MANITOBA BRICK

A History of Brick Manufacturing in Manitoba

1860-1990

David Butterfield
2018

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Manitou Gas Company Plant
James White Sash and Door Factory of Carberry
John Gunn's Water Mill
St. Peter's Dynevor Windmill
Leary Brick Works: An Exploration of Manitoba Heritage Landmark

On the Cover: A detail of a rendering used in an advertisement for the Stephens Brick Company of Portage la Prairie, showing the tunnel kilns and chimneys used in that operation's major brick production. The complete image can be seen on page 103.

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INTRODUCTION

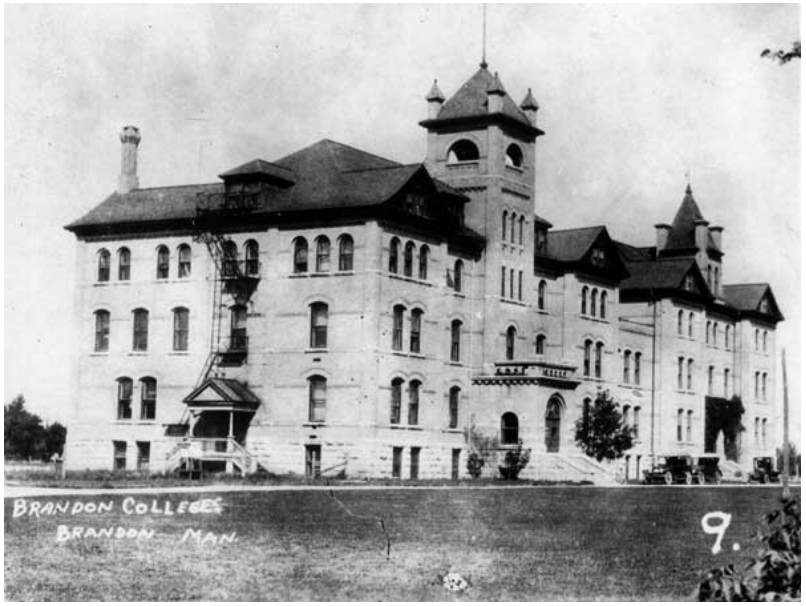
Introduction

In 1899, Cypress River brick-maker, James Ruston, advised his customers that a typical brick house could be built with 15,000 bricks, and at a cost of $150. This brick total suggests a largish house – something like the American Four-square, then a popular residential type common in cities, towns and on farmsites. It is of course impossible to know how many such houses (and of course many others carried out in other styles) were constructed in Manitoba between 1890 and 1920, the height of brick production in Manitoba – but certainly tens of thousands. And adding in the thousands of commercial buildings, government buildings, churches, schools and industrial structures, it certainly would be reasonable to assume that at least several billion bricks were used to put up the walls of much of Manitoba's late 19th and early 20th century architectural infrastructure.

An illustration from a 1920s Sears catalogue shows a typical American Four-square, a very popular house design seen throughout Manitoba from about 1890 to 1920. Such a house would have required about 15,000 bricks in its construction. (WikiCommons)

Where did so many bricks come from? Certainly a great many came, as did so much building material in early Manitoba history, from the nearby United States – from the well-established brick-making sites at St. Paul, Minnesota, St. Louis, Missouri and Milwaukee, Wisconsin, and any number of smaller communities just across the border in North Dakota. But billions of bricks also came from made-in-Manitoba brick yards. And that story, which stretches from the first attempts at brick production, around 1860, to the final operation, Red River Brick and Tile, at Lockport, which closed in 1990, is a highly significant aspect of the province's building history.

The following overview of brick production in Manitoba is drawn largely from a major inventory developed for the province's Historic Resources Branch (HRB) in 2010, by architectural historian Randy Rostecki. That inventory was divided into two sections, one focusing on sites in Winnipeg and St. Boniface (for most of the course of this history its own municipality) and the other on small-urban and rural sites throughout the province. The HRB inventory is buttressed with information from



Billions and Billions of Bricks

The construction throughout Manitoba of large and architecturally impressive public buildings, like Brandon College and Clark Hall (top left, from 1901 and 1906), would have taken hundreds of thousands of bricks – and that just for the exterior facades. If the building was constructed with interior brick walls as well, the brick values double. And even greater numbers of commercial buildings added exponentially to the brick requirements of the growing province. In Winnipeg, where the warehouse district was a sea of enormous multi-storey brick buildings, like the Ashdown Warehouse of 1895 (below left) the number of bricks required was staggering. Each of the buildings shown here likely required at least a million bricks; extrapolating from that value to the thousands of similar structures across Manitoba would suggest a requirement for several billion bricks. (Images Courtesy Archives of Manitoba)

another data collection, developed in 1992 by Hugh Henry for the Manitoba Museum.

It is important to note that the information in these inventories is as complete as can be expected, given the nature of available documentary resources. Attention to the brick industry was sketchy at best – occasionally covered in newspapers and trade magazines, with some additional content in various federal and provincial government reports. Articles often focused on the quantity of brick produced—as an important marker of success—perhaps with passing mentions of personnel, brick-making technologies, brick quality and prices. But there was no sustained attention to the industry as it developed, and indeed as it became more established and commonplace, the novelty attending its activity gradually subsided, and with it media attention. Nevertheless, as the inventories reveal, there is still sufficient information—brick-making facts and anecdotes, economic and technological developments that affected the evolution of the industry, modest corporate histories—to develop a comprehensive and reliable history of brick production in Manitoba.

There were at least 190 brick-making operations active in Manitoba over the 130 years of the industry's activity in the province. Many of these—about 90, thus nearly 50% of the total—were short-lived, productive only for a year or so. Others were more successful, many enduring for at least a decade. And a handful, about 20, were substantial, industrial in scale, each turning out high-quality bricks for 25 or more years.

The following overview has been organized according to four distinct periods, reflecting the evolution that attended the industry:

- Pioneer Era: 1860 – 1880
- Development Era: 1881 – 1896
- Consolidation Era: 1897 – 1917
- Modern Era: 1918 – 1990

The Pioneer era was marked by the first attempts at brick-making, generally in the new City of Winnipeg and in small urban and rural areas north and south of the city along the Red River. Yards were small and brick-making technologies were typically rudimentary, with modest outputs.

The Development era was defined by the explosive growth of Winnipeg and then of many other new communities across southern Manitoba, opened for settlement and development by the extension of the Canadian Pacific Railway across the province by 1883. With enormous demand for substantial buildings, brick-making became a very sophisticated enterprise, with many of the typical technologies of the industry employed by dozens of start-ups.

The Consolidation era marked the height of the brick industry in Manitoba, with a great number of operations, a major increase in production and quality, and distribution of product across western Canada. Certain of the operations from this period became the most active and productive brick-making sites in the province.

The Modern era, which followed the cataclysm of World War I, coupled with the downturn of building construction projects that had actually begun before the war, saw many Manitoba brick operations wiped out. Only a few of the most substantial yards survived, with a few new additions, taking the industry up to 1990, when the last operation closed, and the history of brick making in Manitoba drew to an end.

An introduction to brick manufacturing, "Context: Brick-making in the 19th Century" precedes the sections dealing with the four distinct periods of brick-making in Manitoba. This piece provides the necessary background describing the kinds of processes, equipment and machines, and activities that defined work on nearly any 19th-century brickyard.

The two inventories noted above are presented in separate documents attached to this overview study, along with a third appendix that highlights key facts, claims and

general observations that provide more clarity to the subject:

- Appendix 1: Winnipeg & St. Boniface Operations
- Appendix 2: Small Urban & Rural Operations
- Appendix 3: Statistics & Charts

A Note on Chemical and Physical Properties of Clay, Shale and Brick

Manitoba's geological history has made the province an excellent source of clay and shale deposits, the essential ingredients for brick production – clay the predominant material, usually used in so-called soft-mud production; and shale for the less common dry-press method. Composed of soft, loose, earthy material, clay forms as a result of the weathering and erosion of rocks containing the mineral group feldspar (known as the "mother of clay") over vast spans of time. Commercially, the most important clays are known as kaolin and bentonite, and reports of the provincial Department of Mines contain many entries about bentonite deposits in Manitoba, and specifically on those best suited for brick clay, which is common in beds across the south.

But it is not just any clay that is suitable for brick production. The first requirement is that the clay must be plastic – that is, it must be capable of being moulded and to maintain its shape after moulding. Moreover, good brick clays must have a delicate balance of constituents – silica, alumina, iron oxide, magnesia, lime and alkalis. More or less than the required amount of any of these constituents results in poor brick clay. It is for this reason that, in the inventories that accompany this report, one sees numerous raw clay samples being sent to eastern Canadian and American laboratories for testing before a brick yard was established.

When clay layers are compacted under pressure, and lose their water content, they gradually become shales. Shale deposits, which are very common in south-central Manitoba, can be brought into the preferred plastic condition for brick-making

Clay deposits, like these shown on the Mineralogy Messageboard, can be hard to detect, undistinguishable from other land formations.

through crushing and grinding and mixing with water. Several of the more advanced and sophisticated yards in Manitoba relied on shale for their brick production.

The transformation of clay and shale into brick requires high heat. During this "burning" process, carried out in a kiln, water is first driven off, followed by any organic material. Once the shaped clay or shale reaches the desired temperature, about 1000 ºC, the silica minerals begin to melt and fuse. Any iron oxide in the clay will actually flow, enabling the silica and alumina to fuse even more tightly, adding considerably to the hardness and strength of the final brick. At higher temperatures still, further melting occurs with, effectively, glasses being produced. Bricks that are heated beyond 1000 ºC, are more brittle but are almost impervious to water. One of the major skills of the brick-maker was knowing how to achieve these results.

Shale beds, like this one in the Pembina Valley near Manitou, are quite obvious in the landscape – with layered sediments and unstable layering. This image shows black shale interbedded with layers of cream-coloured bentonite beds. (Courtesy Kathryn Lapenskie, Manitoba Geology)

By the time brick-making was taken up in Manitoba, it was well known that a wide variety of brick colours could be attained, depending on the clay or shale source, and on the potential to add other ingredients to attain a desired colour. Almost all clay and shale deposits in Manitoba produce a yellowish or light grey brick. But red and pink bricks were actually much more sought after, and another skill of the brick-maker was knowing what additions to make to the primary material mix, and in what proportions. The key additive was iron oxide, which was available in red and black variations. The colouring effect of iron oxide depended very much on the atmosphere and temperature in the kiln: when fired below 1020 °C the resulting brick would have a deep red colour; and when fired to at least 1100 °C the brick would be darker and brownish. Slight variations were possible with careful attention to the firing temperatures.

C O N T E X T

Brick-Making in the Nineteenth Century

Context – Brick Making in the 19th Century

While bricks have been produced for nearly 10,000 years, and fired brick for approximately 5,000 years, brick-making only became truly regulated, productive and efficient in the nineteenth century. It was during this period, at the height of the Industrial Revolution, that the technological advances were made that allowed bricks to be produced in quantities never before possible.

It is within this context, of the great advances and production in England, as well as in the eastern and mid-western United States, that the story of Manitoba's brick industry must be placed. For our own localized history is essentially an expression of those earlier traditions. Two excellent overviews of brick-making activity, from England and the mid-western United States, provide the necessary background: Kathleen Ann Watt's *Nineteenth Century Brickmaking Innovations in Britain: Building and Technological Change*, (University of York, Institute of Advanced Architectural Studies, 1990); and Andrew Charles Stern's *Cream City: The Brick That Made Milwaukee Famous*, (University of Georgia, 2015). Extracts from these studies are quoted here in some detail, given their reliability and readability, and because so much of this information will resonate upon reading following sections on Manitoba's brick-making history.

A collection of 19th-century bricks, from yards of the Hudson River area of New York State. These bricks have come out of pressing machines, revealed by the tell-tale indentations and inset company names. The indentations, which allowed for more mortar application during construction, were called frogs – a term derived from the Dutch word "kikker," the term used in that language for the depressed section of the wooden box in which bricks were formed in early brick-making technology, and which was translated into English as the word frog. (Courtesy WikiCommons)

Activities and Characteristics of the Brick Yard

Ms Watt provides the following observations about a typical nineteenth-century English brick yard: "Little capital … was required to begin brick-making operations when hand methods were used. As local building projects created a sufficient demand for bricks, new works often were opened to supplement the supplies available from permanent kilns. Once the [clay] was extracted to a certain level, or building activity

slumped, many operations closed down and the land was returned to cultivation.

"A predominant feature of the traditional industry was its inherent seasonality. For the most part, the entire process of brick-making was carried on in the open air and was subject to the uncertainties of the weather. The clay usually was dug in the autumn or winter and left in heaps to break down the lumps and make it more easily worked. Tempering and moulding only commenced in March or April after the danger of winter frosts had passed. From then until the following autumn, brick-makers worked extremely long hours, sometimes as much as thirteen hours a day, to maximize production during the spring and summer months.

Mr. Stern's *Cream City: The Brick That Made Milwaukee Famous*, provides additional details on clay preparations: "following [extraction], and ideally, weathering, the clay was tempered and mixed. If the clay contained gravel or stones, it was often screened or passed through a crusher to remove these elements. Tempering involved adding water to the raw clay and allowing it to sit for 12 to 48 hours to soften before mixing. The amount of water added varied depending on the consistency necessary for the type of brick to be produced. Soft-mud brick required a different consistency than stiff-mud. Most commonly, vats of clay and water were filled and tempered on alternate days to allow for a continuous supply of clay ready to be mixed. Mixing was a particularly important step, as improper mixing often resulted in bricks that delaminated quickly [fell apart in layers] when exposed to harsh weather. It was during this step that sand, coal, and other stabilizers were also added to the tempered clay to help prevent uneven shrinkage and cracking."

Ms Watt continues: "Before burning, newly moulded "green bricks" usually were stacked in open-air hacks to dry for up to six weeks, protected from the weather by a covering of straw matting, tarpaulins and, later, wooden boards with louvres [see a following section on brick drying]. Attempts to hurry the process and burn the bricks before they had dried sufficiently jeopardized the soundness of the finished products. In southern [regions] the bricks were burned in "clamps" also open to the weather

The construction between 1850 and 1859 of All Saints, Margaret, London, to the designs of architect William Butterfield, has been noted as a pioneering example of the High Victorian Gothic style and extolled especially for its use of brick in a major public building. When most Gothic Revival churches of the mid-nineteenth century had typically been built of grey Kentish ragstone, Butterfield's use of brick, in a variety of colours and finishes, was revolutionary. Butterfield was said to have felt a mission to "give dignity to brick."

rather than in [scove] kilns, thus potentially exposing the outer layers of bricks to additional damage [see a following section on kilns].

"The system adopted for the organization of work in the traditional brick-making industry was particularly suited to small-scale, temporary enterprises with low capital investment. In most areas the brick-field owner hired a brick-master at a price per thousand bricks to superintend the site and take full responsibility for the output of the operations. He in turn contracted with moulders to temper, mould and hack the bricks. Each moulder then hired his own "gang" of subsidiary labourers and acted as their employer.

"In traditional hand brick-making, the thoroughly tempered clay was carried in lumps from [a] pugmill to the moulders' tables where it was shaped into bricks by one of two methods depending on the characteristics of the local clay and on regional traditions. In "pallet-moulding" (or "sand-stock moulding"), sand was sprinkled first into a wooden- or brass-lined mould box, often divided into several sections, before the clay was thrown in with considerable force and pressed into the corners. The excess was scraped off the top with a "strike" and the finished bricks were turned out onto a pallet board and wheeled away to the drying sheds, while the mould was sanded again and made ready for use. In the less common "slop moulding," the mould box was dipped in water before it received the clay. After striking, the entire mould containing the bricks was carried to the drying floor while a new mould was dipped in water and the process was repeated.

"Moulders traditionally were considered the most skilled workers in the brickfield … based on "the knack with which he throws or drops the soft clay into the mould, so as to fill up every corner." Hand moulding undoubtedly required accuracy, speed and a great deal of strength to keep up the necessary movements for a ten- to thirteen-hour day. However, the abilities of the other brick-making labourers were equally crucial to the success of the operation. The temperer, who supervised the preparation of the

An old single-brick mould, the type used throughout the 19th century for the production of bricks at small yards.

Top left: This image of re-enactors at a recreated small brickyard in Britain shows the shaft of a pugmill (where clay was mixed with water) behind the three brickyard workers pausing in their labours as they extract raw clay from the site. (Courtesy WikiCommons)

Below left: This image, of the same re-enactors as above, shows the brick-maker at his moulding bench, taking clay from the heap provided to him by the temperer, the person responsible for mixing the clay to its required consistency. (Courtesy Wiki-Commons)

clay, needed both knowledge and judgement to bring the paste to the optimum consistency. Even the supposedly unskilled "walk-flatter" … played an important part in the moulding operations. This was the person who brought the clay in brick-sized lumps from the pug mill to the moulding table. One brickfield proprietor reported that this seemingly simple task "required great practise and nicety to give such a wedge-like form to each lump of clay as that the moulder can with one throw force it equally into all parts of the mould." Another brick-master commented on the importance of burning: "There is more skill wanted in burning bricks than in any other part belonging to it."

“The colour of bricks depended upon three variable factors: the composition of the clay, the intensity of the heat and the amount of air they were exposed to during burning. The presence of iron oxide in different proportions in the clay was responsible for the various shades of red in bricks produced in many parts of the country. Under-burning and exposure to air also changed the colour of the bricks, especially those burned in clamps. Those on the outside of the clamps, the soft, porous "place" bricks, often were red because they had received inadequate or uneven heat during burning or because they were in constant contact with the air.”

Ms Watt adds: “From the end of the eighteenth century, bricks made in the southern counties and supplied to the London market were classified under three main types. These were *maim* bricks, made from a mixture of clay and ground chalk in imitation of the superior marl clays which contained a large amount of natural carbonate of lime; washed bricks made of clay washed in a wash mill to remove unwanted stones and with perhaps a small amount of calm added; and common bricks made of unwashed and usually unscreened clay with nothing added to improve its quality.

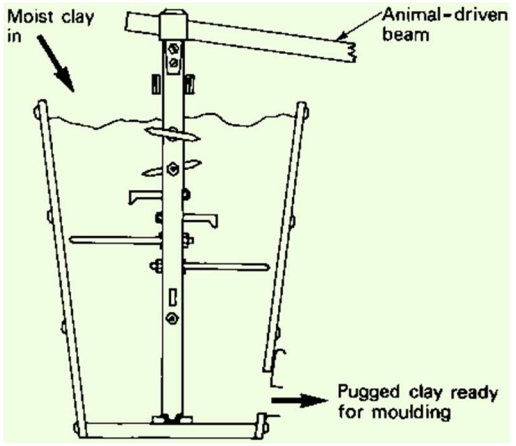
“The method of clamp burning … produced additional subdivisions in the types of bricks according to where they were placed in the clamp and how they were affected by the fire. For example, the best and most expensive bricks were made of well-mixed

calm earth and evenly burned. "Seconds" also were good quality, hard-burnt bricks, but they were slightly uneven in colour or had small blemishes on their surfaces.

"Shippers" and "stocks" were either misshapen by accidents in the fire or more blemished than the others, but they were suitable for most ordinary work. Finally, "grizzles" and "place" bricks were under-burnt and soft and were suitable only for inside work or garden walls. The third category included "common stock" bricks, basically sound but with an irregular surface which was not suitable for facings, "rough stocks" which were hard burnt but extremely uneven in shape and colour because of the stones left in them, and the cheapest in price, the "common place" bricks.

“When kilns were used instead of clamps, the classification was not as extensive because the bricks were relatively equally burned. Here the various qualities depended more on the selection and preparation of the clay. "Front bricks," for example, were made of carefully selected, finely ground clay, "rubbers" were run through a wash mill and mixed with sand, while "common bricks" were made of clay as it came out of the ground with little preparation other than tempering with water. Most other variations came from the arrangement of the bricks in the kiln. Those nearest the fire became vitrified and blackened, while mottled or striped colouring was the result of the bricks resting upon each other, thus allowing some surfaces to be only partially exposed to the heat.”

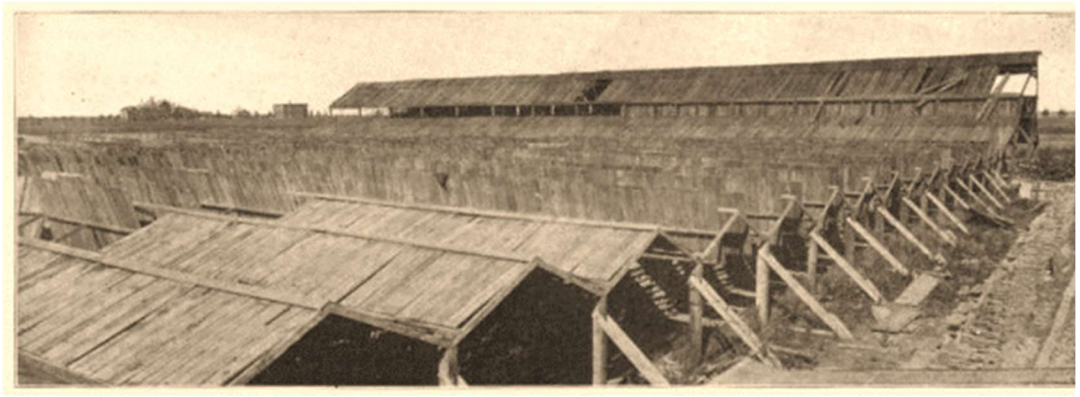
These two images show a pug mill on a brickyard site (above left, in the background) and in a technical cross-section drawing (below). The pug mill was a wooden tub with horizontal knives or blades attached to a revolving central shaft and activated by a horse harnessed to an attached beam. The knives cut and kneaded the materials as they were thrown in at the top and forced out at the bottom as a homogenous paste. (Courtesy Wiki-Commons)



Brick Drying Processes

The fourth step in the brick-making process, following extraction, mixing and moulding, was drying. This essential step ensured that the prepared brick was allowed sufficient time to reduce its water content; bricks that were too moist had a tendency to disintegrate and even explode in a kiln.

Andrew Charles Stern, in *Cream City: The Brick That Made Milwaukee Famous*, outlines the basic precepts and technologies that attended nineteenth century brick-drying processes: "Three methods of drying were used in brickyards [in Wisconsin] – open-yard (hack drying), pallet-racks and artificial heat dryers. The first method was most widely used, as it required the least expense. These bricks were taken from their moulds and placed flat in the yard to dry for about a day, after which they were stacked on edge in piles known as hacks. These hacks were ten to twenty courses of brick in height and allowed to dry for a period of one to two weeks, depending on weather conditions. The hacks were covered with wooden tops and canvas sides to protect them from inclement weather. Because bricks tended to crack when exposed to direct [sunlight], rain, or freezing temperatures, many thousands of bricks annually were lost in open-yard drying. After two weeks the bricks were ready to be burned.



An impressive collection of brick-drying sheds at East Grand Forks, Minnesota, ca. 1900. The rudimentary nature of the structures is apparent here. (Courtesy WikiCommons)

"Pallet drying was another method [employed at this stage of brick production]. Green bricks were placed on wooden pallets under sheds. These bricks tended to dry in a more uniform manner than open-yard drying, but although protected from rain and extreme heat, were as frequently destroyed by frost as open-yard bricks.

"Drying brick with artificial heat was a process developed later in the nineteenth century. It was beneficial because of the ability to be used in cold [temperatures], allowing brick to be dried regardless of weather. Artificial heat usually required 24 to 36 hours for the brick to pass through the drier before they were ready for firing. However, this method was more expensive due to added fuel costs. These were negated at some of the largest yards, which constructed driers recycling heat from firing kilns."

Impressive brick-drying sheds at Grand Forks, British Columbia, 1930. (Courtesy WikiCommons)

While creative attention in the nineteenth century was more focused on brick pressing and forming, as well as on brick-firing technologies, there were still some people attending to improvements in brick-drying approaches and technologies. The key issue was to reduce the time taken out of production by the long drying stage. One English inventor suggested a system for drying bricks using waste heat from the kiln, while another brick-maker reduced the drying time to twenty-four hours by passing green bricks through a steam-heated tunnel on rolling trays.

The greatest opportunity to reduce brick-drying time actually came with an insight into the earliest stage of brick production – the selection of the brick material. Thus certain inventive minds turned their attentions to reducing water content at the opening stage. And for many, this involved grinding clay (and later shale) to a fine powder before pressing and moulding. Called the dry-pressed clay method, the approach was promoted as a way to nearly eliminate drying time, allowing formed bricks to be taken directly to the kiln.

