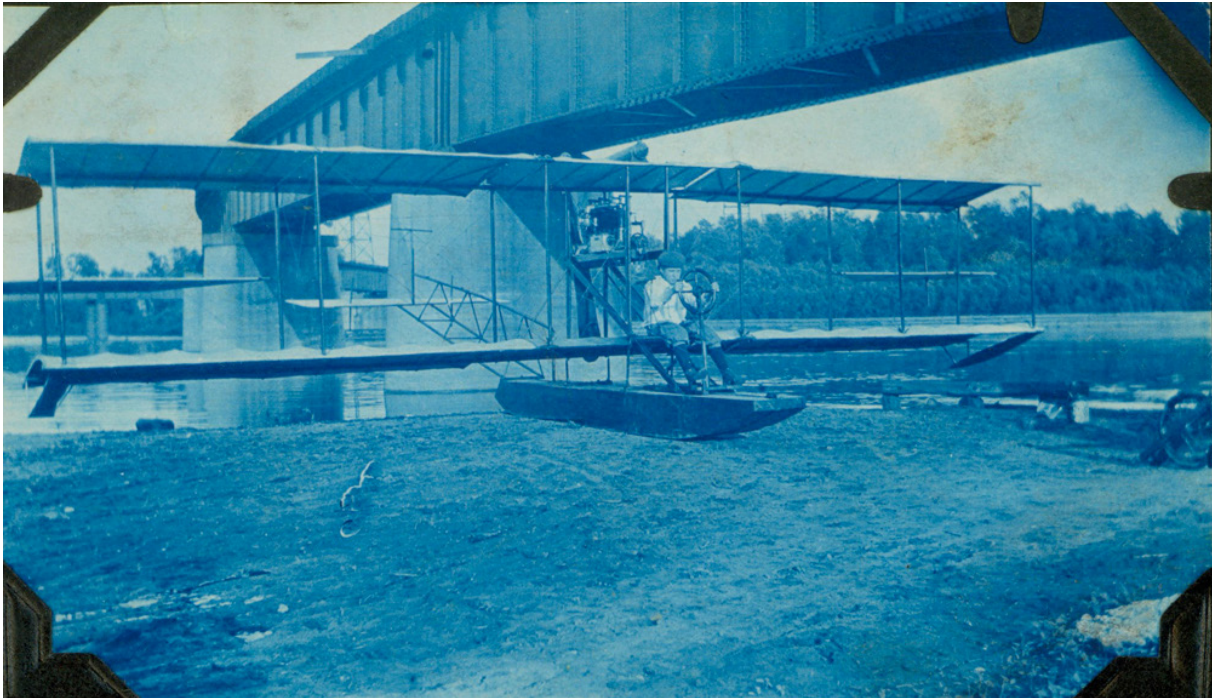
Description

Marie Beuter worked alongside Clara Chansky at the post office from 1968 to 1989. Mail service was received at irregular times due to the road conditions and weather. The first roads followed Native American trails. People rode many miles to get their mail. Postage rates were first determined by how far a piece of mail had to travel. With the coming of the railroad, the postal system in Iowa began to improve.

Source-Dependent Questions

- Look closely at the photo, which was taken around 1910. Describe how life was different then based on what you see in the photo.
- Mail service was received at irregular times due to the road conditions and weather. Compare the mail service to [telegraphic messages](#). Which method of communication would be more impactful for Iowans? What makes you say that?

Alfred Solbrig Sitting on His Aviator Father's Curtiss Hydroaeroplane, ca. 1912



Courtesy of State Historical Society of Iowa, ca. 1912

Description

This photograph shows Albert Solbrig, son of aviator Oscar A. Solbrig, sitting on his father's Curtiss Hydroaeroplane. Oscar built a Curtiss type flying boat powered by a 50 h.p. Roberts motor in which he made one flight. Late in the afternoon and at dusk, he was unable to accurately determine the surface of the water and crashed upon landing. Only the Roberts motor was salvaged to be used in his next plane. He decided that operation from land offered better opportunities. In 1914, Oscar made a flight in his "humbly-made plane" over the city from the Davenport Race Track. Then he began to contract for exhibition flights, transporting the plane by rail after it was disassembled and secured in its crates. He made the first airmail flight in Illinois when he took off from Rock Island and delivered the sack of mail by dropping it near the Davenport post office. This plane which was built by him and his wife was soon replaced by a Curtiss Headless pusher, which he used in future exhibitions all over the Midwest.

Source-Dependent Questions

- Look closely at the photo. Describe what you see.
- The airplane in this photo is a hydroaeroplane, or a plane that can take off and land on water. Compare this with the [Wright brothers' plane](#). What is the same? What is different?
- What evidence from this photo and the Wright brothers photo helps you to determine how the changes in transportation affected people's lives?

Downtown Intersection in Front of William Crewse Drug Company in Des Moines, Iowa, 1930



Courtesy of State Historical Society of Iowa, 1930

Description

This photograph shows the downtown intersection with a streetcar passing in front of William Crewse Drug Company in Des Moines, Iowa, in 1930. Des Moines was the second city in the nation to have electric street railway service. Other Iowa communities were also in the forefront of transit developments. In 1882, Dubuque's Fenelon Place Elevator was one of the earliest cable car systems (and is one of very few still in operation). Sioux City also broke new ground when, in 1892, it opened the nation's third elevated railway system in its downtown area, but this one did not last.

Source-Dependent Questions

- Look closely at the photo. What were some of the innovative transportation systems in Iowa at this time?
- When viewing the image, discuss what other modes of transportation competed with the streetcar. What's the benefits and drawbacks of each mode of transportation?

“Carrying the Load” Essay from *The Goldfinch*, November 1983



Courtesy of State Historical Society of Iowa, “Carrying the Load,” *The Goldfinch*, Vol. 5, No. 2, pp. 11, November 1983

Description

This essay from *The Goldfinch* explains how the railroad affected people’s lives in a variety of ways during the age of industry.

