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The Bowmanville Foundry: One Hundred Years of Innovation and Contributions to Canadian foundry and economic history

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[SLIDE] Ritchie and Arthur qte.

For over a hundred years, a little foundry in Bowmanville, Ontario, located about 80 km east of Toronto, has been casting iron into implements of utility; items noteworthy for their functionality, and for their every-day ordinariness: piano parts, stove parts, farm implements, household items such as irons, floor-lamp bases, register vents, and decorative ornaments such as book ends and *Naughty Nellies*, recreational components such as oar lock sockets, parts for industrial application, and much more.

Established in 1902 by Christian Rehder who immigrated to Canada from Denmark, now Germany, in 1857 as a child, the Bowmanville Foundry Company has efficiently and unassumingly contributed to the economy and culture of a community, and of Canada.

Historical Context

There was significant robust growth in the foundry industry in Ontario at the turn of the 20th century. The iron and steel industry, not listed among the top fifteen Ontario industries in 1870, ranked sixth in 1910.¹ It was in the 20th century environment of innovation, new-found power and mechanization, and explosive growth in consumer demand, that Christian Rehder, founder of the Bowmanville Foundry, would thrive as he readily applied his creative thinking, business acumen, and practical skills to foundry operations.

¹ Drummond, Ian, et al. *Progress Without Planning: The Economic History of Ontario from Confederation to the Second World War*. (Toronto: University of Toronto Press, 1987) 114-115; Table 7.9, 401.

While hundreds of foundries have come and gone in Ontario through the era of the Bowmanville Foundry, but a handful share the distinction of surviving a century or more in business. Few foundries were established in Ontario after the mid-point of the 20th Century, the majority of these no longer in operations.

Eric Arthur and Thomas Ritchie argue that ironworkers and foundrymen have in the most ordinary of ways contributed to their communities, and to the growth of a nation:

*The story of the extraction of iron from ore and its fashioning into a multitude of implements, utensils, tools, appliances, and other useful and decorative objects that Canadians have needed... provides an important chapter in Canadian history. Such an account reflects not only changes in technology (as when wrought iron was replaced by steel), but also changes in fashion, as design followed forms dictated by particular styles and fashions.*²

The story of the Bowmanville Foundry is but one chapter of a larger story; that of how “the craftsman in his foundry and the ironworker at his forge have each contributed to Canadian culture.”³

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Patriarch and founder Christian Rehder was described in a 1941 newspaper account of his death as a “dean of local industry.”<sup>4</sup> He stood out as a man ahead of his time, as a pioneer and a visionary who established a solid reputation among foundrymen, a man who earned high regard within his community and the industry.

When he first opened up shop in Bowmanville in 1902, Rehder produced items made exclusively of grey iron. During the Second World War malleable iron production was begun at Bowmanville, a result of graduate research conducted by grandson Ned Rehder at McGill

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<sup>2</sup> Eric Arthur and Thomas Ritchie. *Iron: cast and wrought iron in Canada from the seventeenth century to the present.* (Toronto: University of Toronto Press, 1982) xii.

<sup>3</sup> Eric Arthur and Thomas Ritchie. *Iron: cast and wrought iron in Canada from the seventeenth century to the present.* (Toronto: University of Toronto Press, 1982) xiii.

<sup>4</sup> *The Canadian Statesman*, September 18, 1941.

University. Grey iron manufacture was again added in the early 1990s. Ductile iron, first introduced into the industry in the 1960s, was manufactured at Bowmanville in the mid-90s. By 1995, the Bowmanville Foundry was producing malleable, grey, ductile, white, and austempered iron castings. By 2002, altogether about 15 different grades of iron were produced in what has always been a jobbing foundry.

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The foundry employed thirty men when it began operations in April 1902, and about thirty-five on its first anniversary in 1903. After a century in operations, 41 men and women made up the full roster, with the foundry now producing over four times the iron it did but a decade ago, due to technological advancements.

The Rehder family was committed to remaining small and to diversification in product and customer base (i.e. not succumbing to a temptation to tie the business wholly to the automotive industry which grew throughout the same era in neighbouring Oshawa). This necessitated innovation in technology and business practice, a historic pattern that has consistently contributed to the survival and success of the business. Throughout its production history, the foundry's jobbing production was a response to and reflection of consumer and industrial needs of the times.

Longstanding family ties among workers trace instances of up to four generations of the same family concurrently working at the foundry, some family members employed up to 40 years with the company. Two of the longest serving employees each gave 50 years service to the Bowmanville Foundry!

In his book, *Industrial Sunset – the Making of North America's Rust Belt, 1969-1984*, Steven High found a similar pattern of employment in factory and mill towns where the work represented a

way of life for the community on the whole. In general, that it “was common for multiple family members to work in the same plant,” where workers got jobs through family connections.⁵

The Rehder Family

In his mid teens, Christian Rehder took his first foundry job at the D. Moore Stove and Foundry Company, located in Hamilton, Ontario. They made kitchen stoves and various other items out of grey iron castings and sheet steel, both electroplated with nickel to give bright and shiny surfaces. He left the job to run a butcher shop, but his business failed.

Around 1875 Chris returned to D. Moore Stove and Foundry Company. He would soon be twenty-one years of age. His co-worker, John Storie, would eventually manage Ontario Malleable Iron Co. in Oshawa, Ontario, and in 1902 became co-owner of Oshawa Stove Ltd., which in 1910 became Fittings Limited. To this day, their families maintain ties.

