Little Bottle—Big Business
Ingenuity, invention, and technology have changed our lives and will continue to do so. They also were changing people’s lives in the late nineteenth and early twentieth centuries and are important elements in the stories on which this magazine has focused.

Advertising promotions for products and businesses make us aware how crucial the right visual image—and often name, logo, and musical accompaniment—is to success. This is not a new phenomenon, especially in the soft drink industry.

The overview on page 3 provides some broad context. On pages 4 and 5, the early history of the soft drink industry is reviewed.

Pages 6 and 7 focus on the Root Glass Company in Terre Haute and the Coca-Cola bottle that it designed and patented.

"Making Glass Bottles," on pages 8 and 9, provides an introduction to the technology that made possible a standard bottle which could symbolize a product nationwide. Because of Indiana’s extensive natural gas resources, glassmaking was a major industry in the state; Indiana also contributed to advances in technology.

The Sanborn map story on pages 10 and 11 uses an example of a very valuable type of historical resource. The photograph provides a perspective of the area covered by the map. As these pages demonstrate, making glass bottles was a complex operation.

On pages 12 and 13, we introduce two ways—patents and trademarks—to protect the products of ingenuity and invention.

"Behind the Scenes" on page 14 briefly how this issue was compiled and thanks the partners who helped us.

"Selected Resources" on page 15 provides a bibliography of references used for this issue and additional resources to explore further.

**Coca-Cola’s New Bottle.**

**GENUINE** bottled Coca-Cola is now sold in a new-shaped bottle—as per our fac-simile illustration herewith. Customers partial to that beverage will now easily distinguish this distinctive style bottle. It is patented and therefore cannot be used by any other manufacturer of any other kind of bottled carbonated goods. It will be observed that it is easy and handy to hold and dispense the contents. We believe this to be a wise move on the part of the Coca-Cola Company. Certainly far better for their customers and the bottling trade in general than in claiming an original ownership in the old, common 7-oz. bottle so long in use. No doubt every Coca-Cola bottler will welcome this new and distinctive package as an additional and safe protection against infringers and would be infringers. We congratulate the Coca-Cola branch of the trade and especially the parent company in thus protecting the rights of all concerned.

Cover illustration: On the front cover of the December 2, 1916 Scientific American Supplement, the illustration shows a worker in a bottle-making plant putting molded bottles in an annealing oven to cool.

© Copyright Indiana Historical Bureau 1995
In Terre Haute, Indiana, on April 19, 1994, a crowd gathered near the site where the old Root Glass Company had once stood. The occasion was the dedication ceremony of an Indiana historical marker entitled, "Birthplace of the Coca-Cola Contour Bottle."

It seemed fitting to mark the place where owner, Chapman Root, and his staff designed and created what is now considered to be the most recognized trademark in the world.

The marker provides the impetus for the fascinating story of how the Coca-Cola Company and Indiana are linked by the imagination and hard work of a few Hoosiers.

It also leads into broader issues about business and society. John Pemberton, inventor of Coca-Cola syrup, Asa Candler, who bought Pemberton out and became the sole owner of The Coca-Cola Company, and Chapman Root, all sought legal protection of their inventions, designs, and company logos through patents and trademarks.

Coca-Cola and other drink bottling companies were springing up all over the United States. By the year 1900, Americans were consuming an average of twelve bottles and glasses of soda pop per year. By 1980, Americans were drinking 359 bottles of soda pop a year!

The Indiana glass industry, too, expanded. Glass manufacturers needed clean, cheap fuel, and the state's natural gas fields provided just that. By 1899, Indiana was second only to Pennsylvania in the manufacture of glass.