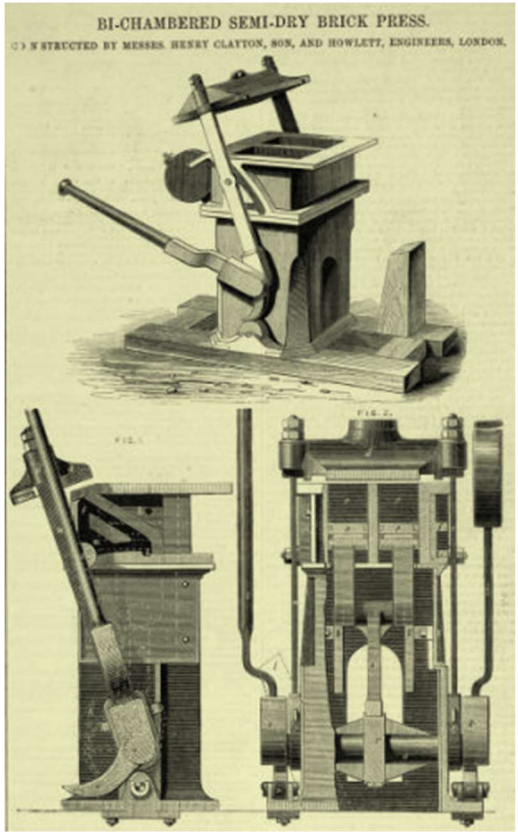
Brick-making Machinery

By the middle of the nineteenth century in England, significant changes to clay availability and the greatly increased demands for brick from burgeoning urban centres, led to significant changes to brick production. As Ms Watt continues in her thesis, *Nineteenth Century Brickmaking Innovations in Britain: Building and Technological Change*: "Manufacturers were forced to establish works at greater distances from urban building sites [and] to use inferior clay deposits which required more time and greater care in their preparation.

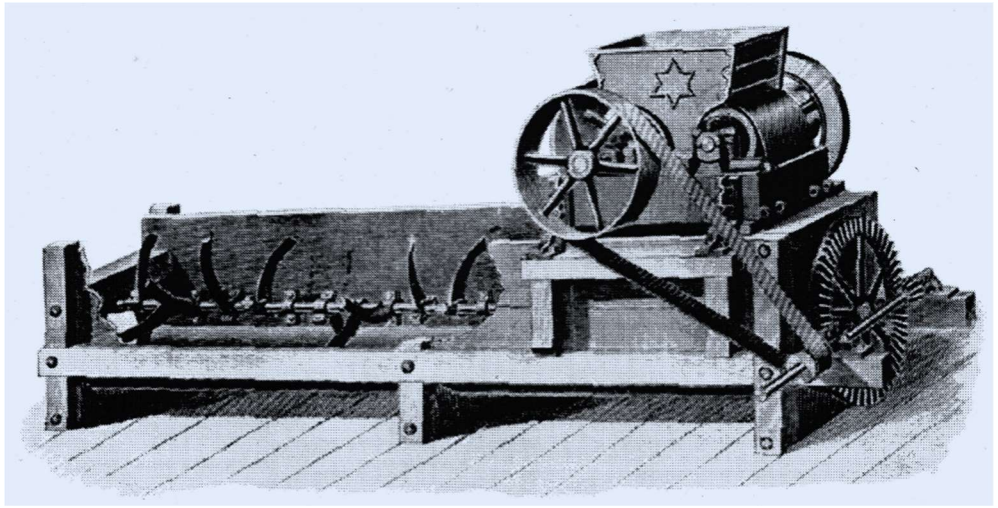
"Pressing machines [were very common, and] were integrated easily into most brickyards. Because they were small and hand-operated by only one attendant, they complemented traditional work practices rather than superseded them. They also were simply constructed, performed only a single mechanical function and worked with partially dried clay bricks rather than with lumps of sticky, wet clay.

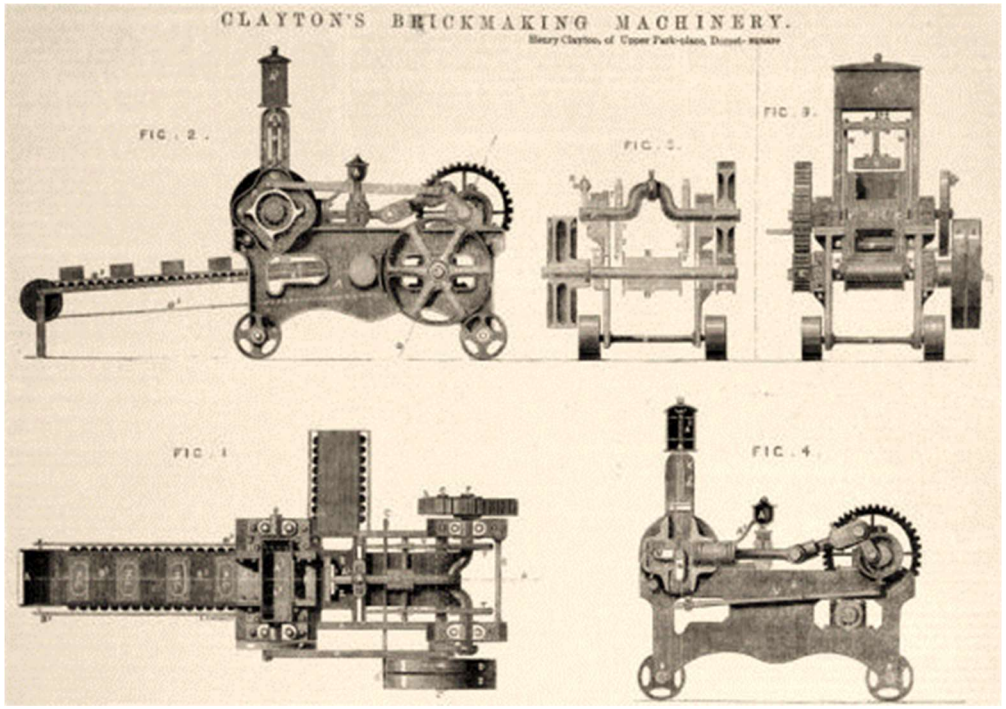
"The most prevalent innovations in brick-making … were mechanical devices for moulding the clay. The "Brick and Tile Making Machine" patented in 1741 by William Bailey of Taunton was the first recorded invention in Britain for mechanically forming bricks. Each part of Bailey's machine was analogous to a step in the hand moulding process. Like other early machines, this was a moulding apparatus that essentially imitated the procedures of hand moulding but at a greater speed. Bailey's invention consisted of three parts – a separate mill for tempering the clay in advance of moulding; a brass or iron mould containing five or six bricks that was filled with clay, levelled by a large roller, and afterwards compressed by a stamper or plunger; and a screen to sprinkle soft sand over the empty mould and the roller to prepare them for the repeat motion of the machine."

Nearly all subsequent moulding machines were variations, and usually improvements, on Mr. Bailey's invention.

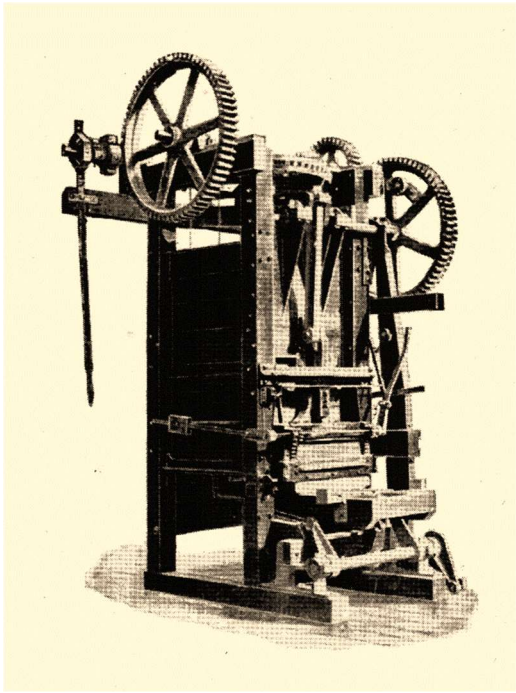


The various technical drawings of a simple bi-chambered semi-dry brick press machine from 1870, designed by Henry Clayton and Howlett Engineers, London. (Courtesy Wiki-Commons)





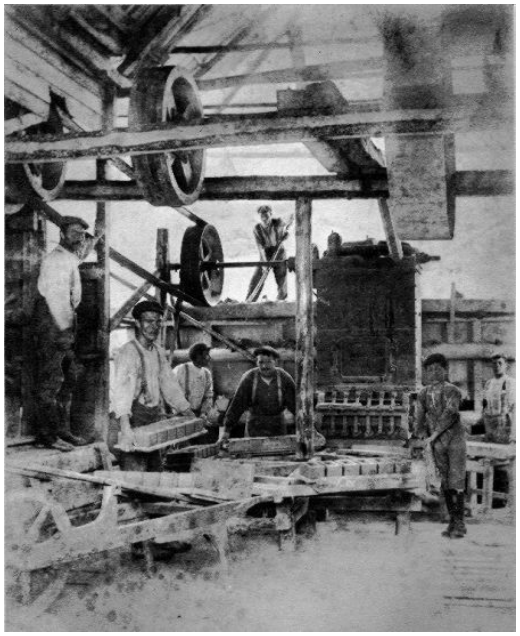
An array of British and American brick-making machinery from the late 1800s, suggesting the enormous variety of available technology – at top left a dual disintegrator and pug mill from an American firm; below left an 1864 moveable press by Clayton and Co., Atlas Works of Scotland; and below an American soft-mud pressing machine. (Courtesy WikiCommons)



Ms Watt continues: “Inspired by the early success of pressing machines, some inventors experimented with the possibility of combining the processes of moulding and pressing in one operation. By submitting raw clay to a greater amount of pressure in the mould, they hoped to extract unwanted moisture while smoothly finishing and shaping the bricks.”

The inventive energy that was producing apparently numberless new brick-making inventions also turned to completely different processes. As noted in Mr. Stern’s *Cream City: The Brick That Made Milwaukee Famous*, the possibilities of clay extrusion processes, rather than simple brick moulding, were developed by the mid nineteenth century: “Extrusion machinery was based on an entirely different principle for forming bricks and tiles. A column or bar of clay was forced through an appropriately shaped aperture at the mouth of a large container and then cut to the desired size. The form and size of the column was determined simply by the configuration of the die through which the clay was extruded.

“The Chambers Brothers Company of Philadelphia produced one of the earliest successful models for use with stiff-mud clay in 1857. Their machine was an extrusion machine that pushed clay through a die onto a conveyor belt where they were then sanded and cut by knife or later by wire. The machine was initially horse-powered and later driven by steam.”



Workers in the Pittman Brickyard in 1918, in Clarenville Newfoundland. (Courtesy Wiki-Commons)

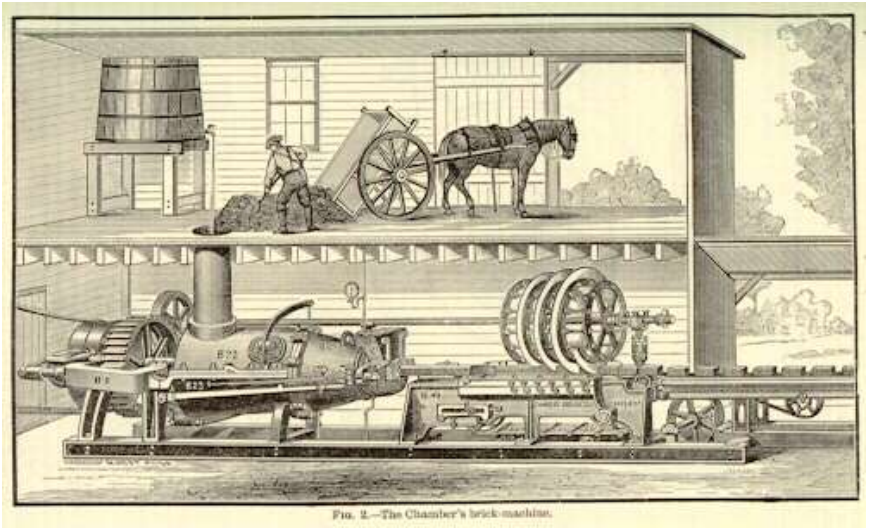
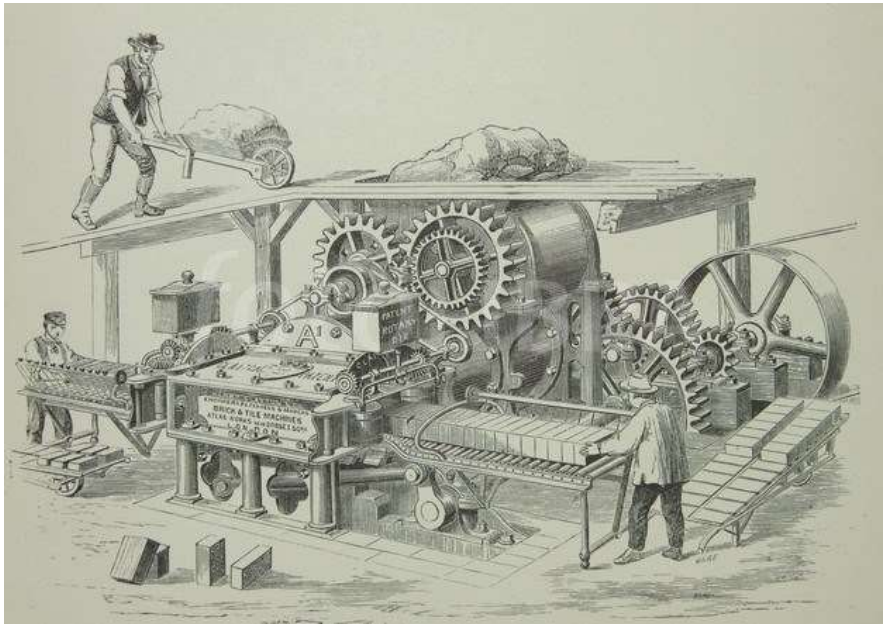


Fig. 2.—The Chamber's brick-machine.

Top: An example of an extrusion brick-making machine, patented in 1863 by Cyrus Chambers of Philadelphia. This impressive piece used stiff mud which was forced out in long ribbons on a conveyor belt, with the clay ribbons then transferred to moulds and cut by a revolving cutter. Up to 25 bricks could be cut at a time. (The Chambers Brick-Machine From: *Appleton's Cyclopedia of Applied Mechanics*, 1892)



Below: The enormously complex brick-making invention of Henry Clayton, of the Atlas Works, London (from 1859) was used by the South Eastern Railway Company, which erected a set of these brick-making machines adjoining their station at Folkestone for the manufacture of bricks for use by the company. An average of 25,000 bricks were produced daily with the attention of two men and four boys. (From: *The Mechanics' Magazine: Journal of Engineering, Agricultural Machinery, Manufactures, and Shipbuilding*, 1859.)

Brick Kilns

The fifth and final step in clay-brick production, firing of the prepared brick, was the subject of great interest and invention in the nineteenth century. By the latter half of the century, it was increasingly clear that the traditional clamp and scove kilns were just too small and inefficient to keep up the with enormous demand for greater productivity and better quality brick. Three new kiln technologies—the beehive, tunnel and the continuous—were the creative responses to these needs. And while the clamp and scove technologies continued to be used at smaller sites, the beehive and tunnel kilns became an increasingly common presence on larger brickyards, while the continuous kiln began to appear only on the largest of brick-factory complexes.

Sketch of a fired brick clamp kiln being unstacked. The whole clamp, the most rudimentary of kiln technologies in the brick-making industry, would have been dismantled after firing, and the bricks sorted for quality – under- or over-fired bricks would have been re-used (usually for the outside walls) when a new clamp was built up for the next firing. (Courtesy Wiki-Commons)

As was noted above, in a recitation of brick-making skills, at least one observer acknowledged "there is more skill wanted in burning bricks than in any other part belonging to [the brick-making process]." And while not mentioned in those observations, we might also assume that there was some additional skill required in placing bricks in the kiln – to ensure the greatest capacity and also the best spacing – a delicate balance that maximized production without jeopardizing quality.

Whether in a clamp, scove, beehive or tunnel kiln, the processes for burning brick were similar; the continuous kiln, discussed later, actually combined many of the traditional processes in one. For all of the kiln types, it is important to note here the chemical transformations caused by firing, and thus of the skill (and occasionally danger) of those involved in this last step – especially of the person charged with this task, increasingly called the brick master.

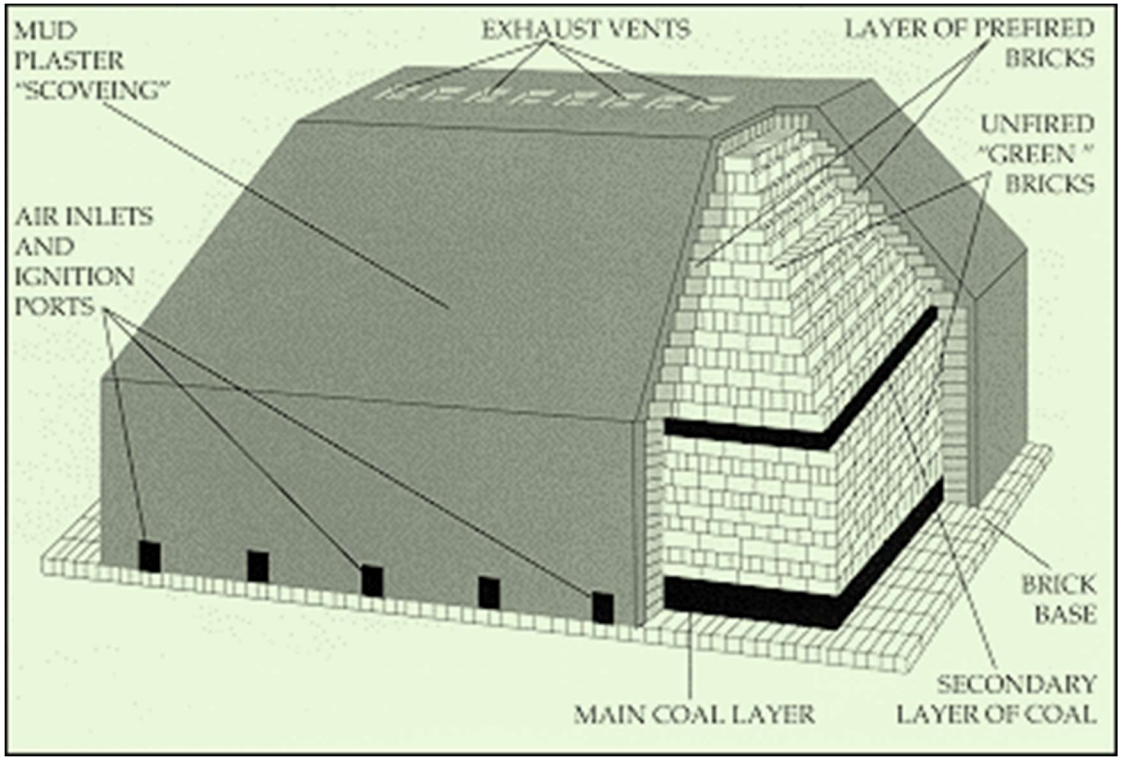
Bricks that were placed in a kiln were typically dried, up to 14 days in some cases, to ensure more economical use of the kiln, and in fact so that bricks in the kiln did not explode – water content that was too high would often result in catastrophic kiln failures. But even after several weeks of drying, there was still 10-15% water content, and as a kiln was slowly heated, from about 150°C to 600°C, the clay lost its remaining

These two images of late 19th-century brick kilns in England provide comparative views of the two typical kiln types in operation on many small-scale brickyards – at top of a clamp kiln and below of a scove kiln. The basic shape of each type is similar, with a boxy form slightly tapered to the top. The clamp kiln was a temporary structure, essentially a pile of stacked fresh bricks, angled upwards for stability. Firing from sources at the base of the pile would “burn” the bricks, with those within most likely to attain the quality necessary for sale. Outer-layer bricks were typically used when the clamp was rebuilt for the next burn. It is thought that at least a fifth of bricks in a clamp kiln had to be re-fired to meet acceptable standards. The scove kiln was slightly more sophisticated, with the permanent structure loaded with “green” bricks and then fired via small doors at the base. This type of kiln produced much better results compared with the clamp kiln. In both cases several thousands of brick could be burned at a time, over several weeks of operation for a single “burn.” (Courtesy WikiCommons)

water content, and a white vapour or steam (called water smoke) would be emitted from the top of the kiln. Once the vapour and gases had cleared, more fuel was added to increase the intensity of heat within the kiln. As the kiln temperature started to rise over 600°C, chemical changes began to occur in the clay. Temperatures of 900°C and above caused vitrification to occur, in which small quantities of glass-like material within the clay began to form, causing all other elements to fuse together. It is after the point of vitrification that the brick would be at its hardest and most resistant, ideal for its purpose as a construction material.

The intense fires in a kiln had to be maintained around the clock for about a week. The knowledge and experience of the brick master dictated when the fire-holes of the kiln would be bricked over to ensure a solid seal, with the heat allowed to slowly dissipate for another week or more. It might take an additional week for the burned bricks to be sufficiently cooled to allow for their removal. For clamp kilns it was at this stage that the entire kiln was dismantled and brick removed and sorted for quality.

The physical property of heat movement in a clamp or scove kiln, in which the heat radiated up from a ground-level source, led to these kilns being defined as up-draught kilns. The beehive, tunnel and continuous kilns were developed on the down-draught approach, in which heat was directed upwards along the outer edges of the kiln, and then forced down, and out, via chimneys a slight distance from the kilns – this process ensured more even burning, and much less wastage compared with clamp and scove kilns. Clamp kilns were notorious for iffy results, and the inability to control the temperature and wind drafts often resulted in wildly variable production: bricks at the centre of a kiln tended to be melted, whereas bricks at the edges were often left unburned.

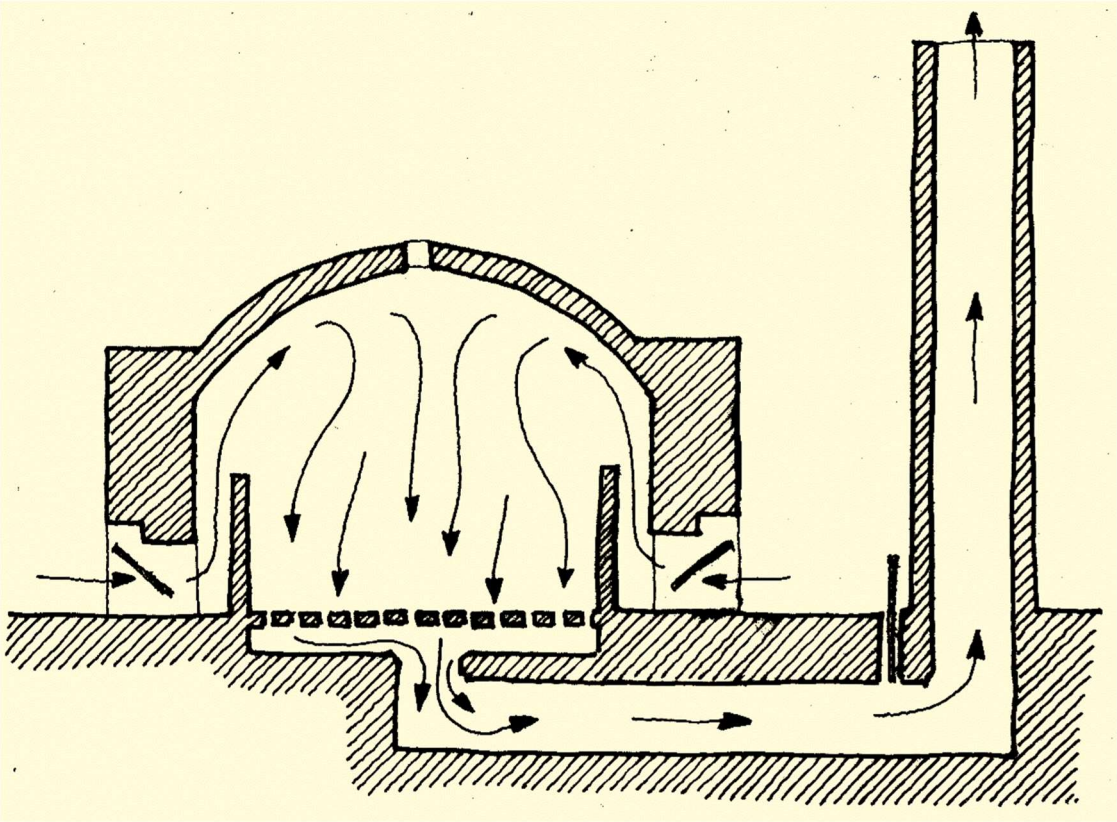


A schematic view of a scove kiln. The "green" bricks were arranged with a series of connecting spaces or flues that allowed the heat to circulate upwards from fires lit at the bottom. The monolithic structure would have small fire-holes at the base to allow for the heat sources, with openings at the top to encourage the up-draught required for effective burning, and also to release steam and gases. Such a kiln could contain as many as 80,000 bricks at full capacity. Raw bricks were arranged in the kiln so as to leave narrow gaps in between each brick to ensure an even burn. (Courtesy Wiki-Commons)

The development of the beehive kiln was a major improvement over the clamp and scove kilns. The distinctive shape of these kilns, as would be expected similar to a beehive, was based on fires being produced outside of the kiln and carried in through flues. The kiln consisted of a single domed chamber in which the unfired bricks were placed, and with curved walls at whose base a number of fire-mouths were located, where wood or coal was burned. Beehive kilns were usually reinforced with exterior steel bands to keep the brickwork from deteriorating through periodic cooling and heating. The kiln's design and physical properties of heat movement ensured that combustion occurred near the top, or crown, of the kiln, and was drawn downwards through holes in the floor, which via suction led to flues connected with an independent chimney. These down-draught kilns often had short chimneys built in connection with the fire-mouths, and several kilns could be joined together in a row or group having their bottom flues connected with the same tall chimney.