[Transcript of “Carrying the Load” Essay from *The Goldfinch*](#)

Source-Dependent Questions

- What is a “wish book,” and how did they change the way people purchased things during the age of industry?
- After reading this article, look again at the photo of the [post office in Solon, Iowa](#). Based on what you noticed about the photo, why would moving the mail by railroad be more effective?
- What evidence in the text supports how communication and transportation affected people’s lives during the time of industrialization?

“Carrying the Load” Essay from *The Goldfinch*, November 1983

Carrying the Load

As soon as railway lines began running, express companies quickly switched from stagecoaches to the faster, more reliable railroad cars. With such good transportation available for shipping goods, a new way to buy things developed. Stores in large cities began to sell their goods through a mail-order business. Large picture-filled catalogs became “wish books” for people who did not get to the cities. It was exciting to choose from the many wonderful things in the catalog and receive packages from far away at the nearest railway depot. This new way of shopping created competition for merchants in towns that could not be ignored.

Railroads replaced stagecoaches in another way. The United States Post Office officials decided mail should travel by rail instead of the slower stagecoach. The mail was sorted and sacked at post offices and placed on the railroad for delivery to another point. As the number of letters increased, delays occurred at the sorting centers. To solve this problem, a special car was built for use as a traveling post office. Mail clerks sorted the mail as the train raced through the countryside. The first regular railway post office began on the Chicago & Northwestern road from Chicago to Clinton, Iowa in 1864. The railway postal car system grew rapidly in the West. But even the railway postal cars were eventually replaced. In the 1960s the post office officials decided to use trucks and airplanes to move the mail.



The Associated Press

Railroad trains did not always stop at stations to pick up the mail. Catching posts at small stations held mail pouches that were caught by postal clerks as the train passed by.



Hessley's History, 2, January 1975

Clerks sort mail inside a railway postal car.

11

Courtesy of State Historical Society of Iowa, “Carrying the Load,” *The Goldfinch*, Vol. 5, No. 2, pp. 11, November 1983

Description

This essay from *The Goldfinch* explains how the railroad affected people’s lives in a variety of ways during the age of industry.

[Transcript of “Carrying the Load” Essay from *The Goldfinch*](#)

Source-Dependent Questions

- What is a “wish book,” and how did they change the way people purchased things during the age of industry?
- What evidence in the text supports how communication and transportation affected people’s lives during the time of industrialization?

Excerpt from “Getting Away From It All” Essay from *The Goldfinch*, November 1983

Getting Away From It All



Children play in the sand on the shore of Spirit Lake in 1901.

Railroad companies looked for ways to encourage people to use trains. Sometimes they built resort hotels and then built railroad lines for people to use to get there. The railroad companies advertised their resorts and the special train service for vacationers.

The Burlington, Cedar Rapids & Northern Railway built a resort hotel at Spirit Lake in 1883. The following year the company opened the beautiful Hotel Orleans at the lake. Some said it was the finest hotel in the upper Midwest. The hotel had two hundred rooms, bowling alley, billiard hall, tackle shop, and boat house. Soon another railroad company, the Chicago, Milwaukee & St. Paul, ran a line near Lake Okoboji. The lakes quickly became a favorite summer resort with campgrounds, cottages, and hotels on the beautiful shores of

the lakes.

Railroad travel was certainly a big improvement over travel by wagon or stagecoach, yet it was not always pleasant. In 1893 Carrie Carson wrote about the train trip home from her vacation in a summer cottage at Lake Okoboji:

We boarded the train for Des Moines at twelve o'clock; at one-thirty we reached Ruthven, where we had dinner. The ride was very hot and dusty and before we had been on the train an hour, we had breathed in more dust than we had seen in a month. We ate once more at Des Moines. We had expected to leave Des Moines on a train which would get us home about one o'clock, but found that it did not stop at Marengo, so we had to wait for a train which left at one o'clock. We

were so tired that we went to Munger's, [a hotel] and went to bed. We rested and were called in time for our train. Just before reaching Newton we ran into a derailed freight car, and had to wait until it was removed. We had to wait a long time and grew very cold, but at last we started on and reached home an hour and a half late. It was between four and five in the morning when we reached Marengo.

The trip had taken about fifteen hours. In the 1890s train travel may not always have been pleasant or fast—trains averaged about 25 miles per hour with all the stops to let off or take on passengers. Railroad passenger service, however, made it possible for Iowans to travel places they would not have been able to visit before.

15

Courtesy of State Historical Society of Iowa, “Getting Away From It All,” *The Goldfinch*, Vol. 5, No. 2, pp. 15, November 1983

Description

This essay from *The Goldfinch* describes Carrie Carson's perspective of traveling by railroad in Iowa in 1893.

[Transcript of Excerpt from “Getting Away From It All” Essay from *The Goldfinch*](#)

Source-Dependent Questions

- What was Carrie Carson's perspective of traveling by train in Iowa in 1893?
- What evidence in this excerpt helps answer the supporting question, “How did the changes in communication and transportation affect people's lives?”

“Railroads in Iowa” Essay from *The Goldfinch*, November 1983

Railroads in Iowa

There was a time, not long ago, when the sound of engine whistles wailed across the Iowa farmlands. People could tell the time of day by the trains that chugged through the countryside. Before dirt roads were paved and widened so cars and trucks could easily travel over a smooth and fast surface, railroads provided the fastest transportation for both people and goods.

Iowa's earliest settlers came before the railroads did. They traveled by horse or oxen-drawn wagons, on foot, by stagecoach, or by steamboat. Wagon and stage travelers may have traveled as many as twenty miles a day. Steamboat passengers traveled sixty to one hundred miles a day, although sandbars, low water, or snags often caused long delays.

For the first twenty years of

settlement, rivers and streams were the main highways in Iowa. Farm people hauled their grain in wagons or on animals to the nearest market center along a river. Small boats then carried the grain to Mississippi or Missouri River market towns. From those points it was loaded on large boats and carried to St. Louis or New Orleans.

Farmers with hogs or cattle to sell drove their livestock to market—a trip that might take several days. After reaching the market a meat packer bought and slaughtered the animals, then packed and pickled the meat in barrels for shipment down the river.