In 1900, the Indiana glass industry produced a significant percentage of the glassware manufactured in the United States. The following chart indicates Indiana's percentage:

<table>
<thead>
<tr>
<th>Product</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit jars</td>
<td>70.9%</td>
</tr>
<tr>
<td>Prescription bottles</td>
<td>25.7%</td>
</tr>
<tr>
<td>Flasks and liquor bottles</td>
<td>50.2%</td>
</tr>
<tr>
<td>Milk bottles</td>
<td>13.4%</td>
</tr>
<tr>
<td>Patent medicine bottles</td>
<td>18.9%</td>
</tr>
<tr>
<td>Jars for packing and preserving</td>
<td>31.6%</td>
</tr>
<tr>
<td>Jelly glasses, pressed tumblers, and goblets</td>
<td>35.7%</td>
</tr>
<tr>
<td>Lamps</td>
<td>10.1%</td>
</tr>
<tr>
<td>Lamp chimneys</td>
<td>45.1%</td>
</tr>
<tr>
<td>Lantern globes</td>
<td>52.4%</td>
</tr>
</tbody>
</table>


Chapman Root

Chapman Root came to Terre Haute, Indiana in 1900 and opened his glass factory in 1901. As this 1905 characterization shows, Root was quite a successful businessman ten years before the Coca-Cola bottle was created. He employed over six hundred people in 1905; by 1912, his work force had increased to 825 people.

It was, however, the Coca-Cola bottle that insured Root's fortune. In his 1916 contract with Coca-Cola, he was to receive five cents per gross (144) of the bottles made. At his death in 1945, he left an estimated $11 million estate to his grandson, Chapman Shaw Root.

Spring Water to Soda Pop

Have you ever drunk an ice cold soft drink? Of course, you have. But have you ever wondered how the soft drink industry got started?

Since ancient Roman times, people have believed that bathing in and drinking natural spring water could cure many ailments of the body and mind. Naturally carbonated springs, in particular, were popular with people who thought the bubbling waters had curing powers. Such carbonation occurs when carbon dioxide gases formed in the earth escape through the spring water. These waters were the first "soft drinks."

As early as the late 1700s, Americans bottled spring waters and sold them as medicinal cures. The timeline below provides highlights of the evolution of the American soft drink industry to 1915, with emphasis on Coca-Cola.

Early to mid 1800s
Bottled spring water is sold as health tonic. Carbonated water is bottled, but bottles explode easily.

By 1807
Benjamin Silliman, a Yale University chemistry professor, discovers how to dissolve carbon dioxide in water.

1888
Asa Candler becomes sole owner of Coca-Cola; in 1892 he forms the Coca-Cola Company and creates a franchise bottling system, which allows others to bottle his soft drink.

November 15, 1886
Coca-Cola syrup is mixed with carbonated water.

May 1886
Pemberton takes Coca-Cola syrup to Jacobs’ Pharmacy where it is served, with plain water, from the "soda fountain."

Early 1886
Pemberton finally achieves the taste he is looking for and names it Coca-Cola.

1880
John Pemberton, an Atlanta pharmacist begins experimenting with flavored syrups, using a brass kettle, ladles, measuring cups, and apothecary scales in his backyard.

By 1876
Charles E. Hires, a Philadelphia pharmacist, creates Hires Root Beer.

The Indiana Historian, September 1995
1891
William Painter invents the "crown" cap—which is still used—and revolutionizes the bottling industry.

1901
Root Glass Company is formed in Terre Haute, Indiana

1899
Benjamin F. Thomas and Joseph B. Whitehead of Chattanooga, Tennessee are first large-scale bottlers, receiving rights to sell Coca-Cola except in Biedenharn's territory of Mississippi, New England states, and part of Texas.

1894
Joseph A. Biedenharn, owner of Biedenharn Candy Store Vicksburg, Mississippi, is the first to bottle Coca-Cola.

1866-1894
Coca-Cola is dispensed only by the glass from drugstore "fountains."

January 31, 1893
Coca-Cola is registered with the United States Patent Office.

1903
First Indiana Coca-Cola Bottling Company opens in Indianapolis.

1901-1916
Coca-Cola bottles are all different depending upon which company is the bottler. Many imitations of Coca-Cola are on the market.

1913
Coca-Cola Company seeks a distinctive bottle for its bottlers to use.

You Be the Historian
- What are some other major brands of soft drinks on the market today? When were they developed?
- Extend the timeline to the present. When, for example, were cans, plastic bottles, and twist-off caps added to the industry?
- How much soft drink is consumed by Americans today?
Coca-Cola: The Indiana Connection

Competition among drink companies grew in the early part of the twentieth century. The Coca-Cola Company realized that it needed a distinctive bottle to make it stand out and be recognized—and purchased—by consumers around the country.