Through ten years experience, Chris earned several promotions, learning all aspects of the foundry business, including electroplating which was, at the time, new and important technology.⁶

In 1877, Chris married Mary Wurst. In 1885 Chris and Mary moved their family of four to Toronto where Chris was employed as foreman at E. and C. Gurney Foundry Co.⁷ until his departure in the summer of 1891. Chris then took a position as plating foreman of a stove plant located in Cleveland, Ohio. He soon returned to Canada, moving his family to Paris Station, Ontario, where in 1894 he established with Thomas McCosh the Paris Electro Plating Co. [SLIDE]

⁵ High, Steven. *Industrial Sunset. The Making of North America's Rust Belt, 1969-1984.* (Toronto: University of Toronto Press, 2003) 46.

⁶ Ned Rehder, March 2002.

⁷ Founded in Hamilton by brothers Edward and Charles Gurney in 1843, E. & C. Gurney initially manufactured stoves and ranges. In 1868 they established a branch of E. & C. Gurney in Toronto after buying out the operations of John McGee. After the deaths of the two brothers, the Toronto branch became known around 1893 as the Gurney Foundry Company, manufacturing stoves, ranges, hot water and steam radiators, and builders hardware and scales. Barnwell, Art and Dave Branch. *Molten Metal – Shaping Ontario.* (Canada: The Ontario Chapter of the American Foundrymen's Society, Post-1995) 64-65.

The company did custom electroplating of iron castings, plating them and then selling them to stove foundries and piano manufacturers, as well as assorted bicycle parts and other items. In the case of stove parts trade, the business sold to Chris' former employers, D. Moore Stove and Foundry Company as well as E. and C. Gurney Foundry Co., in what can be described as an early example of 'out-sourcing'.

One of Chris' largest customers, Dominion Organ and Piano Company located in Bowmanville, Ontario, brokered the idea that he relocate to Bowmanville. The Bowmanville town fathers made an attractive offer through a by-law that included assistance in the construction of a foundry, as well as a reasonable twenty-year repayment plan with a generous long-term repayment schedule and tax deferment.

In a vote of qualified electors held July 14, 1901, there were only 10 dissenters, with a majority of 469 votes in favour of the by-law. And so in late 1901, Christian moved his family to Bowmanville where Chris established, with new partner George Harris (Harry) Linton, The Bowmanville Foundry Company, Limited. They soon parted company.

By spring 1902 the foundry was in full operations.

Chris Rehder's business philosophy was one of maintaining "adequate control." He was a "hands on" man who had learned the trade and the business from the bottom up, and who went into the foundry every day, until his last days. He served his community in various capacities.

In 1910, son Ernie got a position as timekeeper at Gurney Foundry Company in Toronto. However, after brother Fred's fatal accident at the foundry in 1912, he returned 'home' to the family foundry where he remained for 48 years. He succeeded his father as company president only after Christian's death in 1941. Like his father, he was active in the community, included as municipal elected representative. He also was an accomplished amateur photographer, sailor, and founding

member, in 1922, of the Bowmanville Radio Club. In 1923 he applied to the federal government for an amateur broadcasting license, having the distinction at the time of being just one of four such licensees in the country.⁸

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Ernie's eldest son, John Edward (J. E.) "Ned" Rehder entered McGill University, Montreal, in 1926 where he studied metallurgy, winning academic scholarships and prizes. Ned's summers were spent in Flin Flon, Manitoba, where he was engaged in research in the mining camps. To supplement his income in his second year at McGill, Ned worked for his father, peddling some of the foundry's products such as display racks for clothing shops.

On completion of graduate studies at McGill in 1941, Ned was offered a position by the federal government at an automotive foundry in Windsor where the foundry was manufacturing engine blocks for Chrysler cars and trucks used in the war effort.

Near the end of the war, Ernie called Ned home to help him deal with unwanted agitation by foundry employees – and the United Steelworkers of America – for a union. Ned came home, and after the union was established, he accepted an offer of a position in 1944 to work in Oshawa, Ontario as chief metallurgist for Grinnell Company of Canada Ltd. (Ontario Malleable Iron).

Ned quickly established himself in his field receiving early recognition when in 1955 he became the third Canadian to be honoured with the prestigious Peter L. Simpson Gold Medal of American Foundrymen's Society.

Ned has enjoyed a life-long successful professional career, as well as a distinguished research and writing career with publication of over a hundred papers and articles, mostly on metallurgy of iron, as well as in book form.

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<sup>8</sup> Newsletter, "Bowmanville Radio Club Operating 10 A.E." as reproduced in *The Canadian Statesman* (undated, C. 1924/25).

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Lawrence joined his father at the foundry in 1938 after graduation from high school. He worked in the office managing much of the administration and organization of the business, working his way to Secretary-Treasurer for over thirty years. His role in the office was especially appreciated by Tom who, when he took over the helm at the foundry, was more comfortable with the technical/mechanical, “hands on” management of the foundry.

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Tom followed big brother Ned’s footsteps, entering McGill University in 1941 where he studied metallurgical engineering, working one summer at a steel foundry in Hull, Quebec.

In the fall 1943, Tom joined the Air Force where he trained as a Navigator. After the war, Tom came home to Bowmanville where he immediately went to work at the foundry.

Tom also earned high regard and respect from his community. He sat on municipal Council, was appointed to various committees, and was honoured by the community for his public service.

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Ernie’s daughter Barbara never worked at the foundry. Indeed, she was discouraged from going to the foundry as it was not something women were encouraged to do.