A view of multiple beehive kilns and chimneys at the brick factory at Clay City, Washington, 1910. Combining a number of beehive kilns and chimneys was a common way to develop an especially large clay or shale deposit at this period of the North American brick-making industry. (Courtesy WikiCommons)

View of one of the three beehive kilns at Porth Wen in Wales, an operation active at the turn of the 20th century. The typical form and structure of this type of kiln is evident here – with a circular plan and domed roof. Large arched openings provided access for loads of "green" bricks, as well as for fuel (wood or coal) to fire the kiln. Encircling iron straps kept the kiln stable, a common concern with the constant heating and cooling of the brick-making process. The tall chimney in the background was a necessary feature of down-draught kiln technology, required to draw super-heated air from the kiln over the bricks and out to the chimney. (Courtesy WikiCommons)



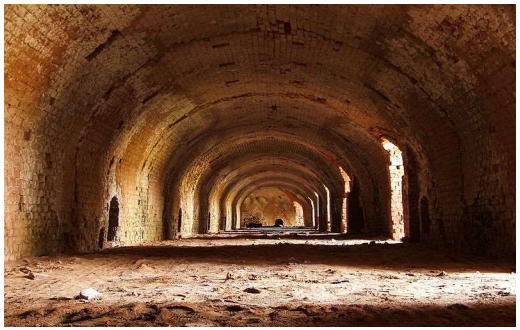
A cross-section view of a typical beehive kiln. The main feature, the kiln, was formed as a dome, which when built of brick provided the greatest level of structural stability. Raw bricks would be stacked within the cavity, getting fairly close to the dome's crown. Heat would be generated at in openings around the perimeter, and then circulated within the kiln via the down-draught process, to distinguish it from the simpler up-draught process of clamp and scove kilns. By placing the flues beneath the flooring and connecting them to a nearby stack, heat would be drawn down through the "green" bricks, making for more efficient and reliable firing, and creating less wastage of poorly fired bricks. Upon completion of firing, the kiln would be cooled for two to three days, at which point the temporary doors would be dismantled and finished bricks would be unloaded to a storage lot. (Courtesy WikiCommons)

An innovation on the down-draught concept saw many kilns built as vaulted brick tunnels. These kilns also had external heat sources, along the kiln's extent, and a slightly removed chimney that drew the heat upwards and over the raw bricks, ensuring a more even burn. Like the beehive kiln, which required encircling iron bands to maintain stability, with the ongoing heating and cooling of the structure, tunnel kilns were invariably built with distinguishing brick or metal buttresses along the outside walls, with connecting beams or iron chains along the top that kept the whole structure stable. In some cases the heating ports were actually devised as small chimneys, providing the necessary heating along its length.

View of a tunnel kiln. (Courtesy Wiki-Commons)

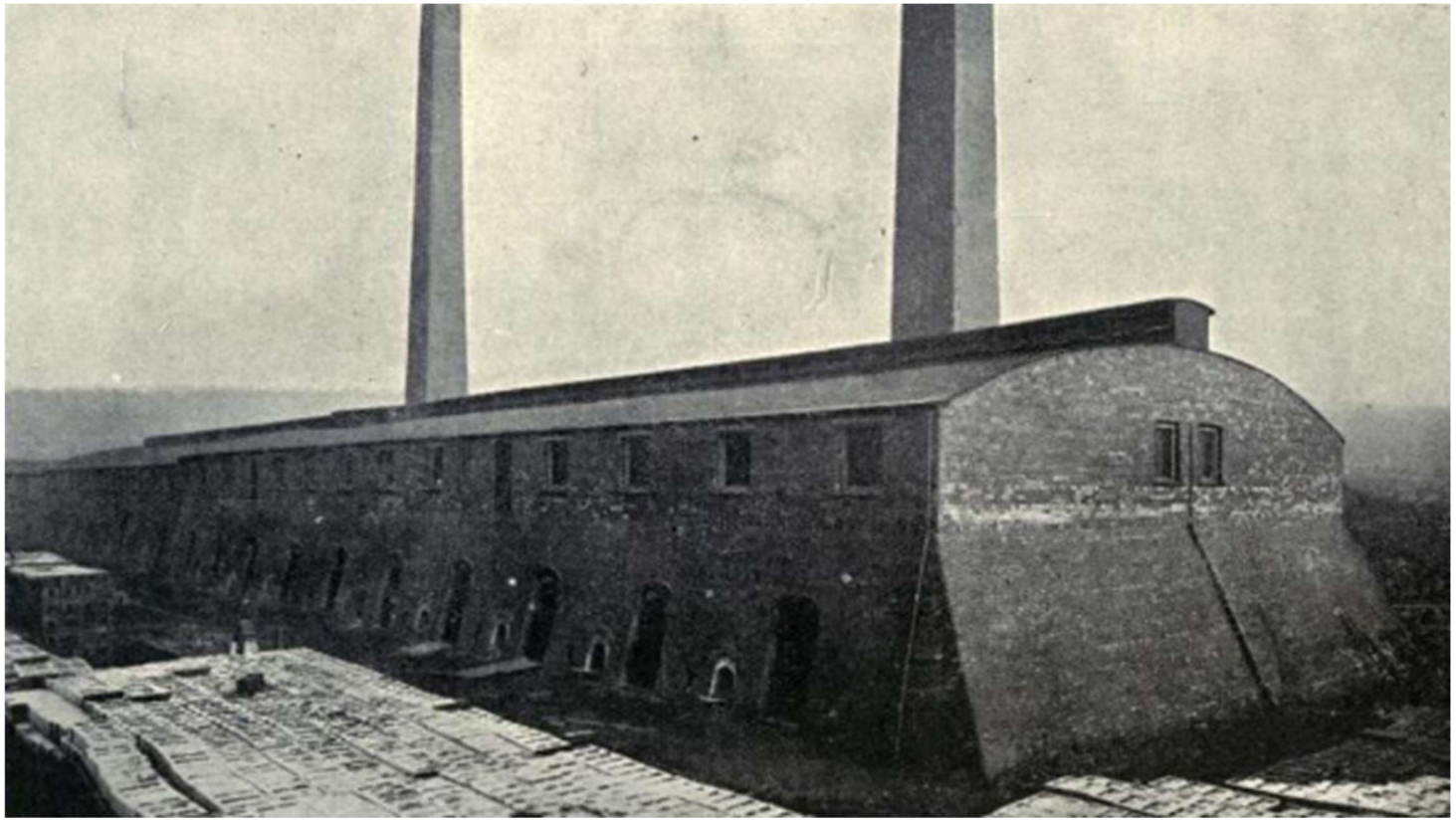
Example of a tunnel kiln at the Ochiltree-Burnfoot Tile Works in Scotland. The distinctive barrel vault and metal support structure are visible here. The large arched door would have been bricked in when a burn was underway. (Courtesy *Scottish Brick History*)

The method of using one tall chimney to work a group of down-draught kilns, and especially the example of the basic tunnel kiln, led to the invention of the continuous kiln, the earliest form of which was developed by Friedrich Hoffman, in 1858. The inventive principle of the continuous kiln was the utilization of the “waste heat” from one section of a kiln in heating up another section, and thus using lesser heat for other purposes, in particular for drying. At the same time, cooler air that was drawn in when bricks were unloaded, travelled in the opposite direction and cooled down the already baked bricks in the preceding rooms. It has been noted that the fire in such a kiln was "chased" around the building in a never-ending process that was extremely energy-efficient. It has also been observed that the principle of the Hoffman kiln anticipated twentieth century mass production, but instead of the product being brought to the process, as happened on a Ford automobile assembly line, the process was brought to the product.



Interior view of a continuous kiln, with partition walls removed. (Courtesy Wiki-Commons)

The original Hoffman kiln was elliptical in plan, but that complex form was more often adapted to a basic rectangular form, with chambers set side by side in two parallel lines. These chambers were connected at the ends by other kilns so as to make a complete circuit. Continuous kilns produced a more evenly fired product than the intermittent kilns, and at a much-reduced cost for fuel. And they were enormous, holding up to 300,000 bricks for a single firing. Depending on the size of the kiln, it could take between one and six weeks for the “fire” to complete a full circle. They were also only ever developed by the largest and most sophisticated brick-making operations, and mostly only in the twentieth century.



Example of a continuous Hoffman kiln, only used at sites with an industrial capacity. The chambers of this kind of kiln were filled with bricks (some 25,000 of them at a time) and fired one after the other. The heat in one chamber was not only used to bake the bricks inside, but also to preheat the still-to-be-fired bricks in succeeding chambers. These kinds of operations might employ 100 people and produce more that 12 million bricks a year. (Courtesy WikiCommons)

P I O N E E R

1860 – 1880

Pioneer Era (1860 – 1880)

The early history of brick production in Manitoba is a matter of fits, starts and failures. In 1860, the editor of the *Nor'Wester* stated that "Brick was attempted more than a quarter of a century ago [thus around 1835], but ineffectually, and of late has never been thought of. The entrepreneur should be encouraged, for there is a great scarcity of timber."* The editor possibly alluded to an earlier attempt by Sir George Simpson, the Governor of Assiniboia, who had brought a "professed brick-maker from Russia, but he had soon to leave for want of employment." Alexander Ross, writing in 1852, had also stated that: "Brickmaking has hitherto been entirely neglected here: a few attempts at different times have been made, sufficient only to test the quality of the clay, which in many places has been found good; but with the exception of a few brick chimneys, we have nothing as yet constructed of that useful article." Indeed, in 1857, Henry Youle Hind had observed that "no kind of industry or a distinct trade or occupation existed in the settlements. Almost every man was his own wheelwright, carpenter or mason. The present condition of the settlement would not … afford a living to any distinct class of artificer."

The Ross House (1852), now a museum in Winnipeg, at one time served as the post office for the Red River Settlement. It was typical of house construction of the era – seen here with its log walls, wooden shingles and the one brick feature: the chimney.

First Attempts to Produce Bricks – The 1860s

In the summer of 1860, an American named J.C. Johnstone came to Red River with the express purpose of supplying "the Settlement with a new species of building material – brick." He tried a number of sites, but to no avail. While he gave up for the time being, he promised to renew his efforts in the spring of 1861. He never did, possibly getting caught up in his country's Civil War. The following summer, a Sargeant Woodcock of the Royal Canadian Rifles was offering a £100 reward for a suitable sample of pipeclay. It was not known if the reward was ever collected, though it was noted at the time that a number of samples were put forward. In 1869, J.J. Hargrave would comment that "brick-making has been repeatedly attempted on a small scale,

* Most of the quotes, facts and statistics included in the following overview, as well as several illustrations and site sketch plans, have been drawn from Randy Rostecki's inventories. Readers can refer to those materials, typically via a community or brickyard name, for original source references.

but generally with no great success, owing partially, doubtless, to the inexperience of the workmen, and partly, it is said, to the friable [crumbly] quality of the clay employed."

Charles Land – Manitoba's First Brick-maker

J.J. Hargrave's 1869 observation (noted above) regarding the hit-and-miss character of small-scale brick operations that had been attempted at the Red River Settlement throughout the 1860s, may have included that of Charles Land, but Land's operation actually has the distinction of being the first durable brick-making operation in Manitoba.

Charles Land (c1820-1907) had come to the future Manitoba in 1846 with the 6th Regiment of Foot, which was stationed at the Red River Settlement from 1846 to 1848, brought here at the request of Sir George Simpson, Governor-in-Chief of the Hudson's Bay Company (HBC). Simpson was concerned about the possibility of war between Great Britain and the United States over the Oregon boundary, as well as the increasing unrest among the local Métis population, an ongoing irritant to HBC fur-trading operations.

At some unknown date, although presumed to be around 1855, Land was said to have built brick kilns outside of Upper Fort Garry, on the site of the old Hudson's Bay Company store on the southwest corner of Main Street and York Avenue. It was here that he produced the first bricks ever fired in Manitoba.

Around 1856, Land purchased Pensioners' Allotments 47 and 48 from Thomas Picksley. These would later become river lots 80 and 73 St. James, two long, narrow tracts on the east side of Furby Street in Winnipeg. Of particular interest was 73 St. James, on the north side of the Portage Road (now Avenue). This site is of great note, for it was here that Land developed the province's first small brickyard, probably in the early 1860s.

Before he took up brick-making, Charles Land was a member of the 6th Regiment of Foot, three of whose companies were stationed at the Red River Settlement for two years, 1846-48. Land would have donned the kind of uniform seen in these sketches, drawn at the time by the regiment's Lieutenant George E. Finlay. (Courtesy Manitoba Historical Society)

In August 1870, the *New Nation* proclaimed that "everybody is building and everybody wants bricks." Charley Lang [sic] had just burned a "splendid lot" of over 50,000 bricks, making them "Yorkshire fashion" (presumed to mean with a simple clamp kiln). Alexander Begg recalled in 1879, however, that "Land's bricks were principally used for chimneys," as opposed to other, more structural purposes.

The John Christian Schultz Brick Yard and Manitoba's First Brick Building

Charles Land was joined in the brick-making business in the late 1860s by a renowned (or reviled, depending on one's political stripe) Red River Settlement business and political figure, John Christian Schultz. Schultz (1840-96), who arrived at the Red River Settlement from Ontario in 1861, was the implacable foe of Louis Riel and the Métis people during the Red River Rebellion of 1869. Schultz was the leader of the ultra-loyalist Canadian Party, which promoted the annexation of Red River by the Canadian government, and encouraged new anglophone/Protestant immigration from Ontario. Schultz's ultimate political success in the Rebellion allowed him to become a member of the Canadian House of Commons from 1871 to 1882, a Senator from 1882 to 1888, and the fifth Lieutenant Governor of Manitoba from 1888 to 1895.

It is known that Schultz had started a brick-yard at an unknown location around 1868, and in the 28 July 1868 issue of the *Nor'Wester*, then the only newspaper in the British Northwest, it was announced that he would commence construction on a brick building, being "the first of its kind erected in this Settlement. It will be situated between the 'White Store' and the street leading to the fort." The 'White Store' was Schultz's then-one-year-old facility a few feet away at the northeast corner of Main Street and Water Avenue.

That the *Nor'Wester* would consider the use of a familiar construction material newsworthy suggests that the bricks presaged a new era for the community – suggesting a new level of stability even. The construction of the Schultz structure

John Christian Schultz, a major political and business figure in early Manitoba history, served as Lieutenant-Governor from 1888-1895. (Courtesy Archives of Manitoba)

marked the first use of brick in a whole building project in what was to become Manitoba, and it was clearly a notable moment.

Schultz's new building, nearly completed by late October 1868, was two storeys in height and measured 8m x 12m (25' x 35'). The nature of the functions housed in the new building are unclear for the first two years of its life, but by March of 1871 Walter Davison was proudly advertising his restaurant in "the brick house next to the White Store." By the following July, the structure had been converted to the Queen's Hotel, operated by David Adam and Dugald Sinclair. The little brick building saw activity over the next 30 years as a grocery store, fruit store, liquor store and a plumber's shop. It also sat vacant for long stretches of time. In 1911 and again in 1913 it was greatly damaged in fires, and finally in 1913 it and its additions were cleared from the site.

Dr. Schultz's brick building of 1868, in the photograph seen in the centre-left, emblazoned with the word "Drugs," was lost to demolition in 1913. By 1871 Schultz had expanded his collection of buildings by the addition of a long, narrow, two storey brick structure at the corner of Water Avenue. This became Dr. William Turver's drug store, with lawyers' offices above. A third brick building, constructed by Wilson and Hyman in 1871, was located between Turver's drug store and the 1868 building. (Courtesy R. Rostecki Collection)

There are no refences to Schultz's actual brick operation, but it is safely assumed that it followed the example of the Charles Land facility, and of course of the prevailing brick-making technologies of the day, given the rather rudimentary situation of the community at that time. So the brick yard was likely nearby – to facilitate easy transport of the finished product, and probably was to the east of the building site, presumably near the corner of Main and Water, and closer to the Red River. Bricks were presumably formed in some kind of hand-mould, and the finished product was fired in small "Yorkshire-method" clamps.

It is thought that Schultz's bricks were reddish or buff in colour, which was unusual at the time because other local bricks were a yellowish/cream hue. These may not have been very good bricks, however, as Schultz's detractors claimed in 1873 that they were the "most unsightly, ill-shapen and rotten clay daubs to which was ever applied the misnomer, bricks." And while these barbs likely had little effect on a man like John Christian Schultz, it is known that after selling 200,000 bricks to the Dominion Government for use in the new Winnipeg Post Office, Schultz and his partner, W.R. Brown, faded from the brick business by the mid 1870s.

Brick-making Operations from the Early 1870s

The success of Charles Land's and John Christian Schultz's brick-making operations from the late 1860s undoubtedly inspired other local entrepreneurs to try their hand at brick production – certainly a messy activity, but one also promising of considerable profits, if all went well. All of these basic economic calculations were also undoubtedly fired up by two significant political developments in the early 1870s – the formal entry of Manitoba as a province into the Canadian Confederation (in 1870) and then just three years later the incorporation of the City of Winnipeg (which by then had a population of 1,869). These transformative events promised great things for the new city and the new province – settlers, commercial growth, government buildings, and at least for certain keen-eyed observers – building contracts.

In 1870, the well-known fur trader and merchant Andrew McDermot started a short-lived brickyard, while a year later, a Mr. Spice produced an "excellent specimen brick" from a site on the north side of James Avenue, just west of Main Street. Spice did not last long, and was probably done in by the competition offered by the Manitoba Brick and Pottery Company which was incorporated in May of 1871.

The Manitoba Brick and Pottery Company was a well-capitalized venture whose directors consisted of some of Winnipeg's leading citizens. According to Alexander Begg: "The members of the Brick and Pottery Company went to a great deal of expense in bringing machinery from Chicago, which, however, proved useless for our clay. The company afterwards manufactured hand-made bricks, having been obliged to abandon their expensive machinery."

The operation was located on a 10-acre yard in Point Douglas, on Lot 32 St. John. By early August of 1873, two large kilns of brick had been burned. According to the *Free Press*, the brick was "hard, well-shaped and of a beautiful and uniform colour," which was very similar to the cream-coloured brick of Milwaukee, even at that time well known and well regarded. Little is known of this firm's production, nor its usage, though it is thought that most of the brick buildings constructed in Winnipeg up to 1875 came from this yard.

Well known Red River Settlement-era merchant Andrew McDermot (1790-1881) tried his hand at brick-making for one year – 1870. (Courtesy Manitoba Historical Society)

Brick-making Operations from the Later 1870s

The activities of three other firms operating in Winnipeg in the later 1870s provide via some modest news accounts, a much greater insight into typical brick operations and output from Manitoba at this time.

W.H. Disbrowe, an Ontario seedman who had come to Winnipeg in August 1876, acquired the old Charles Land brickyard on the north side of Portage Avenue between present-day Langside and Furby streets, and with it the extensive clay deposit. Disbrowe returned to Ontario for the winter, but when he came back to the

Winnipeg as it appeared in the early part of Consul Taylor's regime. Main street is in the foreground. The building in the centre is Apotheca ries Hall, run by Dr. C. J. Bird, speaker of the legislature. Numbered buildings are: 1, A. G. Bannatyne's house. 2, College St. Boniface. 3, Archbishop's Palace. 4, St. Boniface Cathedral. 5, Grey Nunnery. 6, Custom House. 7, Store of Dr. Schultz, later lieutenant-governor of Manitoba. 8, Grace Church. 9, Fort Garry. 10, Canada Pacific Hotel at the northwest corner of Broadway and Main. This building started to crumble in 1874, was rebuilt, and finally collapsed in 1882. From a sketch in the "Canadian Illustrated News" of Nov. 28, 1874, done from photographs.

This image shows Winnipeg's Main Street ca. 1875, stretching from north to south (in the distance), and likely with the closest cross street being McDermot Avenue. The image shows primarily wooden structures, but it is known that a handful of buildings captured in the illustration are of brick – and likely from the yard of the Manitoba Brick and Pottery Company, which was the most active site at this date, and productive even into the 1880s. (Courtesy Archives of Manitoba)

city in March of 1877, he brought a partner in the venture, a Mr. Foxley. Mr. Foxley was a brick-maker in long standing, with 25 years' experience in England, the eastern provinces, British Columbia and the United States, and came highly recommended by Bulmer and Shepherd, a large firm of Montreal brick-makers. The Foxley and Disbrowe yard was noted in newspapers as selling "all round brick" for $10.00 per thousand; veneer brick for $12.00; and pressed brick, "an extra" quality expressly for fronts" at $15.00 per thousand. This site and the partnership lasted only from 1877 to 1879.

Samuel Clack Biggs was a Winnipeg barrister and a venture capitalist. Among his business enterprises was the Portage Road Brick Yards, and was presumably the old Foxley-Disbrowe yard, which had earlier been the Charles Land yard. Biggs appears to have leased the Foxley-Disbrowe yard beginning in 1878, and by 1881 was turning out over one million bricks for the season. An 1881 article stated that the Biggs yard had four brick machines, two of which were then in operation. It was claimed that the yard made 50,000 bricks in one week using 20 to 25 employees and three or four horses. Mr. Biggs sold out within two years to Foley and Williams, who operated brick kilns for only a few more years until the clay at the site gave out.

In 1878 the Saul Brothers—David and John—had formed a brick-making concern (with a partner, Charles Wellman), with the first notice of action being from June of 1881, when it was reported that their brick yard at Point Douglas had successfully burned a kiln of 250,000 bricks, with another similar number awaiting firing. Some of these bricks were for sale, though the Sauls used many for the 10 building contracts they had underway. Two weeks later a second kiln was being burned, while another 250,000 bricks awaited firing. By late July the Saul's had 900,000 bricks in the yard moulded and ready for firing. They planned to make 1.5 million bricks that year. With the Point Douglas clay bed exhausted, the Saul Brothers were to move in 1882 to a site near St. John's Cathedral.

Winnipeg's first City Hall, which stood from 1876 to 1883, was a major local example of brick construction during the city's pioneer period. (Courtesy Archives of Manitoba)

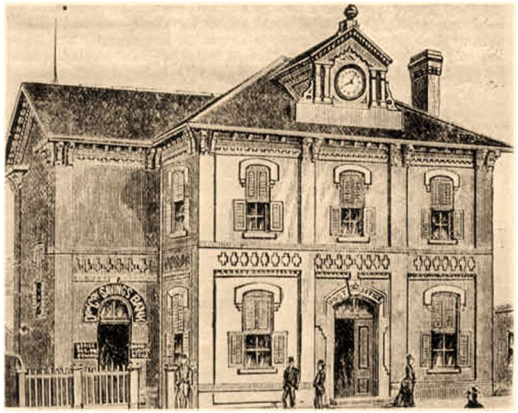
Outside of Winnipeg, during the early 1870s, four entrepreneurs were also setting up shop, in the small communities that were being established in the newly formed Province of Manitoba. Three of these were south of the Winnipeg, with two at Morris and one at Emerson. The other one was north of the city, at East Selkirk. Beyond its existence and name (Wellman-Gardner), nothing is known of the East Selkirk operation. More is known about the other operations, and that information provides some minor insights into small-town pioneer operations.

The first functioning brick yard in Emerson was that of Peter Phillippe, established in 1878, and producing some fair cream-coloured brick. Phillippe had a brick machine from London, Ontario. During 1879 Phillippe supplied the brick for the Hudson's Bay Company store at West Lynne (opposite Emerson on the west side of the Red River). While he did have some competition from D. Ferguson, who had invented his own brick machine and produced brick and drain tile, the Emerson Brick Yard persevered at least into 1880. That spring Phillippe went 65 miles upriver and bought 500 cords of firewood at $2.25/cord, and vowed to turn out a million bricks during that season.

