WHOLLY **TOLEDO**:

THE BUSINESS AND INDUSTRY THAT SHAPED THE CITY

Ward M. Canaday Center for Special Collections
The University of Toledo Libraries

WHOLLY **TOLEDO**:

THE BUSINESS AND INDUSTRY THAT SHAPED THE CITY

An Exhibition

Ward M. Canaday Center for Special Collections
University Libraries
The University of Toledo
November 17, 2010-August 12, 2011

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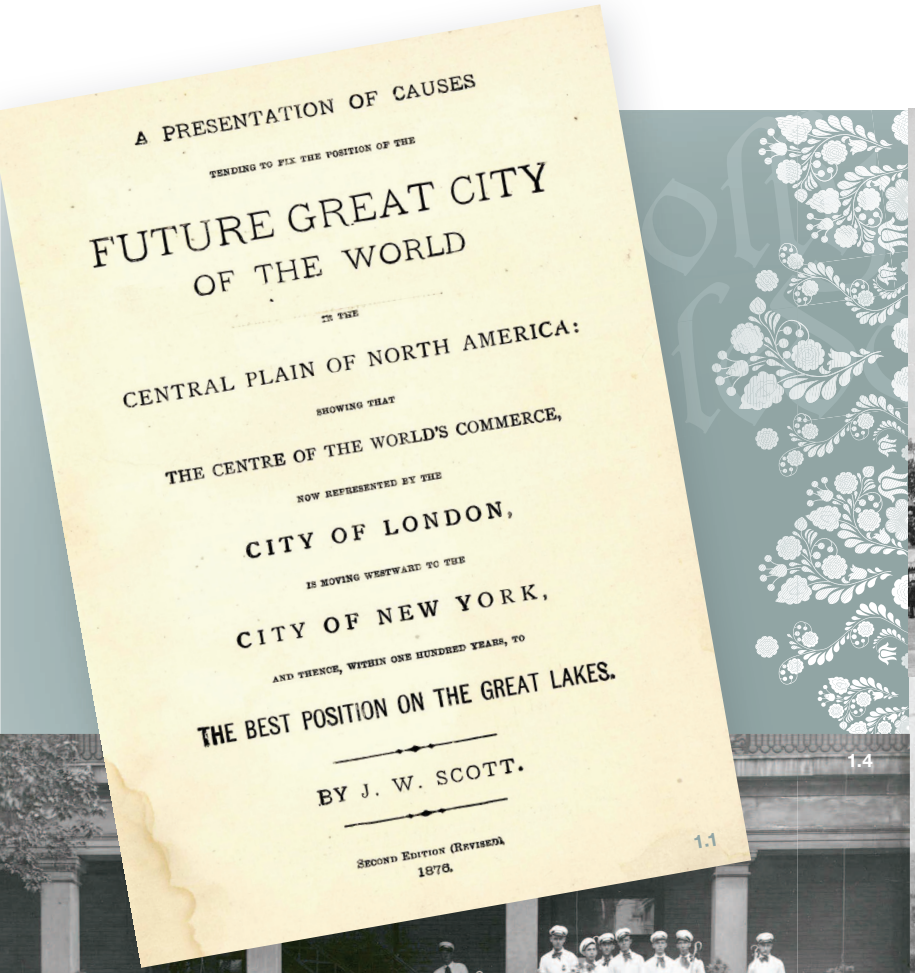
A PRESENTATION OF CAUSES

TENDING TO FIX THE POSITION OF THE

FUTURE GREAT CITY OF THE WORLD

IN THE

CENTRAL PLAIN OF NORTH AMERICA:

SHOWING THAT

THE CENTRE OF THE WORLD'S COMMERCE,

NOW REPRESENTED BY THE

CITY OF LONDON,

IS MOVING WESTWARD TO THE

CITY OF NEW YORK,

AND THENCE, WITHIN ONE HUNDRED YEARS, TO

THE BEST POSITION ON THE GREAT LAKES.

BY J. W. SCOTT.

SECOND EDITION (REVISED).
1876.

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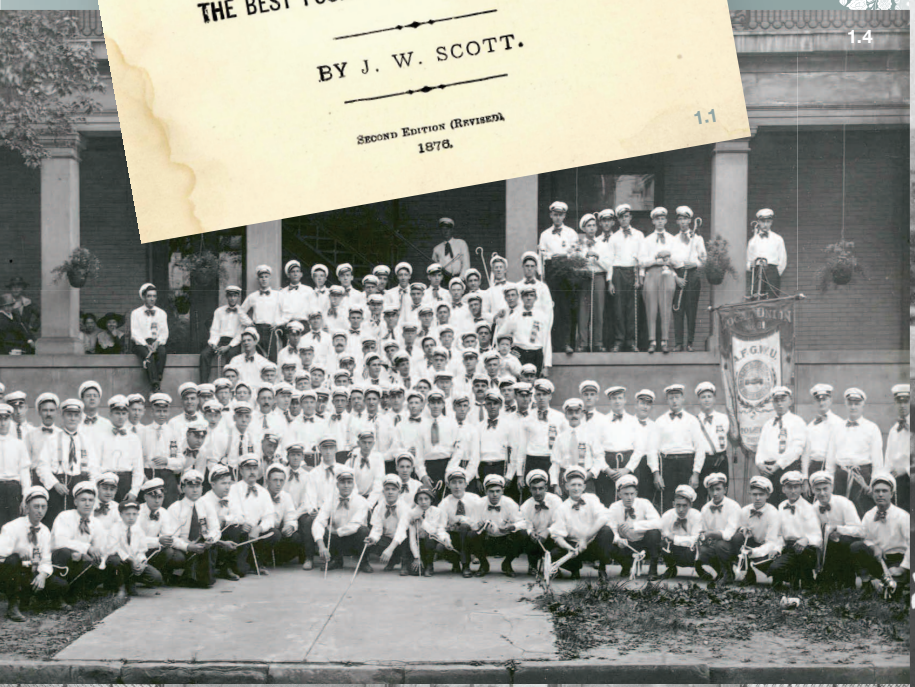

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1.1. "The Future Great City of the World," by Jesup W. Scott.

1.2. The original Libbey Glass factory on Ash Street in Toledo.

1.3. Glass workers making bottles by hand.

1.4. American Flint Glass Workers Union in Toledo, Labor Day, 1912.

1.5. Michael Owens (center in cap), with workers at the Owens Bottle Company.

1.6. The Libbey Glass pavilion at the 1893 World's Columbian Exposition in Chicago.

INTRODUCTION

Hot Lips: "You know, Klinger, I envy you."

Klinger: "Are you kidding? For what?"

Hot Lips: "Well, for one thing, the way you light up when you talk about Toledo."

Klinger: "Yeah, it's a great place."

Script from an episode of the television show M*A*S*H, 1981.

"Wholly Toledo: The Business and Industry that Shaped the City" examines the history of our community through the evolution of its economy. It is not a pretty story, or even an optimistic one. Rather it is a story in many ways typical of similar industrial cities in the American Midwest like Buffalo, Cleveland, Detroit, Erie, and Youngstown. These cities too experienced the rise and fall of the great industrial heartland. But Toledo's story is also unique. The business and industry leaders (and the workers) who made their lives and fortunes in Toledo shaped who we are as a city, and made us different from all of those other rust-belt locales.

Today, Toledo may be the punch line of satirical songs like "Saturday Night in Toledo, Ohio" (which, in case you are not familiar with the song, describes the experience as "like being nowhere at all"), but at its core it still has much to be proud of, and much to build upon. It is unlikely to become the "Future Great City of the World" as Jesup Scott dreamed in 1868. Even its future as the "Glass Capital of the World" is in doubt, as today China produces 45 percent of the world's glass. But Toledo is what it is, and knowing how it succeeded and where it failed may help us understand—and better shape—where it is headed.

On the surface, the themes presented here are sobering. Since the late 19th century, Toledo has gone from a manufacturing economy to a service economy, from a period of growth to one of steady decline, from large to somewhat smaller, from union to non-union, from local ownership of its major businesses to outside investor control. This is reality. But if we look at our city today, we see important marks left by the great industrial and commercial leaders that continue to make for a good quality of life in spite of these trends. A first-rate art museum free to all that is the legacy of the founder of the glass industry. The continued commitment of numerous business-related service organizations—many started more than 100 years ago—to give back to the city. Beautifully designed buildings that bear the names of their wealthy benefactors. Vital social service agencies endowed by philanthropists decades ago that continue to serve the community's neediest. Parks and public spaces supported by some of the city's most prominent families. And a university—the dream of a business man in 1872—that provides a top-quality education at a reasonable price to many Toledo residents, and thousands more who attend from other cities, states, and countries. These are but a few examples of how what we are today reflects our past.

This exhibit makes no attempt to be exhaustive in its coverage. By default, it emphasizes those companies whose historical records are preserved by the Ward M. Canaday Center. Over the past 30 years, the Canaday Center has sought to collect records that document the city's changing economy, and much of what is in this exhibit reflects those efforts. As companies change ownership and evolve, they often have little use for what came before because their histories do not contribute to today's bottom line. For historians, these records contain many riches, and we hope this exhibit will inspire others to preserve their records with us. We have also borrowed from other local manuscript depositories, from the archives of the Toledo Museum of Art, artifacts from the Maumee Valley Historical Society, and photographs from the Local History and Genealogy Department of the Toledo-Lucas County Public Library. Our thanks to all of these organizations

and their overworked staffs for helping to make this exhibit a success. We also borrowed from some private collectors, including Deb Sutter, a descendant of the Babcock family of Babcock Dairy.

My thanks also to the staff and student assistants of the Ward M. Canaday Center for Special Collections. An exhibit this large is the collective work of all, and that work is even more precious during these times of declining resources. Kimberly Brownlee, Tamara Jones, and Arjun Sabharwal each became "experts" at their particular assigned topics in a short time, and with many other pressing duties. Arjun also is developing a virtual version of the exhibit which will allow it to continue to reach the public (and a much larger public) long after the actual exhibit ends. A special thanks to Timothy Fritz and David Remaklus, who stepped in at a difficult time to make this exhibit a success. Ashley Johnson and Emily Ruckel, graduate students in the Department of History, also did extensive research on the exhibit topics. A very special thanks to Ashley Bouknight, a recent graduate of the museum studies program at the University of South Carolina, who volunteered in the Canaday Center this past summer. Her expertise and fresh ideas inspired the exhibit in so many ways. The documentary she produced that serves as an introduction to the exhibit is something we have never tried before, but one that we will want to continue in the future. Also thanks to intern Brandi Sharlow from the American Culture Studies Program at Bowling Green State University, who helped with mounting the exhibit. At a time when many young people are steering clear of academic fields like history that have so few career opportunities, it is refreshing to see that the field continues to attract talent like Ashley Johnson, Emily Ruckel, Ashley Bouknight, and Brandi Sharlow. The future of history is in good hands. The Center's undergraduate student assistants were also key to this project: Zach Dehm, Julia Deitz, and Brad Sommer. Also thanks to Mark Walker for his production assistance, and to Deanna Woolf and Amanda Russell from Marketing and Communication for the catalog design.

I would like to thank the speakers who have provided public programming throughout the exhibit's run: Stuart W. Leslie, professor of the history of science and technology at Johns Hopkins University and author of several scholarly articles on the glass industry in Toledo, who provided our opening lecture; Jack Paquette, author of *The Glassmakers Revisited*; Chuck Hartlage, author of *The Story of the Dana Corporation*; and Bob Terry, author of *Honest Weight: The Story of Toledo Scale*. Also thanks to Larry Michaels, author of several books on the history of East Toledo, who served as our exhibit evaluator. Ernest Weaver, expert on just about every aspect of the history of local business and industry, helped in ways that I cannot even begin to enumerate. Thank you, Ernest, for your knowledge and love of all things Toledo.

This exhibit and public programming related to it were made possible, in part, by the Ohio Humanities Council, a state affiliate of the National Endowment for the Humanities. We appreciate their support which, during times of economic recession, is all the more important.

Barbara Floyd
Director, Ward M. Canaday Center for Special Collections
November 2010

CHAPTER 1. A FUTURE GREAT CITY

"The movement of this centre of population and industrial power is, undeniably, in the direction of Toledo. "

Jesup W. Scott, "The Future Great City of the World," 1868.

Jesup W. Scott, a Toledo real estate investor and newspaper editor, published a small pamphlet in 1868 with the grandiose title of "Toledo: Future Great City of the World." In it, Scott predicted that the largest city yet to develop in the world would not be located along a coastline, but rather would develop in the United States' interior. As a successful real estate speculator who owned much of what is today downtown Toledo and publisher of the *Toledo Blade* from 1844 to 1847, Scott had both an intellectual and a financial interest in promoting Toledo as this future great city. Scott's vision of Toledo's destiny would influence the city's development well into the 20th century.

In his pamphlet, Scott said cities were like organisms. "They develop where human faculties are most effective, and because these faculties can be more effective there than elsewhere." Several factors influenced where these city organisms developed, including climate. Scott traced the location of the great commercial centers that existed at that time, and found that all were located within the same climatic latitude. The reason for this was because a temperate climate made men vigorous. Also important to city development were natural waterways and interior commercial routes. The Great Lakes provided both: cool temperate breezes and navigable waters. Furthermore, he stated that an interior city would become the world's largest because most future commerce in the United States would be with interior markets, not foreign ones where coastal cities would have the advantage.

But in 1868 when Scott published his treatise, there seemed little chance that Toledo would become that Future Great City of the World. In fact, it lagged behind most other cities in Ohio. While the state was founded in 1803, few attempted to settle in the northwest region, primarily because of geography and the Native Americans. The glaciers had flattened northwest Ohio and left soil heavy with clay, creating the Black Swamp that was nearly impossible to traverse. Native Americans also slowed development, despite General Anthony Wayne's victory over them at the Battle of Fallen Timbers in 1792. It was not until the end of the War of 1812 that the Native Americans and their British allies were removed from the area. In 1817 the Port Lawrence Company plotted a settlement along the Maumee River near the mouth of Swan Creek and offered lots for sale, but few sold. Malaria, brought on by the swamp-like conditions, made the area unattractive for settlement.

Canals finally brought settlers to the region. As early as 1824, the land which would become Toledo was surveyed for canal routes to link the area with interior waterways, including the Ohio and Mississippi rivers. But before the canals could be built, the question of where the northern boundary of Ohio was located had to be settled. Both Ohio and Michigan claimed the 450 disputed square miles that included Toledo. After a war that ended without a fight, Congress settled the question with the Clayton Act of 1836, giving the disputed territory to Ohio, and another 9000 square miles to Michigan, which became its upper peninsula.

With the settlement of the boundary, Toledo was incorporated in 1837, combining Port Lawrence with a rival settlement, Vistula. Construction on the Miami and Erie Canal began that same year, but financial panic delayed its completion until 1842. Shipping, transportation, and warehousing dominated Toledo's early economy. Railroads, built nearly simultaneously with the canals, made the canals obsolete in 30 years. With the railroads, Toledo's economy diversified to include factories that produced wagons and bicycles, foreshadowing the future importance of automobiles to the city.

One of the earliest businesses to succeed in the struggling city was its newspaper, *The Weekly Blade*. Its first issue was published on December 19, 1835, with George B. Way as editor. While originally conceived as a Whig paper, Way believed the paper should not commit itself to one political agenda. Jesup Scott, while a strong Whig supporter, continued this editorial stance. He also established a role for the editor of the paper as a strong advocate for development of the city, and idea which continues today with its current owners.

Scott believed that all of geographical factors indicated Toledo would be the largest city in the world by the year 2000. Scott's boosterism influenced city fathers to believe in his dream, but unfortunately little industry came along to make it a reality. The future great city seemed all too far off in the future.

Future Great No Longer

But in 1884, it looked like Toledo had finally found the magic ingredient that would create its industrial supremacy. Charles Osterlen, an amateur geologist, discovered large deposits of natural gas under high pressure near Findlay, about 50 miles to the south of Toledo. City fathers assumed similar deposits must also lay under Toledo, and merely had to be discovered and made accessible through construction of a pipeline. Many thought natural gas was also self-generating and therefore inexhaustible, thus the more that was used the more that would be created. The hysteria led to many unsuccessful efforts to find natural gas deposits under the city.

To promote Toledo as this newly envisioned industrial magnet, an organization called the Toledo Business Men's Committee formed in April 1887. The mission of the group was to present "a united, systematic effort to improve the unequaled advantage Toledo possesses above all her competitors." The group heavily promoted the city in newspaper advertisements throughout the country. An article about the group in the May 5, 1887, *Toledo Blade*, boasted " 'Future Great' No Longer. Toledo has become the 'Present Great.' " "Toledo needs to-day more men—more men of enterprise; more men with brains; more men with capital; more men who are skilled employers. There are fortunes to be made here in the next few years. Money will be poured out at the feet of the men who will build pipelines for gas and oil, plant iron and steel manufacturers, start glass factories, locate oil refineries, run woolen mills, erect mills for the manufacture of woodenware, and give the city what is needed—more manufactories." The article turned Toledo's arrested development into a strength. Toledo was not a boom town, but rather it was like a "sturdy oak" that had taken years to grow.

The Toledo Business Men's Committee especially promoted the city to glass manufacturers. In addition to the projected plentiful gas deposits waiting to be discovered, the committee also noted the city's access to oil, established transportation lines, and location on a stratum of quartzite that ran from Sylvania to the Maumee River—necessary components of the glass industry. Many glass manufacturers responded to the Toledo Business Men's Committee advertisements, and three eventually agreed to relocate to the city: Glassboro Novelty Glass Company, the Toledo Window Glass Company, and the largest and most important, the New England Glass Company.

A Future Looking Through Glass

The New England Glass Company, located in Cambridge, Massachusetts, was one of the country's oldest glass companies, founded in 1818 by Deming Jarves, the first successful glass industrialist. The company was known for high quality blown glass that was brilliantly colored and finely etched.

But the Depression of 1873 caused the company's profits to decline dramatically. The directors decided to lease the factory to William L. Libbey, one of its managers, in 1878. Libbey brought his son, Edward Drummond Libbey, into the company to help manage it. In 1883, the son suddenly found himself in charge

of the company when his father died. He noted in his glass batch book on that day: "My dear & respected Father died upon this day at 7 a.m. Note—It now remains for me E D Libbey to take up the unfinished work of my respected Parent & carry on a business left by him, in which only God alone know[s] how he has suffered to make it a success. My life is his best legacy."

The company struggled against rising fuel costs, and in 1886, the American Flint Glass Workers Union struck the plant demanding higher wages. Libbey realized the need to relocate his company closer to plentiful, and cheap, fuel supplies if it was to survive.

Several small cities in Ohio—including Findlay, Tiffin, and Fostoria—offered Libbey attractive relocation packages. William H. Maher, secretary to the Toledo Business Men's Committee, was the direct contact between Libbey and Toledo. Libbey asked for $4000, a site for his new factory, and 50 lots for worker housing to move his company to the city. Maher sought donations of the funds from business men and politicians. A site on Ash Street was selected for the factory, and the Northwestern Ohio Gas Company quickly dug a pipeline to bring natural gas to the factory. However, Libbey wisely decided to build his factory so that the furnace could use natural gas, coal, or oil so as to not fall victim to rising fuel costs again.

The contract with the Toledo Business Men's Committee was signed on February 6, 1888. *The Blade* reported, "There is universal rejoicing over the fact that Mr. Libbey had decided to remove his mammoth factory from Boston to Toledo. Nothing that has happened in years has caused more rejoicing among the citizens of Lower Town." At the arrival of Libbey on August 17, 1888, the city turned out for a huge parade and reception. Libbey said of the event, "Had I all eloquence, I could scarcely do justice to the occasion. Coming, as we do, from Massachusetts to Ohio, we are met here in such a spirit that all dread had dispersed and all reluctance disappeared. I wish I could find words to express our thanks to the people of Toledo to-night for this royal welcome. We want to say upon the very threshold of our arrival that we have come to stay. And we will promise you, Mr. Mayor, and the people of Toledo, that we will be true, loyal, and honest citizens of Toledo." *The Blade* noted that "Mr. Libbey studied in Paris and London and is well posted man upon all topics and will prove a very valuable man for the city of Toledo."

The first year for Libbey in Toledo was difficult. The glass furnace in the new factory was built incorrectly. The batch recipes brought from Massachusetts did not work the same. Many of the workers were unhappy and returned to New England.

To replace his skilled workers, Libbey traveled to West Virginia where many glass factories were located. Among the workers he hired was Michael J. Owens. Owens was from a poor Irish family, and had worked in the glass industry since he was 10 years old. Child laborers were common for the hottest, most dangerous jobs, and Owens was one of the few who had succeeded in moving up to a skilled job, becoming a journeyman at 15.

Libbey appointed Owens supervisor of his Toledo factory, where Owens worked to improve efficiencies. A strike in 1890 at the Corning Glass Works in New York where light bulbs were produced for the new electrical industry gave Libbey the chance to turn the company around. He leased a factory in Findlay to make the light bulbs, which Owens and Solon O. Richardson managed. For 17 months the company produced light bulbs at a considerable profit, wiping out the company's debt and ensuring its survival.

Next, Libbey sought to establish a national reputation for his finer glass products. In 1892, he approached his board of directors about opening an exhibit at the World's Columbian Exposition in Chicago that would feature a working glass furnace and skilled craftsmen producing fine quality blown glass for spectators. The directors balked at the idea, and Libbey was forced to raise $200,000 from private lenders.

Owens managed the glass furnace at the Chicago pavilion. Libbey decided to entice visitors by allowing the admission price to be applied to the purchase of glass trinkets sold as souvenirs. The visitors also came to see a dress made of glass. Through experiments with spinning glass into fibers, Libbey's company produced a magnificent, if impractical, dress for Broadway star Georgia Cayvan. The dress was so popular that Princess Eulalia of Spain asked that one be made for her as well. She was impressed enough to grant the company—now officially known as the Libbey Glass Company—the right to include the Spanish coat of arms in its advertising.

The World's Columbian Exposition gave Libbey a national brand name. The operation also cemented Michael Owens as the top manager of Libbey's company, and Libbey sought ways to harness his inventive mind. The way of making glass products, which had changed little in 2000 years, was about to change dramatically. The future was here, and Toledo was ready for it.

Jesup W. Scott, "Future Great City of the World," 1876 edition. Toledo, OH: Blade Steam Book and Job Print, reprinted for Toledo's centennial, 1937.

Scott's treatise outlined his argument for Toledo being the future great city of the world. To fulfill his dream, Scott founded the Toledo University of Arts and Trades to train Toledo's young people for their role in this future great city. This institution eventually became The University of Toledo.

Images and newspaper clipping, the New England Glass Company, 1818. Libbey-Owens-Ford Company Records, MSS-066.

These items document the history of the predecessor to Libbey Glass.

David Ross Locke, *The Struggles Social, Financial and Political of Petroleum V. Nasby*. Toledo: Locke Publishing Company, 1880.

David Ross Locke became editor of *The Blade* in 1865, and brought stability and success to the paper. Prior to coming to Toledo, Locke had achieved a national reputation as a satirical columnist writing under the pseudonym Petroleum Vesuvius Nasby. His "Nasby Letters" poked fun at the Democrats by pretending to be one. Locke continued to print the "Nasby Letters" in the *Weekly Blade*, which helped to expand the paper's circulation beyond local readers. This book reprints some of Locke's (Nasby's) best columns.

Photographs, Libbey Glass Company factory on Ash Street, ca. 1890. Libbey-Owens-Ford Company Records, MSS-066; and Owens-Illinois Company Records, MSS-200.

These photographs depict Edward Drummond Libbey's factory in Toledo, which was built on Ash Street on land provided free as part of the city's incentive package to bring Libbey's company to the city.

Photographs of the early production of glass, ca. 1890s. Libbey-Owens-Ford Company Records, MSS-066.

These photographs show how glass was produced in the early years. Children performed many of the most dangerous jobs in glass making.

Photograph, Michael J. Owens and his workers, ca. 1898. Owens-Illinois Company Records, MSS-200.

This photograph shows Owens standing among the workers at the Toledo glass company. Owens, who had been working in the glass factories since a child, was clearly at ease among those who produced the product even though he had long since moved into managing the company.

Batch recipe book of D. J. Crowley, ca. 1890s. Owens-Illinois Company Records, MSS-200.

Crowley worked at the Libbey Glass factory as a gaffer and finisher. Batch recipe books were carefully and secretly kept by experienced glass workers, and indicated the exact mix of sand, soda ash, and limestone to produce various shades and types of glass.

Photograph, American Flint Glass Workers Union parade, 1912. Owens-Illinois Company Records, MSS-200.