In winter the rivers froze and the boats had to stop. To travel overland was not much easier. Snow often covered the dirt roads, making it hard for teams of horses to pull heavy loads.

While this weather lasted, people, goods, and news could not easily get in or out of the state.

Most people came to Iowa to take up farming. As Iowa and other midwest areas filled with farmers, a whole new region of the United States began to produce food. About the same time industries began to grow in the East, and manufacturers in cities hired people to work in factories. Cities grew larger as people moved there to work. Most of the people in the cities did not raise their own food, so they bought food brought to the city in wagons from nearby farms. City people began to depend more and more on the food grown by farmers.

It was not long before the steam engine that powered factory machinery provided the power for railroad trains to bring food to the cities. The trains then returned to the countryside with manufactured goods for people to buy. Gradually train tracks pushed into the great farm regions of the South and Midwest.

In 1854 the first train reached the Mississippi River at Rock Island, Illinois. Soon other railroad lines from Chicago reached the great river. Ferryboats carried the freight and passengers across the river from the railroad cars to the cities in Iowa.

On the Iowa side of the river, short railroad line construction began, and in 1855 the first engine was ferried across the Mississippi from Illinois. Just one year later a wooden bridge



This drawing of Bellevue, Iowa shows the modes of transportation before the railroads came. A Mississippi River steamer churns up the river, a ferryboat carries people, animals, and goods across the river, and a horse-drawn wagon moves around the bend of the dirt road.

2

Courtesy of State Historical Society of Iowa, “Railroads in Iowa,” *The Goldfinch*, Vol. 5, No. 2, pp. 2-3, November 1983

Description

This essay from *The Goldfinch* explains how the railroad impacted people in Iowa during the age of industry.

[Full Transcript of “Railroads in Iowa” Essay from *The Goldfinch*](#)

[Transcribed Excerpts from “Railroads in Iowa” Essay from *The Goldfinch*](#)

Source-Dependent Questions

- How did people travel in Iowa before the railroad?
- What evidence from the text supports how the railroad helped people?

“What Time Is It?” Essay from *The Goldfinch*, November 1983

What Time Is It?



Before the railroads stretched iron rails across the nation, each city or town kept its own local time. Clocks in each place were set at twelve noon when the sun reached the highest point in the sky. This local time, or sun time, depended on the longitude or

longitude n. — distance east or west of the prime meridian, measured in degrees.

meridian of the town. For every degree of longitude there is a four-minute difference. This worked very well when people traveled from one place to another only at the slow-moving pace of steamboats or horse-drawn wagons.

When railroads came, the differences in time caused problems. Each railroad used the local sun time of its major city. When it was noon solar time in Chicago, it was 12:07 in Indianapolis, Indiana, 11:50 in St. Louis, Missouri, 11:48 in Dubuque, Iowa, 11:41 in St. Paul, Minnesota, and 11:27 in Omaha, Nebraska. The solution to this problem was to divide the world into twenty-four standard time zones. On November 18, 1883, at twelve noon the United States railroads adopted a system for standard time zones. Cities, too, began to use standard time. Eventually standard time zones were adopted by nations of the world. Iowa is in the Central Time Zone.

meridian n. — lines on a map representing either half of the circle that passes through the north and south poles.



Twenty-five steam whistles sound off in the Creton yards to announce the adoption of standard time at 12:00 noon, November 18, 1883.

The Jewelers Will Change Time

At present the jewelers of Burlington are using almost exclusively Chicago time, but on Sunday will adopt standard time. Among the jewelers visited by an Hawkeye representative yesterday was Mr. G.H. Waldin, who stated he would change his time to conform to the new schedule of time just formulated for the use of the railroads by the railroad time convention recently held in Chicago. He further said: "Burlington time is five fourteen minutes slower than Chicago time. According to the new standard it will be five minutes slower than Chicago time. According to the new standard it will be five minutes faster than present city time. We get the correct time from Chicago every morning at 2 minutes past 10 o'clock and we receive it here in the store, being connected by wire. Next Sunday we will adopt the new time. We have always used railroad time; the public demands it and we must supply the demand. Very few people in Burlington use the city time."

Upon a request for determining the accurate time in Burlington, the following reply came from the Smithsonian Institute, Washington, D.C.:

Dear Sir — In reply to your letter of June 7, I would state that the longitude of Burlington, Iowa, is 90°07' and that of Chicago, Illinois, is 87°38', the difference therefore is 2°29'. At 4 minutes to 1, or 4 seconds to 1', this gives a time difference of 13 minutes and 56 seconds. It is proper to observe that as 1' of longitude at this latitude is more than half a mile, different points in the two cities, would differ by several seconds.

Yours very respectfully,
Spencer W. Baird,
Secretary,
Smithsonian Institute

It is very probable the city will adopt the new standard time, as it will be generally used in Burlington anyway. So Sunday at noon, if you have correct Chicago time, set back your clock nine minutes, and you will have standard time.

— *The Daily Hawkeye*,
13 November 1883.

Courtesy of State Historical Society of Iowa “What Time Is It?” *The Goldfinch*, Vol. 5, No. 2, pp. 10, November 1983

Description

This essay from *The Goldfinch* explains how on November 18, 1883, at 12 p.m. (noon), the United States railroads adopted a system for standard time zones.

Transcript of “What Time Is It?” Essay from *The Goldfinch*

Source-Dependent Questions

- Why was there a need to have a system for standard time zones?
- What evidence from the text supports standard time zones being a positive or a negative for during the industrial revolution?

