Nixon Gear's 100th Anniversary Sheds Light on Syracuse's Amazing Gear Manufacturing History

In its manufacturing heyday in the early 20th century, Syracuse certainly deserved the moniker, Gear City. At that time, Syracuse companies such as New Process Gear, Brown-Lipe Gear, Brown-Lipe-Chapin, Durston Gear, Diefendorf Gear, and Nixon Gear, fabricated twenty five million gears annually, made \$50 million, and employed thousands of local citizens. The breadth of finished products that utilized locally-made gears was incredibly diverse: bicycles, automobiles, trucks, printing presses, sewing machines, portable and industrial tools...the list goes on and on. Gear companies located in Syracuse reputedly made about 90% of the automotive gears used in the United States.

This article offers brief synopses of some of the more notable gear manufacturers in Syracuse, culminating with Nixon Gear, Inc., which is celebrating its centennial year in 2020.

New Process Raw Hide Company, New Process Gear Corporation, New Venture Gear, Inc.



New Process Gear Building

Thomas W. Meachem organized the New Process Raw Hide Company on June 25, 1888 in Baldwinsville, NY with \$30,000 in capital. The company first made leather-covered boats and canoes utilizing their patented *new* leather tanning *process*. By the following year, New Process had expanded its product lines to include solid, noiseless rawhide gears used on high-speed machinery and electric railway cars.

By the early 20th century, New Process Raw Hide Company complemented its rawhide gears with those made from hardened steel, brass, and cast iron. In 1912, the company introduced the first bevel gear and officially renamed the business New Process Gear Corporation.

Thomas Meachem retired as president in November 1918 and sold the company to auto maker John Willys, president of the Willys-Overland Company. Meachem and his sons, Thomas G. and Joseph F.S., then formed the Meachem Gear Company in 1919. The two sons operated the new company until November 1924, when they suddenly announced without explanation that they were closing the business.

Willys-Overland sold New Process Gear to General Motors in 1921. General Motors then sold the company to the Chrysler Corporation in 1934, becoming a Chrysler Corporation subsidiary in the 1950s.

New Process Gear Corporation made four-wheel drive systems and transmissions for trucks, tractors, and military equipment. During World War II, New Process Gear employed 1,700 workers, earned \$10,750,000 in gross sales and had a payroll of \$80,000 each week. By the 1970s, New Process Gear led the world in making a two-speed transfer case for heavy duty vehicles.

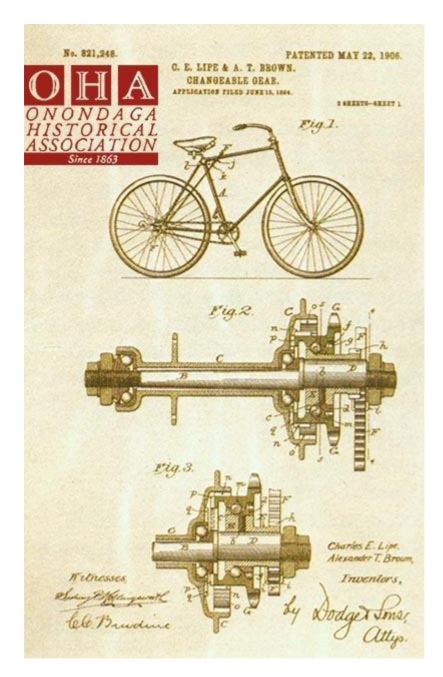
In 1990, New Process Gear celebrated its 102nd anniversary and was reorganized as New Venture Gear, the first joint venture between Chrysler and General Motors. In February 2002, General Motors sold its company share to DaimlerChrysler. In 2003, New Venture Gear had \$1.5 billion in sales, 4,000 employees and a \$5 million-a-week local payroll. In September 2004, DaimlerChrysler sold 80% of its share of New Venture Gear to Magna International. However, by 2007, New Venture Gear was having trouble winning new manufacturing contracts and was losing a great deal of money. In August 2012, the plant stopped production and closed its doors after 124 years.