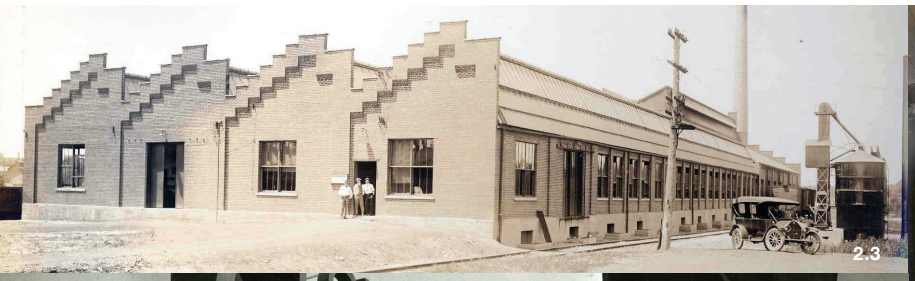
The American Flint Glass Workers Union was organized in 1878 to represent the skilled workers in glass factories. In 1904, the AFGWU moved its headquarters to Toledo, where it remained until 2009. This photograph shows members in front of the Toledo YWCA. Note the many carry glass canes, formed at the end of a shift from leftover batches of glass.

Souvenirs, Libbey Glass Company pavilion at the 1892 World's Columbian Exposition. Owens-Illinois Company Records, MSS-200.

Libbey established a national brand for his company through the success of its displays at the 1892 Columbian Exposition. Among the big draws to the pavilion was a dress made out of fibers spun from glass. Visitors could take home smaller examples of this new product such as spun glass neck ties and dolls.

Robert H. Cochrun. *Men of Toledo: Those Whom You Meet in the Business and Professional Walks of The Commercial Key to the Lakes*. Toledo, OH: 1895.

This publication contains portraits of many of the early men of Toledo business and industry.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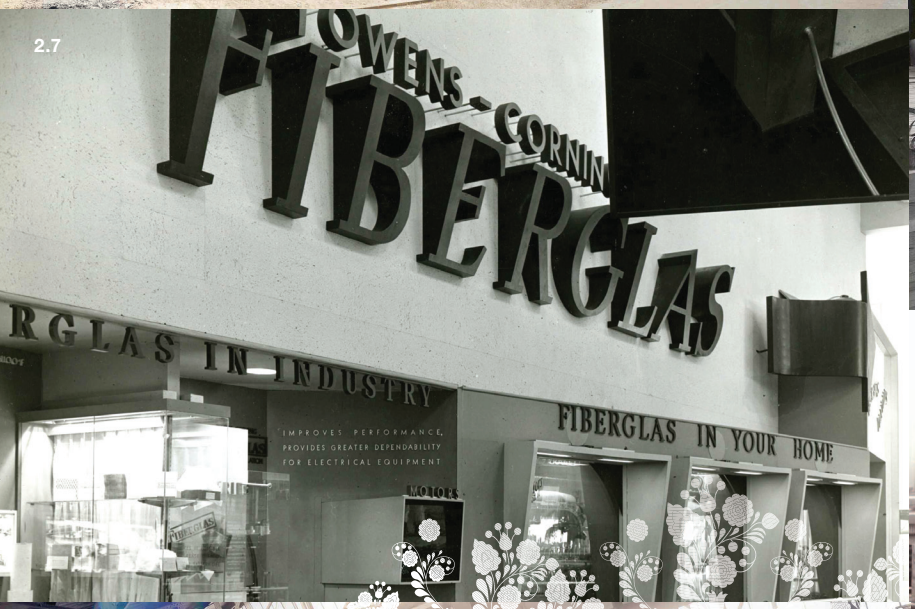

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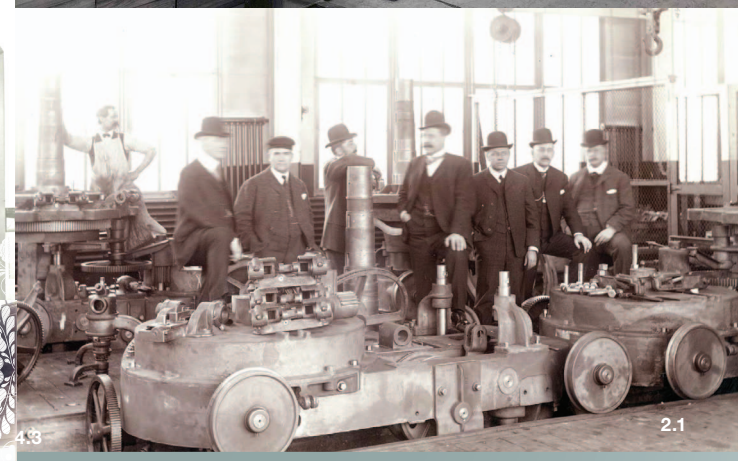
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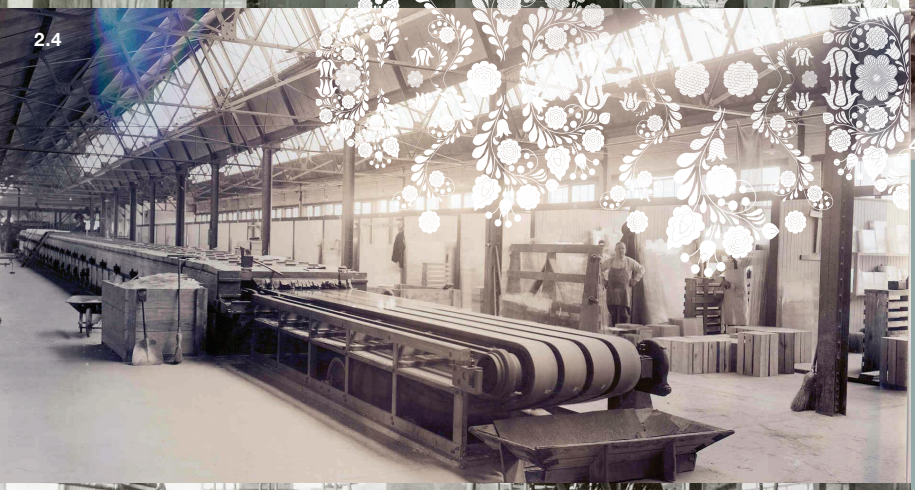
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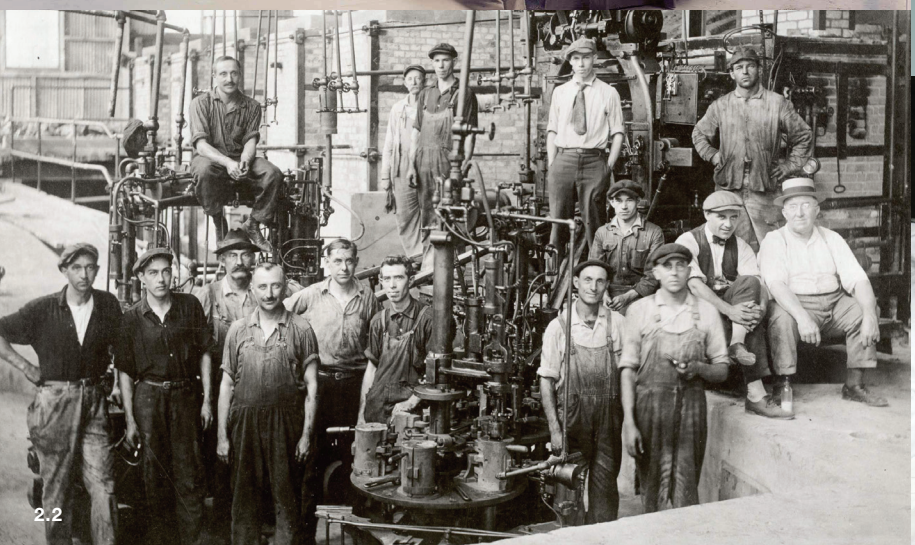
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- 2.1. Michael Owens (second from left) and his bottle machine at a factory in Manchester, England.
- 2.2. Owens Bottle Company workers and the Owens Bottle machine.
- 2.3. The Libbey-Owens Sheet Glass Company factory.
- 2.4. A photograph taken by Irving Colburn showing the sheet glass production line.
- 2.5. Pulling sheets of glass off the production line.
- 2.6. Early views of the production of insulation by Owens-Corning Fiberglas, 1937.
- 2.7. The Owens-Corning Fiberglas exhibit at the 1939 New York World's Fair.


2.6

CHAPTER 2. A CITY BUILT OF GLASS

"Self-educated as he was, a student in the process of inventions with an unusual logical ability, endowed with a keen sense of far-sightedness and vision, Mr. Owens is to be classed as one of the greatest inventors this country has ever known."

Edward D. Libbey, personal tribute on the death of Michael Owens, 1923.

Michael J. Owens and Edward Drummond Libbey were men of contrasts. Libbey came from New England, was highly educated, and became involved in the glass industry when his father brought him in to help manage his factory. Owens, on the other hand, was from a poor Irish Appalachian family who had no choice but to work in the glass factories at a young age performing the hot, difficult, and dangerous child labor required by the industry.

What Owens lacked in formal education he made up in practical skills learned through decades of working in glass factories. When he returned from operating Libbey's pavilion at the World's Columbian Exposition, he began to experiment in automating glass production. His first invention was a semi-automatic machine that would blow glass light bulbs into molds. The machine had five rotating arms, and each arm had a device similar to the traditional glass blowpipe. The arm would pick up molten glass, the mold would surround it, and compressed air would blow the glass into the mold. The machine could produce 2000 bulbs in five hours, and did not require skilled, highly-paid glass blowers.

Libbey was impressed with Owens's machine, and both men began to concentrate their efforts on their new company called the Toledo Glass Company, incorporated in 1895. Its purpose was to develop and license new innovations in glass production. The factory was located near Delaware and Detroit in the Auburndale area of Toledo.

Owens teamed with engineer William E. Bock in 1894 to convert the light bulb machine into making tumblers and lamp chimneys, and soon after Bock and Owens began work on a fully automatic glass bottle machine. The machine would take five years to perfect and cost over $500,000.

In 1903, the Toledo Glass Company spun off another company, the Owens Bottle Machine Company, capitalized at $3 million. The company built and licensed the first commercial automatic bottle machine invented by Owens and Bock. When the license agreements for the bottle machine began to expire, the company decided to produce the bottles themselves, and in 1919 changed its name to the Owens Bottle Company.

The Owens Bottle Machine changed the industry. In 1913, it received a commendation from the National Child Labor Committee of New York City for reducing child labor in the glass industry. The American Society of Mechanical Engineers named Owens's "AR" model of the bottle machine as an international historic engineering landmark, describing it as the most significant advance in the production of glass in 2000 years. The bottle machine produced bottles faster, cheaper, and to standardized specifications, making high-speed bottling required by beverage and alcohol producers possible. It also allowed companies to more easily produce bottle designs that could become identified as corporate trademarks.

In addition to glass bottles, Owens was also interested in improving production methods for flat glass. By the end of the 19th century, little had changed in how flat glass was produced. Either a large cylinder was blown by hand, then cut and flattened, or molten glass was poured into a large flat mold. The first method produced distorted glass, and the second produced glass that had to be meticulously polished for smoothness and clarity.

Irving Colburn, a Pennsylvania glassmaker, visited the Owens Bottle Machine Company in 1911 to discuss his ideas for improving flat glass production. Colburn had been working on his new method for flat glass—molten glass could be picked up from a vat like syrup and rolled between two cylinders, producing a continuous sheet of transparent glass of even width and thickness. Colburn's process was touted in an article in *Scientific American* in December 1906 even before it had been perfected. But Colburn struggled with his new machine, and there were fights with other inventors over Colburn's patents for his process. When Colburn was unable to convince investors to put any more into the company, Michael Owens suggested to the Toledo Glass Company board of directors that the company purchase Colburn's patents. The company bought Colburn's patents at a bankruptcy auction for $15,000.

Owens and Libbey brought Colburn to Toledo, where he collaborated with Toledo Glass Company engineers. Libbey and Owens built a factory not far from the Owens Bottle Company on Wall Street, and the first Colburn Experimental (or CX as it and all later models were called) was installed there. But the engineers continued to struggle with the machine, and their efforts to get the new process to work were lengthy and expensive. In 1915, a new company was created with $6 million in capital to commercially produce flat glass using the Colburn machine, named the Libbey-Owens Sheet Glass Company. Colburn died in 1917 before the machine ever saw successful production. But by 1920, the Libbey-Owens Sheet Glass Company produced profits of nearly $1 million.

With the automobile industry booming in Detroit, Owens saw a new market for flat glass. But automobile glass could have no distortions since the slightest imperfection made it dangerous. The Libbey-Owens company built a new factory on Toledo's east side to develop methods for grinding glass so that it was distortion-free. The factory also experimented with laminated glass to make it stronger and safer for automobiles.

In addition to the work of Libbey and Owens, there was a third major glass producer in northwest Ohio. In 1898, Edward Ford purchased 173 acres of land along the Maumee River for a plate glass factory. His knowledge of the business came from his father, Captain John B. Ford, who founded the Pittsburgh Plate Glass Company. The younger Ford incorporated a town around his factory, naming it Rossford, a combination of his last name and that of his wife, Caroline Ross.

The Edward Ford Plate Glass Company was a success and expanded several times, including building a second factory in 1910. By 1917 it was so profitable that Henry Ford offered to buy it in order to supply his automobile factory, but the offer was refused. When Edward Ford died in 1920, the firm was taken over by his son, George Ross Ford. The factory became the largest plate glass company in the country.

But the death of Edward Ford signaled that the era of the great men of Toledo glass was nearing an end. At a meeting of the board of directors of the Owens Bottle Company in 1923, Michael Owens complained of feeling ill, walked out of the meeting, and died suddenly at the age of 64. Libbey himself lived only two more years, and died in 1925. He was remembered for his many accomplishments as an industrialist, but perhaps more importantly, as a patron of the arts.

The Legacy of Libbey, Owens, and Ford

After their deaths, the companies created by these men were taken over by a new generation of managers who struggled to survive the Great Depression. In the flat glass business, the product lines of the Ford Plate Glass Company and the Libbey-Owens Sheet Glass Company complemented one another. Ray Graham, chairman of the board of the Libbey-Owens Sheet Glass Company, approached George P. McNichol, Jr. of the Ford Plate Glass Company about merging. The two companies merged in 1929, bringing together

the names of the three men of Toledo glass in one new company. The company became a major supplier of automobile safety glass, and also began experimenting with structural window glass and insulated glass.

The Owens Bottle Company took a similar turn. Also in 1929, the company merged with the Illinois Glass Company of Alton, Illinois. The Illinois Glass Company was founded in 1873 by Edward Levis and his seven sons. The company had used the Owens Bottle Machine beginning in 1910, and by 1915 all of the bottles produced at the plant used the Owens machine. The Alton plant was the largest bottle manufacturing factory in the world. The merger of the two companies into the Owens-Illinois Glass Company was the biggest merger in the glass industry to date. The Levis family took control of the Owens-Illinois company, and it rapidly expanded. In 1935, the company bought Libbey Glass Company, which it would continue to operate as a subsidiary until 1993.

Glass Can Be Anything

There was yet one more international corporation to emerge from Toledo's original glass industry, the enterprise known today as Owens Corning.

Early experiments with glass fibers by the Libbey Glass Company produced a show-stopper at the World's Columbian Exposition in Chicago in 1892 – a dress made of glass. But the fibers were coarse, made in small quantities, and impractical as a consumer product.

The Depression actually helped spur research on glass fibers. Excess production at Owens-Illinois bottle plants (a result of not only the Depression, but Prohibition, which decimated the beverage bottle market) meant that some factories would have to be used for other products. William Levis, president of O-I, decided to invest in research to create new products, including glass block building materials. Insulation was another possibility but they needed a way to make it economically in large quantities.

Glass blocks also presented a challenge because making them required joining two halves in a way that would seal the block and prevent moisture from getting inside and discoloring it.

In 1932, Dale Kleist, a young engineer, was using a spray gun called a Meta-Layer in an attempt to melt glass rods and seal the joint where the two halves of the glass block came together. But the glass did not spray; instead it created very fine fibers. Kleist was discouraged but the two men who ordered the experiment – Games Slayter and Jack Thomas – recognized the engineering breakthrough and pursued the manufacturing of glass fibers.

Slayter, Thomas, and Kleist developed large-scale equipment to make glass fibers in commercial production. Their work was championed by Levis and Harold Boeschenstein, a vice president and general manager at Owens-Illinois.

Operations moved in 1933 from Columbus to Newark, Ohio. Two years later, Corning Glass opened negotiations with O-I to merge the two companies' research on glass fibers. Levis and Armory Houghton, president of Corning, agreed to pool their knowledge in the field and share the cost of research and development. The companies experimented with the production of glass insulating wool, and in 1936, O-I trademarked its product with the name Fiberglas.

Despite the joint effort, glass fiber production lost money every year between 1935 and 1938. The solution was to spin off the business as a separate entity that would sink or swim on its own. On October 31, 1938, Owens-Illinois and Corning Glass officially formed Owens-Corning Fiberglas Corporation, with Boeschenstein as president and general manager. Corporate offices were in Toledo, but the major production and research facility remained in Newark.

Today, Owens Corning is a leading global producer of residential and commercial building materials, and glass fiber reinforcements and fabrics for composite systems.

Glass—A Lasting Legacy

The Future Great City of the World had become the Glass Capital of the World. In 1939, the city's future would be showcased at the New York World's Fair in a display called the Glass Center, an exhibit that showed the unlimited possibilities of this amazing product. The Glass Center fit well with the fair's theme of "Building the World of Tomorrow."

Minute book, the Toledo Glass Company, 1895-1908. Libbey-Owens-Ford Company Records, MSS-066.

This minute book documents the history of the company that Libbey and Owens founded to exploit the technological innovations of Owens, particularly the automated processes for producing bottles. The minutes from October 16, 1903, document the transfer of all of the patents and licenses involving the bottle machine to a brand new company, the Owens Bottle Machine Company.

"Comparative Estimate of Production of Costs," ca. 1905. Owens-Illinois Company Records, MSS-200.

To promote its new bottle machine, the Owens Bottle Machine Company produced this small sales brochure comparing the cost of hand production of bottles to the cost of using its bottle machine.

Articles of Incorporation, the Owens Bottle Machine Company, 1907. Owens-Illinois Company Records, MSS-200.

These incorporation papers were signed by all of the principals of the company, including Libbey and Owens.

Catalog, Owens Bottles, ca. 1920s. Owens-Illinois Company Records, MSS-200.

A catalog promoting the various types of bottles produced by the company.

Tribute to Michael J. Owens, 1923. Owens-Illinois Company Records, MSS-200.

Owens died suddenly in 1923 at the age of 64 after spending a life time of hard work in the glass industry. This booklet includes a tribute by Edward D. Libbey to Owens.

Photographs, Colburn experimental machine, 1876-1908. Libbey-Owens-Ford Company Records, MSS-066.

In 1902, Colburn built a factory in Pennsylvania to perfect his method of pulling a continuous sheet of flat glass. He took these photographs of the plant and the process, making detailed notes on each.

The Libbey-Owens Sheet Glass Company Records, Volume 1, 1916-1919. Libbey-Owens-Ford Company Records, MSS-066.

The directors of Toledo Glass set up a separate company to exploit the Colburn process for making sheet glass.

Record book of the Edward Ford Plate Glass Company, 1899-1909. Libbey-Owens-Ford Company Records, MSS-066.

This book documents the early history of Ford's plate glass company located in the town he named Rossford.

Toledo, Angola, and Western Railway, rate sheets, 1903-1904. Toledo, Angola, and Western Railway Records, MSS-102.

Railroads were an important part of the industrial success of Toledo. Because of its location, the city was a major hub in railway traffic. Some specialty railroads served specific industries. The Toledo, Angola, and Western Railway was founded in 1902, with under 10 miles of track. The railroad was a spur off the New York Central Line that had a station on Central Avenue. The TAWR linked to the Silica Stone Quarries in Sylvania, and it ferried products from the quarries to the bigger train lines. The line was important in providing raw materials to Toledo's growing glass industry.

Owens-Corning Fiberglas souvenirs from the 1939 New York World's Fair. Owens Corning Records, MSS-222.

The Glass Center at the New York World's Fair showcased several of Toledo's glass companies, including the one that had been formed just the year before. These souvenirs of Fiberglas advertised the new product as "Glass You Can Weave Like Silk," and "*Glass*—But Not Fragile."

Photograph album from the 1939 New York World's Fair. Owens-Illinois Company Records, MSS-200.

The Glass Center also included displays from Owens-Illinois that showed off their new glass block product.

Sample and Data Book, Textile Products Division, Owens-Corning Fiberglas, 1952. Owens Corning Records, MSS-222.

This sample book showed the many uses for Fiberglas yarns, tapes, and wires.

Clothing made of Fiberglas, ca. 1962. Owens Corning Records, MSS-222.

As a promotion of their fabric made of Fiberglas, Owens-Corning made sample dresses and jackets from the material. Because of its insulating properties, a more popular use of Fiberglas fabric was for draperies. Fiberglas cloth was also used to make fire resistant garments, and was used in the suits worn by the astronauts on Apollo 11.

3.1. An inter-urban trolley in Toledo.

3.2. The Milburn Wagon Co. factory in Toledo.

3.3. A postcard promoting the new Milburn Electric car.

3.4. The administration building for Willys-Overland.

3.5. The Willys test car, a prototype for the Jeep, 1941.

3.6. Ward M. Canaday celebrating the 1,000,000 Jeep.

3.7. The original patent for the Spicer universal joint.

3.8. An advertisement for the Dana Corporation, showing the contribution of the company to the wartime Jeep.

3.8

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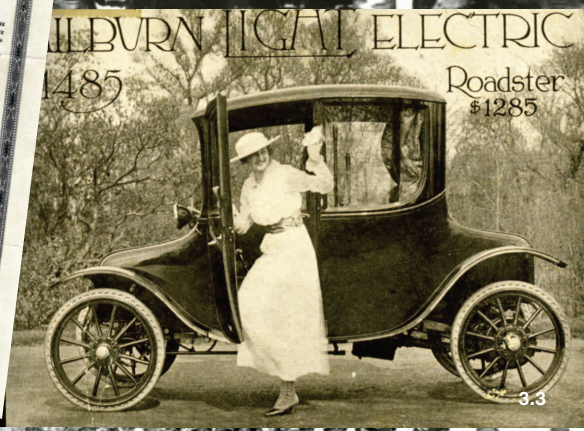

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CHAPTER 3. OVERLAND BY BICYCLE, WAGON, AND AUTOMOBILE

Klinger: You don't believe I'm gonna eat this Jeep, do you, sir?

Potter: "Let's just say, I find it hard to swallow."

Corporal Max Klinger attempting to get a Section 8 discharge from the Army by eating his Jeep piece by piece. Script from an episode of the television show M*A*S*H, 1976.

In the early 20th century, the horse was still king when it came to transportation, but its limitations were becoming apparent. Although most of the country was still rural with few paved roads, an increasing number of people lived in urban areas. Dense populations of people and the large number of horses required to move them about created problems with feeding, watering, and waste removal. Horses also attracted flies and other pests, which in turn brought diseases that were easily transmitted when people and animals lived in close proximity. Railroads, canals, and trolleys provided some relief, but all had fixed routes and rigid schedules that did not meet the needs of urban dwellers. A new means of transportation was needed.

"Toledo," "Winchester," and "Milburn"

In the late 1800s, the bicycle craze began. Bicycles had an advantage over the horse and carriage in that they were cheap, easy to build, easy to maintain, and required little space to store. Toledo played a major role in the manufacturing of bicycles: by 1890, it was the largest producer of bicycles in the country, home to such manufacturers as Gendron, Kirk Manufacturing Company, Lozier and Yost, Union Manufacturing Company, and several others. Gendron was founded in 1877 by Peter Gendron, who conceived of the idea of wire-spoked wheels. Beside bicycles, the wheels were used in carriages, wheelchairs, and children's toys.

The bicycle solved many of the issues of horse and buggy within the city, but there was still the problem of traveling between cities. Not only were distances far, but poor road conditions also made pedal power difficult. It did not take long for bicycle companies, including those in Toledo, to convert their factories into facilities for building a new vehicle called the "horseless carriage."

In 1900, the American Bicycle Company, recognizing the trend toward motorized transportation, converted its 249,000 square foot factory into a facility for producing cars. It was reorganized as the International Motor Car Company and in 1901, it created two steam-powered vehicles, the "Toledo" and the "Winchester." Sometime between 1900 and 1903, the Lozier Manufacturing Company produced its first car, the Pope Toledo. Lozier had become part of the Pope Manufacturing Company, a bicycle company founded in Hartford, Connecticut, by Albert Augustus Pope. Pope Manufacturing created an electric car in 1897 and later began production of the Pope Toledo. The first model of this vehicle was steam-powered, but by 1902, the company had switched to a gas-powered engine. Both versions of the car were expensive and decorated with bronze and brass. Because of the decorations on the cars, this period of automobile production became known as the "Brass Era."