At Morris, in the summer of 1875 "an enterprising young man" named William A. Russell started what was described as an "extensive brick yard." During early June he expected to have fired his first kiln of 100,000 bricks in time for Dominion Day. During 1876 he was noted as manufacturing bricks of a "superior quality" which sold for $10.00 per thousand. His bricks were being used in buildings erected by himself, William Gallie and in the new school-house. That autumn 12 of Russell's bricks won a prize at the Provincial Exhibition. By 1877 the Town of Morris had two brick yards, the other one started by Gallie who was apparently inspired by Russell's success. The two yards were still in existence at Morris in 1879, but by 1880 Gallie and Russell appear to have combined their efforts.

The Emerson Branch Rail Line and Brick-making Operations from 1879-1880

The date 3 December 1878 marked a profound moment in the history of the new Province of Manitoba, in the fortunes of the citizens of Winnipeg and St. Boniface, and in the activities of the province's brick-makers. That was the day that the Countess of Dufferin, the first locomotive in western Canada, met an American train at Dominion City, where the last spike was driven to commemorate the opening of the St. Paul, Minneapolis, and Manitoba Railway. This inaugural rail line, which ran on the east side of the Red River from St. Boniface (significantly not from Winnipeg) to St. Paul, Minnesota, via Emerson and Pembina, North Dakota, came to be called the Pembina Branch.



The construction of the Winnipeg Dominion Post Office, which operated at this building from 1876 to 1883, apparently used at least some brick from the yard of John Christian Schultz. (Courtesy Archives of Manitoba)

The significance of the arrival of the railway in western Canada cannot be overstated. In a practical sense, the rail connection between Winnipeg (via St. Boniface) and eastern Canada (via American lines) allowed for the cost-effective import of both settlers and manufactured goods to the west (including, one must presume, brick-making equipment), and the export of grain and other agricultural produce to the east. This not only provided an invaluable boost to the fledgling western economy, but encouraged capital investment from eastern centres as well.

In the immediate wake of the inaugural rail line, five new brick operations were established in Winnipeg in 1879 through to 1880. One of these barely lasted a season, and the other was completely neglected in press reports, but three others were covered in news accounts of the day, which shed increasing light on how these places operated in the early years of the industry.

John E. Mould, a plastering contractor, opened his yard in 1879, on six lots that adjoined the Manitoba Rifle Association's range in Point Douglas. He began operations that April, with 20 employees turning out 18,000 bricks per day. By early

June, Mould and Company was preparing to burn 200,000 bricks in their kiln. This brick yard continued in business for several more years, burning two kilns of 250,000 and 300,000 bricks in 1880, and 175,000 and 200,000 in 1881. By 1881, they had a second yard at St. Boniface where they had burned a kiln of 801,000 bricks as of late June.

Pierre Chartier started a brick yard on the bank of the Seine River in St. Boniface in the spring of 1879. He apparently had an immediate order of 30,000 bricks for the new St. Boniface College building. By 1880 he had taken a partner, Joseph Pion, who would make bricks at La Broquerie a decade later. Pion took the yard over in 1881 or 1882. In June 1882, Pion had four slop machines in operation, with two more to be installed. His staff consisted of 12 men and six horses, and he used the Seine River as his water supply. He expected to manufacture 1.5 million bricks that year.

Beginning in 1880, James G. McDonald operated an important operation in Point Douglas – the old Manitoba Brick and Pottery Company's yard on Lot 32 St. John, a 10-acre site. McDonald was known around Winnipeg as the "King of the Contractors," mainly because of the large scale of his operations during the early 1880s. Possibly through political connections, he quickly became the biggest operator in Manitoba, garnering contracts to build not only the Louise railway bridge, but also prominent buildings such as the Bank of Montreal, Morris Block, Hudson's Bay Company store and Ogilvie's Mill. By mid-June of 1880 McDonald was installing a brick machine at his yard, obtained from E. & C. Gurney of Hamilton, Ontario. This was said to be capable of producing 25-30,000 bricks per day. By mid-July, a 250,000-brick kiln was under construction, while his brick machine turned out 50 bricks per minute, or 20,000 per day. He also had three slop machines, each of which produced 10-12,000 bricks per day, with more machines planned to be added. The McDonald operation employed 30 workers. By early September, McDonald had burned two kilns of brick – one of 160,000 and a recently-opened one of 270,000 brick. He was getting

This very old made-in-Manitoba brick was salvaged from a ca. 1877 house in downtown Winnipeg, which burned down in 2012. That house was veneered just a few years after its construction, with brick that was produced at a Dominion City brickyard. It is presumed that given its age this was from the yard of Grange and Tull, which was then under the supervision of one of the province's early brick operators – Peter Philippe, who had started a yard in Emerson in 1878. (Courtesy Manitoba Historical Society)

ready to burn another 260,000 as well as one after that of 50,000. McDonald's yard closed after four seasons of production, in 1884.

Outside of Winnipeg and St. Boniface, a number of entrepreneurs were also opening brickyards, in the small communities that were being established, especially after the completion of the Pembina Branch rail line in the winter of 1878. Of the six new operations, two were in established brick-making communities – at Emerson and East Selkirk; neither of these lasted more than two seasons, with only modest production.

Two of the others were at the established community of Portage la Prairie and two were at strategic locations on the Assiniboine River – at Nelsonville and Grand Valley; these latter two short-lived operations later moved when Canadian Pacific Railway

This ca. 1879 view of Winnipeg's Main Street, looking north from about Portage Avenue, shows at right-centre the large wall signage of Stobart Eden & Co. Alexander Begg provided an account of this important early brick building in *Ten Years in Winnipeg*: "In November the brick block, erected on Main street, by Messrs. Stobart, Eden & Co., at a cost of $20,000, was completed, and as a monument of the growing thrift and enterprise of our city, spoke volumes for the march of progress which had so practically and earnestly set in. Space will not admit of an extended account of the structure, the following facts will, however, serve to convey an idea to the stranger of the solidity and extent of the building. The entire length of the block was something over 100 feet, with a width of 33 feet ; the main portion 70 x 33, being three stories in height, and the rear portion 30 x 33 feet, one storey with a basement, the entire length of the building. The native white brick was used in its construction." (Courtesy Archives of Manitoba)

(CPR) lines came through to, respectively, Brandon in 1881 and Morden in 1882. It is presumed that the bricks of the Nelsonville and Grand Valley yards were used only for chimneys. None of these newcomers noted in this pioneering stage of Manitoba brick production lasted very long, and none were much-covered by local press, so their activities and production are not known.

Conclusion – The State of the Industry at 1880

From 1868 to 1880, Manitoba's brick-making industry had evolved from modest, rudimentary production, with bricks often only suitable for chimney construction, to yards that were firing kilns of 200,000 bricks at a time, to be used in the kind of impressive new masonry buildings rising in Winnipeg and a few of the province's other communities, themselves just recently established.

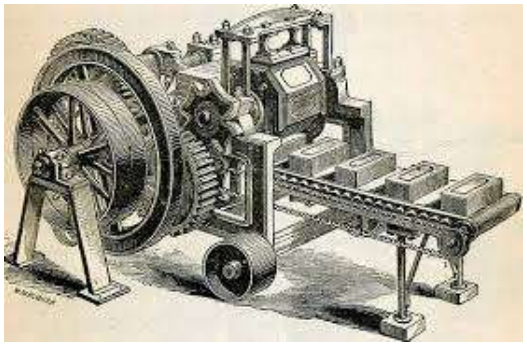
The industry had gone from complaints that John Christian Schultz's bricks were the "most unsightly, ill-shapen and rotten clay daubs to which was ever applied the misnomer, bricks," to claims that the product of the Manitoba Brick and Pottery Company were "hard, well-shaped and of a beautiful and uniform colour."

The industry certainly was still in its infancy, and the great majority of yards were short-lived—18 of the 25 brick-makers setting up shop in this period only lasted a year or two—but a few were more enduring (between three and five years), and two—the Lackey-Smith operation in Portage la Prairie and Manitoba Brick and Tile in Winnipeg—actually made a go of it for, respectively, eight and nine years.

So the industry had gradually moved from a slightly ragtag collection of one-season operations to the kind of professional activity that a newly energized community, and province, could promote with gusto – and with real, impressive numbers. Newspaper accounts of the day were happy to report, for example, that Mr. Russell in Morris (in June of 1875) was expected to burn a kiln of 100,000 bricks; and that in 1879, in

Winnipeg's Point Douglas area, the John E. Mould yard was turning out 18,000 bricks per day; and that by early June the same firm was preparing to burn 200,000 bricks. And these were just two samples – nearly every significant firm operating by the late 1870s was making similar production claims to the media.

There is also a sense of the sizes of operations, of the kind of current brick-making technologies being employed, and hints of skill-sets required for these kinds of activities. At the Mould yard in Point Douglas we are advised that in 1879 there were 20 employees for the season. Accounts of the James McDonald yard in Point Douglas provided even more details – by mid-June of 1880 a new brick machine was operating at the yard, obtained from E. & C. Gurney of Hamilton, Ontario, which was said to be capable of producing 25-30,000 bricks per day. McDonald also had three slop machines, each of which produced 10-12,000 bricks per day. At this time, the McDonald operation employed 30 workers. The Portage Road Brick Yards had by 1880 four brick machines, using 20 to 25 employees and three or four horses. And at least in one instance we get a sense of the level of skills that were new being invested in all of this work – with arrival in Winnipeg in 1877 of Mr. Foxley, a brick-maker in long standing, with 25 years' experience. This slightly sketchy information, combined with the historical narrative provided in the previous section, is suggestive of the technical nature of the industry in Manitoba at this time. It is clear that there were various technologies at work – hand-made bricks turned out in wooden moulds, horse-powered pug mills, hand or steam-powered pressing and moulding machines, and presumably both clamp and scove kilns.



Henry Clayton, London, wire cut brick extruding machine 1880. (Courtesy WikiCommons)

We are also getting a sense of the business end of the industry – with issues of brick quality being identified, and prices being established. There are several observations about preferred brick colour – the Emerson yard of Peter Phillippe, of 1878, was producing fair cream-coloured brick, while the Manitoba Brick and Pottery Company, in August of 1873, according to the *Free Press*, had fired brick that was "hard, well-shaped and of a beautiful and uniform colour," apparently similar to the cream-coloured brick of Milwaukee.

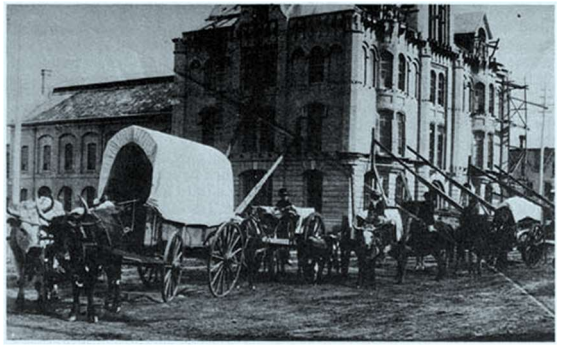
In terms of price, the Disbrowe-Foxley operation was noted in 1877 newspapers as selling "all round brick" for $10.00 per thousand; veneer brick for $12.00; and pressed brick, "an extra quality expressly for fronts" at $15.00 per thousand. Mr. Russell's yard at Morris was selling bricks of a "superior quality" for $10.00 per thousand in the summer of 1875. It is important to keep in mind that a typical chimney would have required about 500 bricks, and one of the larger brick commercial or public buildings of the day might take 25,000 bricks in its wall construction.

An accounting from Alexander Begg, in his impressive *Ten Years in Winnipeg*, from 1879, contains important references to brick quantities and values used in the construction of the new Winnipeg City Hall (begun in 1876): a total of 480,487 bricks were required, at cost of $30 per 1,000, and so valued at $14,415.00. The price here is

This ca. 1880 image of Winnipeg's Main Street, looking north from about McDermot Avenue, shows several brick buildings – distinguished by their height (two to three storeys), flat roofs and ample fenestration, a typical quality of masonry construction. (Courtesy Archives of Manitoba)

notable, when compared with known local values – and so suggests that these bricks were presumably from the United States, with quality and freight rates built into the much higher cost.

The issue of distribution, which might have appeared in newspaper accounts if bricks from a yard were being sent further afield, does not appear to have been going on at this early stage of the growth of the industry. It was still in its infancy. Even the opening of the Pembina Branch does not seem to have yet facilitated export of bricks – there were just not enough yards, and of course just not enough building projects going on at this time.



Shoring-up Winnipeg's City Hall, which would come down in 1883, just seven years after it went up, in 1876. (Courtesy Archives of Manitoba)

There are no images of these pioneering operations – even of the people involved, except for Mr. Schultz and Mr. McDermot. There are a few images of the earliest brick buildings, including Schultz's store, the Winnipeg City Hall and some of the brick buildings on Winnipeg's Main Street. While Winnipeggers and Manitobans may have been proud of these new buildings, symbols of progress and perhaps even of promise, they were not entirely sure of their future prospects. It is useful to recall just how raw the place was throughout the 1870s, and how other construction materials and processes were just as viable as the "new" brick construction: Alexander Begg, again in his *Ten Years in Winnipeg*, observed that "we now come to the Court House [of 1873], erected at a cost of about $40,000, and built solidly of oak logs fitted into each other and afterwards sided over with pine. This building cost a lot of money, but is no ornament to the community." It may not have been an ornament, but neither ultimately was the new Winnipeg City Hall, which went up in 1876, and whose fine brick walls must have been seen by many as the symbol of a new dawn; that is, until it proved so unstable that just seven years later it was torn down.

So, all in all, the operations that were active at this time in Manitoba's history were adequately providing enough product to satisfy the citizenry. But things were about to change – and in a major way.

D E V E L O P M E N T

1881 – 1896

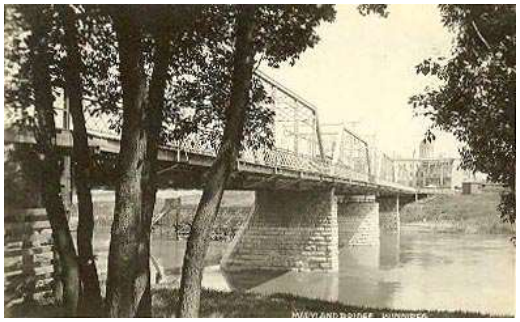
Development Era (1881 – 1896)

The 15 years following Manitoba's pioneer stage of brick-making activity, thus from 1881 to 1896, saw the industry grow exponentially, throughout the increasingly settled southern areas of the growing province, as well of course in Winnipeg and St. Boniface (at that time its own municipality).

The first few years of this period were defined by two interconnected developments – the arrival (finally) of the main line of the Canadian Pacific Railway (CPR), and almost immediately following that, a real estate and building boom in Winnipeg, which affected a few other urban centres as well, Brandon included.

The wait for the CPR line had been long, and frustrating. The Winnipeg business community had feared since 1874 that the main line would bypass the city for a more northerly route, which in Manitoba would be through Selkirk. Only their agreement to provide the CPR with tax exemption in perpetuity, and the construction at their own expense of the Louise Bridge, had changed the route. Outside the city, small town sites were established in what were thought to be likely points on the final route – many of these expectations were dashed when the final route was selected, and whole communities, often with their buildings, moved to the line. And thus when the track finally made its way across the province through 1881 and 1883, a great deal of pent-up energy was released. Now, finally, mail and goods and people could make their way west in no time.

In Winnipeg, this new connection to the east led to a spectacular real estate boom. Within months, 3,000 real estate offices sprang up in Winnipeg. The population quickly doubled and the town came to be heralded as the "Chicago of the North." The price of real estate skyrocketed. Buying and selling land became an obsession and



Views of the Louise Bridge in Winnipeg, which was a major enticement that brought the CPR mainline into the city, ensuring its continued growth as the West's major metropolis. (Courtesy Archives of Manitoba)

speculators bought land, then sold it swiftly, sometimes selling property in nearby communities that did not exist.

When the bubble finally burst, in the early summer of 1882, real estate values collapsed, and paper fortunes vanished. But there was a tangible legacy to this fevered period. According to Charles Napier Bell, then a customs officer in the city, in accounts published in the *Winnipeg Daily Sun* in 1887, "The total value of the buildings erected, as ascertained by a direct canvas of the city, amounted to $1,710,850. When it is borne in mind that Toronto, the same year, showed but $500,000 invested in new buildings, an idea may be had of the commercial activity that prevailed." A review of photographs from this time shows the physicality of this legacy, and also reveals that more and more of the city's buildings were of brick.

View of Winnipeg's Main Street, ca. 1882, looking south from City Hall area. (Courtesy Archives of Manitoba) This image shows a lot of brick buildings lining both sides of the street, and suggests the levels of brick production (both local and imported) that were required in the city's building frenzy of the early 1880s. The spire visible at top right is of the new Knox Presbyterian Church actually over on Portage Avenue. The church was itself a major new brick addition to the community, but only stood until the late 1880s, after the congregation had relocated to a site further west and north.

Brick Making in Winnipeg, 1881-1896

In Winnipeg, the real estate boom brought a number of new brick operations to the city, joining the four pioneering firms of the 1870s that were gearing up for even greater production – including the three yards in Point Douglas—McDonald/Holley (productive to 1884), John Mould (to 1882) and Saul Bros. (through the 1881 season)—as well as Samuel Biggs's Portage Road Brickworks just west of the-then city limits.

A few new clay deposits had been identified – west of the city in what is now St. James, along Portage Avenue within the city, as well as in the north end. In the still-raw urban environment of the day, these sites were too good to pass up, and yards might be established in downtown areas or even in residential enclaves.

As was the case during the first decade of brick production in Manitoba, most of the start-ups were gone within a year or two. A yard set up ca. 1881 on the east side of Salter Street between Selkirk and Pritchard by John Woods and N.N. Stevens lasted only one season. David Saul's 1882 yard near St. John's Anglican Church east of Main Street (where he had moved after his earlier Point Douglas operation was exhausted) lasted two seasons, but with notable production and useful information: the yard consisted of four slop-brick and two Martin brick machines, employing 32 men and 14 horses, producing about 40,000 bricks per day, with the clay actually extracted on the west side of Main Street. In its first year the yard was expected to make between four and five million bricks, and in its last year, 1883, it burned three million bricks. Newspapers noted that the operation had a "drying bed" for the brick that was 75 feet by 300 feet and a "kiln shed" measuring 33 feet by 300 feet. It is supposed that the kiln shed was a rough structure that protected the actual scove kilns from the elements; if it was in fact 300 feet long, it is presumed that there were at least five kilns in operation at a time—given that the average dimensions of such kilns would have been at most about 30 feet by 50 feet—thus making the Saul yard a truly remarkable achievement at this time, and more tragic for its poor start-up timing.

Another short-lived operation was that of T.J. Jones, whose yard was located at the western end of Winnipeg, on 20 acres of Lot 44, St. James, near the Manitoba and South-western (CPR) railway line. While short-lived, the operation generated some interesting coverage about brick-making at this time: T.J. Jones arrived in Winnipeg during September of 1881 to scout out a location for a brick yard. With his 30 years of experience, Jones knew what he was looking for, and so also visited Brandon, Portage la Prairie and Selkirk. He finally settled on the St. James location because the clay was two to three feet deep and lay near the surface. He bought the site in the spring of 1882, and set up his "brickery," with a Townsley brick machine from Toronto that was powered by a two-horsepower Waterous steam engine. The yard began making bricks on 1 August, and turned out 10,000 bricks per day. Jones's first kiln fired 200,000 bricks, with another kiln in mid-September of 350,000 bricks. Jones planned to turn out one million "white" bricks before winter, employing 30 to 40 workers, who laboured from 7:00 a.m. to 4:30 p.m. It is presumed that this yard succumbed in the post-boom depression of 1883.

The economic downturn that followed the collapse of Winnipeg's real estate and building boom lasted for at least five years. And with that downturn, the city's brick-making fraternity shrank, and nearly dried up. Only brick-making activity in St. Boniface (see next section) provided any product for the few new building projects from this period.

It was not until 1888 that brick-making activity resumed in Winnipeg, with the development of three new yards: that of William Rourke and Edward Cass (building contractors) who established a small yard on Toronto Street, north of Portage Avenue that operated to the early 1890s; Mr. Bowles, whose yard on Portage Avenue, probably in the St. James area, only operated for the 1889 season (but did produce 2.5 million bricks for sale, "on cars or at kiln"); and a much more enduring operation – that of the Kelly Bros., Thomas and Michael, and later Martin.

The Kellys had a yard in St. Boniface (see next section), begun in 1882, and had also exploited a clay deposit at the construction site of the Clarenden Hotel (at Portage and Donald) to burn bricks in 1882 for that and other buildings. Their new Winnipeg yard, formerly that of T.J. Jones (see above) was north of Portage Avenue in St. James, and was productive for nine years (near present-day Sanford Street, along nearby CPR tracks). The Kelly's St. James yard ultimately reached 68 acres in extent by 1899, at which point the clay appears to have been exhausted, for the Kellys had moved the machinery of this operation to their St. Boniface yard.

The Clarenden Hotel, which went up in 1883 (and was demolished in 1920), was at the northwest corner of Portage and Donald. During its construction, by Kelly Brothers, the clay extracted from its basement area was used by the Kellys to produce the very bricks of the building's walls. (Courtesy Archives of Manitoba)

Brick Making in St. Boniface 1881-1896

The solitary pioneering St. Boniface operation of Pierre Chartier from 1879 was joined by 11 new brick yards in that community in the early 1880s, establishing the area along the banks of the Seine River and south of Mission Street as a major brick-making location for the next 70 years.

As was the case in earlier days, and also in Winnipeg at this time, most of the firms that started brickyards in the early 1880s only lasted a season or two (not a surprise given the economic bust noted above), but with sufficient newspaper coverage to define the nature of their operations. Accounts of two of these operations—McDonald & Holley and Thomas, Benoit & Co—are illustrative of this group.

The firm McDonald & Holley (seen in 1880 at its Point Douglas yard) expanded their brick-making into St. Boniface in April of 1881, and had a good run for three years, until bankruptcy took them down. McDonald was well known in the community and to the newspapers of the day, and so his new St. Boniface operations received some attention. By early June of 1881, under the management of Willis Goodenow, the new yard had two Penfold brick machines turning out 70,000 perforated bricks per day, while two Martin machines turned out 30,000. The yard was 250′ x 415′ in size and was said to contain 1.4 million manufactured bricks at any one time. The brick shed was 415′ x 23′ in size, and could contain 2.5 million bricks which were awaiting the kiln. On 28 July 1882, the St. Boniface yard made 105,000 bricks, considered a one-day record at a time when the yard employed 70 men.

Also in 1882, Thomas, Benoit & Co., leased a 12-acre tract of land with brick clay from the Roman Catholic Church in St. Boniface, alongside the Seine River bridge. The firm imported several brick-making machines which had been established on LaFleche Street - two Penfield brick machines, as well as a 35-horsepower steam engine. The firm employed 50-70 workers and eight horses, and expected to produce four million bricks that year. The site was considered to be convenient, being within 100 yards of

both the Seine River and the CPR tracks. The yard reportedly supplied 750,000 bricks for the Cauchon Block (Empire Hotel), built in 1882 at Main Street and York Avenue. In March 1884 the partnership between P. Thomas and Michel Benoit dissolved, and the brick plant effects were put into liquidation and sold by architect L.A. Desy, who had designed the Cauchon Block.

One of the newcomers to St. Boniface, J. & P. Lyons, was active for nine years. The Lyons were building contractors who operated a St. Boniface brick yard after October 1881, making bricks for their own use. According to a June 1882 account, the Lyons yard had five slop machines and one Martin brick-making machine, though they planned to soon add another Martin machine. A recent flood had destroyed their four Red Wing brick machines, but the yard nevertheless employed 20 workers and used 12 horses. The Lyons planned to make three million bricks that year, and their product was used in the Kennedy Street Legislative Building and Government House. They often advertised a large supply of veneering brick, "always on hand." It is not clear when the operation shut down, but it is thought around 1890.

Three of the newcomers to St. Boniface would go on for decades: Cartier/Lamontagne (22 years, from 1882 to 1904), McCutcheon (for 26 years, 1884-1910) and one of the longest-lived in Manitoba brick-making history, the yard of Kelly Brothers (43 years, from 1882 to 1925).