Brown-Lipe Gear Company

Two inventors and entrepreneurs, Alexander T. Brown and Charles E. Lipe, formed a business partnership in Syracuse in 1895. Brown, an amazing inventor and engineer, is credited with about 300 inventions.

Charles E. Lipe, a mechanical engineer, opened the C.E. Lipe Machine Shop on South Geddes Street in 1880. At the Lipe Shop, Lipe worked on his own projects while renting space to other budding inventors and entrepreneurs. The shop became an incubator for new inventions and was known as Syracuse's cradle of industries. The Syracuse Journal newspaper credited these men with sowing "the germs that sprouted into major business enterprises in Syracuse and elsewhere."

Together, Brown and Lipe invented and patented the Hy-Lo Bi-Gear for bicycles in 1894, and a year later formed the Brown-Lipe Gear Company. Their gear wasn't well-liked by bicycle makers but soon became popular with automobile manufacturers. In 1895, Charles Lipe died and his brother Willard replaced him, and the company began making three-speed transmissions for Franklin, Ford, and the Yellow Cab Company.



Patent No. 821,248 May 22, 1906, C.E. Lipe and A.T. Brown, Changeable Gear

The company's business continued to grow, and in 1907, Brown-Lipe Gear Company built a new five-story factory at the corner of West Fayette and South Geddes Streets at a cost of about \$100,000.

By 1908, Brown-Lipe Gear Company was working to capacity and could have easily employed 1,000 workers to make vehicle steering gears and differentials, but did not have the space or the equipment to take advantage of the sizeable increase in orders.



Brown-Lipe Gear plant workers

On December 12, 1928, William Schall & Company bought the Brown-Lipe Gear Company for \$3.4 million. At the time, Brown-Lipe Gear Company was recognized as the largest independent manufacturer of transmission gears, clutches, and controls for trucks, taxicabs, and buses in the United States. The magnitude of the local gear business caused the Syracuse Journal newspaper to credit the Brown-Lipe Gear Company with bestowing upon Syracuse the appellation, *Gear City*.

William Schall & Company then sold the Brown-Lipe Gear Company to the Spicer Manufacturing Company of Toledo, Ohio, in 1928, which by April 1931, had moved Brown-Lipe Gear Company's operation to that city, leaving a huge complex of empty buildings along West Fayette and South Geddes Streets.

Today, Cosmo Fanizzi and Rick Destito own two former Brown-Lipe Gear Company buildings on West Fayette and South Geddes Streets. Destito subsequently renamed his building the *Gear Factory*.

Brown-Lipe-Chapin Company

In 1910, Charles Mott of General Motors asked if Brown-Lipe Gear Company could make a new bevel gear differential. Making the new differential required more capital and manufacturing space than Brown-Lipe Gear Company could accommodate, so in 1910, Brown, Lipe, and H. Winfield Chapin formed another company - Brown-Lipe-Chapin - to make the bevel differential, along with transmission gears and clutches. The new company constructed a five-story building between West Fayette, Marcellus, and Seneca Streets, one of the largest factories built in Syracuse at that time.

During World War I, the federal government awarded Brown-Lipe-Chapin a \$1.5 million contract to produce rear axle differentials for 17,000 military vehicles.

In January 1923, Brown-Lipe-Chapin formally affiliated itself with General Motors and became one of GM's divisions.

As production waned between 1930 & 1933, General Motors closed the plant and converted it into an industrial center housing several small businesses. This venture lasted three years until General Motors resumed production of automobile parts at the factory site in February 1936.

That same year, Brown-Lipe-Chapin became affiliated with Guide Lamp Division of General Motors, and switched from making transmission gears and clutches to making flashier chrome parts: headlamps, tail lamps, hub caps, and bumper guards. The product line soon grew to include steering gears and automobile emblems.



Brown-Lipe Chapin factory, c1940

In 1951, Brown-Lipe-Chapin began making parts for the Curtis-Wright J-65 Sapphire jet engine. The following year, Brown-Lipe-Chapin built a new plant in Dewitt to build the jet engine.

In December 1961, General Motors consolidated Brown-Lipe-Chapin into the Ternstedt Division. The Ternstedt Division then merged with Fisher Body Division in November 1968.