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Robert Henry Rehder graduated from Queen’s University in 1950 with a BSc degree in electrical engineering. Upon graduation, he accepted a position at Canadian General Electric (CGE), Peterborough, Ontario, where he devoted forty-seven years to the design and development of electrical apparatus. He has been recognized with awards for excellence in his field, holds more than two dozen patents, and has enjoyed wide publication of technical papers. Bob also is very active in community service.

## A Foundry Takes Shape

By the first anniversary of the start-up of the company, thirty men were employed at the foundry, exceeding the by-law requirement that the company employ not less than 25 workers in the first year. Many would be the first of several generations of local men who would, as did Rehder men, follow their fathers and grandfathers into foundry work. Some families boast up to eleven family members taking employment at the foundry. Several families have had three generations concurrently employed, one family now in its fourth generation at the foundry!

While local sons were employed at the Bowmanville Foundry, the Superintendent of the Ontario Labour Department's Employment Bureau in Hamilton reported in 1918 "that 'foreigners' did 'practically the whole of the heavy and laborious work' in the city's iron, steel, and metal-working plants." This "ethnic stratification" in the industry continued in Hamilton (and other regions; i.e., Oshawa, Ontario) until the 1930s and beyond.

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Within five years of operations The Bowmanville Foundry Company, Limited expanded. The company was the only establishment in Canada specializing in light castings, having become an important accessory to the piano trade.

Production demands grew and in 1907 the approximately 60 hands employed at the foundry found themselves often engaged to work overtime. In early May 1907, all but one of the employees petitioned management for a half-holiday on Saturday afternoon.

In 1909, the company again expanded operations.

In 1912, the family suffered a terrible tragedy when Fred Rehder was scalded to death in an accident at the foundry in January. It took him most of the night to die.

Christian summoned Ernie, age 21, home. Ernie's initial plans were to help out temporarily, but except for a return to Toronto for two weeks to clear the books, he remained with the family business for over 60 years.

The onset of the First World War in 1914 resulted in a widespread depression hitting the whole of the foundry industry. Although the Bowmanville Foundry experienced an initial downward turn in business, foundry workers enjoyed steady employment throughout the war.

Christian Rehder sized up the wartime challenge as one of diversification. One strategy he employed was to develop product lines for items that prior to the war had more commonly been imported. And as demand for the high quality grey iron castings produced at the foundry increased, Rehder directed foundry operations to a growing production of shell plug castings for the war effort.

By 1917 essential raw materials such as pig iron became scarce and were eventually rationed for exclusive war-based production. However, large quantities of cast iron borings from shops machining military products became available as waste because there was no use for them. Christian determined that the electric arc furnace, recently invented in Europe, could melt this waste into molten cast iron for his foundry, replacing both the cupola and the need for pig iron. Early in 1918, Rehder purchased one of the earliest arc melting furnaces put to work in North America, having to learn on his own how to operate it.

Soon after the war, Christian Rehder broke ground for the construction of the new foundry at the site of the present-day foundry. The moulding shop was erected in 1920. The following year, a manufacturing plant was added and production expanded. In less than two decades, operations had expanded more than three-fold from and seventy-five men were employed at the foundry.

The interwar years brought to the Rehder family and the Bowmanville Foundry unprecedented business, technical, and personal challenges that required innovative solutions. In

December 1923 they received *Letters Patent* incorporating as *The Bowmanville Foundry Company Limited*. Capital stock of the company was listed at \$100,000.

Shortly thereafter, the Thomson Knitting Co. Limited, established in Toronto more than a decade prior, purchased the foundry's former premises. The move to Bowmanville proved unsuccessful for the company went bankrupt some time before 1929. As a result of the bankruptcy Christian Rehder suffered a serious financial setback. Along with nine other persons, he had endorsed a note for the Thomson Knitting Co. for an unknown amount. While all ten endorsers were liable for the note, eight had no assets and so Rehder and Thomson became liable for the full amount, with Rehder's share amounting to about \$110,000. He was still paying off the note until just before he died in 1941.

This setback drained the assets of the Bowmanville Foundry Company, Limited, so that when the Great Depression hit in 1929, the company was in a weak position without liquid assets.

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The Dominion Bureau of Statistics documented a marked decline from 1919 to 1922 in employment and output in foundry and machine shop product industry in Ontario. The number of workers engaged in foundry/machine shop work in 1919 was 16,032, with an output of \$51.6 million; whereas, in 1922, 6,096 workers were employed in foundry and machine work with output more than halved at \$22.2 million.<sup>9</sup>

Through the 1920s the volume of stove and piano business began to decline. The company continued to diversify its product lines and the machinery needed to make them. A welded wire product line grew to form a large part of the business. Included were oven and refrigerator racks,

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<sup>9</sup> Drummond, Ian. *Progress without Planning: The Economic History of Ontario from Confederation to the Second World War*. (Toronto: University of Toronto Press, 1987) Table 9.2; 410.

cleaned in the plating shop where the oven racks were nickel plated and the refrigerator racks coated with tin.

Electric spot welders were needed to make the racks, however “[t]here weren’t any arc welding units on the market in those days,” detailed a newspaper account, “so the enterprising Ernie, a whiz at mechanics, made one himself.”<sup>10</sup>

Electric stoves had begun to rise in popularity, and so the foundry stove trimming business began to suffer, though the foundry continued to produce some stove trimmings until 1963. To partially fill the gap, the foundry began to produce bridge lamp castings.