Other types of companies converted to automobile manufacturing to meet the new market. The Ohio Electric Company, for example, produced the Ohio Electric from 1909 to 1918. But one of the most popular vehicles was produced by another somewhat unlikely manufacturer: the Milburn Wagon Company. Milburn was incorporated in Mishawaka, Indiana, in 1869. After a falling out between founder George Milburn and city leaders, he moved the company to Toledo in 1873. The factory opened in 1875 and soon Milburn was the largest manufacturer of wagons in the world, producing 65 different kinds for farming and other purposes. The neighborhood that grew up around the factory on Monroe Street east of Auburn Avenue was a thriving community known as Auburndale.

In 1914, Milburn produced its first car, the Milburn Electric. The Milburn Electric was based on a design by Karl Probst, who would later help design the Bantam Jeep. It was a popular car and was even used by the Secret Service during the administration of Woodrow Wilson, who owned a Milburn Electric himself.

The Brass Era of automobiles was characterized by technological innovations and many small manufacturers. Such features as the electric ignition system, independent suspension, and steel car bodies were developed at this time. But despite these advances, the successes of most early auto companies were short-lived. The American Bicycle Company folded in 1902. The Pope Manufacturing Company was done in, at least in part, by a strike at its Toledo plant that idled nearly 1,600 workers and left 185 cars unsold due to cancelled orders. The company went into receivership in 1907 and was out of the auto industry entirely by 1915. A fire destroyed the Milburn factory in 1919, taking with it several electric cars as well as hundreds of car bodies, many of which were being produced for Oldsmobile. Although production continued on the grounds of the Scott Park campus of the then-Toledo University, the company never recovered.

In 1923, General Motors purchased the original Milburn property in Auburndale for its Buick division. Production plans never materialized, though the remaining workers were able to complete the Milburn cars and car bodies previously under contract. Production of the Milburn Electric ceased afterward. The vacant buildings stood until the Great Depression, when some were dismantled by the Works Progress Administration and used for other buildings around the city (the Reptile House at the Toledo Zoo is an example of a building that contains bricks from the Milburn facilities). The property remained vacant until 1980, when the Lucas County welfare department offices were built on part of the site. As the land was being prepared for construction, wagon parts and other objects were discovered. The last remaining building of the original factory was demolished the following year, and was replaced by a fast food restaurant.

Although the lifespan of the Brass Era was brief, it paved the way for Toledo to become one of the most important centers for automobile manufacturing in the world.

Willys-Overland Company

The Willys-Overland Company got its start in 1908, when John North Willys purchased the Standard Wheel Company. The following year, he purchased the former Pope manufacturing plant in Toledo and began producing Willys-Overland vehicles there. In 1912, the name was changed to the Willys-Overland Motor Company. For the next six years, the company prospered and became the second largest car producer in the country, trailing only Ford. During this time, Willys expanded by purchasing other manufacturing companies and producing auto parts, such as the Knight sleeve valve engine, which Willys received the manufacturing license for in 1913.

The company experienced a major setback after the stock market crash of 1929, however, which forced the sale of several auto companies held by the Willys corporation and ended the production of the Whippet, Willys-Knight, and Stearns-Knight automobiles. The company went into receivership in 1933 and operated under bankruptcy protection until 1936. The following year, it was reorganized as Willys-Overland Motors, with Ward M. Canaday serving as chairman of the board.

Ward Canaday got his start at the Hoosier Kitchen Cabinet Co. in Indiana, where he pioneered a new method to pay for the cabinets—the installment plan. In 1916, he became the advertising director for Willys-Overland in Toledo, and brought the idea of buying on credit to the automobile industry, organizing the first auto credit company. He founded the United States Advertising Company in 1921, created another auto financing company in 1925, and worked for the Federal Housing Administration during the Depression. There he pioneered the idea of home mortgages that required small down payments, a new idea

for the time. In 1936, with Willys-Overland in receivership, Canaday took over the company. He became president in 1950.

Car production at Willys-Overland continued during the Depression, but its market share was greatly reduced from earlier levels. It would not be a major factor in the auto market again until the 1940s, when the War Department announced that it was looking for a manufacturer to do the seemingly impossible: create a prototype for a lightweight, all-terrain military reconnaissance vehicle. And they wanted the design in just 49 days.

The Creation of the "Steel Soldier"

Long before the invention of the Jeep, the U.S. Army had been trying to develop a reconnaissance car that would replace the motorcycles used by infantry during World War I. As early as 1921, Army officers reported that there were several vehicles being tested at the Aberdeen Proving Grounds in Maryland for either reconnaissance, cargo transport, or both. The fifteen test vehicles were equipped with caterpillar tracks to allow them to better cross uneven terrain, and they were low to the ground as a defense against gunfire. At least some of the vehicles were retrofitted commercial vehicles. In 1923, William F. Beasley, chief automotive engineer of the Ordnance Department's Technical Division, and Captain Carl Terry, stripped a Model T down to its chassis and found that it performed better than heavier vehicles, but could not travel through mud or sand. They replaced the tires with those from an airplane, with the wheels cut to accommodate the plane's smaller tires. Despite some flaws, the modified vehicle was such a success that the Army began developing vehicles fitted with light wheels instead of caterpillar tracks. This stripped-down car could be considered an ancestor of the Jeep.*

Willys-Overland's involvement with the Jeep began in March 1940, when Delmar Roos, the company's chief engineer, was invited to a demonstration of the "Belly Flopper," another early reconnaissance vehicle that had been developed by Captain Robert G. Howie and Master Sergeant Melvin C. Wiley. The "Belly Flopper" was made of salvaged parts from standard automobiles and was so named because it was steered by soldiers lying on their stomachs. Unfortunately, the vehicle was too low to the ground, was slow, and lacked power. Nevertheless, Roos saw potential in the crude vehicle and believed that Willys-Overland could design one of its own.

The Army's Quartermaster Corps (QMC), meanwhile, was still trying to come up with a reconnaissance car and released its final, modified specifications later that summer. These specifications were not created by QMC personnel but were instead based on those of a vehicle designed by American Bantam, which was already working on a lightweight reconnaissance car at the time. In June 1940, a committee consisting of Captain Howie, civilian engineer Robert Brown, and several others traveled to Bantam's plant in Butler, Pennsylvania, to discuss the feasibility of creating a reconnaissance car based on a Bantam chassis. After testing several of the cars, the committee sent out bid invitations for 70 of these vehicles, each weighing 1,300 pounds. In addition, a prototype was to be completed and delivered in 49 days, with the balance to be made 26 days later.

The QMC contacted 135 manufacturers requesting submissions of prototypes, but only two responded: American Bantam and Willys-Overland. Willys realized it would have problems meeting the deadline and asked for 120 days to design and deliver the vehicles, but was refused. American Bantam felt it could make the 75-day deadline and was given the order instead. Despite some mechanical issues, the Army was pleased with Bantam's design. However, some officials, particularly the Quartermaster General, felt that the company was too small to produce the vehicle in sufficient numbers, so they provided the designs for

the Bantam Pilot Model to Willys-Overland and Ford, whose expertise in mass production led to the latter company being selected to take part in the new vehicle's development.

Meanwhile, officials at Willys-Overland were in a quandary. After seeing the revised specifications, they believed the vehicle would be too light and underpowered to be sufficient. The company ultimately decided to disregard the Army's plans and design its own vehicle, which would be heavier, but also sturdier and more powerful. Ward Canaday wanted the Army to see that their design was superior. After some prodding, Army officials agreed to have Willys design a pilot model at its own expense. The vehicle proved its worth in field tests and the Army announced that Willys would be granted a contract for 1,500 vehicles if the weight could be reduced. The first of these modified vehicles were tested in June 1941. American Bantam and Ford also provided 1500 of their own reconnaissance cars for testing. All three designs were similar, as they were based on the vehicle developed by American Bantam.

After extensive field testing, the Army decided that the Willys model had the superior engine, but was still too heavy. Roos managed take enough off the car to meet the Army's weight requirement, with seven ounces to spare. By the time field testing was concluded, the Army declared that the model developed by Willys-Overland came closest to specifications, in addition to having the better engine. The Willys design became the standard, and an order for 16,000 (later increased to over 18,000) was given to the company. In order to ensure that production would not be sabotaged, the Army designated Ford as the second supplier. Willys officials agreed to the plan and turned all of their blueprints and specifications over to Ford. American Bantam, which had provided the original design, would end up producing the trailers that were towed by the Willys vehicle. By now, the new vehicle was known as the Jeep, though Willys did not invent the name. The origin of the name is unclear.

Willys-Overland decided to continue producing Jeeps after the war ended. The initial design called for a civilian version of the vehicle, known as the CJ (Civilian Jeep) or "Agrijeep." Willys followed up those models with the CJ-2A. The company tried to market the CJ-2A as a tractor, since they were in short supply at the time. This new vehicle was too light to adequately serve its intended purpose, but it did become popular among farmers, ranchers, hunters, and others who appreciated its off-road capabilities. In 1952, Willys-Overland resumed passenger car production with the Willys Aero, but its run ended three years later due to declining sales. In 1953, the company was purchased by Kaiser Motors and renamed Willys Motor Company. With this purchase, Kaiser Motors moved production of the Kaiser car from Willow Run, Michigan, to Toledo. Ten years later, the company name changed again, becoming the Kaiser Jeep Corporation. As a result, the Willys name was dropped entirely.

In the early 1960s, the Kaiser Jeep Corporation developed a new civilian vehicle, the Jeep Wagoneer. Intended to appeal to the suburban market, it popularized the four-wheel drive utility vehicle for an entirely new audience. Later versions were named the Cherokee. Today, four-wheel drive sport utility vehicles are a significant part of the automobile market, with many competitors vying for suburban buyers.

The Dana Corporation

By the early 20th century, it was clear the automobile was the future of transportation, but it was not without its share of problems. Chief among them was that the earliest cars were not very reliable. One of the biggest problems was that power was transmitted to the engine by means of two sprockets connected by a chain, much like a bicycle. As a result, early cars were noisy and often broke down on the poor roads of the time.

That all changed thanks to an invention by Clarence Spicer. In 1902, Spicer designed a car while he was still a student at Cornell University. Part of the design included the creation of a universal joint to transmit engine power to the wheels via rotary motion. The concept of the universal joint was not new, but Spicer was the first person to apply it to the automobile. He did this by placing the joints on each end of a tubular shaft and encasing them in bowl-shaped coverings to keep them lubricated and protected from road debris. Encouraged by his professors, Spicer continued with his research and received a patent for his invention on May 19, 1903.

Almost immediately, car manufacturers began asking Spicer to either produce the joints or allow them to do so. After consulting with his wife, Spicer decided that he would open his own factory. The couple and their children moved from Ithaca, New York, to Plainfield, New Jersey, and established their new business, C.W. Spicer. Plainfield was chosen because it had good transportation, labor, and facilities; and because it was close to the hub of the auto industry, which at that time was located on the east coast. Also, Spicer had family members there who were willing to help him by providing financing and a facility for manufacturing.

Spicer's company got off to a rocky start. Potter Printing Press, the company originally slated to produce universal joints, was unable to, so Spicer rented a corner of the Potter plant, purchased new equipment, and hired three employees. The first order of universal joints was shipped on September 12, 1904, and C.W. Spicer was officially in business. The company grew rapidly. Less than a year later, employees were already working overtime to fill orders.

The C.W. Spicer Company soon needed additional financing, so it was incorporated on May 25, 1905, with Spicer serving as president. Space became an issue as well, and the company moved out of the Potter plant into its own facility. By this time, C.W. Spicer consisted of a dozen employees and was manufacturing propeller shafts in addition to universal joints. Expansion continued into the next decade, and by 1913, it counted over 100 clients, including Cadillac, Chevrolet, and General Motors. Spicer products were advertised as far away as Mexico and Panama. In 1909, the company changed its name to Spicer Manufacturing Company.

Along with these successes, however, came difficulties. More orders meant more resources in terms of time, money, equipment, and facilities. Competitors began offering products that were not only cheaper, but often violated Spicer's patents, resulting in numerous patent infringement lawsuits. By 1913, the Spicer Manufacturing Company was in desperate need of cash. Fortunately, help would arrive from an unlikely source: a young prosecuting attorney from New York.

In December of that year, the Spicer board of directors met to consider accepting a loan offered by Charles Dana. Dana had heard about the struggling company during a visit to an investment bank. He offered to loan the Spicer Manufacturing Company $15,000 for one year. Dana soon became more involved in the company. By early 1914, the board had elected him as a director, and before long, he was elected president. Clarence Spicer remained with the company, serving as vice president and chief engineer.

The year 1915 saw the company locate to a larger, more modern facility in South Plainfield. The move coincided with the beginning of World War I. The Spicer Manufacturing Company was involved in the war effort even before the United States formally entered the conflict, when Clarence Spicer was invited to Washington to help design a military truck for the U.S. Armed Forces. By the end of the war, the Spicer Manufacturing Company reported sales of $30 million annually.

Charles Dana used these profits to acquire other companies throughout the 1920s both in the United States and abroad. In 1929, the company moved from South Plainfield to Toledo to be closer to the center

of car production, which by then was based in Detroit. Sales were on the rise until the devastating stock market crash later that year reduced Spicer's production capacity by 75 percent. A strike in 1934 involving Spicer and three other Toledo-based auto suppliers threatened to make matters worse, but was resolved in a matter of days with no major incidents.

World War II brought government contracts and improved fortunes. After Franklin D. Roosevelt signed the Lend-Lease Act in 1941, Spicer's factories began preparing for large orders from the War Department. Sales exploded, resulting in increased growth in other ways as well: one plant had to be expanded five times to keep up, and the company's overall work force rose to 10,000. But the end of the war resulted in yet another huge plunge in profits for Spicer, as the need for military vehicles waned. It took some time before people were eager to purchase new cars in the immediate aftermath of the war.

In 1946, Spicer Manufacturing Company changed its name. By this time, the corporation owned numerous brands in addition to its own brand of universal joints. Company officials decided to rename the company in honor of the man responsible for rescuing the once-struggling business—Charles Dana.

In more recent years, the Dana Corporation has been known for its innovative management. Rene McPherson, who led the company from 1973 to 1979, replaced all of the manuals on supervision with a one page policy that stressed empowering people at all levels. When he left Dana, he became dean of Stanford University's Graduate School of Business. McPherson's innovative management style continued at the company long after his departure. Unfortunately, the recent recession led Dana to declare bankruptcy and downsize considerably. The company also sold its impressive headquarters building on Dorr Street. Today, it continues to produce parts for both heavy and light vehicles.

Champion Spark Plug

Another company that impacted Toledo and the automobile industry was Champion Spark Plug. Although the company did not invent the spark plug, it was noted for its innovations. The company was co-founded by Robert and Frank Stranahan in Boston in 1907. Initially, the brothers' company focused on importing aftermarket parts from Europe. After graduating from Harvard, Robert went to work for his brother, first as a stock boy, then later as a traveling salesman. He also developed a better design for spark plugs that was asbestos-lined and had a copper gasket. At first, most automakers were unwilling to give the new design a chance, but John Willys agreed to purchase the plugs and have them installed in his vehicles if the brothers would relocate to a site near his Toledo factory. Frank and Robert Stranahan arrived in Toledo in 1910 and set up shop in a loft above a laundry near the Willys plant. By 1912, they were able to move into a facility on Upton Ave., where the company would remain for nearly a century.

Robert's revolutionary design caught on quickly. A year after moving into the Upton plant, Champion added Ford as a customer. The company continued to expand and achieved even greater success when Robert, realizing that the current spark plugs used by military aircraft would not withstand the rigors of flight, designed a plug with ceramic insulators. This was in 1941, just before the attack on Pearl Harbor. By 1942, the new and improved design was being used on a large scale by the U.S. military. Officials were so pleased with the design that representatives from the Army and Navy visited Toledo to honor Champion. Champion's success continued after the war and included the purchase of the former DeVilbiss company in 1967 and Anco Windshield Wipers in 1977. At one point, the company had cornered an incredible 41 percent of the market. Its corporate logo, a white "bow tie" on a red and black background, was second only to Coca-Cola's logo in world-wide recognition.

Unfortunately, the good times would not last much longer. In 1980, Champion's workforce stood at close to 2,000, but soon began to shrink due to increased competition and the development of electronic ignitions

and longer-lasting spark plugs. Strikes and plant closings further hobbled the company. By the 1980s, Champion was losing market share at a rate of 3 percent per year. In 1989, the Dana Corporation attempted to purchase Champion, but was outbid by Houston-based Cooper Industries. Almost immediately, Cooper announced that most of the plant on Upton would close and manufacturing would be moved to Burlington, Iowa. The workforce in Toledo was reduced by 430 jobs. By 1991, spark plug production in Toledo had ceased and only the company's headquarters and production line remained. In the two-plus decades after Champion's purchase, the research and corporate jobs still in Toledo gradually disappeared until, by 2010, only about 40 employees were left, and Champion's ownership announced that the Upton plant would close permanently. By the end of the year, it is expected that this last vestige of one of Toledo's most well-known companies will be permanently gone.

**Note to readers: The exact history of the Jeep remains controversial, particularly regarding the role played by American Bantam. While the general consensus is that American Bantam was the first to design and deliver the vehicle that would later be known as the Jeep, some historical details are debated, including whether or not American Bantam truly lacked the manpower and facilities to produce the Bantam Reconnaissance Car in sufficient numbers; whether Karl Probst or Harold Crist (or no one) can be considered the true "father" of the Jeep; and what role certain individuals in the QMC played in Willys and Ford winning the Jeep contract over American Bantam. The account presented in this catalog includes American Bantam's contributions to the greatest extent possible given the resources available. For examples of differing accounts, consult the following websites:*

http://wmspear.com/Bantam/recon.html; http://www.m38a1.ca/history.html

Portrait of John Willys, unknown artist, n.d.

This portrait depicts the founder of Willys-Overland.

Overland Advertisement, Ward M. Canaday Collection, MSS-072.

The Overland automobile was designed and built by Claude Cox and made its first test run in February 1903. In 1904, Cox purchased the Standard Wheel Company, which had financed his design. When Overland fell on hard times in 1907, John North Willys raised enough money to keep the company afloat. The economical Overland model became such a popular car that it was singlehandedly responsible for the company's financial recovery. This ad from the *Saturday Evening Post* is for a 1914 Overland vehicle.

The Toledo Interurban Trolley, ca. 1915. Ward M. Canaday Center Local History Vertical Files.

The electric trolleys were a part of Toledo's innovative urban transportation infrastructure, which started in 1884 and came to a halt in 1919. At the height of the interurban system, nine lines moved 150 units through the city on a daily basis.

***The Willys News*, newsletter of the Willys-Overland Company, 1919-1920. Ward M. Canaday Collection, MSS-072.**

Produced for employees, this newsletter included information helpful to the workforce. The issue from 1919 was published after a strike which was ended by a court order. Articles direct employees who participated in the strike to return to work quickly, or their jobs would be filled by others.

Hubcaps, Willys-Overland, ca. 1925-1926, 1930. On loan to the exhibit from private collector.

These hubcaps are from a 1925-1926 Overland Model 93 and a 1930 Willys Six/Eight, respectively.

Photographs, early Jeep prototype, 1941. Dana Corporation Records, MSS-242.

These photographs show some of the earliest pictures of the Willys-Overland Jeep when it was still a test car.

Original watercolors for "Jeep at War" advertising series, Ward M. Canaday Collection, MSS-072.

The "Jeep at War" series of advertisements was created by illustrator James M. Sessions. The watercolor paintings shown here were meant to depict the Jeep's versatility in times of war and peace.

Photograph, production of the one-millionth Jeep, 1952. Ward M. Canaday Collection, MSS-072.

Willys-Overland celebrated a milestone in production with Ward Canaday himself (middle) as a passenger as the one millionth Jeep was driven off the assembly line.

Scrapbook, Kaiser-Frazer purchase of Willys-Overland, 1953. MSS-156.

This scrapbook of newspaper clippings documents Kaiser-Frazer's purchase of Willys-Overland in 1953 for $62 million. Ward Canaday was offered, but declined, a position at the new company.

Original drawing and advertisement for the Willys Aero, 1953. Ward M. Canaday Collection, MSS-072.

The Willys Aero was a sleek passenger car produced from 1952-1955. Production of this vehicle ceased when Henry J. Kaiser decided to focus his company solely on the production of the Jeep.

Patent, Spicer Universal Joint, 1903. Dana Corporation Records, MSS-242.

This is the patent for Clarence Spicer's first universal joint, developed while he was a student at Cornell University.

Catalogs for universal joints, 1905. Dana Corporation Records, MSS-242.

These catalogs provide descriptions and prices for various types of universal joints.

Letter to Spicer Manufacturing Corporation concerning the change of company's name, 1946. Dana Corporation Records, MSS-242.

In 1946, Spicer officials decided to rename the company, choosing to honor Charles Dana. This is a letter of complaint from an automobile business man who objected to the name change.

Advertisements, 1950 and 1957. Dana Corporation Records, MSS-242.

Willys-Overland was among several auto manufacturers that used Spicer parts. These ads show the numerous parts available for owners of Jeep vehicles.

Letter to Champion Spark Plug, June 7, 1918. On loan from private collector.

This letter from the Cartier Auto Company requests advertising displays for Champion products.

CHAPTER 4. NO SPRINGS, HONEST WEIGHT

"Ah, but let's not forget that the folks of Toledo,

Unselfishly gave us the scale.

'No Springs, Honest Weight', that's the promise they made,

So smile and be thankful next time you get weighed!"

Randy Sparks, in the song "Saturday Night in Toledo, Ohio," 1969.

Unlike Cleveland, Pittsburgh, Gary, or Youngstown, Toledo's industrial development did not focus on steel production, but rather on shaping steel and other metals into products. These products included scales, paint sprayers, and automobile parts. The companies that produced these products were an important part of Toledo's economic development, and impacted the city in significant ways. One would spread the name of the city around the world.

The DeVilbiss Company: From Atomizers to Perfumers to Paint Sprayers

Allen DeVilbiss fought for the Union forces during the Civil War. After the war, he attended the University of Michigan's medical school, and continued his studies at the Miami Medical College in Cincinnati, where he received his Doctor of Medicine degree in 1868. He set up his first practice in Middletown, Indiana, and moved to Toledo in 1887, where he specialized in diseases of the nose and throat.

In his practice, he found the conventional method for directly applying medicine to the nose and throat—using a cotton swab—to be unpleasant for his patients. While some atomizers that would spray medicine into the throat were in use, they did not work well. DeVilbiss was determined to perfect the product. Using a small piece of tubing salvaged from surgical instruments along with a rubber ball and a bottle of medicine, he developed a method and a product to spray vapors directly into the throat and nose. The amount of the spray could be regulated with an adjustable tip on the atomizer. His invention produced a non-irritating method for treatment of nose and throat aliments. In 1888, DeVilbiss patented the device, and began producing it in back of his residence on Warren Street. Within a few years, he needed a factory to keep up with orders.

DeVilbiss encouraged his sons to join the business. Following in his father's footsteps, Thomas DeVilbiss enrolled in medical school, but dropped out after a year. His real talent was in mechanical inventions. He introduced a perfume sprayer to his father's product line, the first American-made perfumer. These sprayers soon outsold the atomizers.

In 1905, the DeVilbiss Company was incorporated. Thomas DeVilbiss continued to experiment with the concept of sprayers, and soon developed one that could apply paint or lacquer thinly and evenly. Working with paint manufacturers, the company got them to improve the quality of paint to facilitate use of the new sprayers. Paint spraying soon replaced the laborious process of painting by hand for many products. It was quickly adapted by the growing automobile industry, along with another of the company's products—ventilated paint spraying booths.

The company expanded into a new facility at the former location of the Lenk Wine Company (which was forced out of business by Prohibition) at Phillips and Detroit. In 1924, a new, larger factory was built on the site. The company expanded into other product lines, including medical vaporizers, air compressors, and rubber products.

The DeVilbiss Company produced many products for World War II, including protective coatings for military equipment. After the war, the atomizer division moved to Pennsylvania, and the company purchased other companies, including one that made spray gun tips and another that did metal fabrication.

In 1967, the DeVilbiss Company was purchased by another Toledo manufacturer, Champion Spark Plug Company. In 1990, it was purchased by Illinois Tool Works, and the Toledo factory closed. The company continues to produce industrial sprayers, finishes, and accessories.