For the next twenty-five years – 1968 to 1993 - employees at the Fisher Body plant in Syracuse continued to make automotive body parts for General Motors vehicles. In October 1993, General Motors closed the plant, known by then as the Fisher Inland Guide Plant, due to major corporate restructuring.

Durston Gear Corporation

Daniel M. Lefever established the Lefever Arms Company in Syracuse in 1884 to make breech-loading shotguns and rifles. About 1902, Lefever left the company to set up a new firearms company. James F. Durston, president of Lefever, had endeavored to make transmissions and jackshafts for motor wagons by 1912. Demand for Lefever Arms' auto gears had amply increased in 1915, and it did not take long for the company to focus more on making auto gears than firearms.

Therefore, in June 1916, Lefever Arms Company sold its firearm business and formed Durston Gear Corporation. Immediately, James Durston added onto the Maltbie Street building to accommodate 500 employees.

During World War I, the U.S. government awarded a large contract to Durston Gear Corporation to make transmissions for U.S. Army trucks, one of only two companies in the entire country to be awarded the contract. By this time, James Durston relinquished the presidency to his older son, Alfred. When James died in 1921, and Alfred died in 1926, James' younger son, Marshall, became company president, holding the position until Durston Gear Corporation closed its doors in 1945.

Diefendorf Gear Corporation

Willis H. Diefendorf was the chief engineer at the New Process Gear Company until he founded Diefendorf Gear Corporation in 1920 for the purpose of making a variety of specialized non-automotive, industrial metallic and non-metallic gears. In 1923, Diefendorf moved his company to 920 West Belden Avenue.

Willis Diefendorf died on May 25, 1929 at age 59. His widow, Mary, then succeeded her husband as company president and treasurer. Mrs. Diefendorf was one of only a few women business executives at the time and she successfully managed the company until her own death in January 1941. Mrs. Diefendorf's son, Donald, then managed his parents' gear business into the 1970s.

Diefendorf Gear Corporation made gears for machine tools, portable electric and pneumatic tools, packaging machinery, dairy handling equipment, conveyors, and sewing machines. Employees made spur and spiral bevel gears out of rawhide, iron, steel, and bronze in sizes from less than one inch up to six feet in diameter, with some gears weighing 3,000 lbs.

Diefendorf Gear Corporation operated until the early 2000s when it closed due to stiff overseas competition.

Auto Gear Company

Irving H. Sollish established Auto Gear in 1945 in a fourth-floor loft in Syracuse with a mission to provide drive train rebuilders access to high quality original equipment replacement parts.

Irv was born in Brooklyn in 1898. It's possible that his father, a trolley conductor, subliminally introduced him to New Process; regardless, as a traveling salesman from at least the first World War, by the mid-twenties he was representing the Syracuse company's line of replacement gears in a territory he remembered as 'east of the Mississippi including Cuba'.

Then the Depression came and he could travel only if he could forage --- collecting past due debts to pay his expenses one day, writing new business to enable his return the next --- and when even that disappeared he left the road, took full time work at New Process and moved upstate.

During the second World War --- Irv was head of aftermarket gear sales by then --- he prepared Lend Lease shipments for England and the Soviet Union and waited for peace. In early 1945, with victory in view, his boss

told him that New Process would not be selling into the aftermarket after the war --- shipping a thousand of one gearbox to a single customer was far more satisfying than shipping one or two gears to each of ten thousand customers.

So, Irv borrowed against his life insurance and purchased his department. What he bought was a pile of 1930's service gears (some good, some not so, but everything sold in the post-war shortage), a scale, three flat trucks, one part time employee and a handshake agreement that New Process would provide gears on order.

Today, Auto Gear is led by Irv's grandson, George E. Sollish, CEO and Chief Engineer. The company now focuses on designing and manufacturing specialized transmissions for off-highway vehicles, as well as high performance manual shift gearboxes.

Nixon Gear, Inc.

The auto industry's success in the early 20th century had already prompted several gear companies to open in Syracuse by 1920, and it was this burgeoning manufacturing environment that prompted George C. Nixon to join the ever expanding local gear manufacturing scene. On November 17, 1920, George Nixon founded Nixon Broach and Tool Company at 200 Oxford Street to sell general machining and special tooling.