By the mid-1920s Bowmanville’s population had reached just over 3,500 citizens. Town fathers boasted of the finest farmland and apple orchards. Property tax rates were kept low. Free factory sites were made available along railway frontages to reputable manufacturers.<sup>11</sup> Women were put on the foundry payroll for the first time.

Local industry included: Bowmanville Foundry Company, Limited; Goodyear Tire and Rubber Co.; Dominion Organ and Piano Co.; Durham Textiles Ltd.; Canada Scale and Slicer Co.; Dominion Cannery Ltd.; Bowmanville Glove and Mitt Co.; Canadian Radiant Company; and, a number of smaller factories.

In early 1932 a struggling Canadian Radiant Company moved operations into the foundry. When the Canadian Radiant Company went bankrupt the following year, the Bowmanville Foundry took over the assets, being owed so much money, and thus the foundry got into the business of making irons. They wholesaled at the time for 98 cents!<sup>12</sup> **[SLIDE]**

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<sup>10</sup> *The Canadian Statesman*, January 12, 1972.

<sup>11</sup> Newsletter of Bowmanville Radio Club, operating 10 A.E. as reproduced in *The Canadian Statesman* (undated, C. 1924/25).

<sup>12</sup> *The Canadian Statesman*, January 12, 1972.

By the end of the decade, the company capitalized on a new market when it began to manufacture the wood and metal frames for paper cutters that were shipped all over the world. The patterns were very expensive, and after the fire of 1960 destroyed them, the line was discontinued.

When the Great Depression hit in 1929, already weakened by the Thomson Knitting Company affair, the foundry suffered an additional internal blow. The company accountant had embezzled about \$20,000.00, and also made off with a car owned by the company. The matter never got to the courts.

In early December 1931, and again in September 1932, the Bowmanville Foundry Company, Limited approached the Town fathers for financial assistance. They were declined, but a few local businesses offered some support.

Workers at the foundry were traditionally paid in cash at the end of each week. One Friday came, and there was no money to cover the payroll. For a time, employees worked for no wages, but were given paper IOUs that were gradually repaid some years later. Groceries were supplied to workers and their families by local merchants and backed by Ernie Rehder. Having the hope that business would pick up, their prospects looked rosier than those of many other men across the country who were among the masses desperately without work: 30 percent of Canadian workers were jobless at the time, and 20 percent of Canadians were on relief.<sup>13</sup> “The place stumbled along for a few years, then the war solved everything.”<sup>14</sup>

By 1935, sales had begun to expand to South Africa, Australia, New Zealand and England, all made possible by international trade agreements. The Second World War, however, would put an end to this period of globalized sales of Bowmanville Foundry products.

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<sup>13</sup> Wayne Roberts and John Bullen, “A Heritage of Hope and Struggle: Workers, Unions, and Politics in Canada, 1930-1982” in David J. Bercuson and David Bright, Eds. *Canadian Labour History*. (Toronto: Copp Clark Longman Ltd., 1994) 378.

<sup>14</sup> Ned Rehder, April 2002.

By the end of the 1930s, women were working on electric welders, welding oven and refrigerator racks. New product lines were gradually added, such as display racks for clothing stores that stood on heavy plated cast iron bases. [SLIDE]

Another significant innovation came to the family business: the ability to make two different kinds of cast iron, grey and malleable, more than doubling the available market for castings.

The number of employees on the payroll had grown to sixty, the largest number since just after the First World War. These numbers held until at least 1940.

And, three generations of Rehder men had their hands in the business.

### Flux and Flexibility

While at McGill, Ned undertook as a graduate thesis project to work out a new way of annealing malleable iron. He found that forty-eight hours, instead of one to two weeks, could be sufficient, and was, therefore, much less costly.

Ned kept father Ernie up-to-date on his research, and in 1939 Ernie bought a small indirect-arc melting furnace, since the cupola used for grey iron could not make the new iron composition. It became fully operational in early January 1940. Two heat-treatment ovens were acquired by copying a purchased one, and malleable iron production was started. This was one of the earliest use of the short process in North America.

To reposition its business base more widely in the marketplace, the foundry began to manufacture and supply to Canadian companies product lines that competed with American firms. New products included feed grinding plates, fireplace ornaments and tools, valves, stove parts, table legs for restaurant tables, doorstops, trivets, and various hand wheels, levers and gear blanks, as well as custom work for Goodyear Tire and Rubber Company, machining impeller castings used by the

gold mining industry, more particularly, in the production of conveyor belts.<sup>15</sup> Custom quickly began to diversify and export trade increased.

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Through WWII the foundry produced army boot heel plates, parts for the Bren gun and for conveyor belts and other belts used on cars, trucks and tanks, as well as practice bomb castings for the air force, which it continued to produce until 1960. The foundry more than doubled its product capacity by adding malleable iron castings to its grey iron product lines. Wartime production resulted in innovative change to production and to the foundry's workforce, which peaked at around one hundred, with more women working in the plant. And the community mourned the death of patriarch Christian Rehder, who died at age 86 in September 1941.

As servicemen returned home community debate churned around a massive housing crisis and the matter of their return to jobs that many felt should have been saved for them. But what of the women whose labour aided the war effort? Most were pressured to leave the workplace and return to the kitchen.

The Union

Through the years 1900-1923, the steel and iron industry was strike-riddled, with strike activity peaking in 1919-20, 1928-29, and, following a period of dramatic labour unrest, in 1936-37.¹⁶

A significant step toward unionization within the steel and iron industry took place in 1902, the year Bowmanville Foundry began operations, when workers at Hamilton Steel and Iron Co.