The Toledo Scale Company: A Name Known Around the World

Simultaneous with the founding of the DeVilbiss Company was that of another company important to Toledo's history, founded by another son of Allen DeVilbiss, Allen DeVilbiss, Jr. Like his brother Thomas, Allen Jr. was mechanically inclined. He invented a new type of pendulum scale that employed the use of the measurable and naturally occurring force of gravity to compute weight measurements.

Although the scale was not the first pendulum scale to be invented, it was the easiest to use and meticulous in its measurements. In the DeVilbiss scale, a pendulum was attached to the lever containing the holding platter for weighing items. When items were placed on the platter, the pendulum would swing outwards, and, with the scale's point, indicated the weight of the item objectively and accurately every time. With the aid of an accompanying scale chart displaying various weights and prices for products, merchants could compute prices for customers without relying on hurried and oftentimes erroneous mathematical calculations. The pendulum scale's measurements saved time and produced accurate information for every customer, introducing consistent fairness and honesty into retail transactions.

In 1898, after scale sales started to take hold, the young inventor established the DeVilbiss Computing Scale Company. But due to a lack of investment funds, DeVilbiss was unable to grow the company and expand into the wider retail market. An experienced business man, one with investors, funds, and contacts, was needed.

In 1900, Henry Theobald was fired from his job as general manager of the National Cash Register Company (NCR) in Dayton after he attempted to implement changes in NCR's production line to produce a better product at a lower cost. After 15 years with NCR, Theobald began looking for a new job that would allow him to use his business experience.

Theobald recognized that the retail environment had a need for more accurate measurements to ensure fair transactions. After buying the patents from the DeVilbiss Computing Scale Company and procuring investors, Theobald established his own company in 1901—the Toledo Scale and Cash Register Company. The name reflected Theobald's continuance of working with cash registers, something later dropped from production after pressure from his former boss at NCR. Around 1912, after a series of name changes, the company took the name that became iconic—the Toledo Scale Company. Theobald and his associates took over the DeVilbiss Computing Scale factory, a small two-story building at the corner of Albion and Bishop. A few months later, a second factory was completed close by at the corner of Monroe and Albion.

By 1905, Toledo Scale's fan scales, intended for general retail transactions, began appearing nationwide on grocery market counters. These scales, so named due to their fan-like appearance, displayed Toledo Scale's slogan developed around 1904: "No Springs, Honest Weight." Theobald used the slogan to capitalize on Toledo Scale's consistent measurements compared to other companies' scales. Clerks often hung up signs displaying the slogan to give customers a sense of confidence in their products sold by weight. The motto projected that a Toledo Scale was not an inferior, worn out spring scale, but rather would accurately measure and honestly charge the customer.

Around 1908, as part of continuing the company's high standards of business ethics, Theobald trained servicemen to fix and maintain a Toledo Scale wherever it was sold. Such actions by the company president are aptly reflected in his statement on standing by his scales to ensure their long lasting quality: "We are not obligated to make more scales, but we are morally obligated to maintain the scales we have built."

Toledo Scale salesmen worked tirelessly to meet sales goals. In their sales demonstrations created by Theobald, pitches focused on convincing clerks of the benefits of a Toledo Scale that could contribute not only to the clerk's profits, but to their customers' confidence as well. Housewives were constantly skeptical that grocery store clerks were cheating them out of money and often demanded that the balance of the scales tip downward in the customer's favor. Customers stopped arguing when a clerk used a Toledo Scale, which improved profits for the store owner. Theobald and his salesmen took advantage of these real results in their sales demonstrations. The Toledo Scale salesmen would calculate the money lost by placing pre-weighed articles on the clerk's scale and comparing this to the more accurate Toledo Scale's measurements. The resulting difference usually surprised the clerk, especially after the salesmen calculated future losses in profit and product. Toledo Scale also pushed for cities to enact weight and measurement standards, thus helping to sell more of its accurate scales.

Because of their reputation for accuracy, Toledo scales were also sold in Europe, Asia, and Latin America. This growing presence of Toledo scales spread the city's name around the world. During World War I, the company began producing industrial scales that were used by companies such as the American Shell Company, which required precise measurements. Such innovations later transformed into a company division, Toledo Precision Devices, in 1929, widening Toledo Scale's business circle even further.

Halvor Olsen Hem (H.O. Hem), a Norwegian engineer from a line of engineers and mechanics, assisted Toledo Scale in its industrial scale development. He became chief engineer in 1928, working with railroad track scales, automobile applications, wind tunnels, and innovations with other mechanical devices, such as pivots. Hem's son, Halvor Warren Hem (H.W. Hem) followed in his father's footsteps, also contributing to Toledo Scale's engineering innovations. In 1936, for example, H.W. Hem used plastic to reduce a scale's weight by over 100 pounds.

Regardless of the company's growth, not all was well with Toledo Scale. A contested business decision involving acquired patents in 1918 almost doubled the company's debt. Henry Theobald fell ill and died in 1924. His son, Robert, and Robert's mother, Mary, took over the company shortly thereafter. But Robert's wife died shortly after his father's death, and Robert became clinically depressed and committed suicide in 1925. Mary sold the company shortly after her son's death, ending the Theobald legacy with the company. Hubert D. Bennett took over the company.

Under Bennett, Toledo Scale underwent major cosmetic, organizational, and financial transformations. Bennett refocused the company into research for new products and reduced the company's deficit by bringing in new investors. Bennett also began to form a tighter relationship between Toledo Scale and its salesmen, introducing better sales training and communication with customers.

Bennett, as part of continuing company renovations, commissioned the painter Georges LaChance to complete a series of paintings of senior workers of Toledo Scale. The 14 paintings, completed between 1928 and 1929, showed employees performing common factory tasks such as grinding, painting, etching, polishing, and inspecting. The paintings provided Bennett an opportunity to showcase some of his loyal employees and to instill pride in their contributions.

The 1930s presented another challenge to Bennett. Plaskon, a newer, more durable form of early plastic developed as part of a Toledo research fellowship at the Mellon Institute in Pittsburgh, arguably saved Toledo Scale in the Great Depression. By using Plaskon to produce Toledo Scale products, different shapes and colors of scales that weighed less became feasible, and an overall lighter product resulted. Bennett also began expanding Toledo Scale by developing a new company division—kitchenware—including choppers, grinders, mixers, and slicers. During World War II, the company's scales helped to measure out ration stamps, produce bullets, test aircraft, and even to make the atomic bomb.

In 1929, the company bought an 80-acre site on Telegraph Road for a new factory, but the cost delayed the construction until 1939. All operations except Plaskon were located in the new location. After World War II, Bennett retired and a third president, Harris McIntosh, took over Toledo Scale. Product orders increased, and a streamlined production system was developed, replacing the former "one-at-a-time" assembly. McIntosh also focused on newer electronic technologies, including computerized scales.

The 1960s brought a quick succession of mergers and multiple changes in leadership. In 1968, the company became a division of Reliance Electric of Cleveland. Bob Metzger led the company for two years, and then Tony DiVincezo took over. In 1979, Exxon bought Reliance Electric, and in 1984, Reliance closed the Toledo plant and operations. A year later, the plant mysteriously burned down. In 1986, Reliance sold the Toledo Scale Division to a company named Ciba-Geigy. In the same year, Ciba-Geigy merged Toledo Scale with one of its companies, Mettler Instrumented AG, a manufacturer of laboratory balance equipment. Mettler helped to propel Toledo Scale into an even wider sphere of foreign business. In 1992, Toledo Scale Division's name changed yet again, this time to Mettler Toledo, Inc. Four years later, the company was sold to a group of New York investors, and its name changed again to Mettler Toledo International, Inc. The company is located in Columbus, and presently specializes in laboratory, industrial, and other analytical instruments and scales.

Today, former Toledo Scale workers still gather together as members of a club. Only one of the company's original buildings still exists in Toledo—the old factory on Monroe and Albion. At the Telegraph Road site, the original flagpole of Toledo Scale stands, a quiet reminder of the company's history and impact on the city. The 1985 fire left no outward signs of the Toledo Scale Telegraph Road factory.

Original Toledo scales now sell in antique stores. Some industrial scales, due to the fine craftsmanship and engineering, are still in use today. The importance of the company was noted by singer Randy Sparks in his satirical song "Saturday Night in Toledo, Ohio." The four lines of the song about Toledo Scale are the only positive part of his otherwise cutting lyrics.

Parts for Everything

Because of Toledo's proximity to Detroit, a major industry for the city was in the production of automobile parts. Stamping plants large and small produced everything from steering wheels to lights to compressors. This reliance on the auto industry also meant that Toledo was subject to the ups and downs of Detroit's fortunes.

Acklin Stamping was founded by Grafton Acklin, a former manager of the Toledo Machine and Tool Company. Acklin believed a stamping plant could take advantage of the growing automobile market and provide parts to many car companies. In 1911, he and his three sons opened a factory on Dorr Street. In addition to car parts, the company produced parts for vending machines. During World War I, it produced ammunition casings.

After Grafton Acklin's death in 1926, his sons took over the company. But during the Depression, they were forced to lay off most of the company's workers, and cut hours and pay for those remaining. To stay afloat, the company stressed redesigning machines to make them more efficient, and also stressed worker safety, which reduced costs and lost time for injured workers. After the deaths of two of the Acklin sons, the company passed into the hands of non-family executives.

World War II production brought increased sales, especially in parts for Willys-Overland. The plant ran 24-hour shifts. Like it did during World War I, the company also produced shell casing as well as eyepieces for gas masks, parts for flame throwers, and machine gun mounts. Some of Acklin's parts were used in making the atomic bomb. The plant was recognized by the War Department in 1945 with a letter of appreciation

After the war, the company focused on making compressor housings for refrigerators and air conditioners. Many of these orders came from the Tecumseh Products Corporation in Michigan. In the 1950s, contracts with other companies began to dry up, and Acklin depended more and more on its business with Tecumseh. Tecumseh purchased Acklin Stamping in 1952, and it continued to make compressor housings until 1999, when the company was closed. That year, Howard Ice, Jr. purchased Acklin from Tecumseh, and the company's legacy continued with a much smaller workforce. Today, Ice Industries owns factories in Cincinnati, in Mississippi, and in Mexico. It is headquartered in Sylvania, and has a production factory on Byrne Road in Toledo.

A smaller stamping plant with roots similar to Acklin was the Inshield Die and Stamping Company. It began as the Thal and Bitter Machine Company in 1920, and like Acklin, found most of its early business making car parts, especially for Willys-Overland and Electric Auto-Lite. In the 1920s, co-founder Roy Thal invented the Inshield driving light, which fit against the windshields of cars of the time to allow drivers to drive at night. During World War II, the company produced munitions-related parts, including those used in the bomb carriers of planes.

In 1946, Thal bought out his partner, Reuben Bitter, and Thal's sons took over the company. In 1994, the family sold the company to Branson Stampings, Inc. In 2006, the company lost its major customer, and it was put up for sale.

DeVilbiss Hard Rubber Automizer No. 251, ca. 1930. On loan from a private collector.

This is an early DeVilbiss automizer of the type invented by Dr. Allen DeVilbiss to more effectively apply medication to his patients' noses and throats. This model includes adjustable tips to help the patient regulate the amount of spray dispensed.

DeVilbiss Electric Steam Vaporizer No. 148, ca. 1930. On loan from a private collector.

Another development that followed the invention of the atomizer was the DeVilbiss electric steam vaporizer. The vaporizer was used to treat respiratory ailments.

DeVilbiss Spray-Painting System and Finishing System, Catalog "IE," April 15, 1941. Ward M. Canaday Center Local History Vertical Files.

This catalog describes many of the different kinds of spray painting equipment made by the company.

Blueprints and advertisement for a DeVilbiss Spray Booth, 1931. Ward M. Canaday Center Local History Vertical Files.

With the invention of a product that could spray paint in vapor form came the need for a facility to enclose the vapors and provide ventilation. DeVilbiss sold spray booths to be used with their paint sprayers.

***Toledo Systems* advertisement, 1910. The Toledo Scale Company Records, MSS-153.**

The Toledo Systems, the company's monthly newsletter, encouraged salesmen to demonstrate the worth of a Toledo scale. This ad illustrates a clerk using one to complete a transaction with a shrewd looking housewife.

Georges LaChance paintings of Toledo Scale workers, 1928-1929. The Toledo Scale Company Records, MSS-153.

Hubert D. Bennett commissioned a series of 14 paintings depicting Toledo Scale workers in various aspects of scale production. An article in the company newsletter described the paintings in this way: "Beauty of design, ingenious engineering, the finest of raw materials, efficient production methods and modern machinery all contribute to the quality of Toledo Scale production. But, to the craftsmanship of its builders, who with skilled hands and years of experience mould these features into the finest and most desirable weighing equipment, the Toledo Scale Company owes its leadership in the scale industry."

Photograph, Toledo Scale baseball team, 1929. The Toledo Scale Company Records, MSS-153.

Toledo Scale focused on creating a positive environment and public image of the company. This company baseball team photograph depicts the camaraderie between employees.

Photograph, airplane testing, 1931. H.O. and H.W. Hem Toledo Scale Papers, MSS-176.

The Toledo Scale company pioneered industrial scales. This picture displays a wind tunnel used to measure the forces on a U.S. Navy airplane. Toledo's industrial scales were used for the war efforts in both world wars.

Photograph, Toledo scale face, n.d. H.O. and H.W. Hem Toledo Scale Papers, MSS-176.

"No Springs, Honest Weight" served as Toledo Scale's enduring company motto. Theobald used the motto unabashedly in his "Honest Weight Campaign," comparing spring scales' distrustful inaccuracies to Toledo's use of constant, accurate gravity in their pendulum scales.

Photographs, Acklin Stamping product production, 1943; and letter of appreciation from the War Department, 1945. Acklin Stamping Company Records, MSS-139.

These photographs show workers at Acklin Stamping working on shell casing production for World War II.

Corporate minutes, Inshield Die and Stamping Company, 1920. Inshield Die and Stamping Company Records, MSS-158.

These early minutes document the founding of the company as the Thal and Bitter Machine Company, August 16, 1920.

Advertisement and Inshield Driving Light, 1925. Inshield Die and Stamping Company Records, MSS-158.

The light designed by Inshield allowed drivers to install it inside the car and provided adequate light to drive at night. It could be installed in any car.

H. H. Doehler, *Die Casting*. New York: McGraw-Hill Book Company, Inc., 1951.

Herman Doehler invented the die-casting process. This book, signed by him, details the process of manufacturing die casting machines, making dies, and finishing and trimming die castings. Doehler founded the Doehler Die Casting Company in Toledo in 1907. In the company's early years, it manufactured hood ornaments for American cars, in addition to many other products. Prior to 1946, Doehler's company made the die castings and then sent them to the Jarvis Company for finishing. That year, Doehler bought Jarvis, and created Doehler-Jarvis, which became the largest independent aluminum die caster in the nation. In addition to its original factory on Smead Avenue, it added a large factory on Detroit Avenue in Toledo and had plants located at several locations in New York, Pennsylvania, and Canada. In 1994, the company was purchased by Harvard Industries, an auto parts producer headquartered in Tampa, Florida. The company closed the Toledo factory soon thereafter, and ended pension and health care benefits for retirees. In 2002, Harvard Industries declared bankruptcy.

U.S. patent awarded to Herman H. Doehler, 1917. On loan from the Maumee Valley Historical Society.

This patent was awarded to an improvement to Doehler's die casting process. Doehler-Jarvis held numerous die casting patents. It pioneered the production of large die castings, which were used to make engine blocks and transmissions for the automobile industry.

DeVILBISS SPRAY GUNS

Standard Production Types

TYPE MBC SPRAY GUN

This high-speed, production-type spray gun efficiently handles practically every variety of industrial spray coating work and is the only model on the market which gives you all of these important features:

Removable Spray Head for Greater Utility and Easier Cleaning
Ball and Cone Seating of Nozzle Parts
Assembly for Permanent Alignment
Graduated Spray Width Adjustment Valve
Cartridge Type Fluid Flow Adjustment Assembly
Unbreakable Gun Body Forged from a Modern Alloy Which is as Strong as Steel but as Light as Aluminum
Cartridge Type Air Valve Assembly
Two-finger Trigger with Light, Short Pull
Stainless Steel Fluid Needle

The Type MBC Gun, when fitted with the proper air cap and fluid tip combinations, can be used equally well with lacquers, synthetic and oil enamels, undercoats, sizes, bronzes, aluminum paints, shellacs, varnishes, emulsified asphaltum, and all other common coating and staining materials.

Either suction, pressure, or gravity feed can be used. The air inlet nipple is located in the base of the handle. The fluid inlet nipple is an integral part of the removable spray head.

Type MBC-510-1 Spray Gun with external mix spray head (Sh. Wt. 2 lbs. 4 oz.) price $28.00

Type MBC-422 Extra Removable Spray Head for Type MBC Spray Guns (Sh. Wt. 12 oz.) price $7.50

TYPE MBC SPRAY GUN
With Internal Mix Spray Head

This spray gun is recommended only for use with slow drying materials. It requires pressure feed with separate, or independent, pressure control for both fluid and air. The width of the spray pattern is adjustable.

Type MBC-576-1 Spray Gun with internal mix spray head (Sh. Wt. 2 lbs. 4 oz.) price $30.00

Type MBC-449 Extra Removable Internal Mix Spray Head for Type MBC Spray Gun (Sh. Wt. 12 oz.) price $9.50

IMPORTANT: Satisfactory results require that the Internal Mix Spray Head must be operated from a pressure feed paint tank equipped with double regulation or some means for independently controlling air and fluid pressures.

TYPE CH SPRAY GUN

A small, light weight gun for medium or small work. Recommended for delicate operations such as stenciling, high lighting and touch-up. Has self-aligning, but not removable spray head. Spray width adjustment controlled at spray head. Air inlet at side of gun. Used with pressure, suction or gravity feed.

Type CH-502 Spray Gun with adjustable spray head, price $19.50

Type CH-505 Spray Gun with non-adjustable spray head, price 16.00
(Shipping Weight 1¼ lbs.)

Note: If straight pipe threads instead of DeVilbiss standard threads are desired, prefix type symbol with letter "P". Example: P-MBC-510-1.

TYPE CL SPRAY GUN

For medium production work, especially recommended for women operators. Smaller, lighter and of simpler design than standard production guns. Has comfortable grip and short easy trigger pull. Spray head positive self-centering type but not removable. Air adjusting valve for regulation of atomizing pressure at nozzle, permits adjustment from wide fan spray to round spray. Produces medium size spray. Air inlet on side of gun. Uses pressure, suction, or gravity feed.

Type CL-501 Spray Gun (Sh. Wt. 1 lb. 12 oz.) price $16.00

TYPE CV SPRAY GUN

A small, light gun for touching-up, stenciling, high lighting, etc., or where close work requires accurate control and fine adjustment. Medium size spray. Well adapted for women's use. It fits the hand naturally, the forefinger falling easily on the trigger located on top of the gun. A gentle pressure operates it. This gun can be used either with pressure, suction or gravity material feed.

Type CV-504 Spray Gun with adjustable spray head and suction feed cup attachment with screw top, glass container, 6-oz. capacity (Sh. Wt. 2¼ lbs.) price.. $20.35

Type CV-502 Spray Gun only (Sh. Wt. 1¾ lbs.) price 18.00

TYPE AG SPRAY GUN

For stenciling, shading, highlighting and delicate touch-up of such objects as china, pottery, statuary, automobiles, furniture, toys, refrigerators, picture frames, poster backgrounds, drawings and signs. Operates from ¼ H.P. or larger air compressor. Gun has accurate control and fine adjustment—from a pencil line to a broad soft spray. Design makes possible close sighting and accuracy on fine work.

NOZZLE COMBINATIONS

*No. 292 Air Cap, H Fluid Tip produces spray 1½" wide.

*No. 294 Air Cap, G Fluid Tip produces spray 2" wide.

*No. 290 Air Cap, F Fluid Tip produces spray 3" wide.

No. 123 Air Cap, H Fluid Tip produces spray ¾" wide.

No. 122 Air Cap, G Fluid Tip produces spray 1⅛" wide.

No. 121 Air Cap, F Fluid Tip produces spray 1¾" wide.

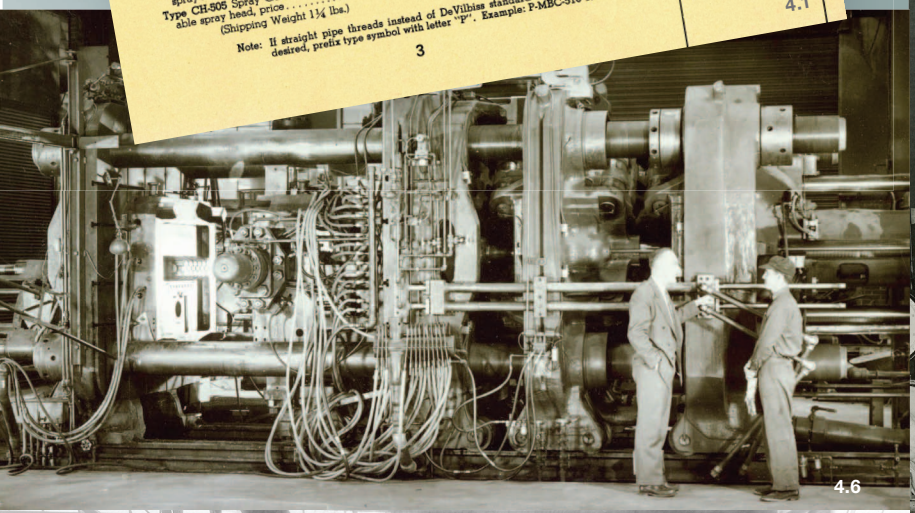
*Nozzle combinations marked with an asterisk produce fan spray; those unmarked produce round spray.

Type AG Spray Gun with 2 or 4 oz. glass cup (Specify Type AG-501 for 2 oz. AG-502 for 4 oz. cup). (Sh. Wt. 2 lbs.).. $16.00

Type AG Spray Gun with 6 or 16 oz. glass cup (Specify Type AG-505 for 6 oz. AG-506 for 16 oz. cup). (Sh. Wt. 2¼ lbs.) 16.15

(Specify nozzle combination desired.)