Chicago & North Western Railway Viaduct (Kate Shelley High Bridge) at Boone Data Papers, August 1995

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HISTORIC AMERICAN ENGINEERING RECORD
CHICAGO & NORTH WESTERN RAILROAD VIADUCT
(Boone Viaduct)
(Kate Shelly High Bridge)
(Boone High Bridge)

HAER No. IA-44

Spanning Des Moines River at Chicago &
North Western Railroad, 4.5 miles west
of Boone; Boone County, Iowa
UTM: 15.419320.4656540
USGS: Boone West, Iowa quadrangle
(7.5 minute series, 1965;
photorevised 1976)

Courtesy of Library of Congress, Jackson, Robert W., Historic American Engineering Record, National Park Service, August 1995

Description

The papers are from the Historical American Engineering Record in a report about the construction of the Chicago & North Western Railroad viaduct (Kate Shelley High Bridge) near Boone, Iowa. The viaduct, a long bridge-like structure, is one of the last projects of noted bridge engineer George Morison, who died two years after the structure was built. The bridge was the longest and heaviest viaduct of its time and may be the longest extant double-track railroad viaduct in the world. It is listed in the National Register of Historic Places. This document was prepared as part of the Iowa Historic Bridges Recording Project performed during the summer of 1995.

[Full Transcript of Boone Data Papers](#)

Source-Dependent Questions

- According to the text, what was the purpose of the viaduct? What problem would the viaduct solve?
- Who was Kate Shelley, and why was the bridge named after her?

Citation Information

Jackson, Robert W., "Chicago & Northwestern Railroad Viaduct, Spanning Des Moines River at Chicago & Northwestern Railroad tracks, Boone, Boone County, IA," Historic American Engineering Record, National Park Service, August 1995. [Courtesy of Library of Congress](#)

Workers Assemble Recreational Vehicles at Winnebago Industries in Forest City, 2013



Courtesy of The Globe Gazette, Schuessler, Arian, The Globe Gazette, 2013

Description

This photograph shows workers assembling recreational vehicles at Winnebago Industries in Forest City, Iowa, from 2013.

Source-Dependent Questions

- Look closely at the photo. Describe what you see.
- Compare this photo to the photo of the [Ford Motor Company's assembly line](#). What is the same? What is different? These photos were taken over 100 years apart. What does that tell you about the innovation of the Industrial Revolution?

Citation Information

Schuessler, Arian, *The Globe Gazette*, 2013. [Courtesy of The Globe Gazette](#)

Assembly Line Workers Under an RV at Winnebago Industries in Forest City, Iowa, March 2016



Courtesy of The Globe Gazette, Zoeller, Chris, The Globe Gazette, March 2016

Description

Assembly line workers Jared Maas, right, and Stan Trca work under the chassis of an RV on the Winnebago Industries assembly line in Forest City in March 2016. There was not enough room at the north plant, so work began on the new site, nicknamed “Big Bertha.” The company then started building 600 motor homes a week. The first Winnebago motor homes were 19-foot long. The company now is manufacturing 45-foot-long motor homes.

Source-Dependent Questions

- Look closely at the photo and compare it with the [2013 Winnebago factory photo](#). Describe the technological changes that make constructing recreational vehicles possible.
- What evidence could be used to answer: How did the changes in transportation affect people’s lives?

Citation Information

Zoeller, Chris, *The Globe Gazette*, March 2016. [Courtesy of The Globe Gazette](#)

“Forest City-based Winnebago Industries turns 60” Newspaper Article, May 6, 2018

Forest City-based Winnebago Industries turns 60 (with photos)

By Mary Pieper
May 6, 2018

FOREST CITY | Winnebago Industries started 60 years ago with a dozen workers building travel trailers in a facility shared with a hatchery.

Today, the Forest City-based company is a leading U.S. recreation vehicle manufacturer with 4,200 employees.

“There’s this rich spirit of innovation and entrepreneurship that seems to have grown up here fostered by our location and the people who have worked here,” said Chad Reece, director of marketing at Winnebago.

In late 1957, citizens of Forest City contributed to a fund drive to start the new industry. Residents could invest money in \$100 increments.

The fund drive raised \$50,000, with 208 residents contributing.

Reece said this speaks to the “grass-roots” background of Winnebago, which has made it such an iconic brand.

Marlen Hanson was one of the original 12 employees who started work on Jan. 28, 1958.

He was just 18 and it was his first full-time job.

At that time jobs in the Forest City area “were not easy to come by,” he said.

Although Winnebago only paid him \$1 an hour, which was the minimum wage at the time, he considered himself lucky.

That first group of employees set up the plant for production.

The first Winnebago plant was at the intersection of Highways 9 and 69, where Forest City Ford is now located.

Work was slow at first, according to Hanson. He said half the building was occupied by a hatchery, so there wasn’t a lot of room for building trailers.

The also didn’t have many tools.

Hanson said there was tremendous excitement in the community about opening the plant.

Courtesy of The Globe Gazette, Pieper, Mary, “Forest City-based Winnebago Industries turns 60 (with photos),” The Globe Gazette, 6 May 2018

Description

Winnebago Industries started 60 years ago with a dozen workers building travel trailers in a facility shared with a hatchery. Today, the Forest City-based company is a leading U.S. recreation vehicle manufacturer with 4,200 employees. “There’s this rich spirit of innovation and entrepreneurship that seems to have grown up here fostered by our location and the people who have worked here,” said Chad Reece, director of marketing at Winnebago.

[Full Transcript of “Forest City-based Winnebago Industries turns 60” Newspaper Article](#)

[Transcribed Excerpts from “Forest City-based Winnebago Industries turns 60” Newspaper Article](#)

Source-Dependent Questions

- Before reading the article, look at the [two photos](#) to illustrate what the Winnebago factory looks like. How have changes in the Winnebago Industry changed transportation and industry in Iowa?
- When considering the compelling question, “How does innovation impact people’s lives?,” what evidence from the Winnebago sources helps to answer this question?