¹⁵ Tom Rehder, July 2002. Goodyear's Bowmanville operations became the era's largest mechanical goods plant in Canada, often doing business with the Bowmanville Foundry, as, for instance, during the Second World War. Hugh Allen. *The House of Goodyear*. (Cleveland, OH: The Corday & Gross Company, 1949) 475, 591.

¹⁶ Drummond, Ian M., et al. *Progress Without Planning: The Economic History of Ontario from Confederation to the Second World War*. (Toronto: University of Toronto Press, 1987) 241.

struck.¹⁷ In October of the same year the Employers' Association of Toronto was established. A prime objective was to quash organized labour. Anti-union sentiment was common in Canadian industry, with strikebreaking becoming an art through the years 1901-14.

The Bowmanville Foundry seemed impervious to union agitation through its first four decades of operations, but by the late 1930s pressure to unionize the foundry intensified from a variety of sources. For instance, industrial unionism marched purposefully into neighbouring Oshawa in 1937, most notably at General Motors,¹⁸ as well as at Fittings Limited and Malleable Iron, both signing their first collective agreements with Local 1817 of the United Steelworkers of America (USWA) in May 1937.

It was not a happy time for Ernie Rehder who showed animosity at the earliest whisper of unionization. The Rehders believed that they treated their employees very well. Open agitation for a union was taken, in part, as a disparaging rebuke of the family's paternal benevolence toward the foundry workers.

When the issue of unionization came to the Bowmanville Foundry in 1943, Ernie insisted that son Ned come home! On his arrival in Bowmanville, Ned was immediately embroiled in the middle of the debate, facing criticism from both sides as Ernie threatened to shut the place down!

A contract was signed in 1944, with the Bowmanville Foundry workers represented by the United Steel Workers of America, Local 2375 (USWA). Immediately after the contract was signed,

¹⁷ Heron, Craig. *Working in Steel*. (Toronto: McClelland and Stewart, 1988) 83, 119.

¹⁸ After facing the fifth wage cut in as many years, Oshawa autoworkers struck in spring 1937. Relying on worker and community solidarity, this was the first successful attempt to establish industrial unionism; i.e. union organization based on an industry, and not exclusively built around a skill or trade. Wayne Roberts and John Bullen, "A Heritage of Hope and Struggle: Workers, Unions, and Politics in Canada, 1930-1982" in *Canadian Labour History*. David J. Bercuson and David Bright, Eds. (Toronto: Copp Clark Longman Ltd., 1994) 381. Ian M. Drummond, et al. *Progress Without Planning: The Economic History of Ontario from Confederation to the Second World War*. (Toronto: University of Toronto Press, 1987) 221.

Ned quickly left, “with relief,” accepting a position as chief metallurgist at Ontario Malleable Iron (Grinnell Corporation)¹⁹ located in Oshawa, but moving on in 1947.

With specific relevance to this historiography, there is no concentration of data that traces occupational accidents, injuries and fatalities at foundries, among Bowmanville Foundry workers, for this period. Injuries, including hernias, back injuries and burns were so common as to be seen as the mark of a true foundryman — as his mettle. It wasn’t work for the lame, the weak, or the timid. It was man’s work.

A number of workers suffered maiming, including the loss of an eye, several suffered various lung diseases, hearing loss, and there are two officially documented deaths related to the foundry: Fred Rehder’s death in 1912 from scalding (pre-Worker’s Compensation), and furnaceman Emil Schmid’s death in 1999 of silicosis. He gave 37 years to the company.

Post World War Two

After WWII, foundry production had dramatically decline, and it was two years before all foundry employees were able to return to their jobs.

In 1947 the foundry had on its payroll 112 workers, thirty-four having ten or more years of service to the company, many men working alongside their fathers. Twenty-five percent of the workforce was men returned from wartime service.

¹⁹ Grinnell Co. of Canada Ltd. purchased the assets of Ontario Malleable Iron Co. in 1929 to acquire “made in Canada” capabilities. The company was a major supplier of castings to the McLaughlin Carriage Works, and later to General Motors. It was the first Canadian company to be organized by the United Steel Workers of America. The buildings covered over six acres of a large seventeen-acre parcel of land situate in Oshawa between Highway 401 and the downtown core. A lockout begun January 18, 1976 eventually resulted in the doors closing forever on March 16, 1977. A portion of the old plant later became home to Knob Hill Farms (owned by Steve Stavros) food wholesale outlet that closed in September 2000 along with all ten Knob Hill stores. As with Fittings Limited, located in downtown Oshawa, Ontario Malleable attracted many eastern European immigrants into its workforce, including large numbers of post-WWII newcomers. Fittings closed shop in 1987. Barnwell, Arthur J. and David Branch. *Molten Metal – Shaping Ontario*. (Canada: The Ontario Chapter of the American Foundrymen’s Society, Post-1995) 22-23; Smith, Karen. “Ontario Malleable Iron Co., Ltd., Historical Information Sheet.” Archives, Oshawa Historical Society, 1998.

Eight annealing ovens were in operation, with the company planning to install four more. When the company first began to produce malleable castings in 1941, it turned out about 4,000 lbs. per day. In 1947, the foundry produced 10,000 lbs. per day of malleable castings, with the plant operating night and day shifts. Shell moulding equipment was newly installed, first for cores, then moulds. It was one of the first such installations in Canada.²⁰ Also, in the 1950s, a new sand blast machine replaced the existing troublesome Pangborn Rotoblast Barrel.