4.1



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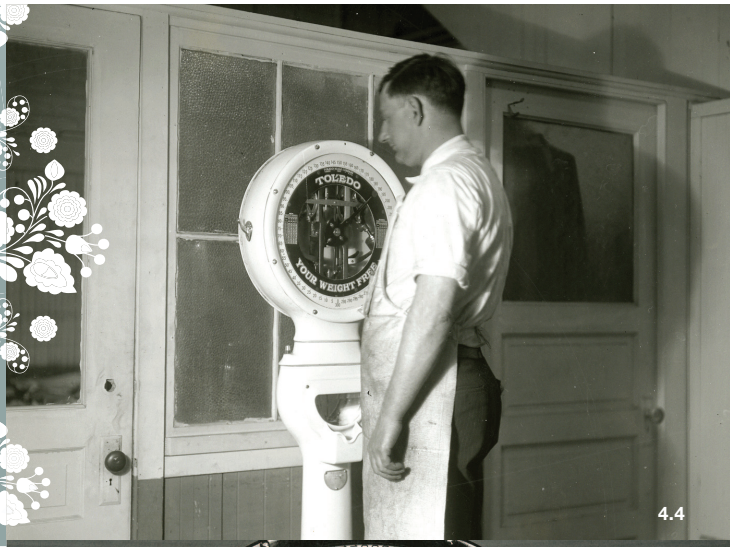
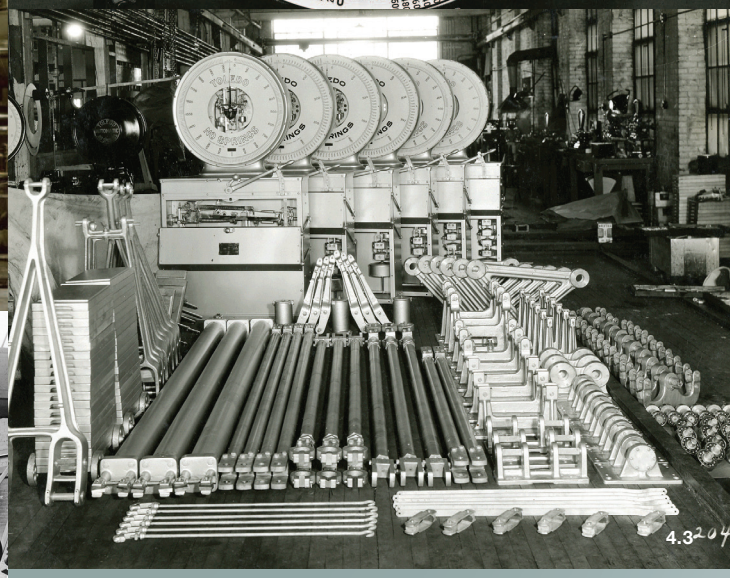
4.5



4.4

4.2



4.3

4.1 A catalog for DeVilbiss paint sprayers.

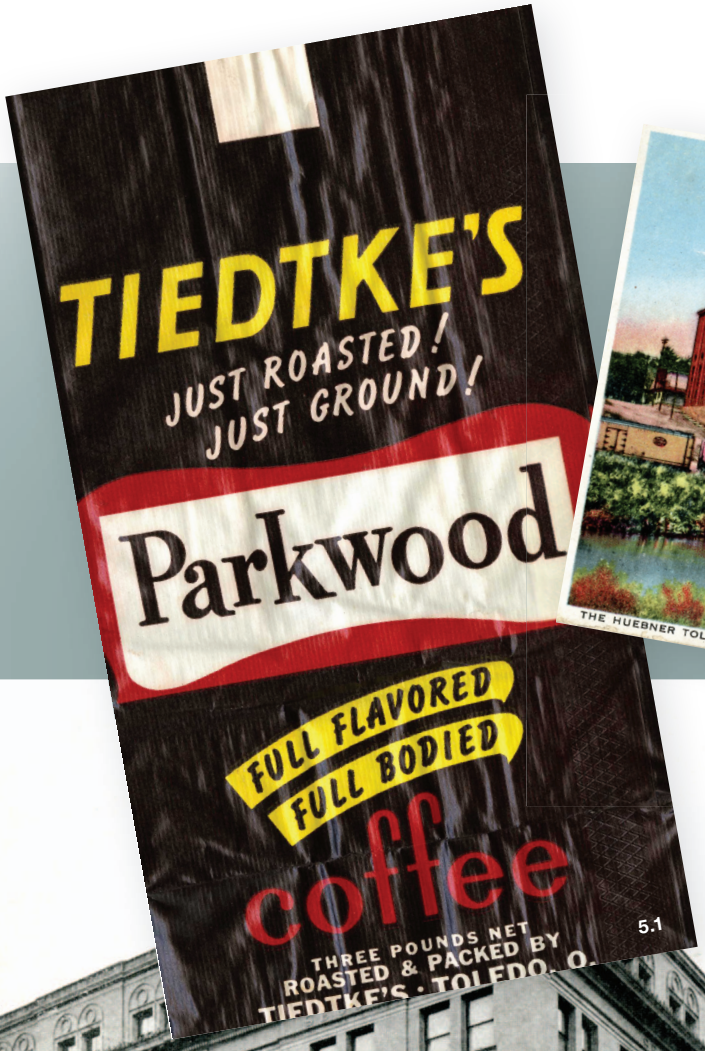
4.2 A face of a Toledo Scale, with its famous slogan, "No Springs, Honest Weight.

4.3 Scales awaiting assembly at Toledo Scale.

4.4 In addition to industrial applications, Toledo Scale also made scales for weighing people.

4.5 The Acklin Stamping factory, ca. 1940.

4.6 A large die casting machine at Doehler-Jarvis, ca. 1950s.



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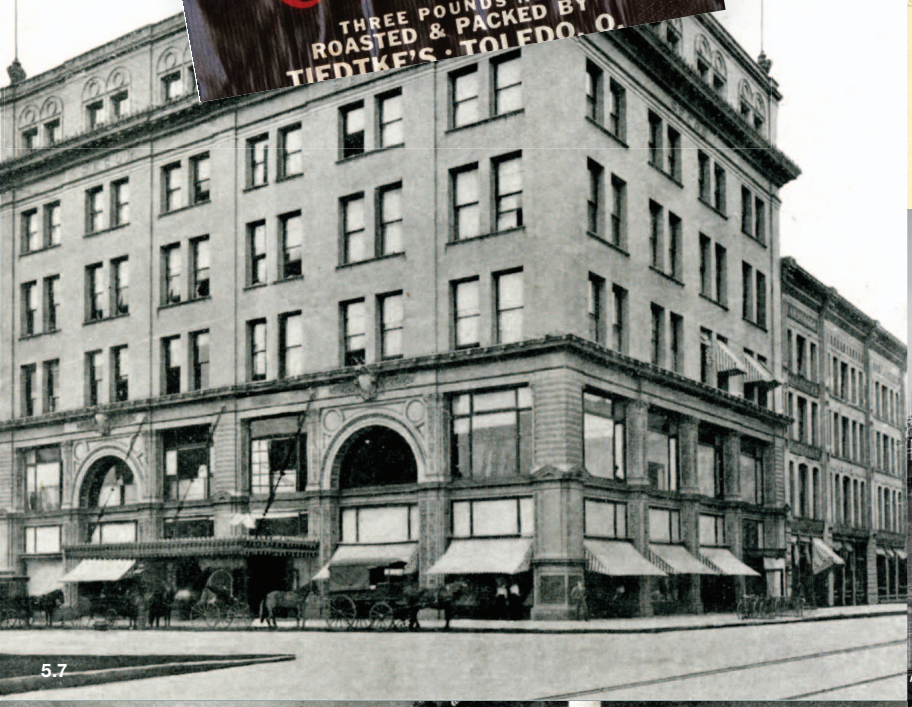

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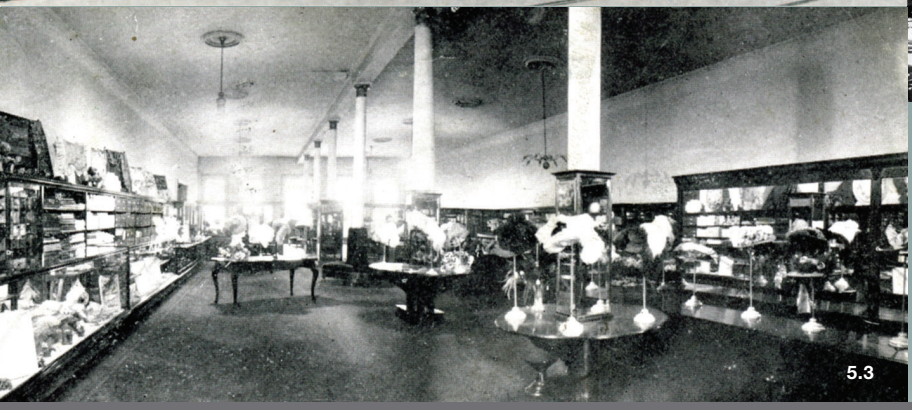


5.3

5.1. Tiedtke's famous coffee, named for the street Charles Tiedtke lived on in the Old West End in Toledo.

5.2. A advertisement for Lamson Brothers' fashions.

5.3. The millinery department of the Lion Store downtown.

5.4. The Andersons grain elevator, 1947.

5.5. The Andersons warehouse in Maumee.

5.6. The Huebner Brewery in Toledo.

5.7 The Lasalle & Koch Company

CHAPTER 5. FOOD, FASHION, AND FERTILIZER

"Toledo, as a whole point, has advantages of situation in as great a degree as any city that was ever built. She has many houses of local, as well as national, importance, and the ministers of her mercantile fraternity are well known and respected for their enterprise, equitable and progressive commercial methods and superior business ability."

Harvey Scribner, *Memoirs of Lucas County and the City of Toledo*, 1910.

As Jesup W. Scott realized, Toledo's location was pivotal to its economic development, especially for the development of its commercial sector. In the beginning, it was its location on the Great Lakes that attracted investors. Toledo became a canal port, with both the Erie Canal and the Miami and Wabash Canal connecting the country's vast interior to the Great Lakes through the city. By the 1850s, it was railroads that were instrumental to the city's development as a shipping and commercial center, with rail lines passing through that connected the east to the developing west. Today, Toledo's location at the nexus of the longest north-south and east-west interstate highways continues to shape the city's economy, facilitating the warehousing, shipping, and selling of consumer goods. This includes both wholesalers and retailers.

Food and Fashion: Toledo's Department Stores

Many Toledoans today have fond memories of shopping at locally owned downtown department stores. The four largest—Tiedtke's, Lion Store, Lamson's, and Lasalle's—were established in the 19th century, and for over a hundred years they had a huge influence on how Toledoans dressed, what they ate, and how they decorated their homes. Today, all four are gone, victims of consolidation into national chains and the demise of downtown Toledo's retail sector.

Perhaps no store is more revered in Toledo's nostalgic memory than Tiedtke's. In 1893, brothers Charles and Ernest Tiedtke opened their first store at the corner of Summit and Monroe Streets. Originally, their business focused on delivering groceries to local hotels, restaurants, and area families. The store added dry goods to its inventory as the market for such items developed, and it began delivering items to freighters and other ships anchored in Toledo's port. Soon the brothers found it necessary to purchase an entire fleet of horses and wagons to fill their delivery orders.

By 1910 the brothers were so successful that they moved their business into a six-story building located at the corner of Summit and Adams Streets—the location that most Toledoans remember as "Tiedtke's." By then the brothers were selling everything from groceries to clothing, and furniture to fresh baked goods. The store was known for having good quality merchandise at reasonable prices.

To the community, Tiedtke's was not just a store, it was a place to meet friends, to socialize, and to be entertained. Shopping there was not a chore, it was a highly anticipated event. Among the often mentioned memories of customers and employees are the smell of freshly roasting coffee, the sound of live organ music, the store's circus-like atmosphere with employees juggling oranges and other produce, the carnival-style mirrors located on stairway landings, and the giant wheels of cheese at Christmas from which they sold chunks by the pound. Charles and Ernest loved to mingle with their customers, and they walked the floors often wearing the same white smocks as their clerks so that customers would feel comfortable approaching them.

The Tiedtke brothers were also known for their charitable acts, generosity, and care for their employees and customers. It was not unusual for them to help employees financially and otherwise during tough times. They also opened early for one day during the Christmas season, when children from a local orphanage

shopped for toys and were treated to donuts and milk in the store's cafeteria. Each child was given $2 to spend, but the brothers instructed their clerks that if a child was a little short on cash for a desired purchase, the price of the item was to be reduced.

In 1925, the Tiedtkes sold the store to Columbus business men Jerome and Alfred Kobacker, who chose to keep the Tiedtke name along with the operating style and many of the traditions that Toledoans had grown to love and expect from the store. The Kobackers operated the store until 1961, when they sold it to Federal, a chain of stores based in Detroit. However, Federal's management style combined with increasing competition from discount stores forced the store to close in 1972. The empty building was destroyed by a massive fire in 1975, and its remains were razed shortly thereafter.

The Lion Store began as the F. Eaton and Company dry goods store, founded in 1857 by Frederick Eaton and located on Summit Street downtown. From 1858 to 1872, the store was a partnership between Eaton and Asa Backus, and in 1885, George M. Fisher from St. Louis became a controlling partner. In 1900, Fisher purchased the store outright, and changed the name to the Lion Dry Goods Company to reflect the store's landmark life-sized cast iron lions that flanked its entrance. The store became a part of the Mercantile Stores group, a national chain, in 1914.

In the 1920s, the Lion Store occupied several combined buildings at Summit and Adams downtown. After World War II, with the movement of the city's population into the suburbs, the Lion Store followed its customer base. It opened stores in several shopping centers and malls, including the Westgate Village Shopping Center (1957), Franklin Park Mall (1971), Southwyck Mall (1972), and North Towne Square Mall (1980). Sadly, the downtown store closed in 1980, and the building was torn down in 1986. In 1998, Mercantile Stores, including the Lion Store, was bought by Dillard's, a national retail chain headquartered in Little Rock, Arkansas, and the name that had been a part of Toledo history for over 100 years ceased to exist. Several of its most popular stores were closed, including the Westgate store that had been a fixture of that shopping center since its construction. Today, the Lion Store is still fondly remembered by many Toledoans, especially its reputation for service and product quality.

Two other important retailers in Toledo fashion with long connections to the city included Lamson Brothers and Lasalle and Koch. Lamson Brothers was founded in 1885 by Julius and John Lamson, with a store on Summit Street downtown. In 1928, the store moved into a new building at Huron and Jefferson. Lamson's was known for its upscale merchandise, and like Lion Store, the company expanded into suburban stores in the 20th century in order to better serve its population. These stores included Parkway Plaza in Maumee (1961), Franklin Park (1971), and Southwyck Mall (1972). In 1976, the company was forced to declare bankruptcy, and all of its stores closed.

Lasalle and Koch, founded in 1898, was also located originally on Summit. In 1917, the store moved to a new building at the corner of Huron and Adams, and three additional floors were added to this building in 1927. The store became affiliated with the R. H. Macy Company of New York in 1924, although it retained its local name until 1982, when Macy's purchased it outright. In 1985, it was sold to Elder-Beerman, a Dayton-based retail chain. Like other city retailers, Lasalle's also expanded into the suburbs, building a large retail establishment in Westgate in the 1960s and North Towne Square Mall in 1980. The downtown store closed soon after Lamson's and Lion closed their stores, and the landmark building was empty for 12 years. In 1996, the building was converted into apartments.

Food and Fertilizer: The Andersons, Inc.

With the demise of Toledo's four great department stores, only The Andersons remains as a locally owned general merchandise store, although The Andersons' focus was and is much more diversified than Tiedtke's, Lamson's Lasalle's, or Lion. High fashion was never in its product line, but fertilizer was.

If the theme of Toledo's economic history over the last forty years is decline, then The Andersons could be considered the antithesis of that trend. Not only has the company survived the post-industrial years, but it continues to diversify and thrive. Beginning with grain and milling, The Andersons have expanded into many different arenas that today include retail stores, railroads, and even alternative energy.

Harold Anderson, the family patriarch, formed the company early in 1937. Anderson had established himself within the regional milling and grain industry beginning in 1927 as the head of the National Milling Company, a company founded by his father as a subsidiary of the National Biscuit Company. In December 1936, Anderson sent letters to newspapers and grain journals informing the public that he was beginning a new company, which would be a partnership with his father and wife. It was called the Anderson Elevator Company, and initial plans called for building a new concrete grain elevator with capacity to store 1,000,000 bushels of grain in Maumee, Ohio. The grain elevator would be the fifth largest in the state and third largest in Toledo. The Maumee location provided close access to State Route 20, the Wabash railroad line, and nearby ports on the Maumee River.

During its first two years of operation, the grain elevator was leased to the Continental Grain Company. A severe car accident in the summer of 1937, zoning controversies, and side endeavors during these first two years of operation kept Harold Anderson busy while the Continental Grain Company ran the elevator. In 1940, a second grain elevator, twice the size of the original Anderson elevator, was completed. Throughout the 1940s the land and elevators were leased to the Cargill Corporation as the Anderson family worked to form a new family business.

In 1947, Harold Anderson, in partnership with his wife, daughter, and five sons, opened the Anderson Truck Terminal consisting of a 500,000 bushel grain terminal and a new system of grain unloading with nine truck bays. Harold Anderson envisioned the truck terminal to be just as modernized as the farming industry had become. While new technology, machinery, and science brought efficiency and higher yields to the farmers, when it was time to go to market the farmers still had to haul their grain in trucks and wait in long lines to unload it into elevators. The new truck terminal was constructed to be modern and fast, and advertisements boasted of a short ten-minute wait. Farmers could bring their family with them, or relax in the waiting room while their grain was unloaded.

The truck terminal also transported the grain differently, allowing for shipments by road, rail, and water, helping to revive the Port of Toledo. Within one year of the company's founding, almost four-fifths of the area's grain was leaving Toledo by ship through the port.

As the efficiency of the terminal increased business, expansion of storage space became a necessity. In May 1950, a new silo was constructed that doubled the grain storage capacity. The seven-day silo raising became a media event, with 20,000 farmers invited to watch the silo rise fifteen feet per day. The construction crew consisted of local workers who were housed and fed in dormitories erected on the Anderson farm. The construction crew worked in three shifts, 24 hours a day, to complete the project in the seven days.

By the end of the 1950s, The Andersons partnership assets included the 1,000,000 bushel storage space at the Anderson Truck Terminal; 3,100,000 bushel elevator in Maumee being leased to Cargill, Inc.; a 500,000 bushel grain storage plant and general offices in Toledo; grain transfer equipment and docks on the Maumee River; a 105-acre farm; and an additional 400 acres of land which included a stone quarry. Expansion continued over the next five years. In 1952, the first of these projects included a new 176-foot high grain drying and corncob processing tower. The company also opened a retail store, The Anderson Warehouse Market. Aimed at those who were waiting to unload grain, the store was located next to the truck terminal and stocked products needed by farmers at lower prices than competing stores. Harold's son, Dick Anderson, led the retail division.

The following year, the construction of a new 3,000,000 bushel grain storage elevator began. The Andersons hired 225 college students to build the elevator. Like the last large elevator construction, this event was well publicized in the media. "The Big Pour," as it became known, was even featured in *Life* magazine.

The Andersons partnership continued it expansion and diversification throughout the 1950s, adding a corn sheller building, cob milling plant, steel tanks for grain storage, and a fertilizer production facility. It impacted other industries in the city as Toledo became one of the top world grain ports because of The Andersons. By 1966, the company consisted of the Grain Division, Warehouse Division, Tires and Batteries Division, Garden Annex Division, Fertilizer Division, Cob Mills Division, Engineering Division, Steel Fabrication Division, and Feed Manufacturing Division. The company—and the Anderson family—were also active in the community, providing financial support and volunteer assistance to many community organizations.

1968 was a year of ups and downs. Early that year, a new grain elevator was built in Champaign, Illinois, to export products down the Mississippi River. Harold Anderson stepped down as CEO, and died unexpectedly in December, and he was succeeded by his oldest son, John. Harold Anderson's philosophy throughout his life was "work is a blessing." The partnership business that he started with his wife Margaret and their children now included spouses, nearly 50 grandchildren, and three non-family associates.

The company continued its expansion through the next four decades. While a recession in the 1970s devastated Toledo's economy, it had little affect on The Andersons. A new site for fertilizer production was built on the St. Clair River in Canada, a new General Store replaced the Warehouse Market in Maumee, a new retail store (aimed at a more upscale, suburban clientele) opened in west Toledo, a new tire shop was built, a new grain elevator and cob mill were built in Indiana, and record sales were achieved. The company's leadership also continued to help the community. Dick Anderson was active in downtown Toledo redevelopment efforts. Financial support was provided by family members to The University of Toledo, the new Medical College of Ohio, Junior Achievement, Community Chest (now United Way), and the Catholic Dioceses of Toledo. In May 1977, the Toledo *Blade* reported that Andersons had become the 25th largest privately owned nonfinancial company in the nation.

Today, The Andersons, Inc. is a publicly held company, with stocks traded on the NASDAQ. The company owns facilities in Ohio, Michigan, Illinois, Indiana, Wisconsin, Florida, Montana, Minnesota, Missouri, South Carolina, Nevada, Georgia, Utah, California, Alabama, and Puerto Rico. The company is currently divided into five business groups: grain and ethanol, rail, plant nutrient, turf and specialty, and retail. The company also helped to develop the Arrowhead Industrial Park in Maumee. Throughout the last sixty years the Andersons have stayed true to their roots in the grain industry while simultaneously diversifying into many related endeavors. While the company is no longer family owned, it continues to be closely associated with the Andersons. Members of the extended clan continue to serve the community as members of many non-profit boards and leaders of charitable fund drives. Today the company employs 3000 people.

Milk and Beer

In addition to companies that sold multiple products, there were some Toledo businesses that sold only a single product, but which nonetheless left their mark on the city. Milk and beer are two examples of such singular products with immediate name recognition for their producers among the city's populace.

As Toledo became urbanized, it was no longer possible for residents to own their own milking cows, or even get milk from a farmer who did. Dairies filled the need by either having their own herds for milking, or by contracting with farmers.

But bringing milk to an urban population was a risky business. As the *Toledo Medical and Surgical Reporter*, the journal of the Toledo Academy of Medicine, noted in an article in 1903, "Milk is an unstable fluid readily becoming unfit for use; yet it is, with the exception of oysters, the only animal product habitually taken raw." The article reported findings by two Toledo doctors who claimed one death in 20 of children in the city was the result of unsanitary milk. Unhealthy milking cows, warm storage, and adding preservatives like boric acid and formaldehyde, were some of the problems with the milk sold by local dairies.

Between 1907 and 1910, pasteurization was widely adopted by most dairies, and the Academy of Medicine appointed a Milk Commission in 1907 to certify the quality and safety of the product. One of the first dairies in Toledo to market the safety of its milk was the Babcock Dairy, which had the slogan of "The Safe Milk for Baby." Babcock Dairy was one of a number of independent dairy companies in the city, with Page Dairy being its main competitor. The company was founded by Roy Babcock in 1906, and was the first company to bottle milk for the consumer. Babcock became the largest independent dairy in the country.

Another beverage perhaps more important than milk to Toledoans was beer. At one time, Toledo had 14 breweries. As in most cities, the breweries were established by German immigrants to the city. Early breweries included Jacobi, Coghlin and Company (established in 1878), producer of Buckeye Lager Beer; the Toledo Brewing and Malting Company (1857); and Finlay Brewing (1855).

Huebner Brewery, located at Hamilton and Division streets downtown, was at one time the largest brewery in the city. Established in 1896, it merged with the Grasser and Brand breweries to form the Huebner-Toledo Breweries Company. In addition to the production facility, Heubner also has a beer garden designed in a traditional German architectural style at the Toledo Casino, located near Bay View Park in the early 20th century.

Ohio voters approved a statewide prohibition on the sale and consumption of alcohol in November 1918 after three losing attempts. Those in favor of the law played upon anti-German immigrant fervor following the outbreak of World War I. The state became "dry," and Toledo's thriving brewery industry suddenly came to an end. The four breweries in existence at the time—Huebner-Toledo, Home, City, and Buckeye—stopped producing. Huebner closed its doors for good in 1923.

Daily sales summaries, Lion Dry Goods Company, 1897-1905. Lion Dry Goods Company Records, MSS-056.

These early financial records of the company show a summary of sales by year.

***Fashions: An Illustrated Monthly Journal for the American Woman*, published by Lamson Brothers, Toledo, March 1903. Ward M. Canaday Center Local History Vertical Files.**

This magazine featured some of the latest fashions available for sale at the store.

Memorabilia from Toledo department stores, ca. 1940-1970. On loan from a private collector.

Examples of some of the products sold at Toledo's four downtown department stores.

The Andersons, Inc. scrapbooks, 1936-1940. The Andersons, Inc. Records, MSS-194.

This early scrapbook includes letters from Harold Anderson to and from colleagues concerning Harold's departure from the National Biscuit Company to begin his own company in 1936.

"Progress in Grain Marketing" scrapbook, Anderson Elevator Company and the Anderson Truck Terminal, 1950. The Andersons, Inc. Records, MSS-194.

This scrapbook documents the early years of the Anderson Truck Terminal, and its impact on local farmers and grain shipping in the region.

"A Century of Service: The Bostwick-Braun Company, Toledo, Ohio," 1955. Ward M. Canaday Center Local History Vertical Files.

Bostwick-Braun was founded in 1855 as the W. & C. B. Roff Company, supplying both wholesale and retail hardware to a growing Toledo. In 1862, Oscar Bostwick joined the firm as a traveling salesman. Carl F. Braun joined the firm in 1866. Within two years, Bostwick and Braun had bought out the Roffs, and the firm changed its name. The hardware company rapidly expanded in the late 19th and early 20th centuries. In 1907, the company purchased the entire block bounded by Summit, Monroe, Perry, and the Maumee River downtown for a new warehouse, and it became a wholesale supplier. In 1985, the company moved to a distribution center in Ashley, Indiana, although it continues to have offices in Toledo on North 13th Street.

Huebner Brewery postcards and recipe. Alice Huebner Collection, MSS-133.

Alice E. Huebner, a professor of English at The University of Toledo from 1941 to 1972, was a descendent of the founding family of Huebner Brewery. The postcards depict the brewery both inside and out, and the recipe provides the formula for the company's famous brew.

Huebner Brewery bottles, ca. 1890-1920. Owens-Illinois, Inc. Records, MSS-200.

Portrait of Roy William Babcock, ca. 1943. Gift of Roy William Babcock, Jr.

This portrait shows the founder of Babcock Dairy, the largest independent dairy producer in the country. The dairy was located on Berdan Avenue in Toledo, and the building still stands today.

Babcock Dairy memorabilia. On loan from the collection of Deb Sutter, Bryan, Ohio.

Milk bottles and other product containers and advertisements from Babcock Dairy. The dairy promoted the high standards of its product with the slogan "The Safe Milk for Baby."

Scripts from M*A*S*H television shows with references to Tony Packo's hotdogs, 1978-1980. Jamie Farr Collection, MSS-024.