Cartier/Lamontagne

According to one source, this brick yard was started in 1882, and was located near the Seine River on Youville. Its owners were Eugene Cartier and Modeste Lamontagne. Cartier appears to have dropped out of the partnership during 1888, leaving Lamontagne on his own account. Very little is known of the plant's output, but given that it was in business until at least 1904 (when Lamontagne died) it was surely as productive as any other yard. Subsequent to this, former employees Zoel Marion and his son Joseph Alderic, along with Elzear Goulet, bought out the Lamontagne Estate, which had started advertising itself as "The Oldest Brickyard in Manitoba." Couture

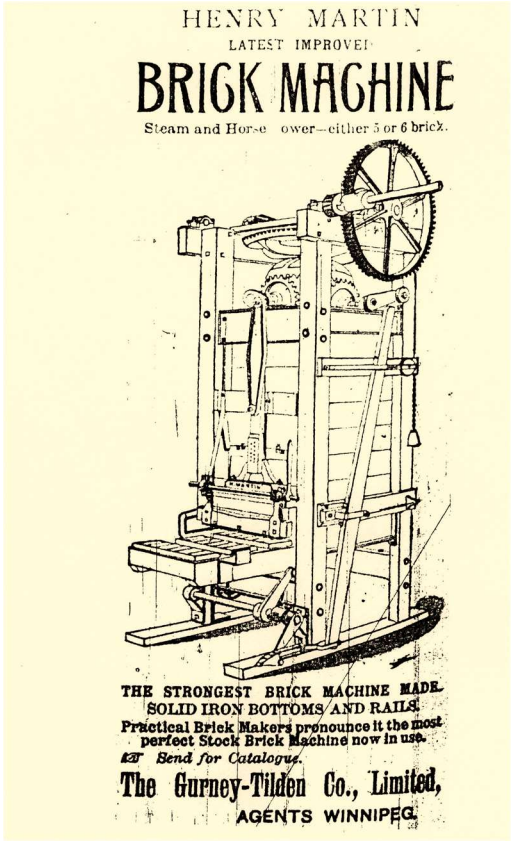
and Marion carried on this slogan after they began operating the yard under their own names

A.N. McCutcheon

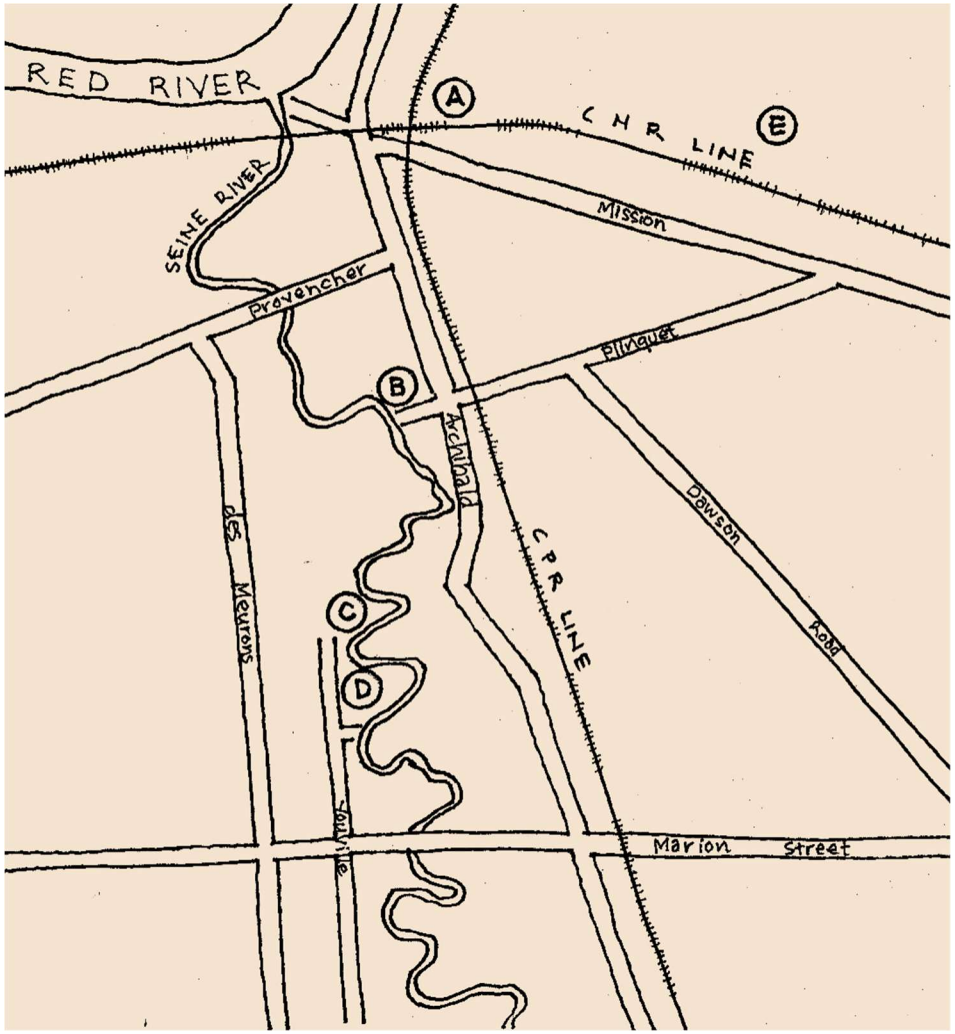
Albert Ney McCutcheon operated a brick yard in St. Boniface from 1884 to 1910. This was located on the north side of Mission Street. By the 1890s it appears that the local clay deposit was being depleted, for McCutcheon was reported to be using clay from the Souris Valley, which also was said to produce a light red brick. McCutcheon reported that these bricks did not take as much burning as his St. Boniface brick, and were hard and tough in quality. The McCutcheon yard was gone by 1910, but the man himself was not done with brick-making, which he pursued at Morris and Whitemouth.

Kelly Brothers

In the spring of 1899, Kelly Bros. moved their Portage Avenue operation, which was worked out, to a new site in St. Boniface. With a succession of corporate names—Manitoba Construction Company, Kelly Brothers and Mitchell, Ltd., Thomas Kelly and Sons, Ltd.—the firm was a major Winnipeg building contractor. It is presumed that during this period, the brick-making operation was an in-house undertaking, providing product for their contracting arm. The brick manufacturing aspect of the enterprise faltered after 1915, but the firm was back in business by 1919 and remained in the directories, possibly as a distributor of brick, until 1925.



It is likely that any number of brick-makers in Winnipeg, St. Boniface and other smaller communities, were using portable brick-pressing machines like this, from the Gurney-Tilden Company, which as noted in this advertisement in a February 1894 edition of the *Manitoba Free Press*, had agents in Winnipeg.



This simplified map of north-central St. Boniface shows the concentration of major brick factories in an area west of Archibald Avenue and mainly south of Mission Street, with a notable collection along Youville Street. This general area was known for years as an excellent source of friable clay, with access to water from the adjacent Seine River, and for its enviable situation near the Canadian Pacific rail line, and later a Canadian Northern line. There were at least 11 operations located here during this period, making this area the province's most productive brick-making locale. The operations noted here were the most enduring: A) A.N. McCutcheon (1884-1910; B) J.&P. Lyons (1881-90). C) Cartier/ Lamontagne (1882-1904; succeeded by Couture/Marion); D) Kelly Brothers (1882-1925); and E) Alsips, which is technically from the next period (active form 1898-c1925), but included here to highlight the big names in one image.

Small Urban and Rural Brick Making 1881-1896

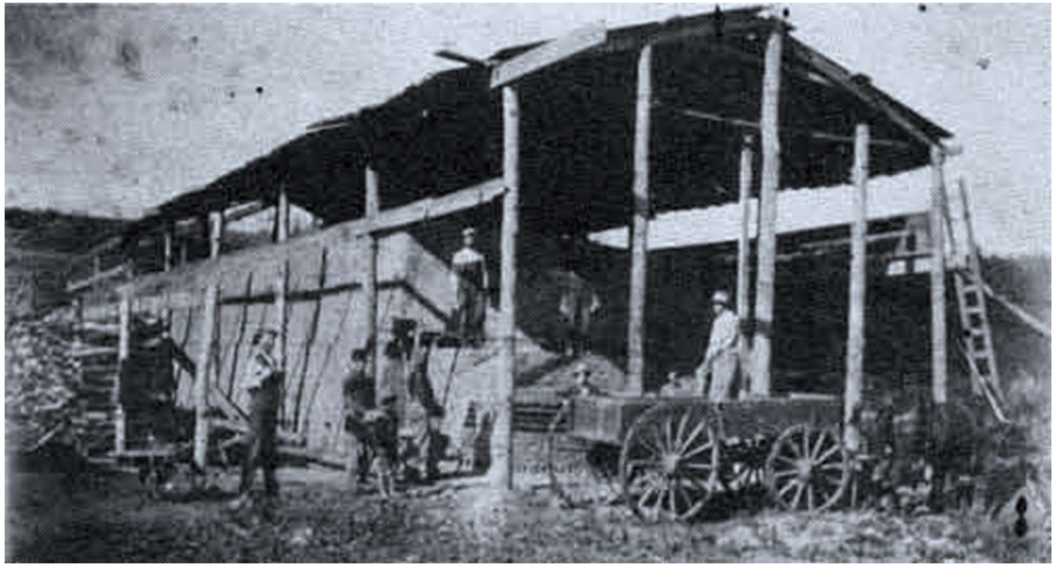
The extension of the CPR mainline through the province—at Brandon in early October of 1881 and to Virden by the summer of 1883—inaugurated the transformation of southern Manitoba, opening whole new areas for agricultural settlement, and the development of support communities. And additional branch lines feeding the mainline were critical for even greater development. The Manitoba and South-West Colonization Railway (which ultimately came under the aegis of the CPR) extended its lines south of the CPR line, bringing places like Morden, Carman, Boissevain and many others into its orbit. And north of the mainline, the Manitoba & Northwestern Railroad brought Neepawa, Minnedosa and other communities into the network by 1885.

A typical 1880s-era CPR locomotive with attached freight and passenger cars. (Courtesy Toronto Railway Historical Association) Rail lines and train transport transformed southern Manitoba during the 1880s and 90s. The network fostered easy movement of people and goods, and allowed for the import of all kinds of machinery for the growing brick-making industry.

The building needs of all of these places were stupendous. And while many of the thousands of new structures—houses, commercial structures, barns, churches, schools—were mostly of wood, brick gradually made its way into the local building repertoire. And with that need came brick-makers and brickyards. As usual, many of these operations were short-lived, but some from this period were enduring.

There were at least 25 start-up brick operations in small towns and rural areas that followed the arrival of the CPR in 1881, and the yearly extension of that line and branch lines through to 1886. It is thought that at least 10 of these were developed at least in part to service the construction boom in Winnipeg of these years – thus three small yards in East Selkirk, three in Stony Mountain, two in Emerson and two in Dominion City. And not surprisingly, when the Winnipeg boom went bust, by 1883, nearly all of these yards were closed.

Where there was coverage of these operations, it revealed familiar facts and data: For example, at Stony Mountain (interestingly a satellite yard of Winnipeg's Kelly Brothers) the operation was reported in August of 1882 as producing 900,000 bricks using slop machines. News reports advised that one of these machines, operated by



These two images suggest the nature of rural brick-making in Manitoba in the late 1880s and early 1890s (and even beyond).

At top is a yard near Carman, perhaps in Clark's Grove, where it is possible to see the many drying racks on the left and the pug mill on the right. There are 11 men in the image and two teams of horses – typical for a smallish operation. This kind of place might turn out 5,000 bricks per day. (Courtesy *Up to Now*)

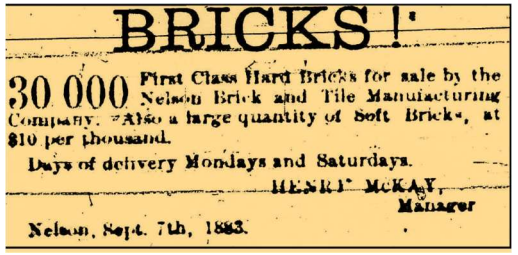
Below is George Leary (left) supervising the dismantling of a kiln. (Courtesy Ina Brabant) This important photograph suggests the typical clamp kiln practice that defined many brick operations in Manitoba in the late 19th and early 20th centuries. This kiln size would have had a capacity for about 10,000 bricks for a single burn.

four men over a nine-hour period, turned out 17,000 bricks, "a feat said to be without parallel in the manufacture of brick." And at the new Emerson yard of David Douglas, there were between eight and 18 men employed depending on activity at the site. Mr. Douglas had two Bulmer & Shepherd machines from Montréal, one of which was expected to turn out 30,000 bricks per day, and Douglas expected to burn his first kiln of 150,000 bricks by mid-July.

Brick production at Dominion City generated considerable local attention, and even though the industry there was short-lived—only lasting three seasons, from 1881 to 1883—local newspaper accounts contain fascinating information that helps animate the usual dry facts presented in so many accounts of brick-making at this time.

Brick clay had been found in the Dominion City area during the summer of 1881 and by June of 1882, the firm of Grange & Trull were engaged in brick-making "full blast." They were turning out two to three carloads of brick per day, mainly destined for Winnipeg. At the time this yard was being run by a practical brick-maker named Peter Phillippe, who had formerly operated a brick yard at Emerson (see previous section). He would continue to run the Dominion City operation after it was purchased by D. and W.W.H. Creighton, Emerson dry goods merchants. Competition to the Creightons came in the form of the Dominion City Brick Company, Ltd., incorporated in July 1882. The firm's promoters consisted largely of a group of Nova Scotia businessmen, including building contractor Samuel Manners Brookfield, an associate of the Winnipeg contractor James G. McDonald (see above). The Dominion City Brick Company was especially well financed, presumably looking to capitalize on the Winnipeg building boom. When it was announced in May of 1882 that the company was interested in the prospects at Dominion City, local citizenry purchased 10 acres of land on the north bank of the Roseau River for $1,000, and presented it to the nascent brick company. The new firm was expected to employ 75 to 80 local men and turn out 50,000 bricks per day. Buildings erected on the property included an office, stables and a large boarding house. The yard was said to be up and running by late June, with a 65-horsepower engine and two Penfold brick machines.

In commenting on these developments, the Dominion City correspondent for the *Emerson International* was given to comment that "the yard will soon look like a village," and later reported that "the operation would eventually employ 300 men." That autumn the firm shipped bags of clay to England in order to test some of that country's brick machines, with results confirming their clay as first class material. This allowed the firm to increase its capitalization to $150,000 (translating this value to an early 21st century amount is difficult, but it is likely that this would have been at least equivalent to $4 million today). Clearly, the Dominion City Brick Company was going to be a major enterprise, with a large clay bed, high quality clay, the most modern of machinery, top-notch personnel and a rail access to Winnipeg. In early April of 1883 a new site manager arrived from Halifax, and by mid-April two rail carloads containing five new brick machines were on site. The CPR had even run two spur tracks into the yard to allow the efficient shipment of its products, which consisted of a light red brick produced by a dry-pressed method. But it was all for naught. This astonishing story ends here – by mid-August, with the boom in Winnipeg clearly over, work at Dominion Brick was suspended, never to be resumed.


BRICKS!

30,000 First Class Hard Bricks for sale by the Nelson Brick and Tile Manufacturing Company. Also a large quantity of Soft Bricks, at $10 per thousand.

Days of delivery Mondays and Saturdays.

HENRY McKAY,
Manager

Nelson, Sept. 7th, 1883.

An advertisement in Nelsonville's *Manitoba Mountaineer* newspaper of 7 September 1883 advised that the Nelson Brick and Tile Manufacturing Company was offering 30,000 "First Class Hard Bricks" for sale, along with a "large quantity of Soft Bricks, at $10 per thousand."

There were several other brick operations established in small towns that were not tied directly to the Winnipeg building boom, and its demand for bricks. But when the boom went bust, in 1883, many of these too were left in the lurch. Modest newspaper coverage provided a few details on short-lived operations at Pilot Mound, Rapid City, Darlingford and Nelsonville, as well as of the more substantial and slightly more enduring operations at Brandon, Minnedosa and Portage la Prairie, discussed here with a few more details.

There were two short-lived brick operations at Brandon in the early 1880s, both active for four seasons, from 1882 to 1885. The first was that of local entrepreneur J.E. Woodworth, who established Brandon Brick Works in June of 1882. T.D. Whiting, formerly of the Pullman Brick Works near Chicago, was the yard's brick master. Two Philadelphia-made Martin brick machines were ordered, which were said to be

capable of turning out 50,000 bricks per day. It was said in the summer of 1882 that Woodworth's bricks had problems with cracking while drying. The second Brandon yard was set up Alexander Lang, who claimed 15 years' experience in the brick-making business. Just south of the city, this yard employed 15 hands when in operation, and during the 1882 season Lang expected to turn out half a million bricks.

Brick-making in Minnedosa began in May of 1883 when John Crerar and Dr. J.B. Hunter engaged as brick-maker a Mr. Bull of Salt Lake City, who had several years' experience in the Winnipeg brick yards. The new yard was put into shape late in May, a boarding house for workers was erected along with a horse stable, and brick-making proceeded immediately. Soon, the operation was turning out 12,000 bricks per day, with all product going into local buildings. including G.W. Beynon's block on Minnedosa Street, the local school, and Town Hall. The Minnedosa operation chugged along for seven seasons, to 1887, after which A.S. Walker purchased the brick plant and moved it to Neepawa where he was starting a new yard.

Brandon in 1885. (Courtesy Archives of Manitoba) This image shows several brick buildings lining Rosser Avenue.

The most successful of the small-urban brick operations established in the early 1880s was that of W. Lockey in Portage la Prairie, who likely took over Mr. Turber's brick yard that had operated from 1879 to 1881, and called his operation Portage Brick Yards. In the 1881 season, Portage Brick Yards had burned 400,000 bricks. Lockey assumed a partner that autumn, William Patterson Smith, whose contribution was his farm, at the east end of Portage la Prairie, that had a superior bed of brick clay which produced brick of a yellow-grey colour and possessed an unusual strength and toughness. The two men planned to acquire steam-powered brick machines for the 1882 season in order to produce three million bricks (40,000 per day), employing 30 to 35 men. By the time the 1882 season had started in June, Lockey had departed the firm, leaving Smith as sole proprietor. It is doubtful that the Smith yard turned out the planned number of bricks that summer, as the bottom had fallen out of Winnipeg's land and building boom. As construction projects fell off, and many people experienced financial problems, so too went the fortunes of the brick yard. Smith was

fortunate in owning the land, and possibly did not owe much money on the machinery. It is believed that his yard was moth-balled for several years, reopening in 1889 (see below for that upgrade).

The Winnipeg bust had taken down a number of the early small-town operations of the early 1880s, and it would take several years for the provincial economy to recover, and for the construction industry to regain its momentum. But when it did, it did so with a vengeance. The last few years of the 1880s and the first half of the 1890s were impressively active outside of Winnipeg. And by this point, local needs took nearly all product that the 34 yards could pump out.

As was characteristic of the industry, at least 15 of the operations from this 10-year period were short-lived, only active for a season or so: St. Alphonse (Sabin F. Fecteau, from c1887-1890); at Carberry, two operations (John Shaw and Dougald McVicar, both only in 1890); at La Broqueire (Joseph Pion, in 1890); at Oak Lake (Lemon Cook, in 1892); at Whitewater (W.H. Cameron and W.S. Barker, from 1894-95); at Hamiota (John Guttridge, a brick mason, with a yard in 1895); at Deleau (E. Lapham beginning in 1895 and perhaps for a year or two); at Minnedosa (Major S. Fairbairn, in operation from 1895-97); at Killarney (Robert Church, in 1896); and at Deloraine, (W.R. David from 1896 to 1897, interrupted in late 1897 with a strike by his employees).

Three of the short-lived yards from this period, one at East Selkirk, one at Rapid City and a yard at Sidney have interesting stories that merit telling. At East Selkirk (operational from 1886 to 1888), the notable fact was the source of the brick clay. Yard owners William Henning and Robert Bulloch found a fine deposit on the east side of Lake Winnipeg, probably at Elk Island, and for several years had shipments brought down by schooner to the docks at Selkirk. At Rapid City, the interesting fact had to do with brick quality and pricing. Edmond Cecil Gosset-Jackson revived the 75-acre Whellems yard (see above) in 1891 and made quite a go of it for two seasons, until 1892 when he took on other business ventures. While the brick factory was operational however, Mr. Gosset-Jackson's output was so highly regarded that

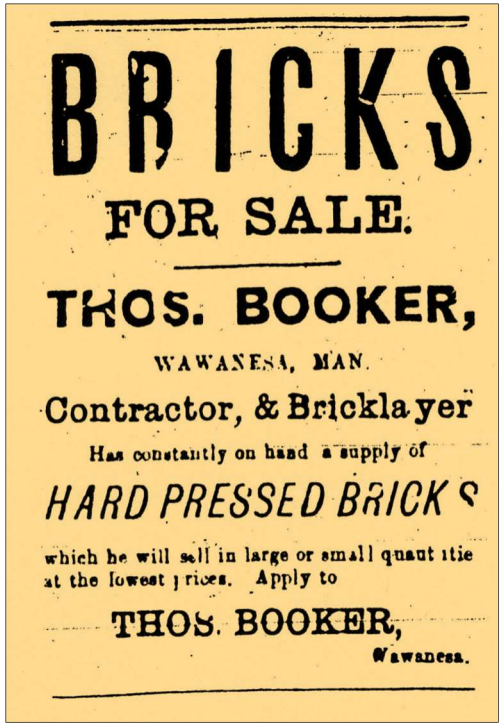
Knox Presbyterian Church, Neepawa, 1892. (Courtesy Archives of Manitoba) Brick for this impressive structure, which was designed by Portage la Prairie architect James Allen MacDonald, may have come from the local yard of A.S. Walker.

Beaubier Hotel in Brandon. (Courtesy Archives of Manitoba) Brick for this notable Brandon landmark came from the Rapid City yard of Edmond Gosset-Jackson.

Rourke & Cass, contractors working on the new Brandon Asylum (and who had their own Winnipeg brick yard), preferred the Rapid City product, as did Mr. Beaubier (for his new Brandon hotel), who paid a dollar more per thousand for the Gosset-Jackson brick. And finally, at Sidney, the interesting fact was ownership. There, the original yard was established in 1891 by Dougald McVicar, but his death in 1892 left the yard and its operation to his widow. She oversaw the burning of the 1892 kiln (with technical assistance from Elwin Davis, the yard's brick master), and by late August, the operation had produced a million bricks. These were being sold in April of 1893 and Mrs. McVicar appears to have also readied a kiln in 1893, but reports noted that her brick machine was laid up for repairs, and that she had shut down the yard for the season by mid-August, never reopening.

During this period, seven of the small-town brick yards were active for between four and seven years, a fairly good record of activity: two yards at East Selkirk (Isaac Thomas, from 1889-1892 and James Wilson, from 1890-1893); at Ninga (William Maloney, 1895-1899); once again near Sidney (Hiram Davis, from 1895 to 1900) and at Wawanesa (Charles Town and Robert Naismith, from 1896-c1900). By this date, the novelty of a local brick operation had worn off, and very little newspaper coverage was focused on many of the operations.

Two operations from this collection merited some small newspaper attentions, relevant here. At Virden, John Saul had scouted out the area in 1892 and returned by mid-April 1893 with a large gang of men who moved his machinery out to the brickyard, a mile east of town, next to the CPR tracks. By late May, Saul and his partner, William A. Irish (later a major Winnipeg contractor), were getting ready to burn their first kiln of 85,000 bricks. The operation was under the expert guidance of brick-maker Elwin Davis, last seen at Sidney's McVicar yard. The yard had a routine production, open for about a month and a half, from mid-June to early August. What is notable is that they were shipping out a good deal of their product on rail cars. The operation was taken over in 1898 by James Sheriff and Mr. Neden who appear to have kept it going only to 1899.

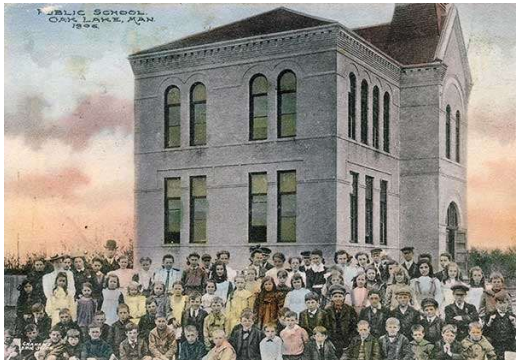


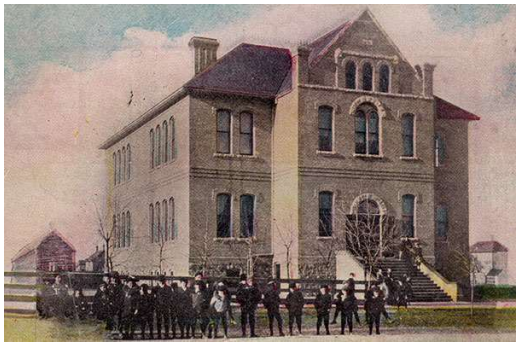
Contractor & Bricklayer Thomas Booker was advertising his wares and services in the *Wawanesa Enterprise* of 6 October 1893.

At Hartney, Harry Payne stared his brick yard in 1895, operating until 1901. An interesting note concerned his 1896 season, when most of his brick yard crew left to work at the yard at Deloraine, necessitating Payne's replacement of the workers with fresh help from Souris.