Ernie gradually left the running of the family business to his two sons, Tom and Lawrence, though, like Christian, he sustained daily involvement at the foundry.

By the mid-1950s, unemployment and economic suffering was felt in much of industrial Ontario. In Bowmanville, labour strife was nonexistent and relief rolls were minimal. The number of foundry workers declined near half what it was at the close of the war.

Foundry employees began to enjoy a variety of company-sponsored social activities including, for a number of years the annual company Christmas party. There also was company sponsorship of a baseball team, bowling team and hockey team.

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As four night shift employees left the foundry near midnight on March 9, 1960, an explosion, which firefighters later determined to have likely occurred in a shell core machine located near the centre of the building, set off a fire that burned the Scugog Street foundry to the ground.<sup>21</sup> Seventy-five employees were suddenly jobless. **[SLIDE]**

Damage, which included not only the structure, but also patterns for product lines, furnaces, and all other machinery and equipment, was initially estimated to be about \$500,000.00. After some

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<sup>20</sup> Ned Rehder, March 2002.

<sup>21</sup> *The Oshawa Times*, March 10, 1960.

conflict, the insurance company finally paid out approximately \$360,000.00 for the family to rebuild the foundry. This amount did not cover new machinery and equipment.

The Rehder family had received a number of enticements from communities and firms all over Ontario urging them to locate elsewhere, however, they decided they couldn't let down their long-time employees who voluntarily cleaned up the ruins.

Reconstruction at the existing site began almost immediately, and a more modern foundry was back in operations within six months.

During reconstruction, some foundry work was shopped out to the family's old friends, the Stories of Fittings, Limited in Oshawa. In part because Ernie Rehder was widely known and respected in the foundry business, help came from other sources, throughout Ontario, in the form of equipment and copies of patterns.

Over two thousand moulds were destroyed in the fire. The number put back into production after the blaze was halved.

### Rising from the Ashes

By 1972 the Bowmanville Foundry was one of only five foundries in Canada producing custom malleable iron products.<sup>22</sup> Eventually, in the 1990s, ductile iron was also produced.

Despite a quick and robust recovery after the fire, various factors and setbacks had a gradual ill effect on family commitment to the business. After almost ninety years in operation, the Rehders would confront the difficult question of whether or not to remain in the foundry business.

Of particular note was that the foundry, like others, found itself struggling through an era of massive de-industrialization sweeping the *Golden Horseshoe*. The City of Guelph boasted eight foundries at the turn of the 20<sup>th</sup> Century, but by the close of the century had none!<sup>23</sup>

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<sup>22</sup> *The Canadian Statesman*, January 12, 1972.

Widespread plant closures were the result of a variety of factors: new environmental regulations (e.g. better air quality standards, and related costs); high production costs; more intensive competition; financial difficulties; fire.

In 1962, Ned advised his brother to install two line frequency coreless induction electric furnaces<sup>24</sup> to be used for all melting. The first furnace was installed in January 1963, with the first heat carried out May 3, 1963. The second was installed two years later.

The furnace was the first such installation in Canada. Both furnaces are still in operation, having served the company well, the original manufacturer's guarantee being fifteen years, which is a tribute to very good maintenance practices at the foundry.

In contrast to combustion furnaces where heat is created by burning fuel such as coke, oil, or natural gas, the induction furnace produces heat cleanly, without combustion. And so, after installing the electric induction furnace, the foundry was able to remove the smoke stack, eliminating dirty emissions from the atmosphere, making neighbours happy! The process also cut peak load demand on power.

By year end 1966, a new 3,000 square foot addition was erected on the east side of the plant.

The company continued to hire locally, often from the pool of local families as sons, and some daughters, came into the foundry following the footsteps of their fathers and grandfathers.

About eighty workers were employed at the foundry in 1980.

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<sup>23</sup> *The Toronto Star*, April 18, 1998 qtd. in Arthur J. Barnwell and David Branch. *Molten Metal – Shaping Ontario*. (Canada: The Ontario Chapter of the American Foundrymen's Society, Post-1995). 141.

<sup>24</sup> With the help of his wife, Betty, Henry M. Rowan built the first coreless induction furnace in the garage of their home in 1953. A year later, *Inductotherm* began operations in borrowed space in Harcast Foundry in Glenolden, Pennsylvania. In 1955, the first *Inductotherm* factory opened in Delanco, New Jersey, but after outgrowing its space, the factory was relocated at its present site in Rancocas, New Jersey in 1961. Although induction melting was a method accepted by foundrymen, the expense and other limitations rendered it out of reach for many small foundries. Various innovations that expanded applications for induction power eventually made *Inductotherm* more economical and practical for smaller foundry operations. "Inductotherm" History <http://www.inductotherm.com/history/history.htm>.

## Hands Change

**[SLIDE – do not read]** *“There is an image of the 19<sup>th</sup> century industrial economy, familiar from a hundred history textbooks: the coal mine and its neighboring iron foundry, belching black smoke into the sky, and illuminating the night heavens with its lurid red glare. There is a corresponding image of the new economy that has taken its place in the last years of the twentieth century, but it is only just imprinting itself on our consciousness. It consists of a series of low, discreet buildings, usually displaying a certain air of quiet good taste, and set amidst impeccable landscaping in that standard real-estate cliché, a campus-like atmosphere.”<sup>25</sup>*

After weighing all factors, including the discovery of some discrepancies in the company books, the Rehder family decided to permanently ‘retire’ from foundry ownership. After nearly nine decades in business in Bowmanville, the Rehder family sold the Bowmanville Foundry Co. Limited in July 1988 to two enterprising and energetic young men, David Boothman and Michael Patrick. Neither had practical experience as foundrymen, though both were professional engineers. Neither was a ‘local son’. They had no idea that the purchase would coincide with the eve of a devastating recession. Foundry employees, very much in tune with the news of the era of job losses and plant closures, all but wagered that the company would quickly go bust under their unproven leadership.