Bottles, however, had to be made by hundreds of glass bottle makers throughout the United States. The technology to make a standard bottle in many locations did not become available until the invention of automatic bottle-making machines.

In 1913, Harold Hirsch, The Coca-Cola Company's lawyer, wrote letters to numerous bottle manufacturers, asking them to design, in the words of one bottler, "a bottle which a person will recognize even when he feels it in the dark."

The Root Glass Company, located in Terre Haute, Indiana, accepted the challenge. Founded in 1901 by Chapman J. Root, the company supplied glass bottles to the United States, as well as Mexico, France, and Central and South America.

Glass factories, without air conditioning into the twentieth century, shut down in the hot summer months. The Root Company was no exception.

In the summer of 1913, only Chapman Root and his advisory staff were at the plant. They included Chapman's son William, Alexander Samuelson, plant supervisor, T. Clyde Edwards, auditor, Roy Hurt, secretary, and Earl Dean, machinist.

Samuelson asked Edwards to get information on the coca leaves and cola seeds, two original main ingredients of Coca-Cola.

The bottle actually was designed to imitate the ridges in the cocoa pod. A sample was made from wood; then an iron mold was made. Several prototype bottles were produced.

This prototype bottle bulged in the middle so much that it could not pass through the bottling machinery. It was also too wide for existing bottle cases. The bottle was modified somewhat, reducing its bulging middle. It was made from a pale, "German green" glass.

The new bottle was tested in complete secrecy. After testing, a few minor changes were made. The bottle was patented on November 16, 1915.

In January 1916, the annual convention of the Atlanta territory Coca-Cola Bottling Companies was held in Atlanta, Georgia. Root's bottle was accepted as the official bottle of The Coca-Cola Company from among approximately eleven designs.

Sources: Schaeffer and Bateman, "A Bottle . . . ."; T. Clyde Edwards and Chapman Root, Jr., interview by Wilbur G. Kurtz, Jr., and Franklin Garrett, August 15, 1949, transcript, Coca-Cola Company, Atlanta, Georgia; Tehudi, Soda Popperry, 25.
The Inspiration for the Coca-Cola Bottle

In a letter, machinist Dean later recounted,

"The question came up as to what Coca-Cola was made of and Mr. Root had his chauffeur, Roy Grimsly, take T.C. Edwards and me to the Fairbanks Library to see what we could find. It so happened we found in a book of reference an article and a very good illustration of a pod that grows on a large tree..."

I was very much interested in the shape of the pod. It had a very short neck at the stem end and the body had four different diameter and vertical ribs which I incorporated in my first drawing to show Mr. Root the next morning.


You be the Historian

- There are many inventors in Indiana. Locate an inventor in your community or area and interview him or her about the process of inventing.
- Try inventing a product—as individuals or in groups. Document why and how you did it.
Making Glass Bottles

Glass! It's everywhere. Stop reading for a moment and look around the room. How many ways do you see glass being used? Glass is a remarkable invention, dating back to ancient Egyptian times. Over the centuries, glassmaking was perfected into an art form.

The basic materials needed to make glass are very simple: silica (sand), soda ash, and lime. Other ingredients can be added, depending upon the type of glass being made, desired color, etc. A huge furnace melts the mixture at approximately 3000°F and a soft, liquid mass, which looks like glowing red taffy, results. This liquid glass can then be shaped or molded into an almost endless variety of objects.

Bottles have been made from glass for centuries. Originally, they were all hand-blown. It was not until the late 1800s that automated glass-blowing machines were invented. These new machines increased production and reduced the number of workers needed, giving glass factory owners a greater profit.

In 1895, the Toledo Glass Company was formed. This company was responsible for some of the most innovative automatic machinery invented. Michael J. Owens, one of the founders of the Toledo Glass Company, invented a new machine that gathered the

First Automated Glass Jar Machine—How Did It Work?

Workers dropped gobs of molten glass into the two molds.

A—formed the body of the jar or bottle.
B—formed the neck of the jar or bottle.
C—was placed over the molds and forced air down into the molds, spreading the molten glass to the sides of the molds.