Finally, compared to the ups and downs of the pioneer period, and of the few years attending the Winnipeg boom, it is notable that 12 of the rural and small-town brick operations of the late 1880s and early 1890s each endured for about a decade, with one going for nearly 20 years – at Sidney, near Carberry. Modest contemporary chronicles for five of these operations are sketchy, providing only modest and typical data on machinery and output: at Morden we find D. McGregor active for eleven seasons (1887-1897); at East Selkirk, Edward T. Hooker going on and off from 1889 to about 1900 (12 seasons); partners Alex Calleaux, Joseph Nannon and Joseph Gatin at Deleau operating from 1892-1899 (eight seasons); at Oak Lake Amable Marion productive for eight seasons (1893-1900); and finally at Asessippi we find John A. Gill, (a storekeeper) producing for 10 seasons (1893-1902).

View of the work crew at W.R. David's Deloraine operation, ca. 1896. (Courtesy *What Grandad Didn't Tell Me*) The image is slightly fuzzy, but it is still possible to make out at least 28 men.





Views of two impressive small-town schools that went up in this period (specifically 1898), likely constructed with locally-produced brick. Top of Oakwood School at Oak Lake (from the Marion yard); and below of Neepawa Central School (from the Currie yard). (Both Courtesy Archives of Manitoba)

Slightly more regular media attention attended seven of the longer-running brick factories, with a few extracts noted here for four of them, followed by longer extracts for three yards—at Neepawa, Cypress River and Sidney—where additional data provides more context.

At Portage la Prairie, W.P. Smith resumed operations after the Winnipeg real estate crash had upset the brick industry. From 1889 to 1906, with the yard said to be equipped with the most improved machinery of large capacity, his 30-man crew was producing stock pressed brick, as well as ornamental brick, red and white in colour. Brandon Brickworks, operated by J. and H. Sampson, from about 1895 to 1905, produced much of the brick that was used in new commercial buildings along that city's main thoroughfare, Rosser Avenue. In Souris, noted businessman William H. "Squire" Sowden likewise provided much of the brick used on many of Souris's commercial structures, with that yard open from 1893-1899. And in the town of Holland, the firm of Dagg & Mawhinney (active from 1895-1904) was commonly burning two million bricks a season.

William Currie's operation (1889-1897) was 11 miles north of Neepawa, in the Eden area. Typical data observations were occasionally provided about its production, with the interesting highlight being that when he delivered his first load to a customer in Neepawa on 2 July 1889 it was still warm. While Currie sold brick to the general community, he also was a builder – undertaking the construction of at least four brick houses in Neepawa that summer and autumn. His brick carried off a prize at the Carberry Fair that year. Through the 1890s Currie's yard was highly productive, with several kilns typically of 175,000 a burn. He provided white and pink brick for many Neepawa building projects, as well as for neighbouring communities. The operation closed upon Currie's death, in May of 1898.

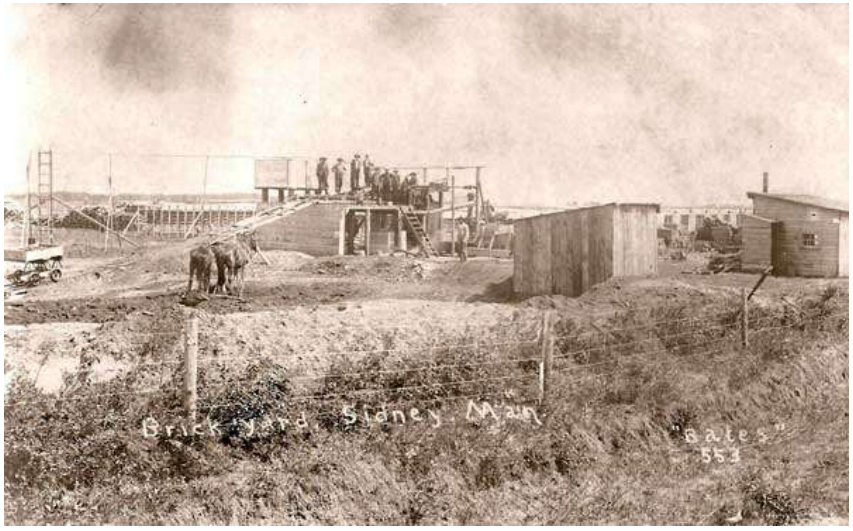
James Ruston's Cypress River yard (1889-1904) was called Pioneer Brick, and was located a short distance south of town, near the river from which it drew its water. Ruston's first kiln of 165,000 bricks was marked for immediate delivery. Ruston

Views of two small-town main streets whose fine brick buildings likely were faced with locally-sourced brick. Top of Crescent Avenue in Souris (from the "Squire" Sowden yard); and below of the Brown Block in Neepawa (likely from the Currie yard near Eden). (Both Courtesy Archives of Manitoba)

occasionally advertised in local newspapers that a builder could erect a "nice house" with $150 worth of brick. He also advised that the 18,000 bricks in a house would only cost $144.00, with masonry charges bringing the total to $310.80.

At Sidney, about 13 miles east of Carberry, Elwin Davis, late of the Virden and McVicar yards was at his farm near Sidney in the early 1890s, and back into the brick-making business. One of his first kilns, of 200,000 bricks, went into Carberry's new Consolidated School, and 10 carloads were sent west to the community of Alexander. Elwin Davis' operation kept growing in the new century, reaching major proportions for a farm-based yard. Late in 1902 it was estimated that the Davis operation was producing one million bricks per year. By 1903 the firm was known as Sidney Brick Works, advertising its wares as high grade building red brick, with base and octagon finishing brick a specialty. Davis's ongoing successes led him to expand his operations, advising local newspapers that he had sample test bricks made at the Boyd Brick Press of Chicago, which were displayed in Winnipeg in mid-February of 1905. It is thought that Davis was looking to compete with the red, ornamental brick from St. Louis, Missouri which had been a mainstay in Winnipeg for 25 years. It is not clear how well these plans unfolded, but there were certainly numerous Winnipeg buildings known to have used Sidney brick. Davis was still shipping bricks in April 1910, although he seems to have left the business, and retired to Brandon by the winter of 1910.

Three buildings whose brick walls were presumed to have come from the Elwin Davis yard at Sidney. At top, Carberry Consolidated School; and below the Sidney Methodist Church and Manse. (Courtesy Archives of Manitoba)



Two views of the Sidney Brickworks, taken by photographer Edward Bates (date unknown). (Courtesy Rob McInnes /Manitoba Historical Society) The top view shows the production of tiles; the lower view shows the extent and nature of the yard.

Conclusion – The State of the Industry at 1896

The 15 years of activity from 1881 to 1896 saw Manitoba's brick-making activity gain new heights. With the arrival of the CPR main line in 1881, and its extension across the province by the end of 1883, followed by the explosion of growth in Winnipeg and throughout the southern stretches of the province, the requirement for brick was fevered, and the response from Manitoba brick-makers was up to the task.

The great real estate and building boom in Winnipeg, through 1881 and much of 1882, enticed many brick-makers to set up shop in the city and in nearby communities. During these two fevered years seven yards were operating in Winnipeg, 12 in St. Boniface and 25 in small urban and rural situations. Many of these were gone by 1884, including Dominion City Brick Company, the most spectacular failure of this period - gone by August of 1883, having wiped out the investment of $150,000 by a consortium of Nova Scotia businessmen.

The real estate collapse of late 1882 certainly threw the province into a period of uncertainty and anxiety, and building starts suffered, with only modest activity for the next five or six years. But by the late 1880s, Winnipeg and the province were back to a more stable and sensible economic footing, and pent-up building construction requirements generated a great deal of activity in the brick-making fraternity. There were three operations in Winnipeg itself in the late 1880s and early 1890s—Rourke & Cass, Mr. Bowles and Kelly Bros.—with only the Kellys, at a yard in St. James (near present-day Stanford Street), able to sustain an operation for more than a year – in fact they were able to develop the 68-acre site for about nine years, until 1899, when they moved equipment and machinery to their established St. Boniface yard.

It was during this period that St. Boniface emerged as a major player in the fledgling industry. The concentration of several highly productive yards—notably A.N. McCutcheon, Cartier/Lamontagne (succeeded by Couture/Marion), J. & P. Lyons and the Kelly Brothers—west of the Seine River (south of its junction with the Red River),

along Mission and Archibald streets, and with proximity to the CPR mainline, proved the value of the fine clay beds here for many years to come.

In smaller urban and rural situations, brick-making activity was also devastated by the economic collapse of the early 1880s, and all of the 25 operations that were established throughout southern Manitoba during this period were gone by 1884. As was the case in Winnipeg and St. Boniface, however, brick-making picked up outside the city by the late 1880s, and while at least 15 of these yards only were productive for a year or two, seven of them lasted for several years. And 12 of these new yards would be able to supply local builders with brick for a decade or more. It was during this time that some of the most established yards were developed at major clay-bed sites, notably at Portage la Prairie (W.P. Smith) and Sidney (Elwin Davis). Others of these long-serving operations would have seen much of their output used to build up the fine brick buildings that were beginning to distinguish some of the larger communities – at Brandon (Sampsons), Neepawa (William Currie at nearby Eden) and Souris ("Squire" Sowden).

There does not seem to have been a major advance in processes, equipment or kiln technology during these 15 years of brick-making activity. We are hearing the same kinds of production numbers as before, with for example 20,000 per-day brick machine production, brick kilns with 200,000 capacity for one burn, and seasonal activity of a million bricks at many yards. It is presumed that clamp and scove kilns were still being used, with the more rudimentary clamps likely in remote or short-lived situations. It is notable that the Winnipeg yard of David Saul appears to have had five scove kilns lined up in a row, with concomitant production levels (at least for the few years it was in operation).

We are hearing of the same kind of personnel requirements noted in the pioneer era – often of 20-50 men and of course of many horses to power some of the machines and to move the many wagons of material and product. But it is also clear that the industry was getting more sophisticated in terms of labour attentions – with several

farm-site operations including boarding houses, ensuring on-site accommodation for a full season, typically from April to October. There are also minor hints of another aspect of labour activity during this period – at Harry Payne's Hartney yard, in 1896, his employees decamped for work at the yard in Deloraine. It is not known whether wages or work conditions were the issue, but it is a notable detail.

The price lists that were established in the 1870s and early 1880s were sustained into the 1890s—$10 per thousand for common brick and $12 per thousand for veneer brick. And while there was no promotion of any brick operation's value or profit, it is now possible with many longer-lasting operations to get a sense of the wealth that might be generated by a well-run yard over many years. The fairly common million-brick-per-year value, noted for several yards and over many years, could be tabulated as $12,000 annually (assuming $12 per thousand). And even with labour and operating costs subtracted, this kind of output might have netted a canny operator more than $8,000 (2017 value of nearly $200,000). Ten years of such output would have made an operator a wealthy man.

The output from Manitoba yards in the later years of this period was impressive – millions and millions of bricks. And the new availability of rail connections ensured that nearly all producers could get their product to nearly any place in the province, and even to points further west. But in fact there was not nearly enough Manitoba-made brick to satisfy the construction industry's demand. And so the major import of brick from the United States, and the inherent competition that engendered, continued apace, with train-loads of brick coming north and then west through these years. Some Manitoba brickyards fought back, offering many new brick options: glazed, base, octagon, ornamental; and colours: yellow, buff, white, grey, red and pink.

It is worth noting that there was nearly no brick imported from eastern Canada – there were no clay deposits in northern Ontario; and the cost of importing brick from southern Ontario, where there was a major brick-making industry, would have been

prohibitive.

Media attention to the brick industry continued through this period, especially focused on small-urban and rural operations. Reports of activity and output were welcome content for newspapers of the day. And there were even occasionally photographs of operations that animated the coverage, providing readers a sense of the nature of the industry. An interesting aspect of brick marketing that appears more frequently at this time focused on awards for brick quality. To cite just two examples: in 1883 there is Creasy J. Whellems of Rapid City reported as sending samples of his deep red brick to an exhibition at Kingston, Ontario; and in 1889 we find bricks from William Currie's Neepawa yard winning first prize at the nearby Carberry Agricultural Fair. And there are common reports of brick-makers sending their bricks for "scientific" testing, and trumpeting the usually glowing results in the local press. For example, Elwin Davis at Sidney advised local newspapers that he had sample test bricks made at the Boyd Brick Press of Chicago, which were then displayed in Winnipeg in mid-February of 1905.

A postcard view of Portage la Prairie's main commercial thoroughfare, Saskatchewan Avenue. (Courtesy University of Alberta) The view suggests the wealth of brick buildings rising in nearly all Manitoba communities. Doubtless it would have been from W.P Smith's local yard that much of the brick seen here would have been pressed and burned.

C O N S O L I D A T I O N

1897 – 1917

Consolidation Era (1897 – 1917)

The few years before the turn of the twentieth century, and the first 10 years of the new century, saw Manitoba's brick-making industry attain new heights of production and operational sophistication. It was during these years that the largest and most technologically advanced operations in the history of the industry were attained (except for the very late entry of Lockport's Red River Brick and Tile into the fraternity in 1971). And production was phenomenal.

The first few years of this period were defined by two interconnected developments. The first was the inauguration of two new railway lines in Manitoba: the Canadian Northern (CNo, begun in 1896 in Manitoba and greatly expanded north and west through 1897 and 1899), and the Grand Trunk Pacific (begun in 1903 with construction to the west, via a more northerly route, beginning in 1905). Both of these new transcontinental lines brought even more opportunity for growth and development to Western Canada, and CNo was instrumental in opening the Parkland and Interlake regions of Manitoba to agricultural settlement, and thus a whole new market for southern brick-makers.

The other development concerned immigration. With the success of Wilfred Laurier's Liberals in the election of 1896, a new Manitoba Member of Parliament, Clifford Sifton (representing Brandon North) was appointed Minister of the Interior, and he quickly inaugurated a major new immigration policy. Seeking to populate the west with capable farmers, he had immigration agents reach out to Americans, people from Scotland and the North of England, and Eastern and Central Europe. And over the next 15 years, millions of people flooded into western Canada, with the new railway infrastructure ensuring ease of access, along with ready routes to import and export of goods and products – like bricks.

Communities in the south, including of course Winnipeg and Brandon, but at least

200 other bustling urban centres, continued to grow, and prosper. Winnipeg's population had almost doubled between 1881 and 1896, from about 20,000 to nearly 38,000; it would soar to nearly 200,000 by 1914. And the province as a whole had likewise swelled – from 62,000 in 1881, to 190,000 in 1896 and about 550,000 by 1914.

Along with these population surges came the desire to replace first-generation buildings—seen by many at best as utilitarian and at worst as primitive—with larger and more sophisticated buildings, in a range of elegant new styles. Brick was nearly de rigeuer at this point for nearly all building types – commercial and government buildings, churches and of course houses, even modest ones. This amazing new demographic, economic and cultural environment meant that Manitoba brick-makers would become busier than ever.

The obvious success of the province, and of the ever-growing demand for brick, enticed large-scale business interests to build industrial-scale operations. Several of these used shale, and we see new production and kiln technologies finally being developed here. And of course all of this activity came with astronomical production levels.

The use of brick was not just an aesthetic or economic issue – it also came to be intimately connected to safety. Fires in jampacked commercial areas, where a small blaze in just one light-frame wooden building could quickly consume a whole block of buildings, were getting to be a grave concern. Fires in Ottawa-Hull (1900) and Toronto (1904) were the most notorious such conflagrations in Canada. Communities across the country gradually brought in regulations during this period requiring that certain kinds of public buildings be of masonry construction. Even in a small community like Holland Manitoba, in 1903, the local council passed a by-law requiring all buildings within the town-site adhere to strict limits on chimney construction, which were mandated to be "built of brick, tile, stone or concrete with a flue, and be not less than four inches wide and eight inches long, and at least three feet clear of the roof." The invariable masonry choice for chimneys was brick.

Various professional, institutional and governmental agencies were also turning some attention to aspects of brick-making and brick construction. For example, architects and engineers subscribing to *Construction* magazine would have found occasional articles on the latest developments in brick manufacture and related activities, with a few of the headlines from issues of 1908 including: "Pressed Brick and Roman Stone," or "Indian Bond for Brickwork – A Method of Laying Brick Which Produces a Strong and Durable Wall," or "Fernie Brick Company Opens New Factory," or "Damp Course and Their Treatment – Methods Adopted in the Construction of Brick and Stone Structures to Prevent Moisture from Permeating Walls," or "Sand-Lime Brick Production."

The Federal government was by this time providing a great deal of technical information on clay deposits across Canada, via reports of its Department of Mines and Geological Surveys Branch. For example, in 1912, Heinrich Ries and Joseph Kerle developed the "Preliminary Report on the Clay and Shale Deposits of the Western Provinces." Reports like this no doubt would have been used by large operations as they reconnoitred the most opportune sites for factory locations.

At the Manitoba Agricultural College (precursor of the University of Manitoba), a course on practical brick-making was introduced in 1906, as part of the program's Engineering and Mechanics course. That course certainly would have produced graduates who went on the work in the local industry.

But this period also saw the beginning of the end for many firms involved in Manitoba's brick industry. Trouble began with a mild recession of the so-called "Panic of 1910-11," followed by a full-blown recession of 1913-14, in which North American production and incomes declined. The effect was naturally felt in the brick-making industry, with fewer building projects, and thus a greatly reduced call for brick. Charts developed for this project (in Appendix 3) suggest the situation, with 46 yards active across Manitoba in 1904 and 1905, but only 30 yards by 1914.

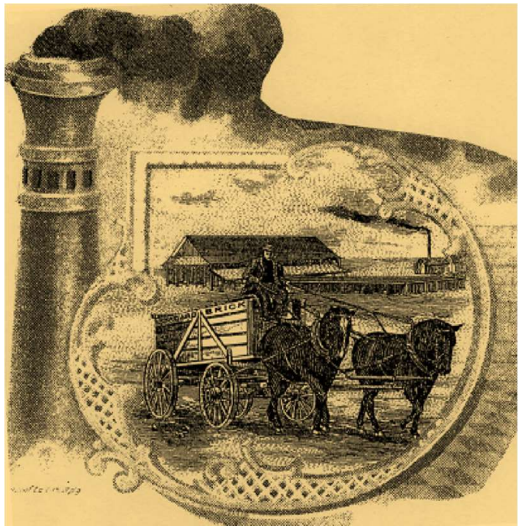
View of students mixing clay for placement in a small brick press, one of the hands-on activities of a course on practical brick-making offered at the Manitoba Agricultural College (Courtesy University of Manitoba Archives)

But these economic turmoils, which certainly curtailed growth of the industry, were nothing compared with the tremendous upheaval caused by World War I, from 1914 to 1918. That cataclysm not only removed healthy young men from the workforce, to send them to the trenches of Belgium and France, but the war also disrupted nearly all construction activity. And so by 1916, at the height of hostilities, there were only 14 operations producing any brick in Manitoba.

A view of Winnipeg's warehouse district from ca. 1900 suggests the significant number of large buildings in that area, and of the enormous number of bricks required in their construction. (Courtesy Archives of Manitoba)

Brick Making in Winnipeg 1897-1917

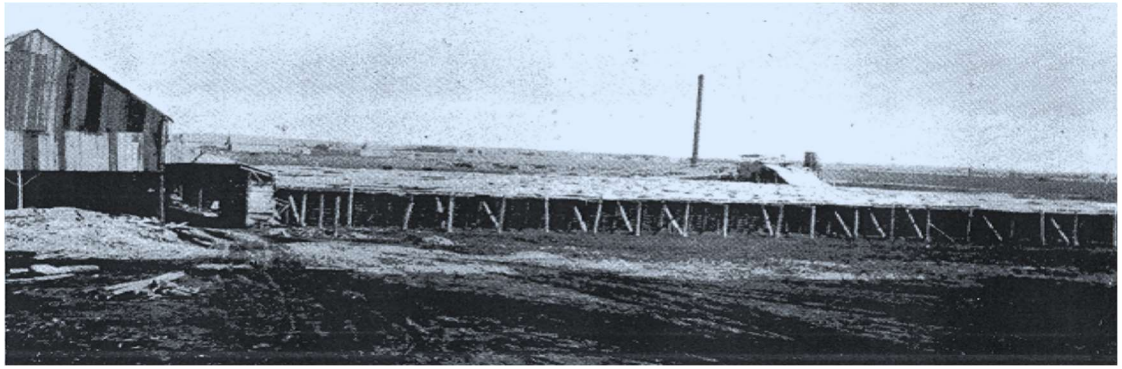
Brick-making activity in Winnipeg from 1897 through 1917 was no longer characterized by the hit-and-miss and often short-lived nature of previous periods. During this 20-year span, there were really only three going concerns, each quite large, and each defined by revisions in corporate names over their lifespans. The yard north of Kingsbury and east of McPhillips (now the site of Garden City Shopping Centre) was at first known as Standard Brick and Tile Company and then later as Gate City Brick Company; in total this operation chugged along for 12 seasons (1904-1915). A second yard was first called Winnipeg Brick (for a time also affiliated with Eli Sandstone) and then Winnipeg Sandstone Brick; it was at the southeast corner of Osborne Street and Mulvey Avenue (near the Red River), and in total went for about 30 years (1904-1930s). The third operation was east of Arlington and north of William (where the National Microbiology Laboratory is now located), and had three names attached to it over its 25 year (1912-mid-1930s) lifespan: Birds Hill; Alsips and Wood's Brick Company, Ltd. Newspaper and journal coverage of these three Winnipeg brick factories provides some typical technical observations.



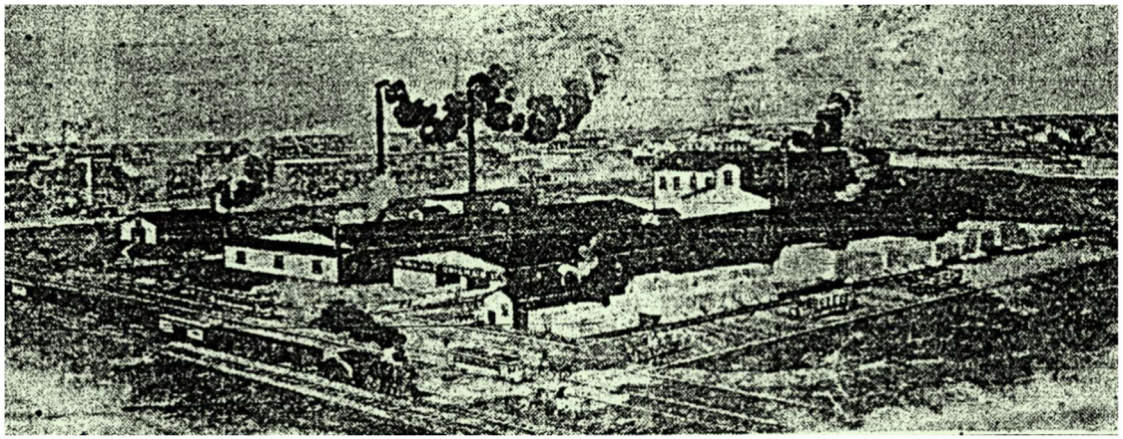
An illustration used to promote Standard Brick and Tile's operation, ca. 1910, showing a team of horses hauling a load of brick. In the background can be seen the factory itself, with a brick-making factory on the left, extensive drying sheds on the right and a smokestack that likely was attached to the kilns. (Courtesy City of Winnipeg Archives)

Standard Brick and Tile / Gate City Brick

Standard Brick and Tile was incorporated in 1904, and developed a 45 acre site with access to nearby CPR lines. According to a Dominion Government report on the mining industries of Canada, this plant had a capacity of 80,000 bricks per day, using two Henry Martin machines powered by a 60-horsepower Brownell engine, and a 40-horsepower Nagle engine. It also had a cable brick carrier, and employed 80 workers and 15 teams of horses. Its product was a white clay brick, of which there were 8 million produced in 1906. The following year was curtailed somewhat because of a fuel shortage, when only two million bricks were produced. This firm went bankrupt in 1909, but was revived in 1910 as the Gate City Brick Company. One of its principal officers was brick-maker Arthur C. Osborne, who had been the manager of Standard Brick. It is believed that Gate City Brick Works out of business in the summer of 1915.



The extensive drying racks that dominated the Standard Brick and Tile / Gate City Brick operation just off McPhillips. (Courtesy Ries and Keele, “Preliminary Report on the Clay and Shale Deposits of the Western Provinces.” Dominion Printing Bureau, 1912, p. 20)



A sketch of Winnipeg Brick / Eli Sandstone/ Winnipeg Sandstone Brick site, at Osborne and Mulvey. The image is not very clear, but it is still possible to discern the brick plant on the right, drying sheds in the middle foreground, finished brick stacks to the right, and towering smokestacks that mark the site of kilns. Note also the railway tracks and engine at the lower left. (Courtesy *Winnipeg Tribune*, 25 September 1915, p. 60)

This feature advertisement advised potential customers that the operation had “high grade sandstone, granite and face bricks – all Made In Winnipeg.” It also advised that “as manufacturers of the best brick on the market, this company had attained leadership in the west. Winnipeg brick is being specified by architects in the construction of homes and commercial structures because of its appearance, longevity and its structure. It has become a building standard. President Hugh Sutherland and Manager W.D. McFarlane have built up a business that has become a recognized civic asset.”