Citation Information

Pieper, Mary, “Forest City-based Winnebago Industries turns 60 (with photos),” *The Globe Gazette*, 6 May 2018.
[Courtesy of The Globe Gazette](#)

Elevation of Truss, from North, with Train, Date Unknown



Courtesy of Library of Congress, Historic American Engineering Record

Description

The image shows a view of the Chicago & North Western railroad viaduct (Kate Shelley High Bridge) over the Des Moines River from the north. According to the Historic American Engineering Record, this viaduct is about 3,000 feet long, 185 feet above the Des Moines River, made of 6,196 tons of steel and has a double track. At that time, there were only three other viaducts similar to this one in the world: Pennsylvania, Texas and Bolivia, and all were smaller than this one. The Historic American Engineering Record also said that railroad tracks needed to be very solid because any sagging could cause train derailment, but the river valley was unstable because it was sand, shale, mud and silt. The solution was to dig down eight pneumatic caissons, each 10 feet in diameter, so these additions would be deep enough to reach stable sandstone bedrock, anywhere from 42 to 62 feet below. These caissons supported the piers closest to the river, four on each side. The remaining piers were supported by shallower foundations because they supported less weight.

Source-Dependent Questions

- The middle of the bridge, the part spanning the river, looks different than the [two sides that do not span the river](#). Why would bridge engineer George Morison design the viaduct so that no posts or supports were in the water?
- What is the benefit of having a double track across the viaduct instead of a single track?

Citation Information

"Elevatin of Truss, From North, With Train - Chicago & Northwestern Railroad Viaduct, Spanning Des Moines River at Chicago & Northwestern Railroad tracks, Boone, Boone County, IA," Historic American Engineering Record. [Courtesy of Library of Congress](#)

Breaker Boys at the Woodward Coal Mines in Kingston, Pennsylvania, ca. 1900



Courtesy of Library of Congress, "Breaker Boys, Woodward Coal Mines, Kingston, Pa.," Detroit Publishing Co., ca. 1900

Description

Breaker boys worked in the coal mines. Their main job was to separate chunks of coal by hand. As coal came down the conveyor belt, they would break up the coal into common sized pieces and also separate out any things like rocks, clay and soil. Boys were usually between the ages of 8 to 12, but sometimes were as young as 5 or 6. The breaker boys would work 10 hours a day, 6 days a week.

Source-Dependent Questions

- Look closely at the photo. Describe what you see.
- A breaker boy worked in the coal mines separating and breaking up chunks of coal into common sized pieces by hand. Why would young boys be selected for this job?
- The breaker boys would work 10 hours a day, six days a week. Knowing this, look at the photo again and discuss the working conditions for breaker boys.

Citation Information

"Breaker Boys, Woodward Coal Mines, Kingston, Pa.," Detroit Publishing Co., ca. 1900. [Courtesy of Library of Congress](#)

Push Cart Vendors on the East Side of New York, New York, 1900



Courtesy of Library of Congress, Kleine, George, "Push carts--East side," 1900

Description

This video features market scenes which show push cart vendors displaying a variety of merchandise on a busy, crowded street in what appears to be a tenement district in New York. The camera is mounted on a moving vehicle and passes horse-drawn wagons and automobiles; young boys run alongside and thumb their noses at the camera.

Source-Dependent Questions

- What was being sold by vendors?
- What evidence from the video clip describes what it would be like to be to shop in the city during this time?

Citation Information

Kleine, George, "Push carts--East side," 1900. [Courtesy of Library of Congress](#)

Tenement Yard in New York, New York, between 1900 and 1910



Courtesy of Library of Congress, "Yard of Tenement, New York, N.Y.," Detroit Publishing Co., between 1900 and 1910

Description

In the 19th Century, more and more people began crowding into America's cities, including thousands of newly arrived immigrants seeking a better life than the one they had left behind. In New York City, where the population doubled every decade from 1800 to 1880, buildings that had once been single-family spaces were divided into multiple living spaces to accommodate this growing population. By 1900, some 2.3 million people, a full two-thirds of New York City's population, were living in tenement housing.

Source-Dependent Questions

- Look closely at the photo and describe what you see.
- Buildings that had once been single-family spaces were divided into multiple living spaces and called tenement houses. Based on this photo and the photo of [tenement kitchens](#), describe what living in a tenement home would have been like.
- In the early and mid-19th Century, more and more people began crowding into America's cities, like New York City, including thousands of newly arrived immigrants. Why would people choose to live in tenement houses?
- Look at this photo and watch the [Push Cart Vendor video](#). What were the advantages and disadvantages of industrialization?

Citation Information

"Yard of Tenement, New York, N.Y.," Detroit Publishing Co., between 1900 and 1910. [Courtesy of Library of Congress](#)

Young Girls at Spoolers at Lincoln Cotton Mill in Evansville, Indiana, October 1908



Courtesy of Library of Congress, Hine, Lewis Wickes, "Lincoln Cotton Mill, Evansville, Ind. Young Girls at Spoolers. Location: Evansville, Indiana," October 1908

Description

Spoolers ran machines that combined the thread from ten to 15 different bobbins. Operating a spooling frame was not a hard job, unless threads broke and they had to tie the strand back together. Working as an investigative photographer for the National Child Labor Committee, Lewis Hine documented working and living conditions of children in the United States between 1908 and 1924. The photos are useful for the study of labor, reform movements, children, working class families, education, public health, urban and rural housing conditions, industrial and agricultural sites and other aspects of urban and rural life in America in the early 20th Century.

Source-Dependent Questions

- Look closely at the photo and describe the work the young girls are doing.
- Compare this photo to the [photo of Sadie](#), who worked at a cotton mill in a different state. What is similar about the photos? What is different?
- Lewis Hines, who worked for the National Child Labor Committee, took both of these photos of young girls in cotton mills to document working conditions for young children. Why would it be important for everyone to see the working conditions of young children?

Citation Information

Hine, Lewis Wickes, "Lincoln Cotton Mill, Evansville, Ind. Young Girls at Spoolers. Location: Evansville, Indiana," October 1908. [Courtesy of Library of Congress](#)

Newsies in Hartford, Connecticut, March 7, 1909



Courtesy of Library of Congress, Hines, Lewis, W., "Hartford, Conn. 6 A.M. Sunday...", 7 March 1909

Description

Newsies sold newspapers in the big cities. They were usually homeless orphan boys who had no other way to make money. Newsies were not hired employees. They ran their own business. Each morning they would get up and buy newspapers. Then they would find a good corner with lots of traffic and sell the papers for a profit. Hopefully, they could sell all the papers. If they didn't, they might actually lose money. This photograph was taken in Hartford, Connecticut, with boys starting out with Sunday papers at 6 a.m. Some boys were only 8 and 9 years old. Some of these children had been selling until 7 and 8 p.m. and later Saturday night.