Toledo native Jamie Farr's hometown was often written into the scripts of the popular M*A*S*H television series. In several episodes, Farr's character, Corporal Max Klinger, made mention of Tony Packo's hotdogs. The show helped to make the Toledo company into a nationally-known brand. In one episode, casings from the hotdogs were shipped from Toledo to Korea and used in surgery by Dr. Hawkeye Pierce as an artificial kidney. In another, Klinger dreams of Christmas back in Toledo with a tree strung with Packo's dogs.

CHAPTER 6. THE BUSINESS OF PHILANTHROPY

"The outline of the scope of the inaugural exhibition is sufficient to set forth the high ideals established by President Edward Drummond Libbey, whose pleasure it has been to bring together this exhibition, which will auspiciously inaugurate the career of this new museum. We feel that the people of this part of the country will appreciate these efforts, and will by their appreciation and interest enable us to carry forward our activities as successfully as they have been commenced, that our institution may be a lasting credit and glory to our city, our state and our country."

Toledo Museum of Art Director George Stevens, on the occasion of the inaugural exhibition of the museum, 1912.

Toledo business men and women have contributed to the city in ways that go far beyond expanding the economic base. Those who have led businesses large and small have worked to improve the fabric of the city through both individual philanthropy and service to organizations.

In the early 20th century, the public's view of business men underwent a fundamental change as a result of the excesses of the Gilded Age. Those once admired for their entrepreneurial acumen, superior intelligence, and wise investments—the American ideal of the self-made man—came to be seen as greedy industrialists who exploited their workers, used political connections to their advantage, and cared only to acquire ever larger sums of money to support their aristocratic families in the lifestyle to which they had become accustomed. Journalists who wrote for popular magazines and penny newspapers of the day investigated these excesses, raking back the "muck" of corporate greed to reveal dirty secrets about the way leaders of some of the country's largest companies ran their businesses and treated their workers. As a result, the public began to question the morality of business men.

But business men too began to question the excesses of their class. Many recognized that the free market was free no more, and that government regulation was a necessary evil to protect against monopolies. Government and the courts stepped in to regulate business for the first time. Toledo's own Morrison Waite, chief justice of the U.S. Supreme Court, summarized the justification for regulation in the 1877 decision *Munn v. Illinois*: "When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good."

The Progressive Era, the name given to the period which followed the Gilded Age, was focused on social reform built on the concept of individual and collective responsibility. Business leaders moved away from the philosophy of "survival of the fittest" and toward the belief that economic prosperity could benefit all. They also feared what would happen if the working class continued its discontentment, and the specter of socialism and unionization forced many to become more socially responsible. Corporate leaders also believed their business efficiencies and managerial skills could be applied to solve social problems.

The very wealthy gave away millions for projects and endowments often named in their behalf. Owners of small and medium sized companies who lacked the personal fortunes and largess of the Carnegies, Rockefellers, and Fords joined together to create service organizations that could collectively help society. The Progressive Era was a time when groups such as Rotary International, Kiwanis, Lions' Clubs, and many others were created. Many of these business men were encouraged in their work by their wives. Upper and middle class women were at the forefront of social reform efforts of the Progressive Era.

The Business of Service in Toledo

In Toledo in the 19th century, assistance to the poor was the responsibility of the Lucas County Infirmary. A few private charities existed, but there was no coordination between them, and the infirmary did little to direct those in need to other agencies. In order to more efficiently provide needed social services, in 1904 Toledo business men and their wives created a new organization called the Toledo Federation of Charities. Persons needing assistance could apply to the Federation, and they would be directed to the charity best suited for their particular need. The organization sought to "promote the general welfare of the poor by social and sanitary reforms, by industrial instruction, and by the inculcation of habits of providence and self-dependence, by the establishment and maintenance of any activity to this end." The Federation also made sure that people were not receiving aid from more than one agency at a time.

In 1909, Edward Drummond Libbey became president of the Federation. The Commerce Club provided financial support to the organization beginning in 1912 when an upturn in cases strapped the organization's funds. Assisting children became a special interest in 1913, when the Federation opened a Fresh Air Camp on Lake Erie for poor urban children who had no opportunities for recreation. In 1919, a Children's Aid Department was created, and the organization began to place children for adoption.

To help fund the Federation, in 1920 members of Toledo's business community created the Toledo Community Chest, modeled on the success of the War Chest. The War Chest had been founded to efficiently raise funds to purchase World War I bonds through a single fund drive. Likewise, the Community Chest raised funds to support numerous charities in one annual drive. In 1960 it became known as the United Appeal, and in 1984 changed its name to United Way. The United Way continues to draw upon the charity of local business men and women to support the work of many social service agencies in northwest Ohio. Campaign chairs have included the leaders of most of Toledo's largest corporations.

In addition to coordinating social services in the city, many business men and women provided direct assistance to those in need through service organizations. The Toledo Rotary, Kiwanis Club, and the Lions' Club were all formed during the first decades of the 20th century, as was the Business and Professional Women's Club, and Quota.

Toledo Rotary. The first Rotary Club was founded in Chicago in 1905 by lawyer Paul Harris, who sought to create an organization of business men who would put "Service Above Self." The Toledo club was organized in 1912. Like many such organizations, the Toledo group was focused on providing community service, maintaining high ethical standards, and fostering fellowship among its members.

The Toledo Rotary distinguished itself in its service to children with disabilities. In 1914, members provided financial support to the city's orphans, several of whom were disabled. At the encouragement of members of the District Nurses Association, the group expanded its work in helping children with disabilities by paying the medical bills of poor children impacted by the polio epidemic of 1916. The club also undertook a survey to determine how many disabled children were potentially in need of assistance, a necessary step since most families felt shamed by such children and hid them.

In 1917, the Toledo Rotary took on the special case of Alva Bunker, who had been born with no arms or legs. As Ed Kelsey, president of the Rotary, recounted in 1921, "We found Alva Bunker, that little boy with no legs or arms, a mere stump of a lad, getting around by means of a roller skate on a board, just pushing himself around the alley. He was thirteen years of age, and had never been outside the alley in any distance. He had never been to school, nor downtown Toledo, or ridden in a street car or automobile. His whole world was encompassed by the dark grime of the alley. They said he was mentally deficient, too, and because so

horribly crippled you shrank from him as you saw him, and he shrank from you because solitude and the surroundings of the alley made him afraid." The Toledo Rotary made arrangements for Bunker to go to a hospital in Detroit, where he was fitted with artificial legs and attended school for the first time.

When Bunker returned to Toledo, his successful rehabilitation—which had garnered national attention—inspired the Rotary to continue its work on behalf of children with disabilities. In 1917, the club helped to establish the Feilbach School, the first school for disabled children in Toledo. In 1920, at a statewide meeting of Ohio Rotary clubs, a new organization called the Ohio Society of Crippled Children was created by Rotary members through the encouragement of Toledo Rotarians. The society saw to the passage of a new state law that became a national model for assisting disabled children. By 1922, the effort went international. Today, Rotary International continues its service to children with disabilities that began with Alva Bunker in Toledo. Last year, Rotary International raised $200 million aimed at eradicating polio worldwide.

Lions' Clubs. Another organization that benefitted persons with disabilities was the Lions' Clubs International. Founded in 1917 to promote civic welfare, it identified its major philanthropic service at the group's international meeting held at Cedar Point in Sandusky, Ohio, in 1925. There, attendees heard a speech by Helen Keller, who was touring the country to raise money for the American Federation for the Blind, and who had spoken in Toledo the prior evening. Keller, who was both blind and deaf, had been taught by her teacher Anne Sullivan to speak. She could "hear" by feeling the vibrations on a person's lips, nose, and throat with her fingers. Keller urged the Lions' Clubs to adopt blindness as its philanthropic focus, to become "knights of the blind in the crusade against darkness." The Toledo Lions' Club has been a major supporter of the Sight Center of Northwest Ohio.

Kiwanis Club. The Kiwanis Club of Toledo was chartered on May 16, 1916, with Albert H. Miller as first president. The Kiwanis Club held its first meetings in the Boody House hotel, but later met in the Lasalle and Koch Auditorium and the Secor Hotel. The club raised money to fund "Boys and Girls Work" through its Good Turn Fund. In the early years, funds were raised by producing a minstrel show that featured club members as the actors. More recently, fundraising has been done through a Peanut Sale and Pancake Days.

Throughout its history, the club has financially assisted several youth groups, including the Boy Scout troop at Miami Children's Home, Y. W. C. A., Y. M. C. A., Camp Storer, Camp Walbridge, the Boy's Club of Toledo, and the Fresh Air Camp. Kiwanians were also active, beginning in the 1920s, in raising money for the Community Chest (now United Way). During the Depression, the Kiwanis Club provided assistance to families with children suffering from tuberculosis and other disabling diseases by paying for x-rays and physical exams. During World War II, it collaborated with the Red Cross, American Legion, and U.S.O to donate books to men in the services. A Wartime Citizenship Program urged Toledoans to purchase war bonds, send Christmas cards to service member, and donate blood. After the war ended, the club participated in the March of Dimes campaign and sponsored presentations by political figures, government officials, and representatives of social service organizations to raise awareness of community issues. During the Cold War, the club scheduled presentations on the future of the relationship between the United States and Communist nations.

In the 1960s, the Kiwanis Club was also involved in international philanthropic activities including a U.S.-Canada goodwill program, an African literacy program, a program to send care packages to the needy of Europe, and a cultural-industrial exchange program with Japan. In the 1970s, the club increased its activity in anti-drug education in collaboration with federal agencies, worked with Goodwill Industries to support

programs for the disabled, worked with the Salvation Army to fight alcoholism among men, engaged in downtown Toledo beautification projects, and sent international care packages to Korea and Jamaica. More recently, the Kiwanis Club of Downtown Toledo has continued working with schools and youth groups as well as funding programs to help the needy and sick.

Quota International of Toledo. Organizations of business women became more common after the end of World War I. Many women had entered the workforce during the war, and had assumed important positions within their companies. These women were also interested in helping the less fortunate. But after the war, many were forced to leave their business positions to return to the home. In February 1919, a group of five of Buffalo's leading women of business met to found what became Quota International.

The Toledo Quota chapter was founded in 1931, and has been focused on assisting the hearing impaired and women and children in need.

Business and Professional Women's Club. The Toledo Chapter of Business and Professional Women officially formed in 1920 from several loosely aligned local clubs for working women. A state-wide organization had formed the year before, and the Toledo chapter joined the state group.

The club's mission is to advance the causes of all working and professional women. Throughout its history, these causes have included promoting the passage of the 19th amendment to the U.S. Constitution (giving women the right to vote), helping women find employment, and supporting the Equal Rights Amendment.

While social in nature, the club was also involved in charitable projects, including donating juvenile wheelchairs to the city's hospitals, sponsoring a department in Lasalle's (where items made by blind citizens were sold), raising funds to furnish a room at the Roche Tuberculosis Hospital, and funding playgrounds for children in the inner city. It was also active in supporting both world wars by making hospital gowns and bandages, and in 1948 the club initiated an extensive project to improve lighting at the Toledo State Hospital.

Today, the Toledo Chapter of Business and Professional Women continues to advocate for issues of importance to working women, raises funds for scholarships to advance the careers of women through educational and networking opportunities, and provides career counseling. Through this work it hopes to help women reach their goals as professionals.

Edward Drummond Libbey and the Toledo Museum of Art

In addition to service organizations, some business men of considerable means took on philanthropic projects on their own, often with the encouragement of their wives. Edward Drummond Libbey was Toledo's equivalent to Andrew Carnegie or John D. Rockefeller. His contributions to the city, and those of his wife, Florence Scott Libbey, were among the most important philanthropic efforts in the city's history. And their legacy continues today.

In 1901, the Toledo Tile Club, a local men's art and social club, conceived of the possibility of establishing an art museum for the city. The club approached Libbey with the idea. Encouraged by his wife—an avid lover of art—as well as his own desire to improve the lives of working-class Toledoans by providing access to culture, Libbey was inspired to lead the effort for a museum. Later that year he rented two rooms in the Gardner Building downtown where 95 paintings, all on loan, were placed on display. It was the first formal art exhibit held in Toledo.

In 1903, Libbey purchased a house at the corner of 13th and Madison in downtown Toledo to serve as the first official home of the art museum. He appointed George W. Stevens as the director. The first exhibit at this location opened later that year, and while initially popular, interest waned during the following two

years. Stevens and his wife, Nina, developed a schedule of programs and classes in the museum to bring in visitors. He ensured that these events were to be available to Toledoans of all walks of life—not just the elite. He especially wanted to attract children, and warmly opened the museum's doors to them even when unaccompanied by an adult. Libbey heartily approved of Stevens's approach, and because of his support for education, Libbey desired that the museum and its services be available free of charge to all teachers and students.

Because of donations of artwork by the Libbeys and other Toledo collectors, the Madison building soon became full. By 1907 it was clear that a larger facility was needed, and Libbey once again led the fund-raising effort. He initiated the campaign for a new museum by offering to donate the Madison property, then valued at $50,000, on the condition that the citizens of the city match his gift. Thousands of school children donated pennies and nickels until the goal was met. Mr. and Mrs. Libbey also donated the land for the new museum, consisting of seven lots facing Monroe Street—property formerly owned by Florence Libbey's father, Maurice Scott. The museum opened its doors on January 17, 1912.

During the next few years the collections continued to grow and educational programs for adults and children expanded, so much so that by 1916 even more space was needed. Once again, Edward Drummond Libbey initiated a fund-raising campaign by donating $400,000 to the building fund. In turn, Toledo's citizens not only matched Libbey's donation, but exceeded it by raising $600,000 for the fund. However, the project was delayed by World War I and construction work did not begin until 1923. Libbey donated another $850,000 to the project, and the addition was dedicated in 1926, doubling the museum's space.

Sadly, Libbey died of pneumonia on November 13, 1925, before the addition was completed. But after his death he continued his support for the museum by leaving in his will an endowment fund of $1,000,000 to ensure that the museum would be financially secure in the future and that additional artwork could be purchased for its collections.

After her husband's death, Florence Libbey continued to support the museum and community. A two-wing addition to the building had been planned, but the project was delayed by the Depression. But because she was concerned about rising unemployment, Florence Libbey gave the funds to proceed with construction. Her gift resulted in the creation of nearly 3000 jobs. The two-wing expansion project was finished in 1933, and included a concert hall which she helped to design named the Peristyle. Mrs. Libbey died in 1938, but like her husband, she left a large portion of her estate to support the museum's future.

In addition to all of their financial support, through the years the Libbeys donated many pieces of artwork of immeasurable value. Thus, the Libbey's support for the arts and education continue on even to the present time, and today, the Toledo Museum of Art is widely known as one of the finest art museums in the country.

Daily Report, Toledo Federation of Charities, 1904-1905. Family Service of Northwest Ohio Records, MSS-075.

The Toledo Federation of Charities was the first social service agency in the city. Members of the organization included the wives of some of the most prominent business men of the city. The organization sought to help the city's poor by providing direct assistance or by referring to appropriate agencies.

Toledo Community Chest scrapbook, 1922-1932. William M. Booker Scrapbook Collection, MSS-070.

This scrapbook contains Booker's correspondence with community and business leaders congratulating him for successful fundraising in the 1920s and regrets about Booker stepping down as chair of the Community Chest. During the Depression, the Community Chest was an invaluable source of money to support needy families with clothes, food, and other supplies.

Toledo Community Chest scrapbooks, 1941-1945. United Way of Greater Toledo Records, MSS-064.

These scrapbooks document the efforts of the Toledo business community to raise funds to support social services during World War II.

Scrapbook, Charles Feilbach School for Crippled Children, 1921-1931. Toledo Rotary Club Records, MSS-145.

This scrapbook includes photographs and documents from the early years of the Feilbach School, founded with the help of the Toledo Rotary to provide educational opportunities to children with disabilities. The school continued to operate until 1975, when a new federal law required that children with disabilities be allowed to attend any public school.

Membership Rosters, Toledo Rotary Club, 1915-1921. Toledo Rotary Club Records, MSS-145.

These early rosters list members of the Rotary, including most of the prominent business men of the city.

"Golden Anniversary of Rotary Club of Toledo, May 1962." Toledo Rotary Club Records, MSS-145.

The 50th anniversary of Toledo Rotary was a time to pay homage to all of the Rotary members who had been active in community organizations.

***Weekly Bulletins* of the Kiwanis Club of Downtown Toledo, 1916-1988. Kiwanis Club of Downtown Toledo Records, MSS-081.**

These newsletters document some of the service projects of the Downtown Kiwanis Club.

Scrapbooks, Quota International of Toledo, 1935-1939. Quota International of Toledo Records, MSS-129.

These scrapbooks include information on the activities of the Toledo Quota club, including service activities to help women and children in need.

Certificate of Incorporation, 1920, and Credo, n.d., of the Business and Professional Women's Club of Toledo. Toledo Business and Professional Women's Club Records, MSS-137.

The Toledo Chapter was incorporated as a member of the National Federation on July 10, 1920.

"Milestones of Reflections: 1914-1960." Toledo Business and Professional Women's Club Records, MSS-137.

This booklet contains a history of the Toledo chapter from its beginnings through 1960.

Deed, 13th and Madison art museum property, 1902. Owens-Illinois Company Records, MSS-200.

Edward Drummond Libbey purchased this house downtown at their first home for the art museum. The building was renovated to include gallery space, and also served as the home for the museum's first director, George Washington Stevens.

Key to the City of Toledo, January 17, 1912. On loan from the collections of the Toledo Museum of Art.

This key was presented to Edward Drummond Libbey upon the opening of the Toledo Museum of Art.

Testimonial book, January 17, 1912. On loan from the collections of the Toledo Museum of Art.

This book contains testimonials to Edward Drummond Libbey by citizens of Toledo in appreciation for his gift of the Toledo Museum of Art.

***Catalogue of the Inaugural Exhibition,* Toledo Museum of Art, 1912. Ward M. Canaday Center Local History Vertical Files.**

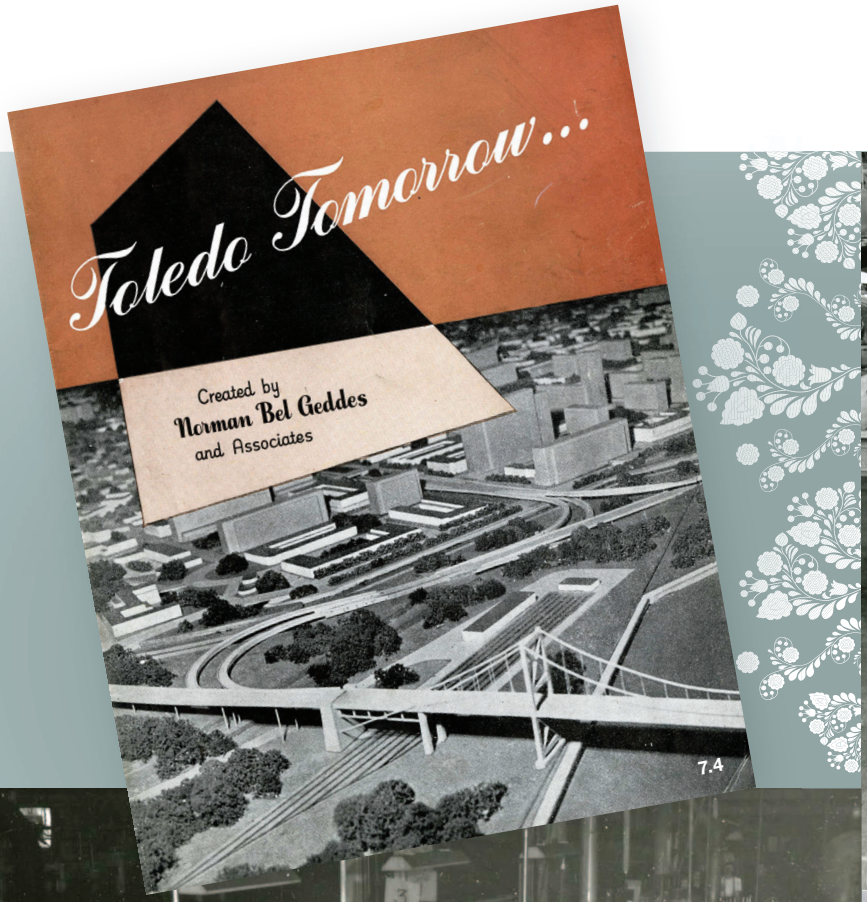
This catalog describes the artwork on display for the museum's first exhibit.

Passport, Florence Scott Libbey, 1927-1928. Owens-Illinois Company Records. MSS-200.

E.D. Libbey and his wife toured the world seeking art for the museum. This passport provides evidence that Florence continued her travels to acquire items for the museum even after her husband's death.

Last Will and Testament of Edward Drummond Libbey, 1925. Owens-Illinois Company Records, MSS-200.

Libbey's will left much of his estate as an endowment for the museum. Other beneficiaries included his wife, friends, and charitable organizations.



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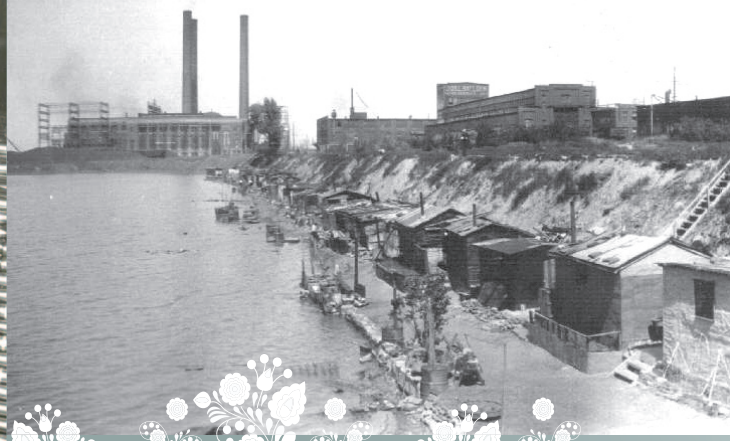

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7.1. A “Hooverville” along the Maumee River during the Depression.

7.2. Workers at Acklin Stamping producing shell casings for World War II.

7.3. Real life “Rosie the Riveters” working at Libbey-Owens-Ford during World War II assembling plane nosecones.

7.4. The brochure describing the “Toledo Tomorrow” exhibit.

7.5. A view of the “Toledo Tomorrow” exhibit, which imagined Toledo in the future.

CHAPTER 7. THE BOOM BUSTS

"Most cities grew without rhyme and sometimes without much reason. They sprang up by rivers and lakes, later beside highways, then along railroads. They were built as the needs of a growing population of expanding industries seemed to dictate…. City dwellers escaped from crowded quarters by moving into the country-side. Suburbs appeared around most cities of consequences…. Cities spent great sums of money for plans for beautification, for more efficient, more satisfying living, only to find that the plans were short-ranged, soon to be frustrated by new and greater problems…. Toledo is such a city."

"Toledo Tomorrow" exhibition brochure, 1945.

For most of 1929, Toledo still seemed poised for a bright, prosperous future as its economy continued to grow. In the prior year, 38 new companies had set up operations, offering new employment opportunities to 20,000 Toledoans. In fact, Toledo ranked twenty-sixth nationally in 1928 for industrial production with its lineup of automobile, glass, machine, and textile manufacturing. In early 1929, the 54 largest factories employed over 45,000 workers, and Toledo ranked sixth in Ohio for taxes paid by residents. Its per capita income was also among the highest in the state. Toledo's total workforce exceeded 120,000, according to figures published in the Toledo *News-Bee*.

Many new construction projects were underway. Work began on new coal and iron ore loading docks which were expected to make the Port of Toledo among the best on the Great Lakes. The Ohio State Savings and Trust began construction on an impressive new headquarters building on Madison downtown that seemed to embody its strength and permanence. For the first half of the year, retail sales were strong, and the automobile industry reported record profits.

Public works projects were also moving forward. In 1929, work began on a new suspension bridge over the Maumee funded by a bond levy approved by taxpayers in 1928. Groundbreaking also took place for a new campus for The University of Toledo at a site on Bancroft Street, which would finally provide the institution with a permanent and appropriate home. The campus was also funded by a tax levy approved by voters in 1928.

But signs of trouble could be seen, if anybody was bothering to look. Willys-Overland, one of the city's largest employers, had produced over 300,000 cars in 1928, but its unsold inventory forced the company to cut back production and staffing by April 1929. In turn, automobile suppliers began to cut back their workforces. Few expressed concern, however, because the automobile industry was used to seasonal cutbacks. The construction and housing markets began to slow down. But as late as September, Toledo's economy was still growing.