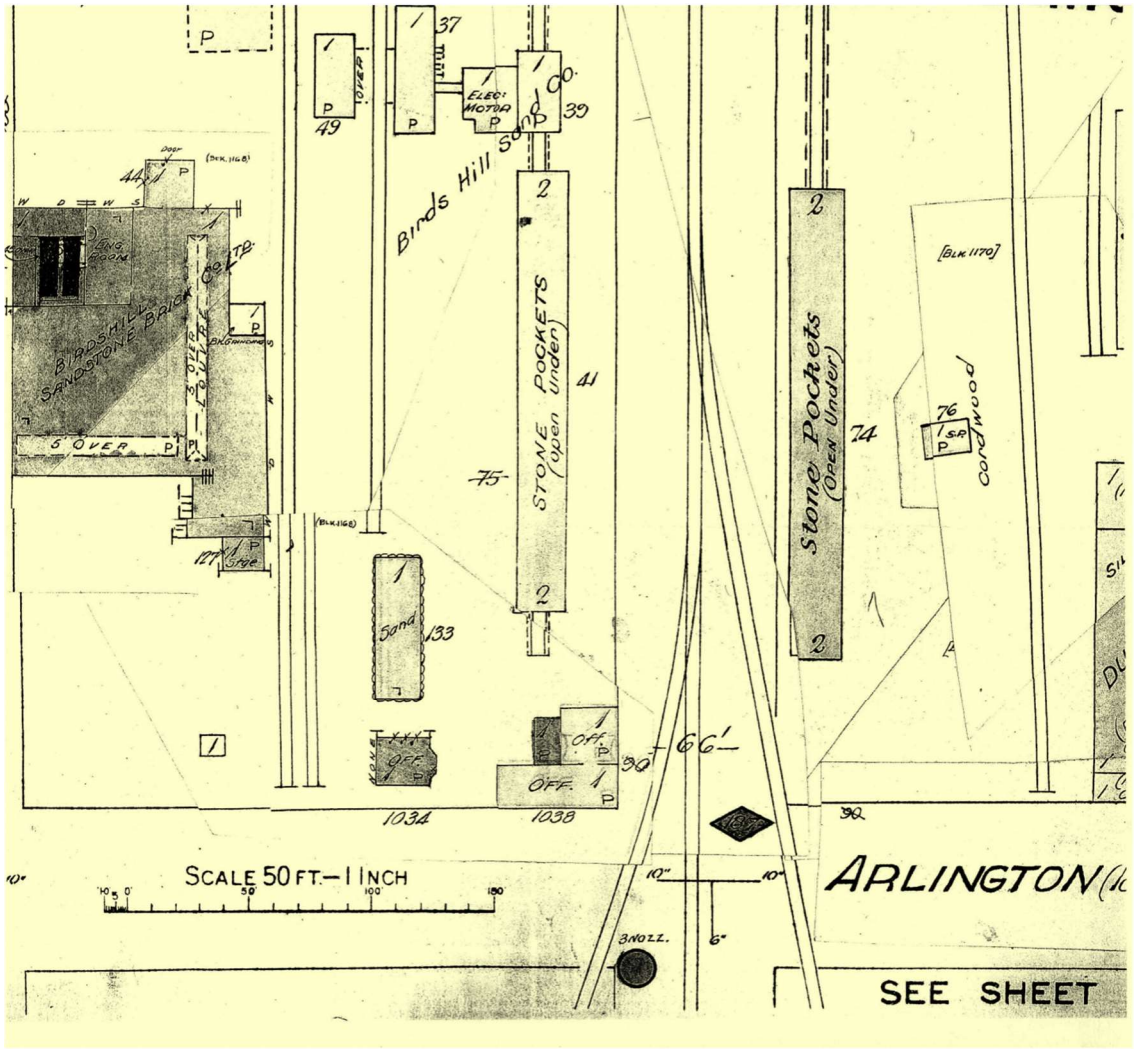
Winnipeg Brick / Eli Sandstone / Winnipeg Sandstone Brick

A plant at the southeast corner of Osborne Street and Mulvey Avenue was a very active and productive operation for about 30 years. The site began as a later version of the Winnipeg Brick Company, and with an affiliated firm, the Eli Sandstone Company, which constructed a brick plant on the property in 1910 at a cost of $50,000. Eli Sandstone appears to have essentially taken over the site shortly after that. The firm formed sand and lime into a pressed brick which they claimed was superior to other bricks for durability. In June 1912 they sank a barge load of bricks in the river behind their plant, retrieving some a year later. Some of those bricks were sent for testing at the Canadian Inspection and Testing Laboratories in Montreal, along with the bricks of other makers. The tests showed the greater crushing strength of the Eli Sandstone's products. By 1911, Eli Sandstone had evolved into the Winnipeg Sandstone Brick Company, and manufactured "High Grade Sandstone, Granite and Face Bricks." By 1921 it had two plants, the one at Osborne and Mulvey, and one at Beausejour. Winnipeg Sandstone Brick remained in business until the 1930s.

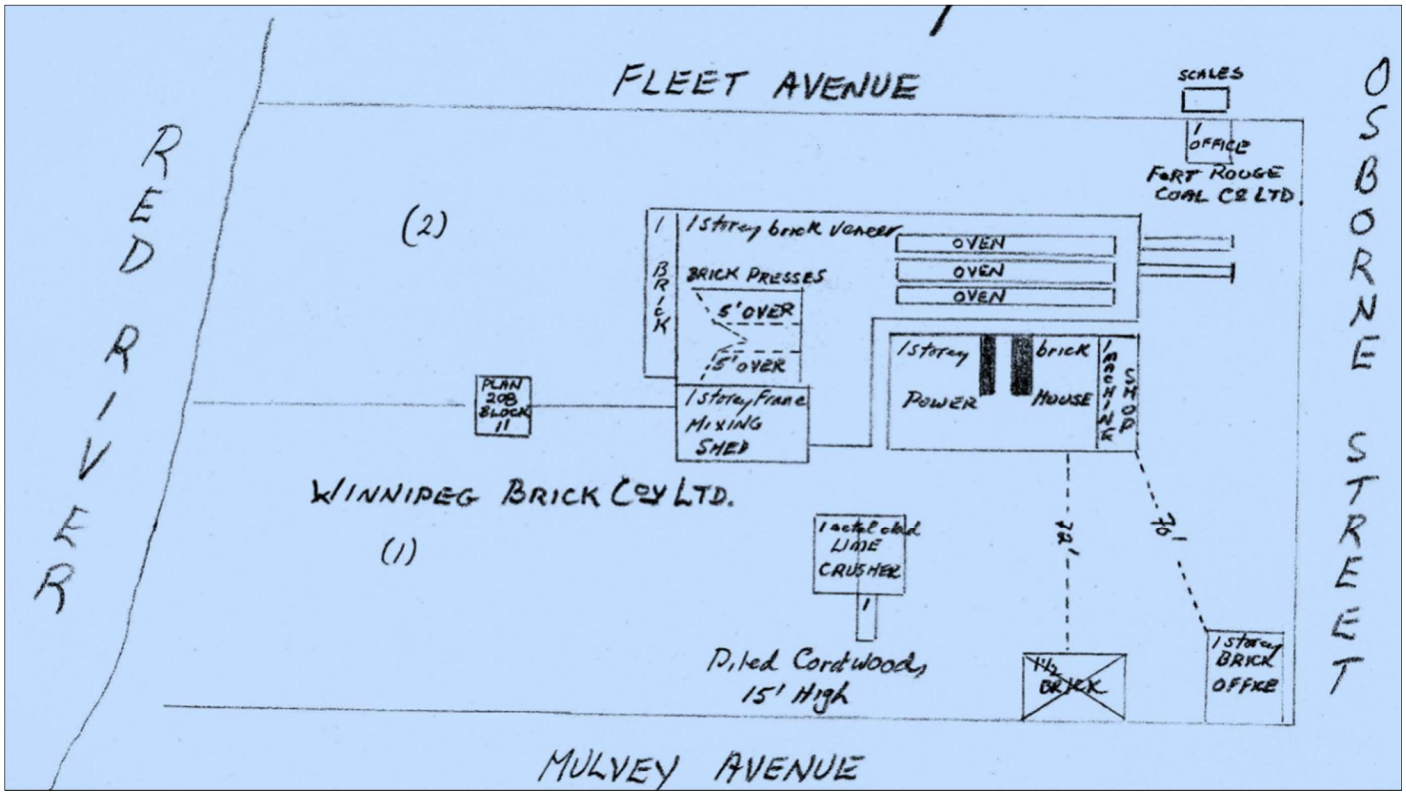
Birds Hill / Alsips / Wood's Brick

The Birds Hill Brick Company was reorganized in September of 1912, having formerly been known as the Alsip Sandstone Brick Company, Ltd., formed in May of 1911. It is believed that ownership of the new firm was shared by Alsip family members along with building contractor D.D. Wood. William Alsip was listed as the firm's president, with E.F. Hutchings, formerly of the La Riviere brick yard (and a major Winnipeg manufacturer), as Vice-President. The operation manufactured common and face brick, in white, red and buff colours, with product available in any quantity up to 10 million. The firm changed its name in 1920 to Wood's Brick Company, Ltd. It is not entirely clear when brick-making ceased at the site, but it is presumed by the mid-1930s.

An advertisement for Wood's Brick Company, ca. 1920. Note the option to purchase "White – Red – Buff" with the emphatic reminder: "up to 10,000,000 – ten millions." (Courtesy *Western Canada Contractor*, June 1920, back cover)



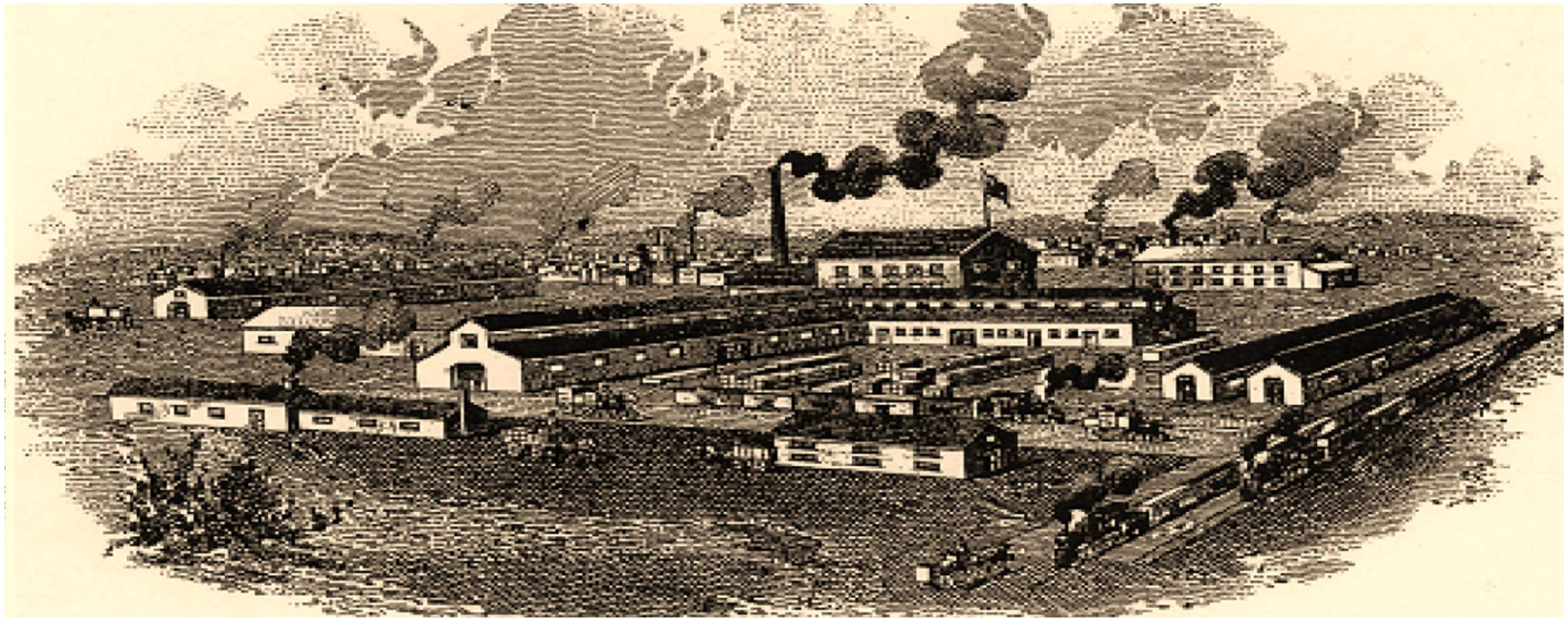
Site Plan of Birds Hill Brick Company, Ltd., 1914, at Arlington and Elgin (present side of the Federal Microbiology Laboratory) traced from the original Charles E. Goad's Fire Insurance Plan of Winnipeg, November 1914. Sheet 136; north is to the left. This is the site that was also variously known as Alsip Sandstone Brick Company and Wood's Brick. The plan shows at far left the brick-pressing plant, a fenced area labelled "Sand" (used to temper the clay) along with offices facing onto Arlington, with spur lines running at that point into the site. The two long buildings (noted as being 2 storeys in height and labelled "Stone Pockets") were the tunnel kilns that fired the bricks. There is also an area of the site at far right labelled "Cordwood," which would have been the fuel source for the kilns. Note also other rail track lines on the site, providing ease of movement of material in the various aspects of brick production.



Site Plan of Winnipeg Brick Company plant (Osborne and Mulvey), traced from the original Western Canada Underwriter's Insurance Plan of Winnipeg, January 1919. Sheet 410; north is to the bottom-left. What is visible here is a neatly compacted operation, with two main buildings – the main one containing a mixing shed, brick presses and three tunnel kilns, here called ovens. The other building was the power and machine house. The site also featured a lime crusher, a brick storage area, and a brick office building facing onto Osborne Street (a second office building noted here was attached to an adjacent coal storage facility). There is not much room here for brick-drying sheds, so it is presumed that this was a dry-press operation, which did not require that step.

A footnote to Winnipeg brick production from this period concerns a site called Canadian Petrified Brick and Stone. It appears that this operation was not actually a brick-making operation—maps of the site show no kilns—but was instead a sales and distribution site. Its "plant," which had a Canadian Pacific Railway spur track, was located at the southwest corner of Stadacona Street and Poplar Avenue (in Elmwood, near St. Boniface operations), and it is thought that its clay, cement and stone supplies were brought in from various locations via the spur track. The site was active from 1904-08.

This impressively detailed image shows why many people thought Canadian Petrified Brick and Stone was a brick manufacturing site – with its grand buildings, spewing smokestacks and criss-crossing rail tracks. But maps of the site show none of these accoutrements, but instead reveal it more as a supply yard. (Courtesy City of Winnipeg Archives,)



Brick Making in St. Boniface 1897-1917

St. Boniface had been the real hot bed of brick-making activity in the metropolitan Winnipeg area since the early 1880s. And several of the firms established at that time had even weathered the bust of 1882, and were still going strong through the 1890s, and even beyond. Where Winnipeg itself had only three major operations during this period, St. Boniface had six. Three of these had intricate familial and/or corporate relationships—Cartier & Lamontagne, Couture Brothers, and Couture & Marion—with three other firms quite distinct and separate operations: Kelly Brothers, A. McCutheon & Company and Alsip Brothers. A seventh operation established in this period, Canadian Enamel, Concrete, Brick and Tile Co., (north side of Marion Street at St. Mary's Road) only lasted four seasons, and nothing is known of its activities or production. A good deal of information is available on the three stand-alones.

Kelly Brothers

The Kelly Brothers (Thomas, Michael and Martin) got into the brick-making business at St. Boniface in the spring of 1882 (see that earlier entry), with a yard that was highly productive, with five brick machines and expecting to burn three million bricks that season. By the early 1890s, they took over the St. James-area brick yard of T.J. Jones and Company, 68 acres in extent by 1899. But by the spring of that year, with that site depleted of clay, the Kellys finally consolidated all their efforts at the St. Boniface site. In 1903, they renamed themselves the Manitoba Construction Company, then Kelly Brothers and Mitchell, Ltd in 1905, and finally Thomas Kelly and Sons, Ltd. in 1908. Throughout this period the brick-making end of the business was almost inseparable from the rest of the firm's building contracting efforts, and was likely their main supply source in contracting. The brick-making arm of the firm finally faltered by 1919, although they were still noted in business directories until 1926 as distributors of brick. No production numbers are noted for the St. Boniface operation, but it is assumed, given its longevity, to be at least a two-million-brick-a-year operation.

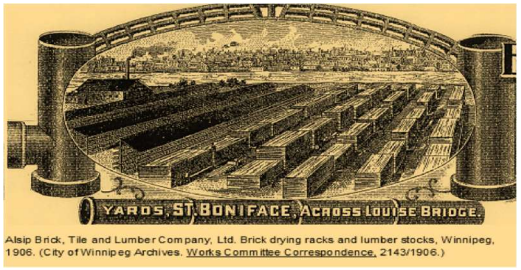
Thomas Kelly, 1855-1939. (Courtesy Archives of Manitoba) Kelly was a major figure in Manitoba's construction industry for many years, and the Kelly Brothers firm was a major producer of bricks for more than 30 years. Thomas Kelly was connected to a 1915 scandal associated with the construction of the Legislative Building, and after serving a jail sentence moved to the United States.

A. McCutcheon & Company

Albert McCutcheon had operated a brick yard in St. Boniface beginning in 1884 (see earlier entry for details), on the north side of Mission Street. It is interesting to note that for all the presumably available clay in this part of St. Boniface that McCutcheon, during the 1890s, used clay from a source he had in the Souris Valley to produce a light red brick. These bricks did not take as much burning as his St. Boniface-sourced clay, and were hard and tough in quality. Details about the technologies or production of the McCutcheon yard are not available. Like the Kellys, however, it is assumed that his was at least a two-million-brick-a-year operation. He later became interested in other ventures, including the brick plants at Morris and Whitemouth, and left the St. Boniface brick-making fraternity around 1910.

Alsip Brothers

The longest-lived corporate entity in Manitoba's brick-making history was started in the spring of 1898, when two Americans, from Grand Forks, North Dakota—Joseph Callender and William Alsip—opened a 10-acre yard in St. Boniface. Experienced brick-makers, Callender and Alsip immediately began constructing the necessary structures for their operation, and by mid-May two carloads of brick machinery had arrived. Callender quickly left the business in the hands of Alsip by the 1899-1900 season. While the Alsip firm owned the original 10 acres of land on the east side of Watt Street and on the south side of Nairn's Road (now Avenue), they also leased another 100 acres east of the present-day Gray Street over to Kent Street, a second major clay bed. By 1901, Alsips had assumed the role of the Manitoba brick yard with the largest capacity, with an estimated 1903 output of 8 million bricks. In November of 1905 the Alsip Brick, Tile and Lumber Company, Ltd. was incorporated. Alsips claimed, on their letter-head, a capacity of 25 million bricks per year. This seems not to have been an exaggeration: a 1907 inspection by a Dominion Government geologist pegged the capacity at 22 million per year, along with 2.5 million hollow blocks and 500,000 drain tiles. A 1907 report had a total of 17 million bricks. Alsips had five brick machines at this time, along with a machine for hollow block and drain tile. With this level of production, it is not surprising that the Elmwood part of the brick property

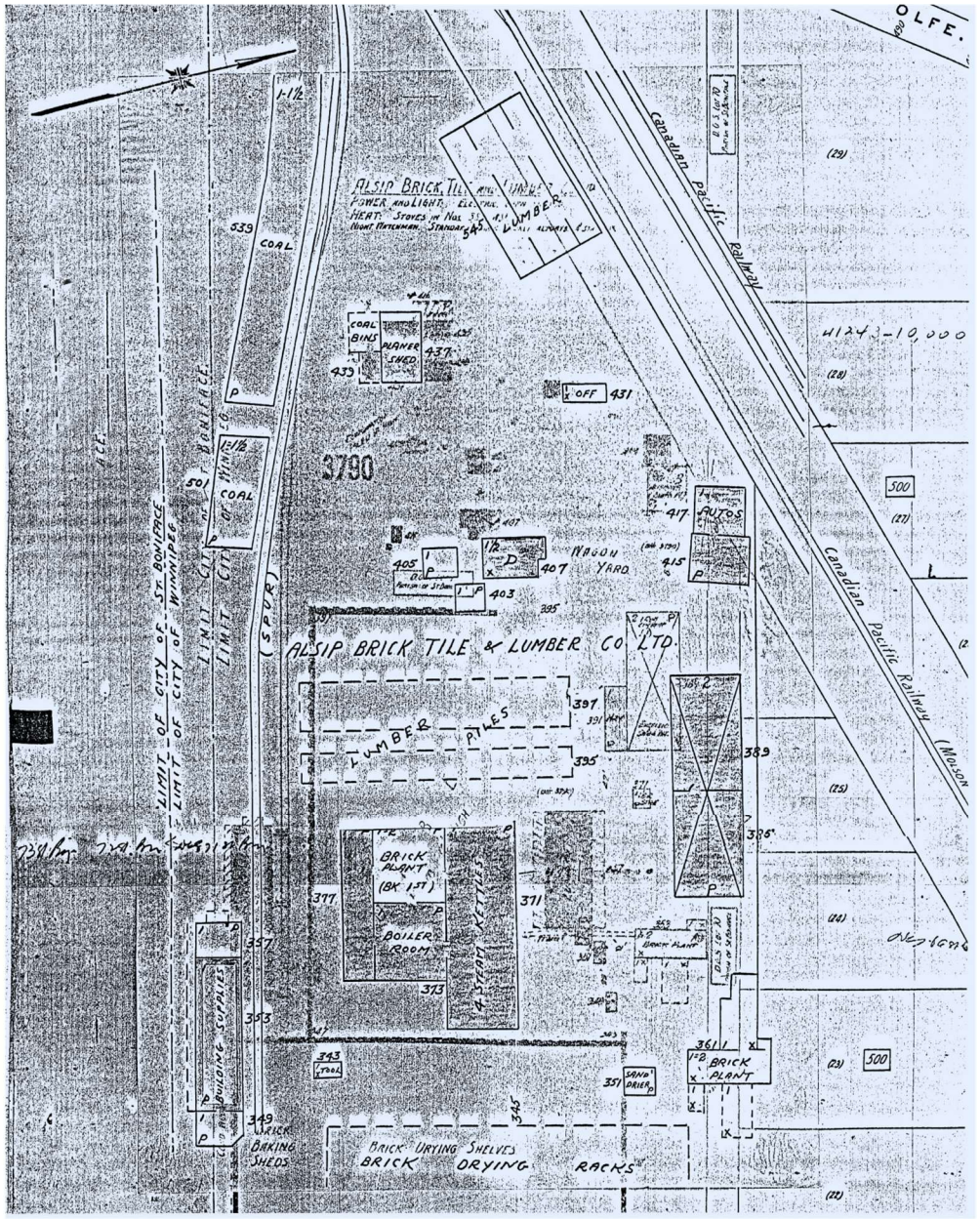


Alsip Brick, Tile and Lumber Company, Ltd. Brick drying racks and lumber stocks, Winnipeg, 1906. (City of Winnipeg Archives. Works Committee Correspondence, 2143/1906.)

This letterhead image, used by Alsip Brick, Tile & Lumber Company, from 1906, shows the stupendous output of the brick operation – with three long drying sheds on the left and stacks of finished brick on the right. Although not quite accurate in its locational perspective, the image also shows the Red River with the City of Winnipeg on the opposite shore. (Courtesy City of Winnipeg Archives)

was "played out" by 1909. It is not clear how ongoing and productive the firm was after that date. It is likely that production slowed during World War I, but by March of 1919 newspaper articles indicated renewed production. It is likely that at least some brick production was conducted into the early 1920s.

This impressive rendering shows the Alsips yard at the height of its brick-making activity, ca. 1919. The view is looking northwest, with the City of Winnipeg in the distance, and the CPR mainline running along the bottom of the image. The rendering shows a host of buildings and structures, the largest ones both being for mixing, brick-pressing and kiln-burning. Brick-drying racks are on the far left of the image. Other buildings were used for sand drying, stables and miscellaneous production and storage purposes. (Courtesy City of Winnipeg Archives)



The site Plan of Alsip Brick, Tile and Lumber Company, Ltd., 1917, shows the enormous extent of the yard. North is shown via the arrow at top left. The CPR mainline stretches diagonally across the right side. Main buildings toward the bottom of the drawing were used for clay-mixing, brick-pressing and kiln-burning. Brick-drying racks were situated along the lower edge shown here. (Courtesy Manitoba Archives, Western Canada Underwriters Insurance Plan of Winnipeg, September 1917, Sheet 379)

The three interconnected St. Boniface firms—Cartier & Lamontagne, Couture & Marion, and Couture Brothers—were in the same general area, and may in fact have shared space at various times.