Source-Dependent Questions

- Look closely at the photo. What job did these young boys have? What makes you say that?
- Boys who sold newspapers in cities were called newsies. Each morning they would buy newspapers to sell. They were not employees of a company, but bought the newspapers with their own money making it very important that they sold all of their papers each day. What are the benefits of not being an employee? What are the drawbacks?
- Compare this photo to the photo of the [breaker boys](#). What do you notice about the working conditions for young boys in the early 1900s? Is this a positive or negative outcome of industrialization? Why?

Citation Information

Hines, Lewis, W., "Hartford, Conn. 6 A.M. Sunday...", 7 March 1909. [Courtesy of Library of Congress](#)

People Picking Cranberries in Pemberton, New Jersey, September 1910



Courtesy of Library of Congress, Hine, Lewis Wickes, "Jim Waldine, 1023 Carpenter St., Philadelphia..." September 1910

Description

This photograph shows some children picking cranberries in Pemberton, New Jersey. The young boy in the middle, Jim Waldine of Philadelphia, Pennsylvania, was just 6 years old and had been picking cranberries two years. Another boy, Sam Frohue, 9, had also been picking for two years, and he could not spell his own name. This photo was taken during the fourth week of school in Philadelphia and people would continue to work for another two weeks. Children as young as three years old worked during the cranberry picking season in September and October, helping their families with farm chores.

Source-Dependent Questions

- Look closely at the photo. What do you notice about the people?
- The boy facing the camera is Jim Waldine. He was six years old when this photo was taken and he had already picked cranberries for two years. Why would families enlist their young children to work?
- This photo was taken during the fourth week of school and the picking season would continue for another two weeks. Why would families have their children work rather than going to school?

Citation Information

Hine, Lewis Wickes, "Jim Waldine, 1023 Carpenter St., Philadelphia..." September 1910. [Courtesy of Library of Congress](#)

Mortaria Family Makes Silk Flowers in New York, New York, February 1912



Courtesy of Library of Congress, Hine, Lewis W., "Family of Peter Mortaria," February 1912

Description

This photograph is of the Mortaria family in their apartment in New York, New York in February 1912. The photo was taken at 8 p.m., but they were all still working at the table because their work - creating silk flowers - was not finished. The small child on the left is not yet four years old, yet she works, irregularly, on flowers all day. According to the photographer, Lewis Hine, in spite of a sore throat, she was "working steadily all the time I was there, occasionally dropping a sigh that was very pathetic." He said her father, Peter, said that she likes to work. She could make about a dozen wreaths a day. Many families like the Mortaria's made flowers up to 14 hours a day.

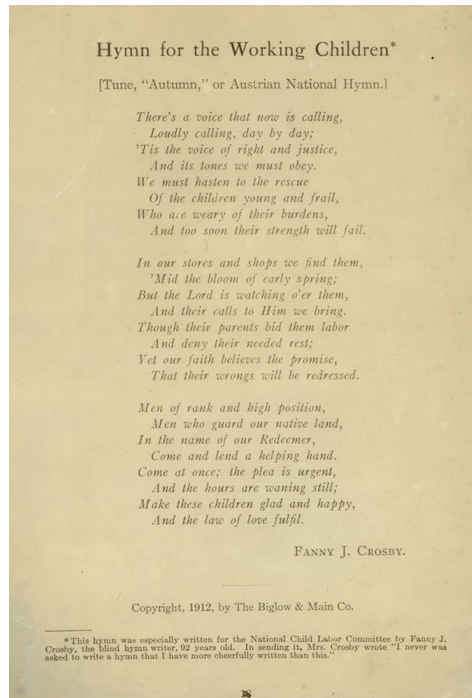
Source-Dependent Questions

- Look closely at the photo and describe what the family is doing.
- The youngest child was almost four years old. Discuss why families would have put their children, even their youngest children, to work.
- It was 8 p.m. at night when this photo was taken. The family often worked 14-hour days to create all the flowers needed. What were the advantages and disadvantages of industrialization?

Citation Information

Hine, Lewis W., "Family of Peter Mortaria," February 1912. [Courtesy of Library of Congress](#)

“Hymn for the Working Children,” ca. 1913



Courtesy of Library of Congress, Crosby, Fanny J., "Hymn for the Working Children," ca. 1913

Description

Fanny Crosby wrote poems and hymns. Throughout her life, she was described as having "a horror of wealth," but never set prices to speak, often refused money and what little she did accept, she gave away almost as soon as she got it. Crosby wrote over 8,000 hymns. This one was for the National Child Labor Committee to shed a light on injustices toward children in the workforce.

[Transcript for "Hymn for the Working Children"](#)

Source-Dependent Questions

- What evidence in the text shows child labor was a disadvantage of this time period?
- Look at the lines "We must hasten to the rescue / Of the children young and frail, / Who are weary of their burdens..." What message was the author, Fanny Crosby, trying to share?

Citation Information

Crosby, Fanny J., "Hymn for the Working Children," ca. 1913. [Courtesy of Library of Congress](#)

Tenement Kitchen in Hamilton County, Ohio, December 1935



Courtesy of Library of Congress, Mydans, Carl, "Tenement Kitchen, Hamilton Co., Ohio," December 1935

Description

Tenements were narrow, low-rise apartment buildings in the city's Lower East Side neighborhood in New York City, which were all too often cramped, poorly lit and lacked indoor plumbing and proper ventilation.

Source-Dependent Questions

- Look closely at the photo and describe what you see.
- Compare this photo to the one of a [tenement yard](#). Describe what life would have been like for families living in tenement housing.
- Cite evidence in the image would support the description that tenements were "often cramped, poorly lit and lacked indoor plumbing and proper ventilation?"