On October 29, 1929, everything changed. The stock market crashed that day, causing banks around the country to close by the end of the month. Toledo's banks weathered the initial storm and remained open. But the signs of the crash were ubiquitous: the largest 54 factories lost 15,000 positions, and six of the city's largest companies reported declines in stock values. The Hoover Administration and the media were hopeful, assuming that Toledo, like other cities, would sustain itself during this period of instability. *The News-Bee* confidently reported that national economic indicators were not suggesting any dramatic downturn. Besides, 38 new companies had moved into the city just the year before, and over $13 million had been spent on economic development efforts in spite of the events. By December, however, signs of a serious recession became obvious.

The start of 1930 brought less tax revenues for the city, not to mention tax delinquencies, requests by many for jobs, and a demand for poor relief that nearly tripled in just over three months. The uneasy

atmosphere in the city was accompanied by growing anxiety as well as threats of labor unrest and riots instigated, according to the media and business leaders, by pro-Communist agitators exploiting this instability to spread propaganda and intensify anxiety. *The News-Bee* urged businesses and manufacturers to create temporary jobs, as unemployment had reached 11 percent by April 1930. Despite the difficult times, those with jobs continued to support local charities. The Toledo Community Chest Drive received pledges of over $800,000. Other charity organizations like the Salvation Army collected donations to support 5,000 needy families.

Despite hopes of quickly restoring economic stability, businesses were powerless to reverse the trends. By the end of 1930, the city's unemployment relief agency reported 9,500 new applications, despite the fact that many Toledo workers felt ashamed to accept this relief.

Rising unemployment meant many of the city's residents who bought homes on easy credit during the boom years found they were unable to pay their mortgages. Banks which held the mortgages began foreclosing on the homes, but could not find new buyers. All the new suburbs around the city were heavily mortgaged, with dire results for the banks. In June 1931, Toledo's banks hit the wall. The Security-Home Trust failed to open on June 17. Depositors with accounts at other banks tried to withdraw their money, but a 60-day waiting period kept four other banks closed. When the 60 days were over, the banks did not open. The Ohio Savings Bank and Trust Company, whose new headquarters seemed to guarantee a solid future, went bankrupt. With no access to money, small companies and professionals followed.

With 156 businesses failing, 1932 was the "nadir of the Great Depression." The housing situation was the worst: some lived in mud huts, cardboard shelters, abandoned cars, tents and improvised houses in a "Hooverville" along the Maumee River. By the end of 1932, the gap between the haves and have-nots widened, charitable giving declined, only 37 percent of workers in the 54 largest manufacturers remained employed, and over 17,000 families (up from 9,000 earlier that year) needed emergency relief.

The political arena also quickly split between the haves and the have-nots. On the left, Toledo's Trade Union League and the Lucas County Council of the Unemployed supported an agenda to open public buildings for the homeless and unemployed, tax owners of property valued at $5,000 or higher, provide free medical care and unemployment insurance, and maintain free speech regardless of nationality, race, or regional identity. The council also organized demonstrations throughout the city in 1932 and demanded the withdrawal of U.S. troops from China. On the right, the Citizens' Prosperity League, an organization founded by business leaders, sought to improve the economy and end labor unrest by purchasing big-ticket items such as Willys automobiles and products made by other local large manufacturers. Although this sentiment that the country could buy its way out of the Depression echoed the Hoover administration's attitudes, it hardly solved the problem for the thousands of families already out of work and without money, food, and housing.

The labor movement that had been quiet during the good times of the 1920s was energized by the bad times of the 1930s, with labor unions organizing workers and demanding higher wages, better working conditions, and labor representation. One of the most important—and bloodiest—strikes of the period occurred at the Toledo Electric Auto-Lite factory on Champlain Street in north Toledo. In February 1934, workers at the plant attempted to unionize. The company refused to recognize the union, and in May it fired the workers who were striking. Workers organized mass pickets of the plant, and the Ohio National Guard was called in to restore order. On May 24, a battle broke out between the striking workers and the guardsmen, and two workers were killed. This strike, and one the following year in Michigan, led to the formation of the United Automobile Workers International Union.

A New Deal for Toledo

Franklin Delano Roosevelt's election victory in 1932 elevated the hopes of many. The Hoover administration's policies of letting the free market fix the broken economy ended with an alphabet soup of government agencies created by Roosevelt to do what the market could not. Federal assistance came under the Federal Emergency Relief Act (FERA), which also created new programs like the Public Works Administration (PWA). The PWA funded street and highway projects, water works, hospitals, schools, and public buildings, albeit at reduced wages in order to employ as many workers as possible. Toledo welcomed the new money and praised the New Deal and the new president as well. Funding for local, state, and federal projects totaled $450 million, and Toledo's share of funds enabled the city to begin construction of Canal Boulevard (the Anthony Wayne Trail), buildings at the Toledo Zoo, and eventually a new public library downtown and a football stadium at the university. Improvements at many city and metropolitan parks and new buildings for public schools are other lasting reminders of the New Deal in the city.

Toledo's economy slowly began to recover thanks to the federal funds. The Toledo trends in recovery paralleled those on the national scale, with an up-tick in banking, utility and energy consumption, wholesale prices, and construction projects up until 1937. The 54 largest manufacturers in the city also reported significant gains in employment, but the automobile industry (particularly Willys-Overland) struggled. In 1933, the company went into receivership, and it operated under bankruptcy protection until 1936.

In the fall of 1937, another recession hit, and was felt sharply in Toledo since the Works Progress Administration began cutting its workforce as federal New Deal programs began to wind down. All the gains of 1936-1937 had evaporated by 1938. January 1939 saw another massive layoff by the WPA, despite protests from local leaders. WPA operations in Toledo continued into the early 1940s despite cuts in projects and personnel. But by 1941, new defense contracts worth $156 million were signed with Toledo's industries, which reduced the need for relief and WPA employment.

Toledo During World War II

Toledo had lost 22 percent of its work force between 1930 and 1940, dropping from over 127,000 to just above 99,000. By 1944 (due to wartime demands in the manufacturing sector), the labor force was 150,000 strong. One particularly strong sector of the economy during the war years was transportation, reflecting Toledo's location on major automobile, truck, shipping, and air routes. Toledo was designated as one of 33 strategic inland defense areas due to its transportation lines and vital war-industry factories. Residents practiced air raid drills, including blackouts.

One sector that struggled to recover was the financial sector. Although manufacturing significantly increased during the war, its financing was not centered in Toledo. Of the 56 banks in the area before the Depression, only 11 survived, and only 6 of 12 savings and loan institutions remained at the end of the war.

Between 1940 and 1944, Toledo's employment in automobile, machine, ammunition, stone, glass, and other factories increased by 40,000. Between 1940 and 1946, Willys-Overland alone increased employment from 2000 workers to nearly 6000 due to military contracts for its prized Jeep. Government contracts with the company totaled $20 million. Other companies with significant defense contracts included Acklin Stamping, Champion Spark Plug, Owens-Corning Fiberglas, and Toledo Scale. Many of the companies ran three shifts to meet their government contracts.

Toledo supported seven War Bond drives, collected scrap metal for recycling, planted Victory Gardens, and hosted service men and women at a USO center. They also celebrated V-E Day and V-J Day with

boisterous demonstrations downtown. Sadly, over 1100 Toledoans were killed in the war. A war memorial on Civic Center Mall downtown listed their names.

Toledo's Postwar Prospects and Urban Renewal, 1945-1959

Planning for Toledo's future began even before the war ended. City leaders were concerned about how the city would emerge in the post-war years, especially because of its dependence on war contracts. In 1944, the Toledo and Lucas County Plan Commissions issued a report entitled "What About Our Future?" The study identified major areas that required careful planning to bring prosperity to the city, and proposed producing a master plan in 1945 to address each area.

Paul Block, Jr., who became publisher of the Toledo *Blade* in 1942 following his father's death, also worried about the prospects for post-war Toledo. In an effort to attract new investments to the city, in 1944 the paper purchased advertisements in several national trade journals to promote the city, calling attention to the university, library, museum, port, and industries.

Also that year, Block contacted Norman Bel Geddes to produce a plan for future development of the city that imagined a completely new Toledo. Bel Geddes, who had ties to Toledo, had developed "Futurama," the most popular attraction at the 1939 New York World's Fair. Bel Geddes and his company spent 18 months studying the city to identify issues that would need to be addressed for a successful future. The guiding principle of the project was that Toledo had to double its population by attracting new industry. The result was "Toledo Tomorrow," a three-dimensional model of the city, 61-feet in diameter, that depicted a brand new Toledo at some unspecified time in the future. The exhibit opened with much fanfare at the museum at the Toledo Zoo. Visitors viewed the display by climbing a ramp, an experience similar to that of "Futurama." An audio track described what they were seeing. The lighting could change to reflect the city at night.

"Toledo Tomorrow" was dedicated to those who died in the war, and "to the future happiness of those men and women who will return." Bel Geddes consulted with several planning experts to develop the exhibit, and they came up with six major innovations. Included was a terminal to link air, rail, and bus transportation; a network of airfields, including one downtown; the consolidation of railroad lines; "congestion proof" highways; a beautified riverfront; and planned housing communities. All of this was necessary, Bel Geddes predicted, because Toledo's population would top one million by 2015. "Toledo Tomorrow" generated much media coverage, including that by national publications. It inspired city voters to approve a municipal tax levy in 1946 to help fund the plan.

As with most grand schemes, little ever became a reality. Other master plans followed. A 1945 plan by the Toledo Chamber of Commerce drew heavily upon Bel Geddes's ideas. In 1951, the Toledo-Lucas County Plan Commission drafted another master plan, and in 1956, the Downtown Toledo Associates did the same. While all of the planning produced little actual development, it did serve to inspire Paul Block, Jr. to continue a life-long quest to see the downtown revitalized.

In many ways, "Toledo Tomorrow" coincided with the beginning of the city's economic decline. Without the war engine stoking the industrial fires, industries had to adapt to a post-war economy. For a company like Willys-Overland, that involved coming up with a civilian use for its product. Pent up demand for automobiles, for housing, and for all of the items that filled new homes—especially needed with a booming post-war population—helped ease the transition. But the economic trauma of the Depression left huge scars on the city that could not be healed. The next three decades would see dramatic changes for the city's economic health.

Scrapbook, Toledo Social Service Federation, 1934-1940. Family Service of Northwest Ohio Records, MSS-075.

This scrapbook documents the efforts of the Toledo Social Service Federation, formerly the Toledo Federation of Charities, to assist the needy during the darkest days of the Depression.

Newspaper clippings, Toledo Electric Auto-Lite strike, May 1934. Labor History Archive Records, Department of History, University of Toledo Archives, UR 86/75.

These clippings from local papers document the strike that left two workers dead after a battle with the Ohio National Guard.

Photographs, Acklin Stamping war contract work, ca. 1943. Acklin Stamping Company Records, MSS-139.

Acklin produced parts for many companies, including parts for automobiles. The machinery shown in these photographs allowed the company to mass-produce compressor housings (for refrigerators and air conditioning units), military munitions, gun mounts, and even parts for the atom bomb during World War II. The company supplied parts to other Allied governments as well and played an important part in Toledo's economy during World War II.

"Rosie the Riveter" photographs, ca. 1943. Libbey-Owens-Ford Company Records, MSS-066.

As men went off to war, women took over their positions in factories to keep the war engines turning. These women, real-life "Rosie the Riveters," assembled nose cones for fighter jets at the Libbey-Owens-Ford factory in Rossford.

"Toledo Tomorrow" exhibition photographs and brochure, 1945. Downtown Toledo Associates Records, MSS-027.

Norman Bel Geddes presented the city with a futuristic vision for Toledo that would operate efficiently and build on the city's established railroad, surface, marine, and aviation routes, allowing passengers to transfer between different transportation modes through the Union Terminal. Today, the model's whereabouts are not known, but the photos in this prospectus show how Toledo could have developed into a future metropolis.

Maps of the City of Toledo and Environs, 1947-1948 Edition. Ward M. Canaday Center Local History Vertical Files.

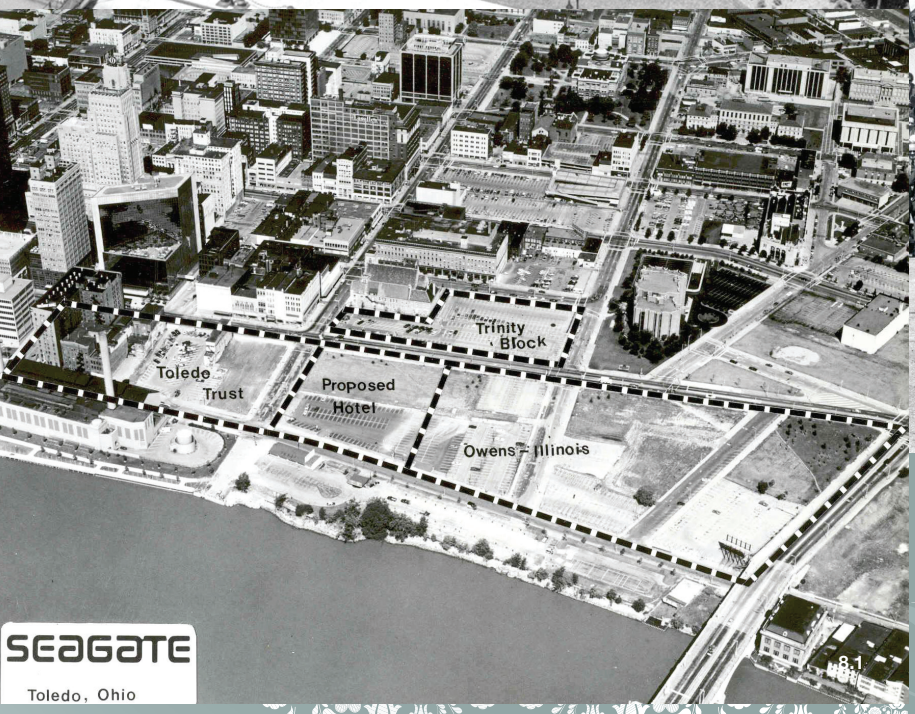
These maps show the roads, including the major interstate and state highways running through Toledo in the postwar years.

Toledo Master Plans of 1951 and 1956. Downtown Toledo Associates Records, MSS-027.

The 1951 city master plan was based on the Housing Act of 1947, which called for clearing out depressed areas of the city to make room for improvements. It called for improvements in housing, streets and highways, and other critical systems that were in disrepair following the war and the Depression.

Photographs, Downtown Toledo Associates, 1955. Downtown Toledo Associates Records, MSS-027.

The Downtown Toledo Associates was formed in 1955 by a group of mostly retailers with businesses located downtown. The organization had two goals: to work as a civic group with local governments to revitalize the downtown; and to develop a master plan that would set the priorities for the city for the next 30 to 50 years. The latter goal was inspired by Norman Bel Geddes's "Toledo Tomorrow" exhibit. Along with the Lucas County Planning Commission, the group worked on Urban Renewal projects by following other model cities in the United States.



8.1. The plans for the SeaGate development in downtown Toledo.

8.2. The groundbreaking ceremony for SeaGate, 1979. From left to right: Ed Dodd, Thomas Ludlow Ashley, Douglas DeGood, and Paul Block, Jr.

8.3. The construction of SeaGate.

8.4. The Portside Festival Marketplace downtown.

CHAPTER 8. LIKE BEING NOWHERE AT ALL

"Saturday night in Toledo, Ohio,

Is like being nowhere at all."

Randy Sparks, "Saturday Night in Toledo, Ohio," 1969.

The downtown Toledo redevelopment plans hatched by Toledo business leaders in the early 1980s were the realization of the dream begun forty years before with Norman Bel Geddes's "Toledo Tomorrow" exhibition. Almost immediately after the exhibit closed, planning for the real "Toledo Tomorrow" began. But none of the master plans produced much actual development. The new headquarters building of Libbey-Owens-Ford in 1959 and the Riverview development project of 1969 (which included a new headquarters building for Owens-Corning Fiberglas) were the only significant outcomes of these post-war planning efforts.

Increasingly, Toledo business leaders began to see a revitalized downtown as synonymous with a strong Toledo economy.

In 1969, Owens-Illinois, then one of the largest downtown employers, undertook its own long-range planning, which concluded that the company's headquarters would need to be replaced by 1981. In 1971, the company decided that rather than look to a suburban location for its new headquarters, the corporation should look to build a companion structure to the existing O-I headquarters downtown.

The company's executives, including Raymon Mulford and Edwin Dodd, also began talking with others interested in downtown redevelopment, including Harold Boeschenstein of Owens-Corning, Stephen Stranahan of Entelco, Charles McKelvey of the First National Bank of Toledo, developer Dean Bailey, and Mayor Harry Kessler. With the approval of the mayor, in 1972 these companies agreed to underwrite the development of a new downtown master plan designed by the Urban Land Institute.

Simultaneously to these planning efforts, in April 1969 a group of business and political leaders formed the Convention Center Committee in an attempt to revitalize the downtown with a convention center and auditorium. A pivotal participant in the plan was The University of Toledo, which was looking to replace its aging Field House basketball arena and also build a new continuing education center. The Convention Center Committee wanted to include these in its plans because the committee believed UT's buildings would be vital to the convention center's success.

But as downtown revitalization was being considered, Toledo's unemployment rate was beginning to rise due to the recession and employment patterns were shifting from the high-paying manufacturing sector to lower-paying service sector jobs. The city was facing a major budget deficit, and city services were being cut.

Plans for the convention center did not proceed smoothly. In early 1973, a citizen's group called ALERTA collected 20,000 signatures to get the convention center issue placed on the ballot. The group questioned how the city could go forward with a convention center when basic city services were being cut to solve a $11.7 million budget deficit. There was also growing resistance on the UT campus. Proponents of the convention center countered it would create over 3000 jobs, produce over a $1 million in new revenue, benefit the entire community by generating $38.6 million, and be paid for by a hotel-motel tax.

The plan to build a convention center was dealt a critical blow when it was defeated by 64 percent of Toledo voters in March 1973.

The Urban Land Institute issued its master plan report for downtown revitalization just three weeks after the vote. While recognizing the glum mood of the city, the ULI report did find some reason for

optimism, including the sound economic underpinnings of the city. At this time, there were seven Fortune 500 companies located in the city. There was also a retail sector in the downtown with three major department stores. The ULI report also noted the city's greatest asset—its riverfront—remained undeveloped or dominated by heavy industry. The downtown was lacking in several important ways: there were no significant cultural attractions, the Sports Arena was inadequate, there was no first-class hotel, and the central business district lacked focus.

Two months later, pop singer John Denver brought the deterioration of the city's downtown to national attention. On June 11, 1973, in his debut performance on "The Tonight Show Starring Johnny Carson," Denver sang a song written by Randy Sparks, formerly of the New Christie Minstrels, entitled "Saturday Night in Toledo, Ohio." The stinging satire of the lyrics embarrassed the city fathers before an audience of millions. The song began:

"Saturday night in Toledo, Ohio,

Is like being nowhere at all.

All through the day, how the hours rush by,

You can sit in the park and you watch the grass die."

Toledo Looks to the River

Five days after Denver's performance, *The Blade* reported on the creation of the Greater Toledo Corporation (GTC) to promote the growth in the downtown area as outlined in the Urban Land Institute report. The GTC and the mayor created a second public group, the Toledo Development Corporation (TDC) in April 1974, to ensure sufficient public leadership in redevelopment. Specifically, the TDC was to work with the GTC to produce an achievable master plan that would serve as the catalyst for the entire revitalization effort.

Because of criticism that the TDC was not representative, a Citizens Development Forum, made up of 61 members, was appointed by Mayor Harry Kessler to serve as an advisory board to the TDC. A Technical Advisory Committee was also created to carrying out the long-range plans of the TDC. And lastly, there was the GTC, with representatives from 15 of the city's corporations. To further complicate matters, three consulting firms were hired to prepare several necessary studies. With so many groups involved in downtown revitalization, the potential for conflict existed from the start.

The final report of the consultants, entitled "Toledo Looks to the River," was released in 1974. The 45-page color book critiqued the current state of the river in the downtown area, which was characterized by floods, open sewers, industrial waste, trash, dead fish, old tires, and oil slicks. And it bisected the city.

To improve the riverfront, the report suggested beautification projects as well as new development. The plan promoted retaining several historical structures and building a city/state office complex, a corporate office tower, a hotel, apartments, a community conference center and sports complex, and possibly a new museum honoring the city's history as a center for the glass industry.

Given the failure of the convention center, the GTC said the plan's success would depend on public and private investment. Seizing on the suggestion for a community conference center along the river, the GTC allocated $60,000 for a plan to build a new adult and continuing education center for The University of Toledo that would include corporate offices for Owens-Corning Fiberglas.

That plan soon ran into an obstacle—Toledo *Blade* publisher Paul Block, Jr., who had been appointed the new chair of the TDC in recognition of his long interest in downtown development. Block developed his own downtown redevelopment master plan, hiring Minoru Yamasaki, an internationally known architect who had designed the World Trade Center in New York and much of the Medical College of Ohio. Yamasaki's plan contradicted all previous plans, and did not include a multi-use community building on the riverfront.

On December 31, 1975, the TDC deadlocked over giving its approval to the community building and continuing education center by a 6 to 6 vote, with Block leading the opposition. Opposition also mounted on the UT campus, with many major donors upset about the building being constructed downtown. A month after the TDC voted against the project, the UT Board of Trustees withdrew its support.

Despite their disappointment, Edwin Dodd, the chief executive officer of Owens-Illinois, declared the GTC would continue to push for downtown redevelopment, including a new state office building. Architect Yamasaki revealed his own downtown master plan in 1976 that showcased a state office building across Erie Street from the county courthouse to create a civic plaza. However, placing the new building there would mean moving the 110-year old St. Paul's Lutheran Church one block north and demolishing several other buildings. The TDC unanimously approved Yamasaki's plan, with the costs for moving the church to be included in the construction costs for the new state office building, projected at $25 million.

But plans to move the church met with considerable grass-roots opposition, with members voting 293 to 784 to oppose moving the church. Toledo Mayor Douglas DeGood contended that St. Paul's relocation was the only stumbling block to redeveloping the whole downtown. St. Paul's congregation was asked to consider another option—building a new St. Paul's. Having saved the church from being moved, the congregation was in no mood to see it demolished, and turned down the offer for the new church.

By May, the TDC had found a new location for the state office building in an area bounded by Jackson, Erie, Beech, and Huron. The projected cost escalated from $25 million to $60 million, with Yamasaki hired to design the building. Once the state approved it's building, Paul Block resigned as chair of the TDC, and it was dissolved five days later. The 22-story city-county-state office building was completed in 1983

The Dawn of SeaGate

Owens-Illinois continued to see a new world headquarters building as key to downtown development, and in May 1977, company executives met with then-Mayor Kessler to articulate what was required to keep O-I downtown. At that meeting, the TDC offered O-I the 11-acre tract of land along the river where Tiedtke's once stood. If O-I agreed to purchase the land, the city would have to make extensive "public" improvements and agree to a 20-year property tax abatement. On September 29, 1977, Toledo City Council approved the sale of 10.8 acres of land for $2.1 million to the Maumee Valley Urban Redevelopment Corporation, a subsidiary of O-I.

The Blade, in an editorial in January, called 1979 "The Year of Promise." "As Toledo heads into another new year, it can do so with a good deal of confidence that the pendulum of progress is surely swinging to the positive side. That is especially true as it relates to the major effort that is approaching to redevelop a significant section of the downtown area," *The Blade* pronounced. Groundbreaking for the new 29-story headquarters took place on May 22, 1979, and nearly 6000 people, many of them O-I employees, participated.

Make No Small Plans

The state office building and the new O-I headquarters were just the beginning of the plans for transforming Toledo into a city that would no longer be the subject of songs like "Saturday Night in Toledo, Ohio." The Faneuil Hall-Quincy Market area of Boston developed by the Rouse Company was seen as a possible model for retail development in Toledo.

But despite the new development, it was clear that Toledo had enormous problems. Just two months after groundbreaking for SeaGate, the only major downtown hotel was taken over by the banks. In September 1979, the YMCA confirmed it would move out of the downtown by October. In November, the Lion Store, a Toledo original, announced it was closing its downtown building. Lamson's had already closed, and Lasalle's seemed destined to follow. In December, city manager Michael Porter said city finances were in trouble due to the downturn in the automobile industry, and the budget would be revised.

Despite these realities, redevelopment marched on with the second phase of the SeaGate development announced in early 1980 that included a new $30 million Hotel Sofitel, part of the upscale French chain, which opened in 1984. The second phase also included a festival marketplace called Portside designed by James Rouse's company, Enterprise Development. Opened to great fanfare in May 1984, the pavilion was designed to create a carnival atmosphere with restaurants and bars and shops so specialized that some were devoted exclusively to kites, fancy hats, items depicting pigs, and purple merchandise.