When hands changed, the workforce numbered 58 full-time employees.<sup>26</sup> Moulders were still pouring iron with hand ladles. The Bowmanville Foundry’s client base was just over two hundred industrial customers in Canada and the United States,<sup>27</sup> most in the *Golden Horseshoe*, but only about 2% of sales were made to the American market.<sup>28</sup>

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<sup>25</sup> Manuel Castells and Peter Hall, *Technopoles of the World*. (London: Routledge, 1994) 1, qtd. in Steven High, *Industrial Sunset. The Making of North America’s Rust Belt, 1969-1984*. (Toronto: University of Toronto Press, 2003) 74.

<sup>26</sup> “Newcastle Community Profile,” Town of Newcastle Planning Department, 1989.

<sup>27</sup> *The Canadian Statesman*, December 28, 1988.

<sup>28</sup> Michael Patrick interview August 01, 2002.

New ownership brought many changes to the foundry. Modern business and health and safety practices were quickly implemented. Job equity was put into practice. Mechanization dramatically altered the way the plant runs and the way products are cast.

A gain-sharing arrangement was initiated with the objective to improve productivity and morale at the historic Bowmanville firm.

Employees began to attend regular on-site safety training, and the new owners began to reward employees for good safety practices. Goals were set for accident-free days, and non-injury among employees. Proper use of safety-protection equipment was enforced.

Heavy backbreaking material handling tasks were eliminated in favour of equipment performing the work. Material handling was dramatically improved to eliminate/reduce the use of pitch forks and wheelbarrows.

In order to better manage stock and production, Michael and David quickly developed a process to schedule all plant activities so that they could accurately tell a customer when the foundry would deliver product, eventually evolving into a fully integrated system with a network throughout the plant and updates available to customers via the Internet. On average, production of an order today runs about three to six weeks from order to delivery.

Through the 1991/92 recession, Patrick and Boothman seriously considered moving operations to the United States. The foundry was in production only three days per week, with employees earning for only twenty-four hours work. An arrangement was negotiated with Unemployment Insurance (Canada) for a supplement for the workers.

Recognizing the difficulty of the economic times, and desirous to keep the business in operation, the Rehders gave the new owners a payment holiday on their debt, resulting in a six-year repayment plan, as opposed to the agreed upon five years.

Meanwhile, the foundry was losing customers in droves. They were going out of business or were moving south.

In 1997, the foundry took on a \$1.8 million debt load to install a new automated moulding line. The Bowmanville Foundry was one of two iron foundries in North America to install the innovative Roberts-Sinto moulding equipment, designed in Japan, and manufactured in Michigan, setting a new industry standard. The other was Black Hawk Foundry in Chicago.

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The Bowmanville Foundry, the only malleable foundry left in Canada, now manufactures about fifteen different grades of iron: austempered ductile iron (ADI), ductile, grey, and malleable. The foundry is a custom-jobbing foundry that serves about 200 customers, with requirements for about 2500 different parts, most in small to medium runs of iron parts in the .1 – 10 lb. range.

In 1996, the Bowmanville Foundry became the first malleable iron foundry in North America to meet ISO quality systems requirements for the manufacture of malleable and grey iron [sand] castings.

In 2002, the foundry was again assessed and certified under new ISO standards for production of iron sand castings and the development of associated tooling. It was again the first foundry in the country to meet the new quality standard.

The same year, a U.S. outpost was opened in Georgia. The company is better able to service its American customers from a U.S. home base that offers critical technical and logistical problem solving.

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Today, the Bowmanville Foundry is raucous with the sound of equipment hissing, clunking, squeaking and thumping that combined creates a constant loud humming of the cacophony of

industry. Though the noise is constant, it isn't overbearing. The concrete floor is relatively clean of debris and dirt. Unpleasant odours and smells are greatly reduced from the days of old. No heat, steam, or smoke assaults the eyes. Employees wear eye and ear protection, safety boots, and leather gloves or aprons depending on the task.

As late as 1990, workers carried molten iron in hand ladles, with 40-50 lb. loads, to the moulds where they poured the iron. Iron is now poured from a 500 lb. ladle on a monorail and moulds are made by an automated moulding machine that is now operated by one man in a task that, until 1997, was performed by six moulders.

Quality control has been dramatically improved through the employment of a mass spectrometer to test samples from each heat for elemental content to ensure that the content in the furnaces is composed of the right ingredients required for each metal grade. A stock of pig iron, purchased from Quebec-based QIT, is kept on site in the event it is needed to help dilute the scrap metal when the element percentages and quantities are problematic.

The modern dust collection system, working similarly to a cyclonic vacuum system, has so reduced particulate levels in the plant that foundry employees are no longer required by the Ontario Ministry of Labour to undergo annual chest x-rays which used to be a standard medical requirement.