Citation Information

Mydans, Carl, "Tenement Kitchen, Hamilton Co., Ohio," December 1935. [Courtesy of Library of Congress](#)

“Kids at Work” Essay from *The Goldfinch*, 1996

by Bridgett M. Williams

Kids at work

Iowa's kids have held all types of jobs, from chores at home to working on farms, in factories, and in underground mines. Their wages often helped support their families.



Boys as young as nine once worked alongside grown men in Iowa's mines.

Most kids in the past, like now, helped out around their homes and learned by working closely with their parents. Their jobs — whether picking berries for jelly, helping set fence posts, or watching younger siblings — made their homes better places to live. Everything a kid made, planted, fed, or fixed was one less thing parents had to buy or do.

Rural families sometimes hired out kids to neighbors who needed laborers. Only older boys usually inherited land or money from parents, so other children needed to make their own way in the world.

Hired girls cooked, cleaned, and took care of children. They also emptied chamber pots, did laundry, tended gardens, and canned fruits and vegetables.

Girls received little pay for all this work — about \$1.50 a week at the turn of the century. Although girls gave most of their money to their parents, they sometimes kept a few dollars for themselves. Earning money made them feel independent.

Hired boys (also known as “plowboys”) also received low wages. Boys chopped wood, hauled water, sorted seed, and

© The Goldfinch

Courtesy of State Historical Society of Iowa, Williams, Bridgett M., “Kids at Work,” *The Goldfinch*, Vol. 17, No. 4, pp. 8-9, 1996

Description

This essay from *The Goldfinch* explains how most kids in the past, like now, helped out around their homes and learned by working closely with their parents.

[Transcript of “Kids at Work” Essay from *The Goldfinch*](#)

Source-Dependent Questions

- Why would kids in Iowa work?
- What changed how kids could work in Iowa and the United States?

“Progress and Unemployment” Excerpt from *The Goldfinch*, 1996

industries grew around the state as people manufactured goods and shipped them across the country to be sold.

By the turn of the century, more and more Iowans left rural areas to find jobs in cities. In 1900, Iowa boasted more than 14,000 manufacturing businesses statewide. In these factories, workers made everything from buttons and butter to meat products and overalls. Factory work was hard and working conditions were often very poor, leading to many work-related accidents and deaths. Workers formed unions and demanded better wages and working conditions.

Progress and unemployment

Inventions and other technological advances often put people out of one line of work, and into another. With the introduction and growing popularity of the automobile, blacksmiths and carriage makers soon had to find other ways to earn their keep. Often, they converted their shops into garages and learned how to fix cars and motorized farm equipment.

Everett Ludley, who grew up

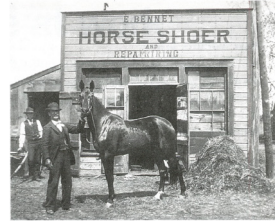
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in northeastern Iowa, remembers how the automobile changed the businesses district in Manchester, Iowa.

“Hennesey’s Livery Stable was converted to a car agency,” he wrote in 1989. “Billie Burk’s Blacksmith Shop became a machine shop. In both, the smell of horse manure was replaced by the smell of oil and grease.”

New technologies also created new jobs. Frederick Maytag made washing machines in Newton beginning in 1909. As Maytag perfected the machines, the demand for the product increased, and more and more people found jobs in the Maytag factory.

Industries have continued to grow throughout the state’s history. From coal mining and meat packing to insurance and publishing, Iowans have worked in a variety of manufacturing and service positions and have marketed Iowa products throughout the world.



New inventions meant new jobs. The car drove blacksmiths, like E. Bennet, whose Jasper County shop is pictured above, out of business when it replaced horses as primary mode of transportation.

In 1994, 1,508,000 Iowans were employed in the state. That’s enough people to fill the seats in Des Moines’ Sec Taylor Stadium ten times! Of that number, 94,000 were young people between the ages of 16 and 19.

Young people under age 16, who are not included in official labor statistics, also work hard. Like kids in the early part of Iowa’s history, they do chores at home, hold part-time jobs such as delivering newspapers and baby-sitting, and participate in other wage-earning activities. ▲

Courtesy of State Historical Society of Iowa, “Making a Living,” *The Goldfinch*, pp. 6, 1996

Description

This excerpt from *The Goldfinch* explains how inventions and other technological advances often put people out of one line of work and into another.

[Transcript of “Progress and Unemployment” Excerpt](#)

Source-Dependent Questions

- Using examples from the excerpt, what are ways Iowans have had to adjust to be able to survive when jobs changed?
- What are some industries in Iowa that have continued to grow throughout the state’s history?

“Working the Environment” Essay from *The Goldfinch*, 1996

by Bridgett M. Williams

Working the environment

Making a living sometimes means making difficult choices.

Many of Iowa's best-known industries are extractive. An extractive industry takes things out of the ground or water that cannot be replaced.

Fur trading is one of Iowa's oldest extractive industries. Native Americans hunted deer and trapped beaver to trade with other groups. As European Americans increased the demand for furs in trade, overhunting eventually had a devastating effect on wildlife.

The lumber industry also changed Iowa's landscape. When Isaac Kramer moved to Linn County from Pennsylvania in 1838, linn trees grew everywhere. Soon, however, people cut and sold timber to build homes, furniture, fences, and barns, without replanting. By the time Isaac was an old man, the groves of his childhood were history.

Iowa's coal mines boomed in the 19th and early 20th century. Miners either tunneled to remove coal or “churned the earth,” turning good soil under-

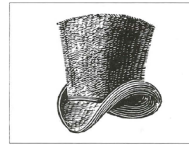
neath and leaving poor soil on top where nothing would grow. When coal companies quit because there was little coal left to mine, and better quality coal could be found elsewhere, miners had to find other work.

Farming can be considered an extractive industry. Crops take nutrients out of the soil and farmers use chemical fertilizers to restore them.

Movement and markets

Even the way we connect buyers and sellers changes the environment. In 1846, for example, there were few roads. Native American traders used rivers and footpaths to reach customers. Canoe and foot travel were easy on the environment.