George Coleman Nixon was born in Marengo County, Alabama in 1882. On June 9, 1909, Nixon married Kate Estelle Shakaw in Alabama. By 1916, George and Kate had moved to Detroit, Michigan where George established the Steel Treating Equipment Company with \$10,000 in capital stock. This company specialized in manufacturing carbonizing compound and milled charcoal.

George and Kate Nixon migrated to Syracuse to establish Nixon Broach and Tool Company while he was still president of the Detroit company. By March 1921, Nixon was advertising that his shop could grind auto cylinders, then fit them with new pistons and rings. He guaranteed his work and provided quick service.

In 1924, Nixon began to manufacture gears and changed the business' name to Nixon Gear and Machine Company. Nixon continued to advertise for experienced toolmakers and machinists in the classified section of the local newspapers throughout the 1920s. The management team operating Nixon Gear and Machine included George as president, Kate as secretary & treasurer, and George's brother-in-law, John E. Shahan as vice president. Shahan, also born in Alabama, had moved to Syracuse in 1924 to assist the Nixons with operating the company. In 1930, their positions altered with Shahan becoming company president, Kate becoming vice president, and George becoming secretary & treasurer. George and Kate then moved back to Detroit in 1932. Shahan stayed in Syracuse and served as company president for many more years.

George continued managing the Steel Treating Equipment Company in Detroit, and from there, George and Kate Nixon continued their association with Nixon Gear and Machine Company as secretary & treasurer and vice president, respectively, until 1941.



Nixon Gear ad Syracuse Herald Journal, February 7, 1954

In the mid 1950s, Nixon Gear and Machine Company placed an ad in the <u>Syracuse Herald Journal</u> newspaper touting its growth and success, and allying itself with the progress achieved by Central New York. The company expanded and purchased additional equipment to meet the demand for its products and services: thread milling, worm wheels, and helical, worm, bevel, and spur gears. The ad also described Nixon Gear and Machine Company as the exclusive Central New York distributor for diamond roller chain and sprockets, as well as asserting that the company was in the "enviable position of being able to fulfill the requirements of any gearing problem regardless of complexity or size of order." In 1955, the company offered "precision flame hardening of all types of gears."

On January 1, 1956, company president, John E. Shahan, Sr., announced that he thought Nixon Gear and Machine Company would have its best production and sales year in the company's history. By adding new machinery and enlarging its sales territory to a national extent, Shahan, Sr. predicted that the company would continue to expand and serve its increasing number of customers. At this time, the company also was making "fine pitch precision gears used on precision measuring and computing equipment for the army."

George C. Nixon remained in Detroit until his death on September 13, 1957 at age 75. His very brief obituary in the <u>Detroit Free Press</u> newspaper lacked recognition of all that Nixon had achieved, including owning two successful businesses. By the time of George's death, the Shahan family managed Nixon Gear and Machine Company. John E. Shahan, Sr. continued as president, John Sr.'s two sons, John E., Jr. and Robert were dual vice presidents, and John Sr.'s wife, Justina, was treasurer.

Nixon Gear and Machine Company applied to the Bureau of Building and Rehabilitation to construct a new facility at 185 Ainsley Dr. in Syracuse in 1958. The application stated the building would measure 175 feet wide by 101 feet long and cost \$150,000 to erect. The company moved to this address sometime in 1959.



Nixon Plant, Ainsley Drive

Throughout the 1950s and 1960s, along with donating money to the local community chest, Nixon Gear and Machine Company employees faithfully donated many pints of blood to the American Red Cross. Numerous newspaper articles recognized the employees' generous donations of the much-needed lifesaver. The company also participated in job training programs for unemployed or underemployed local citizens via grant money provided by the federal government, as well as career opportunity fairs aimed at providing employment for those interested in working in an industrial facility.

John E. Shahan, Sr. died in January 1967 at age 73. John E., Sr.'s sons, Robert and John E., Jr., succeeded their father as company president and vice president, respectively.