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In 2002, there were in Ontario approximately 114 foundries.²⁹ Altogether, there were about 200 foundries in Canada (1999), employing 15,000 people and generating annual sales of \$1.5 billion. Ninety percent of all manufactured goods depend either directly or indirectly on the castings produced by Canada's foundry industry. Foundries manufacture product for the automotive sector, agriculture, construction, forestry, mining, pulp and paper, heavy industrial machinery and equipment, aircraft and aerospace, plumbing, soil pipe, municipal road castings, defence, railway,

²⁹ <http://on.finditincanada.ca/app/search/cat-100587/>

petroleum and petrochemical, electric distribution, and a range of specialty markets.³⁰ About two thirds of the Canadian foundry sector's production is exported.³¹

The Bowmanville Foundry makes about 35-40% of all sales to the American market.

The foundry's closest geographic competitors are Tiffany Castings (formerly Orangeville Foundry) to the west, and Poitras in Quebec to the east.

In its centennial year, the foundry experienced many challenges. Sales were strong, however, in terms of productivity, anything that could have gone wrong did go wrong. One of the furnaces was out of operation for six weeks immediately following a three-week summer shutdown. Plans were begun to replace the furnaces, over forty-years old, likely in 2005, in order to increase melting capacity, and ensure good productivity.

There were difficulties with moulding equipment. The equipment, by now the oldest Roberts-Sinto machines in North America and among the most used, experienced some wear issues that even Sinto technicians found challenging to resolve. Until the problems were rectified, the equipment ran for some months at about only 80% productivity. Once solved, the equipment continued to reliably provide excellent service.

And then there was the flood of August 2002.

Finally, because of increased hydro costs, the company found it difficult to cost-effectively run a one-shift operation. Since late 2002, the foundry has been running two shifts daily because iron can't be kept 'bubbling' overnight. The workweek has been shortened to just four days. A work-sharing arrangement has been forged with the federal Unemployment Insurance agency so that employees can 'afford' a one-day/week lay-off.

³⁰ Canadian Foundry Association (CFA), <http://www.foundryassociation.ca/Geninfo.html>

³¹ Canadian Industry Program for Energy Conservation 1998/1999 Annual Report. (Office of Energy Efficiency, Natural Resources Canada; Her Majesty the Queen in Right of Canada, 1999) 54.

Conclusion

Three generations of Rehder men kept the Bowmanville Foundry in business for nearly nine decades. They weathered recessions, the Great Depression, embezzlements, the arrival of the union, the arrival of the union, technological and social change, family tragedy, two world wars, a ruinous fire, and more, through innovative approaches to running a foundry, earning along the way the respect of their employees, the customers they served, their community, and the industry. The Rehders consistently changed the focus of the business in tandem with changes in the business / industrial environment.

A small-town foundry saw foundries come and go through the course of the 20th Century. The Bowmanville Foundry stayed in business, kept jobs in the community, and its owners have contributed to community life.

At the dawn of its second century in business, the Bowmanville Foundry is positioned to continue doing what it does best: mould a promising future out of present-day innovation, hard work, dedication, creative problem-solving, and vision. This is being done with about forty employees, only about a dozen more than were employed at the foundry on the first anniversary of start-up, April 1903.

If Canada is a nation built by small business, the Bowmanville Foundry is a textbook example of Canadian entrepreneurial and community success.

FOR SLIDES

In their book, *Iron: cast and wrought iron in Canada from the seventeenth century to the present* (1982), Eric Arthur and Thomas Ritchie write that “the age of industrialization was based on the ability of the ironworker to produce rails and locomotives, ships and machines – in short all the things that made the growth of Canada possible.”

“There is an image of the 19th century industrial economy, familiar from a hundred history textbooks: the coal mine and its neighboring iron foundry, belching black smoke into the sky, and illuminating the night heavens with its lurid red glare. There is a corresponding image of the new economy that has taken its place in the last years of the twentieth century, but it is only just imprinting itself on our consciousness. It consists of a series of low, discreet buildings, usually displaying a certain air of quiet good taste, and set amidst impeccable landscaping in that standard real-estate cliché, a campus-like atmosphere.”³²

In 1906, The Bowmanville Foundry Co. catalogue of stove trimmings boasted:

“We can furnish you with Grey Iron or Malleable Iron Castings made from your pattern. BRASS, BRONZE, COPPER and NICKEL PLATING in all its branches. We make patterns and shall be pleased to quote prices for any kind of work. With our experience and large facilities, with the most skilful and experienced workmen, and with the best materials that we can buy, we are enabled to make, and claim to make, the largest and finest line of knobs, slide knobs, hinge pins, lifters, pokers, etc. made in the world. We are proud of the reputation of our goods...”

Among the committed men in the industry, there was (and still is) a masculine pride in their ability to face the gates of hell.³³

³² Manuel Castells and Peter Hall, *Technopoles of the World*. (London: Routledge, 1994) 1, qtd. in Steven High, *Industrial Sunset. The Making of North America’s Rust Belt, 1969-1984*. (Toronto: University of Toronto Press, 2003) 74.

³³ Heron, Craig. *Working in Steel*. (Toronto: McClelland and Stewart, 1988) 50.

*Ninety percent of all manufactured goods depend either directly or indirectly on the castings produced by Canada's foundry industry. There are approximately 200 foundries in Canada, employing 15,000 people and generating annual sales of \$1.5 billion. About two thirds of the foundry sector's production is exported.*³⁴

³⁴ Canadian Industry Program for Energy Conservation 1998/1999 Annual Report. (Office of Energy Efficiency, Natural Resources Canada; Her Majesty the Queen in Right of Canada, 1999) 54.