European-American settlers, however, wanted to go where rivers didn't. They built roads to transport goods. Herds of cattle and wagons packed down the earth. The dust, smell, and noise drove away wild animals. To widen roads, people sometimes cut down trees. Without tree roots to hold it, soil eroded.



Beaver furs were once made into hats, like the one pictured here.

By the 1870s, railroads crisscrossed Iowa, creating new jobs and connecting farms and factories across the nation. Engines burned smoky coal, polluting the air. Sparks started prairie fires. Railroads also promoted expansion of agriculture; because farmers could move more grain to Chicago easily, they farmed more land. Today, trucks and cars speed down Interstate 80 and 35, moving workers and what they produce around Iowa and the nation. How do highways and automobiles transform our environment today? ▲

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Courtesy of State Historical Society of Iowa, Williams, Bridgett M., “Working the Environment,” *The Goldfinch*, Vol. 17, No. 4, pp. 7, 1996

Description


In this essay from *The Goldfinch*, the reader considers how some of Iowa's best-known industries are extractive and the advantages and disadvantages to the industries.

[Transcript of “Working the Environment” Essay from *The Goldfinch*](#)

Source-Dependent Questions

- What is an extractive industry?
- Using evidence from the text, what are some extractive industries in Iowa?
- When considering the essay, what were the advantages and disadvantages of extractive industries?

“Iowa Inventors and Inventions from A to Z” Excerpt from *The Goldfinch*, 1998



Iowa Inventors and Inventions from A to Z

An invention begins with someone’s good idea. Sometimes those ideas happen by accident. More often, inventions result when creative people work hard to solve a problem or to make life’s chores a little easier.

A **Air-tight Mailbag**


Bags stuffed with letters were piled atop stagecoaches to travel between stage stop post offices in the 1850s.

The problem: Dust and dirt blown into the bags soiled the mail. Rain and snow leaked in, reducing letters to a soggy mess.

The solution: Charles A. Robbins and Harvey Allen designed an air-tight mailbag to protect mail from dust and water. Robbins constructed

the prototype by crimping in elastic material at the mouth of the bag. He was one of the first Iowa City residents to apply for a patent, which was granted on September 7, 1852.

Robbins’s inventions didn’t stop when he solved the soggy mail problem. He also patented a ditching and excavating plow for turning prairie sod.



Stagecoaches carried people and mailbags!

B **Basic Skills Tests**

Sharpener your #2 pencil and blacken the oval of the correct answer:

Everet F. Lindquist, a professor of education at the University of Iowa, devised:

- a the Iowa Tests of Basic Skills in 1935
- b the Iowa Tests of Educational Development in 1942
- c the first electronic scoring machine
- d all of the above

The correct answer is d all of the above.

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Born in Gowrie, Lindquist earned national recognition for his innovations in testing. Schools across the nation used tests he developed, sending them in by the thousands for grading. Scoring them one by one was a tedious job. Lindquist dreamed of an easier way—then invented the first electronic scoring machine in 1952, even though he had no special training in electronics.

Now, when your teacher tells you it’s time for basic skills tests, you’ll know whom to thank!

Courtesy of State Historical Society of Iowa, “Iowa Inventors and Inventions from A to Z,” *The Goldfinch*, Vol. 20, No. 1, pp. 4-8, 1998

Description

This excerpt from *The Goldfinch* highlights six inventions that made an impact on Iowa, and in some cases, the United States.

[Transcript of “Iowa Inventors and Inventions from A to Z” Excerpt from *The Goldfinch*](#)

Source-Dependent Questions

- After reading about the six inventions, which invention do you think is the most useful? Use evidence from the text to support your opinion.
- Inventions often result from a problem. What is the airtight mailbag problem, and what is the solution?

“Rise of Industrial America, 1876-1900” from Library of Congress

Rise of Industrial America, 1876-1900

In the decades following the Civil War, the United States emerged as an industrial giant. Old industries expanded and many new ones, including petroleum refining, steel manufacturing, and electrical power, emerged. Railroads expanded significantly, bringing even remote parts of the country into a national market economy.



Industrial growth transformed American society. It produced a new class of wealthy industrialists and a prosperous middle class. It also produced a vastly expanded blue collar working class. The labor force that made industrialization possible was made up of millions of newly arrived immigrants and even larger numbers of migrants from rural areas. American society became more diverse than ever before.

Not everyone shared in the economic prosperity of this period. Many workers were typically unemployed at least part of the year, and their wages were relatively low when they did work. This situation led many workers to support and join labor unions. Meanwhile, farmers also faced hard times as technology and increasing production led to more competition and falling prices for farm products. Hard times on farms led many young people to move to the city in search of better job opportunities.

Americans who were born in the 1840s and 1850s would experience enormous changes in their lifetimes. Some of these changes resulted from a sweeping technological revolution. Their major source of light, for example, would change from candles, to kerosene lamps, and then to electric light bulbs. They would see their transportation evolve from walking and horse power to steam-powered locomotives, to electric trolley cars, to gasoline-powered automobiles. Born into a society in which the vast majority of people were involved in agriculture, they experienced an industrial revolution that radically changed the ways millions of people worked and where they lived. They would experience the migration of millions of people from rural America to the nation's rapidly growing cities.

Courtesy of Library of Congress, “Rise of Industrial America, 1876-1900”

Description

This information from the Library of Congress explains in the decades following the Civil War, the United States emerged as an industrial giant. Old industries expanded and many new ones, including petroleum refining, steel manufacturing and electrical power, emerged. Railroads expanded significantly, bringing even remote parts of the country into a national market economy.

[Transcript of “Rise of Industrial America, 1876-1900”](#)

Source-Dependent Questions

- How did the United States become an industrial giant in the decades after the Civil War?
- What evidence from the text answers the supporting question, “What were the advantages and disadvantages of industrialization?”

Citation Information

“Rise of Industrial America, 1876-1900.” [Courtesy of Library of Congress](#)