Mold B was placed on top of Mold A. Pressure was applied, and the contents of the two molds were formed together into a wide mouth jar or bottle.


The experimentation and development of this machine was completed in 1906. With this machine, a team of four men could produce 3,600 wide-mouth jars or bottles each day.
molten glass directly from the furnace, automatically filled the molds, blew the glass with compressed air, and finally dropped the finished bottle onto a conveyor belt. The revolutionary machine which first appeared in 1903 bears his name.

In 1907, the first successful semi-automatic machines, known as Johnny Bulls, could produce narrow-necked bottles. The semi-automatic machines still required a worker to gather or collect the molten glass from the furnace and pour it into the molds.


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**Working In A Glass Factory**

William Prescott, employed at the Root Glass Company at age fourteen, became a proficient bottle blower. He was twenty-four years of age when he was chosen to make the original samples of the Coca-Cola bottle.

He recalled how Root allowed him and other blowers to take a few minutes every hour to go outside and escape the heat. When Root sold his company in 1932, the new owners stopped the practice.

The excessive heat took a toll on Prescott's health, and years of constant pressure on his ear drums, produced by blowing glass, destroyed his hearing.


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**You Be the Historian**

- Has the glassmaking industry affected your community or area? If so, how?
- Has the soft drink industry affected your community or area? If so, how?
- If there are people in your area who have worked or are working in either industry, interview them and preserve their experiences in a local newspaper story and/or institution.
- Interview students, adults of various ages, and especially senior citizens about soda fountain experiences and the changes in soft drinks and how they are bottled over the past fifty years. Preserve those memories.
A Sanborn Fire Insurance Map of the Root Glass Company

Glossary of Terms

Gather—modern glass
Basket—modern glass
Wood and coal are used to heat the tank house.
Tank house—where glass is poured and shaped into glass pieces that are cut and ground into flat glass.
Molds—hollow forms of glass into which molten glass was poured, then shaped into finished products.
Process—cooling (cooler) and annealing (annealing pit) were removed by workers.

What is a Sanborn Map?

The Sanborn Map and Publishing Company was hired to draw detailed maps of buildings and landscapes. These maps were built, and the он-site inspections were built into the maps. The maps were then sold to insurance companies for use in assessing the risk of fire and other hazards.

Check your local library for Sanborn maps.

Copyright Indiana Historical Society 1915
Patents and Trademarks for Protection

John Pemberton, the inventor of Coca-Cola, and Chapman Root, whose employees invented the Coca-Cola bottle, knew the importance of protecting their "inventions." Both men applied for and received patents, which protected their legal rights to ownership of their products.

A patent is a grant of a property right by the government to the inventor. It prohibits others from using, making, or selling the invention for a set period of time.

The Constitution of the United States granted Congress power to enact patent laws. In 1790, the first patent law was enacted. Current law is a general revision, enacted in 1952, and effective January 1, 1953. The Constitution states:

Congress shall have power ... to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

Trademarks are another form of legal protection. A patent protects a product; a trademark protects a name, word, or mark which is used to identify a product.

In April 1905, the Coca-Cola Company filed an application to register its trademark. The familiar trademark shown to the right was registered October 31, 1905.

Pemberton's 1887 patent registered a label with the title "Coca-Cola Syrup and Extract." The label is reproduced on page 4.
The Indiana State Archives has a vast collection of trademarks belonging to Indiana businesses. Robert Horton, Electronic Records Archivist, explains further why trademarks are important:

Trademarks are what you see in commercials and advertisements: a name ("Coke"), or a slogan ("Drink Coke!"), or even a package (Classic Coke in its "classic" bottle). Companies invest in trademarks so that people will recognize their products; . . . To protect their investments, companies try to protect their trademarks from what is technically known as "infringement;" they don't want anyone else using their property.


In December 1913, the Home Bottling Company of Evansville applied to register its trademark—"Coke."

In Indiana, many trademarks for beverages were registered. Edwin C. Henning, Evansville, applied in December 1915 to register the trademark shown to the left.