Much was riding on the success of Portside. Developers expected it to draw five million visitors a year, generate $18 million in sales, and create 700 jobs. Perhaps an omen of things to come, however, Macy's (formerly Lasalle's), the last department store in downtown, closed two months after Portside opened.

The development of the downtown was underwritten through a financing scheme described as "the most Byzantine financing I have ever seen" by one anonymous Toledo official quoted in *The Blade*. Each new project served as collateral for the next, with Toledo Trust holding most of the mortgages. Any change in the economic underpinnings of the city had the potential to be catastrophic. But there was no stopping the development snowball. To draw more visitors to support the attractions, in 1987 a new convention center was realized with the opening of the SeaGate Centre, a joint project of Lucas County and The University of Toledo.

Like Being Nowhere At All

The precariousness of the downtown development became clear in late 1986 when Kohlberg Kravis Roberts & Company approached Owens-Illinois with a takeover plan. While the company initially fought off the bid, by February 1987 it succumbed at a cost of $3.66 billion. The buyout was financed by the assumed company's assets, which were quickly sold off to pay the massive debt. With its reduction in size, the number of Toledo employees of O-I dropped from 5600 in 1980 to 3400 in 1990. Owens-Corning Fiberglas, which fought its own costly takeover bid by Wickes Companies, Inc. in 1986, reduced its downtown workforce from 2000 to 1300 in two years. Corporate takeover fever in the 1980s saw some Toledo companies disappear completely, such as the Questor Corporation and Sheller-Globe. Libbey-Owens-Ford was split into pieces after being bought by the British firm Pilkington. Champion Spark Plug was purchased by a Houston company, and its last Toledo plant closed its doors in 1991 after 80 years in the city.

With fewer downtown workers and manufacturers moving out of the city, the economy could not rebound. Few Toledoans had the disposable income to support Portside, and by 1989—just five years after it opened—over half of the businesses at Portside were empty. It closed entirely the following year.

The changing economy also impacted the local banking institutions. First Federal Savings and Loan was taken over by the Resolution Trust Corporation. Toledo Trust was forced to write off $75 million in bad loans, most of them for downtown redevelopment projects.

Within one brief decade, Toledo's downtown had seen its great hopes for the future quickly dashed. In an editorial appearing in *The Blade* on January 1, 1990, the newspaper, which had championed a revitalized downtown since the "Toledo Tomorrow" exhibit in 1945, faced reality. "At this year-end juncture a decade ago, Toledo was a city flush with an exhilarating sense of rebirth. Its old downtown was about to undergo not just a facelift but major reconstructive surgery.... Today, the giants, for all purposes, are out of it; corporate financial might has been depleted or rerouted; the ambitious scheme—Fort Industry Square, Portside, the Sofitel-now Marriott, the Radisson, SeaGate Centre, Summit Center, a new retail corridor on Adams Street—was laid flat by a leveraged buyout uppercut," the editorial lamented.

Toledo has yet to recover from the psychological blow of the failure of its grand downtown redevelopment schemes. More recently, the city has pegged its downtown growth on taxpayer-financed sports facilities. Fifth Third Field draws crowds to see the Mud Hens baseball team play in the summer, and a new indoor arena brings people downtown in the fall and winter for hockey and musical concerts. But John Denver, who died in 1997, would likely find similarities between Saturday night in Toledo today and that which he brought to national attention in 1973.

Photographs, downtown revitalization, 1979-1981. Owens-Illinois Company Records, MSS-200.

These photographs show progress on the construction of One SeaGate, the world headquarters for Owens-Illinois downtown. One SeaGate was the beginning of the efforts to revitalize the downtown area.

Speeches by Edwin D. Dodd on downtown revitalization, 1979. Jack Paquette Collection on Northwest Ohio's Glass Industry, MSS-169.

Edwin Dodd, head of Owens-Illinois, became one of the leaders of the downtown revitalization effort and often spoke of its importance to the company and to the city.

Souvenirs and mementos, One SeaGate groundbreaking and "topping out" ceremonies, 1979-1980. Owens-Illinois Company Records, MSS-200.

The groundbreaking ceremonies for One SeaGate drew some important dignitaries, including Mayor Douglas DeGood, Congressman Thomas Ludlow Ashley, *Blade* publisher Paul Block Jr., and Owens-Illinois CEO Edwin Dodd. After the dignitaries turned the first shovels, others were invited to join in, including O-I employees. Included here is one of the silver-plated shovels used to break ground. Another ceremony was held on July 7, 1980, to commemorate the placement of the last beam of the building. For each event, O-I's Libbey division produced commemorative glasses.

Commemorative plaque, Kohlberg Kravis Roberts & Co. acquisition of Owens-Illinois, 1987. Owens-Illinois Company Records, MSS-200.

This plaque commemorates the acquisition of Owens-Illinois by the holding company. It was produced by Goldman, Sachs & Co., which acted as financial advisor to Owens-Illinois. The holding company split off and sold many profitable divisions of O-I to pay for the acquisition.

Note to readers: Some of this chapter previously appeared in the article "Like Being Nowhere at All," by Barbara Floyd, Northwest Ohio History (Vol. 77, No. 1, 1-19.)

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University Research in Thin Films and the Development of an Industry Cluster in Renewable Energy in the Toledo Metropolitan Area

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The development of unique capability at The University of Toledo, combined with forward-looking business development efforts, are providing the seed to build Toledo into one of the nation's leading areas in the newly emerging renewable energy industry. This summary explains what has been accomplished, and projects what may be possible through continued development and investment. This investment is in the area of thin films. One of the major areas of technology to grow from this work is in photovoltaics. These are solar cells that convert solar energy directly into electricity. Solar cells have been investigated since the 1970s, but improvements in technology and manufacturing are leading to their introduction into various markets. It is expected that this form of clean electricity will grow into a major industry in the coming decades. The University of Toledo, with its local industrial partners, is positioning itself to become a center for this new industry.

From left to right, Drs. Xunming Deng, Alvin Compaan and Randy Bohn

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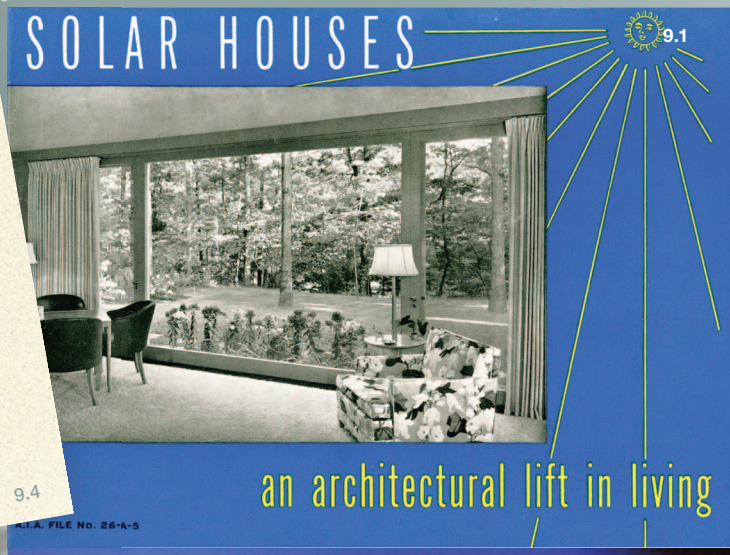

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9.1. A sales brochure promoting "Solar Houses," by Libbey-Owens-Ford.

9.2. The solarometer, used by Libbey-Owens-Ford salesmen at home building expos to encourage the use of L-O-F insulated glass in homes. The machine could chart the path of the sun over any location.

9.3. An installation of Libbey-Owens-Ford's SunPanel solar collectors at the University of Toledo, ca. 1977.

9.4. A newsletter of the University of Toledo, promoting the thin films research by the institution's faculty.

CHAPTER 9. THE FUTURE GREAT CITY ONCE MORE?

"Beyond doubt, this new form of daylight engineering will profoundly affect many postwar homes. Such homes are in no way experimental."

Reader's Digest article on early efforts by Libbey-Owens-Ford to develop solar homes, 1944.

The past 20 years have been difficult ones for Toledo. The decline of manufacturing that began during the recession of the 1970s has continued unabated. The city's population has declined along with it. In January 1995, *The Blade* carried a story with a headline that confirmed what many sensed: "It's Now Official: Toledo has a Service Economy." The story reported that the average wages for those in service jobs was about half of those in manufacturing jobs. The era of life-long employment in a factory that provided union wages, full medical benefits, and a pension plan was gone forever. So, too, was the dream for recreating the downtown into a world-class city where such workers could eat, shop, and be entertained.

Several of the companies that had shaped the city for decades underwent fundamental change. Libbey-Owens-Ford, Inc. was purchased by the British firm Pilkington Ltd. It was split into several companies, and most recently, the glass manufacturing side was purchased by Nippon Glass of Japan. Owens-Illinois, Inc. went public again after its takeover by KKR, but sold Libbey Glass to raise the funds to do so. Libbey continues to make glassware in Toledo as it has since 1888, but also has expanded to factories around the world with cheaper labor costs. But perhaps no manufacturer so fundamental to Toledo has gone through as many ownership changes as the producer of the legendary Jeep. From Willys-Overland to Kaiser-Frazer to American Motors to Renault to Chrysler to Daimler-Chrysler to, most recently, the Italian carmaker Fiat, the company has been on a rollercoaster for more than 50 years. But a new, efficient factory staffed by a productive workforce has saved the Toledo plant and many local jobs. The Jeep remains a national icon with strong roots in the city.

Schemes and Scandals

During these difficult years, it is not surprising that some tried to take advantage of the downturn in the economy to make fast money. Toledo was rocked by several major business scandals that brought it unwanted national attention. In 1983, it was the collapse of Bell & Beckwith, one of the oldest brokerage houses in Toledo. The firm had been founded in the early part of the century as Secor & Bell by Jay K. Secor, a member of one of the most prominent families in the city. In 1920, the firm changed hands and names. In 1983 it was owned by a partnership with Edward P. Wolfram Jr. as the managing partner.

Wolfram, swept up in personal investment deals that included a horse farm in Florida, sports cars, a mansion inspired by Frank Lloyd Wright along the Maumee River, and the Landmark Hotel and Casino in Las Vegas, began borrowing from client accounts to cover his personal losses. By the time he was discovered, Bell & Beckwith's demise in 1983 was the largest stock-brokerage fraud case overseen by the Securities and Exchange Commission up to that date—$47 million. The Bell & Beckwith scheme not only brought down Wolfram, but also his partners (who were unaware of Wolfram's fraud), and many who believed they were safe investing through the long-established firm.

Another business scandal to rock the city came to light in 1985, when ESM Government Securities of Fort Lauderdale, Florida, collapsed. In this scandal, the city of Toledo, which had invested $19 million through the firm, was left holding an empty bag. The scandal cost the city manager, treasurer, and finance director their jobs. It also brought down several savings and loan operations in the state.

But perhaps the weirdest business scandal concocted by a Toledoan involved an eccentric loner, stock trading, insurance fraud, international diamond smuggling, and the Vatican.

Martin Frankel, who had been an unsuccessful student at The University of Toledo, was the mastermind of this scandal. From his first job in 1985 at a small brokerage firm on Toledo's east side, Frankel managed to create a Ponzi scheme that had him investing in insurance companies in Tennessee and Mississippi that provided the money for a wild lifestyle, including the purchase of a mansion in Greenwich, Connecticut, and a harem of women followers. Frankel even convinced the head of a Catholic foundation in Rome with direct ties to the Vatican to accept a "donation" to the foundation, a donation that Frankel actually intended as a way to launder his ill-gotten gains. In the end, Frankel fled the United States for Italy with a suitcase full of diamonds. He was discovered there in 2000 with one of his many female associates, and he was brought back to the U.S., tried, and convicted. His escapades brought more unwanted attention to the Toledo business community, and the case was the subject of much media attention and several books.

Most recently, investments of $50 million in public funds from the Ohio Bureau of Workers' Compensation in high stakes rare coins and other collectibles by politically-connected Toledo business man Tom Noe produced more media coverage of the city. Noe was found guilty in 2006 of theft and money laundering, and ordered to pay restitution to the workers' compensation fund. Noe is currently in prison, and the state's Republican leadership that made the deal possible was voted out of office in 2008.

A Sunny Future?

But despite some very difficult times, there have also been some sunny predictions about Toledo's future from an industry with its roots in the glass manufacturers that once dominated the city's economy. An industrial base focused on alternative energy, particularly solar power, is being developed with support from the state and The University of Toledo.

Libbey-Owens-Ford, Inc. was one of the first American corporations to experiment with solar-powered technology. The company developed an insulating glass called Thermopane in the 1940s after 14 years of research, but production for domestic installation was stalled by the war. Thermopane glass consisted of a double or triple-glazed window with an air space between each layer that turned windows from energy losers to energy savers.

After the war, L-O-F began to market "solar homes" that used large expanses of Thermopane glass. The company suggested builders who wished to develop such houses orient them to take advantage of the sun. To determine the maximum use of the sun, L-O-F purchased a device called a Solarometer from scientists at M.I.T. who had developed it. The Solarometer could be used by architects to track the sun's path over any location, thereby taking optimum advantage of its heating properties. The company demonstrated the device at home shows beginning in 1949. L-O-F also suggested installing permanent or temporary overhangs on solar homes to control the amount of sunlight emitted through their Thermopane windows in order to adjust for the seasons. To better market their products, the company also contracted with several architects to design solar homes for particular climates and locations. The Illinois solar home was designed by John Lloyd Wright, son of Frank Lloyd Wright.

The early efforts at solar houses made no attempt to move beyond the passive technology of building design to develop ways to store the sun's rays for later use, or to convert them to electricity. These experiments began in the 1970s during our first "energy crisis," as Americans became concerned with our dependence on foreign oil. In 1977, L-O-F introduced high efficiency Sun Panel solar collectors. The company installed some solar panels at The University of Toledo as a demonstration and used them to heat a small house that was located in the northwest corner of the campus.

One of the first researchers in solar technology was Harold McMaster, known as "The Glass Genius." McMaster began inventing early in life. He received his first tool set at the age of 6 and was building car motors by the time he was 12. In 1940, after graduating from college, he went to work for Libbey-Owens-Ford. During his tenure with the company, he was responsible for numerous innovations, including methods for de-icing aircraft windshields and making black lights. In 1971, having left L-O-F, he founded Glasstech, Inc in Perrysburg along with Norman Nitschke and Frank Larimer. Together with a research and development team, McMaster and Nitschke began work on a machine for tempering glass.

For centuries, inventors had been searching for a way to make glass stronger, but dents and other imperfections created during the manufacturing process had long prevented it from being as strong as it could be. Tempered glass, it was found, is five times stronger than steel and is therefore useful for skyscraper windows, shower doors, and car windshields, among other purposes. Another advantage of tempered glass is that it crumbles when broken rather than forming shards, reducing the risk of serious injury. Almost immediately, McMaster and his partners were able to create a machine to produce tempered glass. Hundreds of the new machines were sold, with McMaster and his partners collecting royalties. So successful was the invention that it is responsible for producing an estimated 80 percent of the world's automotive glass and 50 percent of its architectural glass. Despite struggling in the 1990s and enduring two bankruptcies, Glasstech, Inc continues to produce both bent and flat tempered glass, some of which is devoted to the emerging solar market.

Despite all of his accomplishments up to that point, McMaster still was not satisfied. In the early 1980s, he turned his attention to solar power. McMaster already knew that glass could be coated with certain chemicals that would both change its color and affect its ability to admit light. In 1984, he founded Glasstech Solar, a company which included several of his partners from Glasstech, Inc. McMaster initially focused on using amorphous silicon to coat sheets of glass, but the technology was unsuccessful and his backers ended up losing $12 million. He was undeterred, however, and continued to work toward his goal of producing solar panels as quickly and cheaply as the tempered glass he had created more than a decade before. McMaster began coating glass panels with cadmium telluride, a blend of cadmium and tellurium. This coating proved more successful and has become part of a wave of "thin film" technologies being developed in Toledo and throughout the world. Although not as efficient as traditional silicon cells, thin film panels have become popular due to a worldwide shortage of silicon and because the latter material is cheaper to produce.

In 1990, McMaster founded Solar Cells, Inc. and devoted the company to the production of thin film semiconductors. Nine years later, he sold the company to True North Partners and the name was changed to First Solar. First Solar was not an immediate success: commercial products were not available until 2002, and the company was not able to produce 25 megawatts of power until 2005. But First Solar has continued to develop and is now the world's largest producer of thin film cells. In 2009, it became the first company to provide solar-powered electricity for less than $1 per watt. First Solar's most recent accomplishment has been as the provider of thin film panels for the PSEG Wyandot Solar Farm in Upper Sandusky, which began producing power in May 2010. The 84-acre site, consisting of over 150,000 solar panels and eight power stations, is the largest solar farm in Ohio and even on an overcast day can provide power for up to 4,500 homes. On sunny days, the number of homes powered doubles.

UT's role in the solar market began in 1987, when Alvin Compaan joined the Department of Physics and Astronomy. Just two years later, UT received an Edison award, which provided the institution with $50,000 in funding (to be matched by Solar Cells, Inc.) for a project titled "Laser Processing for CdTe Solar Cells." That same year, the university won a second Edison award of $250,000 for the project "Advanced

Processing for Thin Film Solar Cells on Glass." The university's research has picked up even more within the last decade, as several new companies have emerged due to the university's alliances with local, state, and federal officials. In 2002, the Ohio Third Frontier was established, with a focus on developing an innovation economy in the state. In 2005, UT established a business incubator for alternative energy. The university's incubator has been responsible for four businesses so far. The following year, the Wright Center for Photovoltaics, a collaboration between the university, industry, and government, was established. The center's goals are to reduce costs, improve technologies, and transfer research efforts onto the production line. The university has also begun the creation of the School of Solar and Advanced Renewable Energy, as well as the Scott Park Campus of Energy and Innovation.

One new business is Xunlight, co-founded by UT professor Xunming Deng and his wife in early 2002 under the name Midwest Optoelectronics, LLC (MWOE) as a way of commercializing research conducted at the university. MWOE received its first grant in 2003 and by 2006 had reorganized as Xunlight. Just one year later, Xunlight moved its headquarters from UT to a facility on Nebraska Avenue, and in 2009, UT became the first customer to receive a set of solar modules. In 2010, Xunlight announced that its solar panels are being used to power the first 100 percent solar-powered billboard in Times Square.

Xunlight has gone in a different direction with its solar panel research and manufacturing. Unlike many thin-film manufacturers, which specialize in cadmium telluride-coated glass panels, Xunlight has focused on developing rolls of sheet metal covered with amorphous silicon. These stainless steel sheets are lightweight, flexible, and small. This flexibility also allows them to be used for irregular roofs and even, possibly, on vehicles. They are also thinner, making production cheaper. However, they are less efficient than solar cells currently on the market. In an attempt to increase efficiency, Xunlight's panels consist of three different forms of silicon, each of which captures the energy of a different portion of the solar spectrum (traditional solar cells only capture one portion). A new startup, Xunlight 26 Solar LLC, was established in 2008 and is attempting to produce solar panels made of cadmium telluride encased with plastic. It is hoped that by the end of 2010, Xunlight 26 will have developed a product that is both durable and more efficient.

Xunlight is just one startup to emerge from UT's business incubator. Another is Innovative Thin Films, LLC. Founded in 2002, the company is dedicated to increasing solar panel efficiency by producing glass coatings that are self-cleaning, anti-reflective, and scratch-resistant. Still another is Advanced Distributed Generation, LLC, founded that same year. This company develops and installs photovoltaic systems for large entities such as government institutions and major corporations. Solar Fields, which began research in 2004 and became an established company the following year, is another producer of thin-film modules. In 2007, the company was purchased by the German concern Q-Cells AG and renamed Calyxo USA. Under the purchase terms, the manufacturing arm of the company is based in Germany, while all research and development will remain headquartered in Perrysburg. The UT connection can also be seen in another company, Willard & Kelsey Solar Group. Founded in 2007 by several researchers who had worked with McMaster, Willard & Kelsey manufactures thin-film solar panels for worldwide distribution. By building off of McMaster's work, Willard & Kelsey has developed new technology that not only lowers the cost of producing solar cells, but is also expected to increase efficiency by 20 percent. Most of its management team worked with McMaster during his early days, with many individuals having experience at Glasstech or Solar Cells/First Solar, as well as in the glass and automotive industries.

What the future holds

While the newest wave of solar startups has gotten off to a quick start, the push for alternative energy continues worldwide. The University of Toledo, as well as the state of Ohio, is promoting solar technology

as a means of creating jobs and reducing our dependence on more polluting, non-renewable sources. But both as a state and a region, it is only a start. The university must compete with other institutions that are developing their own research in solar and other energy technologies. And Ohio may be losing out to other states that have offered better incentives for companies to locate their facilities elsewhere. Findings by *The Blade* indicate that the state has missed out on increased funding and jobs due to numerous factors: the failure of lawmakers to take advantage of the gains made by companies such as First Solar, the existence of a public utilities tax, the lack of tax credits specifically for solar equipment manufacturers, and the continued support of coal ("clean" coal technology in particular).

UT's solar programs and Ohio's Third Frontier have made important strides in developing a new industrial base for the city. But as it has been since Jesup Scott first stated so in 1868, Toledo's hopes of being the Great City of the World are still very much in the future.

"Solar Houses: An Architectural Life in Living" brochure, 1947. Libbey-Owens-Ford Company Records, MSS-066.

An early advertising brochure promoting Libbey-Owens-Ford's Thermopane insulating windows and their application to reduce energy costs in new homes.

Photograph, "Solarometer," 1949. Libbey-Owens-Ford Company Records, MSS-066.

The Solarometer was an instrument developed by scientists at the Massachusetts Institute of Technology and purchased by L-O-F to help promote the sale of Thermopane windows in post-war homes. L-O-F salesmen took the device to trade shows to demonstrate how builders using the company's windows could orient homes to take maximum advantage of the sun to reduce heating costs.

"Utilizing a Natural Resource: L-O-F Energy Systems" brochure, 1978. Libbey-Owens-Ford Company Records, MSS-066.

Following the energy crisis of the late 1970s, L-O-F began heavily promoting its solar collection technology for home applications. This brochure showed a test facility for the company's solar panels that had been erected on the campus of The University of Toledo.

"SunPak" Solar Collector ca. 1980. On loan from the collection of Ernest W. Weaver.

In the late 1970s, Owens-Illinois began developing the SunPak, a solar collector that uses a series of vacuum tubes to convert sunlight into heat. This is an individual tube that, combined with several more of its type, forms panels for covering large areas similar to current solar cell technology.

"SunPak" brochure and photograph, n.d. Owens-Illinois, Inc. Company Records, MSS-200.

This photograph and sales brochure show a SunPak collector and various examples of its industrial and commercial use.

"University Research in Thin Films and the Development of an Industry Cluster in Renewable Energy in the Toledo Metropolitan Area." The University of Toledo Office of Research, Winter 2002.

This publication summarizes some of the work done by UT faculty in developing thin film technology for application to solar energy projects.

Lloyd A. Jacobs and Eva Klein, *The Relevant University: Making Community and Economic Engagement Matter*. Toledo, OH: The University of Toledo Press, 2010.

This book, co-authored by UT's president, makes the connection between UT's research interests in alternative energy and the region's future economic development.

TOLEDO BUSINESS-RELATED COLLECTIONS OF THE WARD M. CANADAY CENTER FOR SPECIAL COLLECTIONS

Acklin Stamping Company Records, 1911-1997. MSS-139.

The Andersons, Inc. Records, 1936-2004. MSS-194.

James Brower Papers, 1949-1989. MSS-220.

Frank H. Canaday Papers, 1911-1976. MSS-031.

Ward M. Canaday Collection, 1902-1991. MSS-072.

Central Labor Union of Toledo and Vicinity Records, 1915-1971. MSS-090.

Dana Corporation Records, 1902-2003. MSS-242.

Downtown Toledo Associates Records, 1955-1978. MSS-027.

Harry J. Durholt Papers, 1935-1978. MSS-063.

Richard T. Gosser Papers, 1943-1974. MSS-025.

Franklyn Hawkins Advertising Portfolios, 1955-1972. MSS-067.

H.O. and H.W. Hem Toledo Scale Papers, 1910s-1960s. MSS-176.

Insheild Die and Stamping Company Records, 1920-1995. MSS-158.

International Chemical Workers Local 901 Records, 1935-1986. MSS-085.

Kiwanis Club of Downtown Toledo Records, 1916-1989. MSS-081.

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John Lewis Papers, 1899-2004. MSS-201.

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