The following January, Nixon Gear and Machine Company was at the center of a proposed industrial complex to be created on Onondaga Hill in the Town of Onondaga. The proposal included Nixon Gear and Machine Company constructing a new \$1 million, 60,000 square foot plant on eighty acres that would accommodate 200 employees. At the time, the facility on Ainsley Drive comprised 21,000 square feet and accommodated 120 employees. The Town of Onondaga, which very much wanted to increase its commercial tax revenue, rezoned the property, and formally approved the plan on March 21, 1968. Construction on the new plant began in May and it opened at 4601 Nixon Park Drive in 1969.



Nixon Plant, Nixon Park Drive

In the late 1960s, a major product shift occurred in the business machine segment of the gear manufacturing market with powdered metal and plastic gears replacing steel spur and helical gears. By the early 1970s, plastic parts and electronic components were quickly replacing metal gears. These changes forced the company to change its focus and develop new product and sales markets.

After about twenty years of being associated with Nixon Gear and Machine Company, Robert Shahan retired from his position as co-vice president in 1976; John Shahan, Jr. stayed with the company. Also that year, Nixon Gear and Machine Company became Nixon Gear, Inc.

Evidently, Nixon Gear, Inc.'s business faltered and the company declared bankruptcy sometime in 1976. In March 1977, Gear Motions, Inc. of Massachusetts purchased Nixon Gear, Inc. By acquiring Nixon Gear, Inc., Gear Motions, Inc. added precision ground gearing to its product network and substantially enlarged its sales territory into the Midwest and Mid-Atlantic states. By January 1978, John Shahan, Jr. predicted a 15% increase in sales volume for that year. In a <u>Syracuse Herald American</u> article from January 1978, David Edmonds, assistant to John Shahan, Jr. was quoted as saying, "Nixon's long standing reputation for supplying quality gear products in the precision and commercial gear classes has enticed local and national accounts to place their critical needs at Nixon's modern Onondaga Hill facility."

By February 1979, Samuel Haines, president of Gear Motions, Inc., declared that the company had surpassed its prediction of a 15% sales volume increase by realizing a 40% increase.

Throughout the 1980s, Nixon Gear, Inc. continued to thrive under the leadership of Gear Motions, Inc.

After being associated with Gear Motions, Inc. for fifteen years, Nixon Gear, Inc. moved from its building in the Town of Onondaga to a new state-of-the-art, climate-controlled building located at 1750 Milton Avenue in Solvay in 1992. The 45,000 square foot structure allowed the company to improve its operations and efficiency while allowing for additional investment in precision gear grinding. It became one of the first ISO 9002 Registered gear manufacturers in 1996.



Nixon Gear, Milton Ave

In the 21st century, Nixon Gear, Inc. remains a division of Gear Motions, Inc. at 1750 Milton Avenue in Syracuse, NY. Employees make high-speed precision gears for commercial and industrial applications. Through the last 100 years, Nixon Gear, Inc. has remained successful by continuing to grow and adapt during changing times.

In 2005, Gear Motions began one of its biggest transitions in its history, from a privately held company to an Employee Owned Company (ESOP). Sam Haines' plan was to begin a ten-year ownership transition to assure the companies in Gear Motions, including Nixon Gear, remained in the communities that supported them during their history. In 2010 Gear Motions completed its transition to a 100% Employee Owned company, assuring that the company would remain at its current location and viable for many years to come.

Today, the company continues to invest in the future by adding industry leading robotic automation and super grinding equipment that it purchased in early 2020.





Precision Ground Gears and Gear Grinding Equipment, Nixon Gear

Nixon Gear Employee Owners, 2019

Congratulations to Nixon Gear, Inc. and Gear Motions, Inc. for sustaining the 100-year old gear manufacturing company in Onondaga County. Celebrating Nixon Gear, Inc.'s centennial in 2020 also is a celebration of Syracuse & Onondaga County's long and diverse history of gear manufacturing that has lasted since the 19th century.

Thomas Hunter
Curator of Collections
Onondaga Historical Association
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*Modified with excerpts added from Gear Motions, Inc. and George Sollish, Auto Gear Company