You Be the Historian

- Design a trademark for the product you invented (from page 7). Why did you select the design?
- Select a product or service and have everyone in the class design a trademark. Conduct a market survey to test which trademark design creates the best consumer reaction within your school.
- A third type of legal protection is copyright. How does it differ from patents and trademarks?
- How many products can you name that have logos, trademarks, or jingles that are instantly recognizable?
Behind the Scenes

This issue of The Indiana Historian began with an interest in the trademarks collection in the Secretary of State records in the Indiana State Archives. Robert Horton, the Electronic Records Archivist, demonstrated the rich collection and the computer access to it and provided an introduction to the topic of trademarks in Indiana law and nationally.

Selecting the approach proved more difficult. The Archives' collection contained several trademarks for Coca-Cola. The Bureau's historical marker for the Coca-Cola bottle came to mind.

After going through the Coca-Cola marker file, it became obvious that Indiana and trademarks have played important roles in Coca-Cola's history. We decided to combine the two topics into one issue.

The first step was a call to the Coca-Cola Company in Atlanta, Georgia. Philip F. Mooney, manager of the Archives Department, immediately offered reproductions of documents and photographs that we needed. He also answered the many questions that we faxed to him.

Next, a call was placed to Marylee Hagen of the Vigo County Historical Society with a request for any materials on the Root Glass Company. Hagen explained that she had few Root documents, but was willing to share whatever she had. She obtained permission to reproduce a Root photograph. We promised to share with her the materials we received from the Coca-Cola Company.

A visit to the State Archives and Horton produced a nice selection of trademark reproductions. Horton wrote a short article on the history of Indiana trademarks and their importance to historical research.

After this work with primary sources—and additional secondary source research—the stories of Coca-Cola, the Root Glass Company, and the birth of the Coca-Cola bottle were satisfactory. The glassmaking process, however, was still confusing. A call to the Ball Corporation in Muncie put us in contact with Sarah Wanthal, Edmund Ball's secretary. Ball is the Chairman Emeritus of the Executive Committee of the Ball Corporation. In his nineties, he remembers the early days of glass making in his father's company.

A call to David Lewis, Special Collections' Research Assistant at the Vigo County Public Library, called our attention to the valuable Sanborn Map reproduced on page 11. He also provided other pertinent information.

Indiana State Library staff provided books, pamphlets, photographs, newspaper articles, and other information on our topic.

This issue is the result of the collected efforts of many people who shared their time and expertise. We wish to thank them for their valuable contributions to The Indiana Historian.
A Note Regarding Resources: Items are listed on this page that enhance work with the topic discussed. Some older items, especially, may include dated practices and ideas that are no longer generally accepted. Resources reflecting current practices are noted whenever possible.

Selected Resources

Bibliography


  Excellent resource on the historical research process.


  Detailed information along with beautiful photographs of Coca-Cola items.


  Student reading. Good information on the history and process of glassmaking; nice graphics.


  Valuable general source on Indiana's early industrial history.


  Excellent, detailed article on the birth of the Coca-Cola bottle.


  Informative article on the glassmaking process; wonderful photographs.


  Facts, figures, charts, and information regarding the glassmaking industry and its workers.


  Student reading. Informative history of popular soft drinks.

Further Reading


  Student reading. A series of books on businesses and how they began, fought adversity, and became successful.


  History from the origins to the present.


  Student reading. An informative, easy-to-read look at the advertising business.


  Student reading. Story of a successful product.


  Student reading. An easy-to-read explanation of the different career positions in an advertising agency.

For More Information

- The Ball Corporation
  P.O. Box 2407
  Muncie, IN 47307-0407

- The Coca-Cola Company
  P.O. Drawer 1734
  Atlanta, GA 30301

- The National Soft Drink Association
  1101 16th Street, NW
  Washington, D.C. 20036

- U.S. Department of Commerce Patent and Trademark Office
  Washington, D.C. 20231

- The Vigo County Historical Society
  1411 South Sixth Street
  Terre Haute, IN 47802-1191

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The Indiana Historian, September 1995 15
This 1915 photograph, taken in Terre Haute, shows wagons loaded with Coca-Cola bottles and barrels of syrup ready to be delivered to customers.