Cartier & Lamontagne / Couture & Marion

The oldest of this triumverate was the yard of Eugene Cartier and Modeste Lamontagne, begun in 1882, and located on Youville (see earlier entry). Cartier appears to have dropped out of the partnership in 1888, leaving Lamontagne on his own. Nothing is known of the plant's activity or output, beyond that it was in business until at least 1904, and that it was advertising itself by the 1900s as "The Oldest Brickyard in Manitoba." Given its longevity it must have been productive, and once again it is safe to assume this was at least a two-million-brick-a-year operation. When Lamontagne died in 1904, former employees Zoel Marion and his son Joseph, along with brother-in-law Elzear Couture, bought out the Lamontagne Estate, and continued production at the site under the corporate name Couture & Marion. In May 1910, Zoel Marion reflected that he had seen the start of the Seine River brick-making area, and had followed it to a point where the St. Boniface yards were producing 38,000,000 bricks annually. It appears that the Couture/Marion yard was being depleted of clays though, and in 1910 they bought out the Landry brick yard at Somerset, with that clay yard then becoming the source for the Couture & Marion plant production at St. Boniface. Elzear Couture retired from the firm in 1916, and the firm became J.A. Marion in 1919, and remained that way until it was shut down in 1937. It was sometimes known as the "Marion Brick Company," and continued to use the slogan "The Oldest Brickyard in Manitoba."

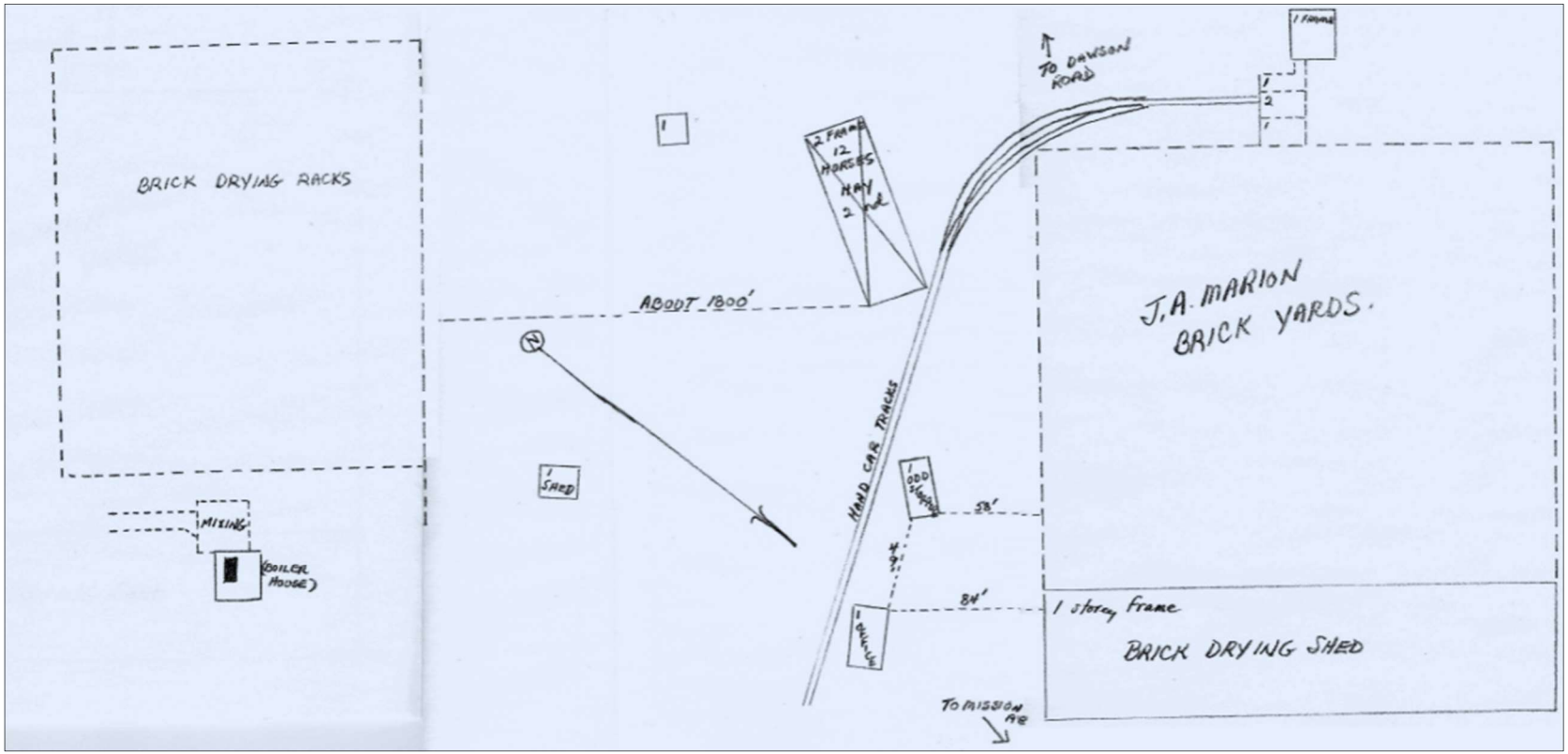
An advertisement for the Marion Brick Company – claimed here as "The Oldest Operating Brick Yard in Manitoba." The ad noted the availability of "uniform common brick," and also advised that the firm had "Railway Trackage Facilities for Prompt Shipment to Outside Points." (Courtesy *Western Canada Contractor*, August 1930, p. 33)

Couture Brothers

Brothers John and Gideon Couture started their St. Boniface yard about 1898. Although its precise location is unknown, it is recorded that by the summer of 1904 its clay was exhausted, having made 50 million bricks – thus necessitating a new site nearby. By 1905, Couture Brothers were sharing yard space with the Cartier/Lamontagne brick yard, which at that point was being bought out by the firm

of Couture & Marion (it is not known if the various Coutures were related). Late in 1905, the Couture Brothers' yard was noted as being on the northwest corner of Tissot and Archibald. They appear to have closed up during 1906.

Site Plan of the S.A. Marion plant, traced from original Canada Underwriter's Insurance Plan, April 1919, Sheet 1910 (Courtesy Manitoba Archives). This large put simple yard features typical aspects of a brick operation of this period – with large areas for brick drying sheds (left and right of image), a mixing and boiler house (left) and a two-storey stable for horses (top centre). The yard also features hand-car tracks.



Small Urban and Rural Brick Making 1897-1917

Eleven of the small-urban and rural brick-making operations that were discussed in the previous section were still going strong into the early 20th century (see the list at the close of this section). And there was a firm established in the pioneer era, that of W. Lockey in Portage la Prairie, set up in 1881, that was also still part of the brick-making fraternity at this stage, producing until 1906. But where Winnipeg and St. Boniface added only six new brick yards to the industry over the 20 years covered in this section (admittedly large operations), there were about 60 new rural and small-urban operations added, bringing the total number of Manitoba brickyards active around 1910 to about 80.

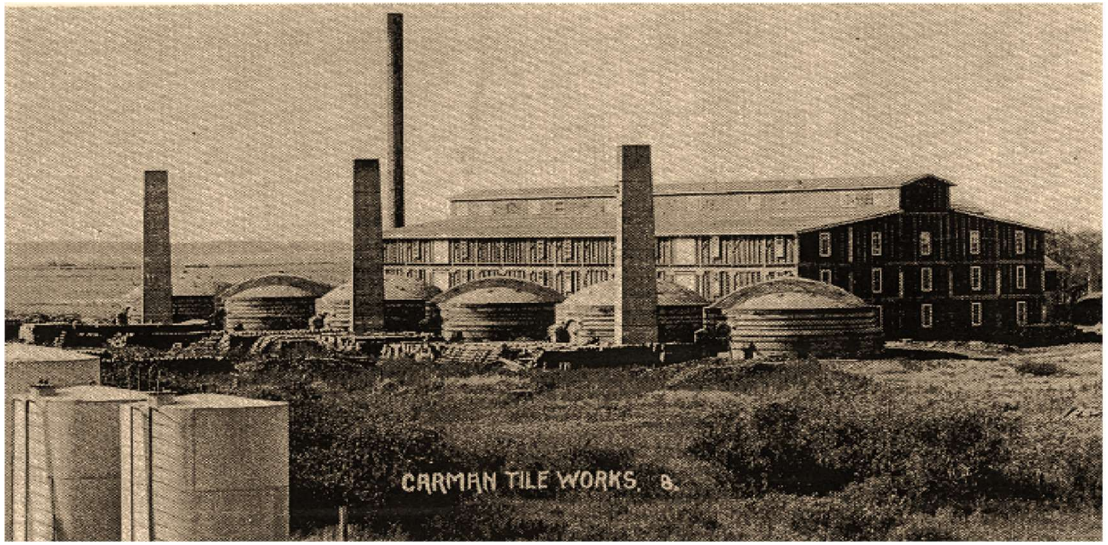
A ca. 1906 brick from the Balmoral Brick Company. (Courtesy *Balmoral. 1872-1977*, p. 27)

As was still characteristic of the industry, at least 23 of the new operations were short-lived, only active for a season or so. Very little newspaper coverage attended any of these brief operations, and it is assumed that they were of modest production, likely serving local needs. The availability of brick via the ever-growing rail connections made it difficult for local operations to compete with larger yards throughout the province. And of course the easy availability of American brick was also a factor in some local situations. At the same time, at least one account (for a Cypress River yard) yields the kind of typical (but useful) information about yard operations at this time. And the account of what was presumed to become the largest brick-making operation in the province, at Carman, is also worth an entry here.

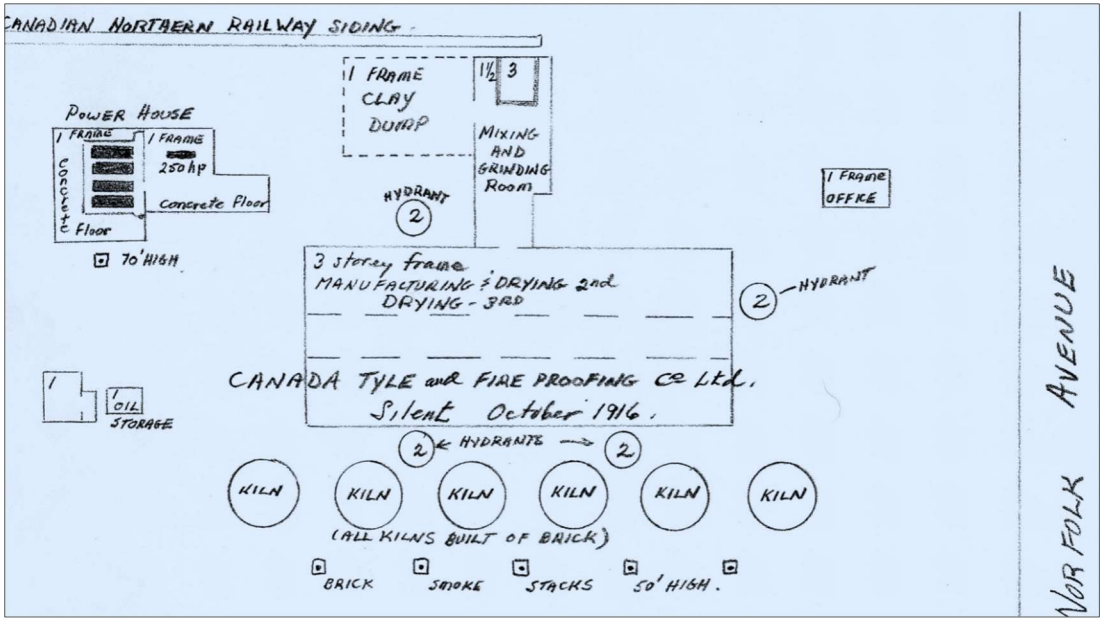
At Cypress River, attention to the yard of T.A. Foster & Co. provides some good data and numbers for production. Foster's operation, on 40 acres near the Methodist Church, produced a salmon-coloured brick from one clay stratum, with white brick from another stratum. The yard employed a Monarch brick machine with a capacity of 45,000 bricks per day, and had a complement of 16 men. In its only season, 1907, the Foster yard made 180,000 bricks. It was served by a CPR spur line, and had a mill, drying sheds and kiln, along with open pits near the adjacent slough.

The Canada Tile and Fire Proofing Company, in Carman, promised to be the largest and most productive brick-making operation in Manitoba at this time. In December 1912 the company was incorporated by a number of Winnipeg businessmen, and during late February of 1913 public meetings were held at Carman to acquaint the public with the firm's plans. The new plant was to have two phases. The first was to cost $100,000 and employ 40-50 men. A second phase would come when expansion warranted, in a couple of years, and would cost $175,000 and employ 60 more men. As there was no usable clay at Carman, the firm's beds lay at Leary, some 18 miles west, and would be brought to the plant over a Canadian Northern Railway line. The firm also relied on a 20-acre site on the outskirts of Carman that had to be brought into the town's corporate limits in order to obtain town water.

In May 1913, good progress on the plant was reported, as several rail-cars of brick arrived for the buildings. By July a public vote on a by-law in aid of the scheme saw a 136 to three majority. The plant was to enjoy tax-free status for ten years, provided it gave local men employment. That summer the plant went up quickly, with the huge, three storey factory building forming the centrepiece. Six large beehive kilns went up south of this building, and to the northwest was the powerhouse with its 250-horsepower Corliss engine. The main building was to be brick-veneered once brick production started. The plant began production in late March of 1914, and the firm decided to proceed with phase two of their plan. But in July of 1914 World War I commenced, and Carman's foray into the big leagues of brick production was over – after only a little more than a year. The firm was certainly greatly hampered by a loss of manpower, with young men enlisting in the armed forces. But issues with the overly-long supply lines for raw clay, corporate financial problems, and a province-wide construction downturn were also factors. The factory site was finally sold to (unnamed) owners in 1923, who proceeded to knock down the 10-year old complex. The Town of Carman bought $1,000 worth of brick to rebuild its power plant, and in 1924 also took plant demolition waste, mostly brick, to fill in Carman's streets.



Top: View of the ill-fated Canada Tile and Fire Proofing Company plant, ca. 1914. The large clay-mixing and pressing building is in the background, with the six kilns and their chimneys in the foreground. (Courtesy *Up to Now*, p. 173)



Below: Site Plan of Canada Tile and Fire Proofing Company plant, traced from original Western Canada Underwriter's Insurance Plan for Carman, October, 1916, Sheet 4. (Courtesy Archives of Manitoba) The huge and well-planned yard is clearly expressed via this drawing.

Seventeen rural and small-town operations kept business going for longer periods, between four and seven seasons, and thus with the kind of reasonable outputs and acceptable quality that ensured some success. Little is known about processes or production at most of these sites, but it is presumed that they would have recalled the typical situations at other small-town and rural yards of the day – thus with 10-12 employees, effective brick-making machinery and scove kilns capable of burning 100,000 bricks at a time, and thus with about 500,000 a season (April to September). Three of this family of operations—Melita Lumber and Manufacturing Company, Sidney Brick & Tile and Rapid City Brick Works—had important and interesting anecdotes and information that add to our knowledge of the evolution of the industry in Manitoba.

Melita Lumber and Manufacturing Company

In the late winter of 1905 local entrepreneur John Dobbyn announced that he would be starting a brick yard on a recently discovered source of brick clay near the town. The octogenarian Mr. Dobbyn was in the process of ordering a brick plant and would be forming a joint stock company for the exploitation of the site. In mid-April 1905, the Melita Lumber and Manufacturing Company, Ltd. was formed. In the spring, Dobbyn and his sons Richard, John and Charles brought in a Winnipeg brick expert named McDonald to run the yard. Mr. McDonald had been in charge of one of the St. Boniface brick yards, and apparently had been around the business since he was a boy. The brick machinery arrived by mid-May and the first bricks were made by mid-June, although a kiln was still being built. That summer the Dobbyn yard burned at least two kilns of brick. The year 1907 appears to have marked the peak of this yard's fortunes. When it opened that spring Dobbyn already had orders for one million bricks to go to Regina. The Melita yard was turning out 20,000 bricks per day and had an additional order for a half million bricks by late May. The product apparently had good bright red colour and was nicely finished, being selected also for its durability. The yard had orders for a large number of brick and had a supply on hand to fill demand, but 1910 marked its end, with depletion of the clay bed.

An advertisement in the *Melita Enterprise* (from August of 1909) includes a dubious claim that their wares were "just as cheap and better than lumber."

Sidney Brick & Tile

In the spring of 1909 a new (and well-financed) player arrived in the Sidney area, already well known for its clay beds and fairly active brick production (see above). Named Sidney Brick & Tile Company, Ltd., the operation was under the management of Albert Edward Hilder (see entries for the Canada Tile and Fireproofing plant at Carman and the Reliance Brick Plant (later Winnipeg Clay Products) at Winnipeg). The brick-maker was George Stenhouse. Work on the new plant began in April, with a well being dug, and several cars of lumber arriving shortly afterward. It took 10-12 men to build the brick racks, while the yard machinery arrived in late April. Sidney Brick & Tile began operations in early June. A siding was built into the yard by mid-August, and by that time the firm had burnt its first kiln of 140,000 bricks, while its machine produced 25,000 more bricks every day. So successful was its first year that early in January of 1910 Sidney Brick & Tile was able to declare a 10 per cent dividend that was equal to 20 per cent of the moneys invested. A new boarding house for the employees was one of the features of the 1910 season at this yard, and by late May it was reported to be in "perfect running order." Sidney Brick & Tile kept chugging along, presumably with good results until the outbreak of World War I in 1914. This particular Sidney plant was shut down in the spring of 1915, after six seasons of operation.

Buildings at Sidney Brick & Tile, ca. 1912. (Courtesy Manitoba Historical Society) This was obviously a major enterprise, with large brick buildings.

Sample of a Sidney red brick. (Courtesy Manitoba Historical Society)

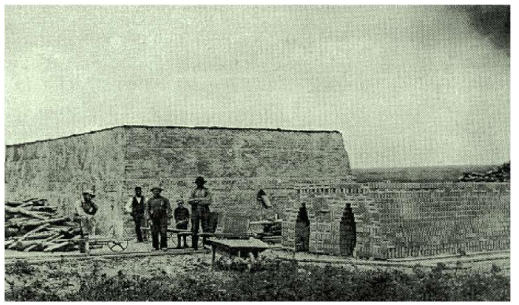
Rapid City Brick Works

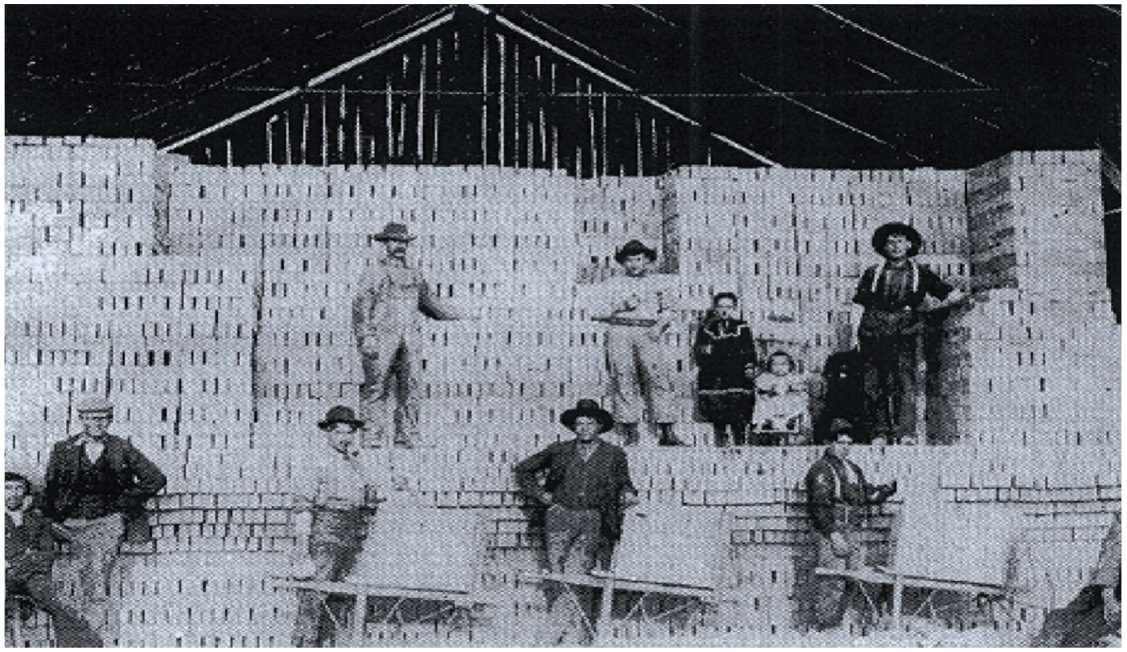
In January 1900 an announcement was made in a Rapid City newspaper that a practical brick-maker from Winnipeg had purchased from McKellar and Gosset-Jackson the Rapid City brick yard property (see above). The purchaser was Robert Dorrell Hales, fresh from the manager position for the Lac du Bonnet brick plant. Hales was a brick-making veteran, who had learned his craft in his native England, coming to Manitoba in 1887. He had also worked in the St. Boniface brick yards for a period of time. Evidently, he had connections, for he was starting his Rapid City yard by securing favourable freight rates from the various railways then serving the community. He even went to Brandon in late February in order to solicit orders for 200,000 bricks. He brought in new machinery, along with his family, which arrived in

mid-March, and by early April he expected to employ 30 hands. By early June the Hales yard shipped out several rail-cars of brick to fulfil its many orders. In late August Rapid City Brick Works had produced one million bricks. With this success in mind, Hales planned more improvements to double or treble its capacity. In August of 1902 it was noted that he had orders for 1.4 million brick. During the 1903 season the Hales yard turned out 500,000 bricks, producing 87,000 in one week alone. In 1904 the operation burned 1,148,500 bricks, and Hales had built a large brick house for his family in Rapid City. The Rapid City operation was closed down in 1906, after seven productive seasons, with the local clay beds exhausted.

Below Left: A view of the clay pits at the Rapid City Brickyard of R.D. Hales, ca. 1905. The clay deposit was obviously a major one. In the middle background can be seen the many drying racks and behind those the scove kiln and gable-roofed building housing the brick presses. (Courtesy *Our Past for the Future*, p. 14)

Below: A view of the large scove kiln at Rapid City, ca. 1905. (Courtesy *Our Past for the Future*, p. 14)

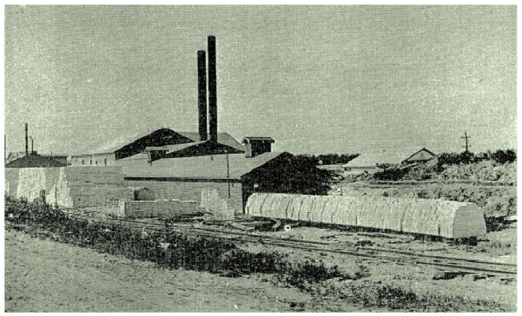




Top: View of the yard of Mr. Longbottom at Somerset, ca, 1905. (Courtesy *Reflections-Reflets-Somerset*, p. 163)

Below: Workers at Mr. Longbottom's Somerset yard showing off the thousands of burned bricks removed from the kiln, ca. 1905. (Courtesy *Reflections-Reflets-Somerset*, p. 163)

Another group of nine brickyards from this period were productive for nearly a decade or more. In order of longevity and entrance into the fraternity they were: at Carman, Percy Allen (1900-1907); Somerset, Mr. Longbottom (1901-08); Gilbert Plains, Mr. Rowlett (1905-12); Morris, Wilton/Morris (1907-14); Gilbert Plains, Mr. Eastment (1902-12); Neepawa, Mr. Benson (1905-15); Balmoral, Mr. McClure (1905-15); Beausejour, George Bradbury (1905-15); and La Riviere, E.F. Hutchings (1902-13). Two of these important operations—at Morris and La Riviere—were well-covered in the local media of the day, with good information for present purposes.



View of the Beausejour Brick Plant. (Courtesy Beausejour 50th Jubilee)

Morris Brick Manufacturing Company

Brick-making at Morris was revived in 1907, when tests were made on clay found on the property of John Wilton and others at the north end of town. Plans were announced that a 40,000 brick-per-day factory was to be established under the supervision of a Winnipeg brick expert, Mr. Windsor. In mid-June the Morris Brick Manufacturing Company Ltd. was incorporated, and the firm had all its equipment in place, including 1,400 feet of brick racks. Mr. Windsor was also off to Estevan, Saskatchewan to investigate the possible use of soft coal in place of wood as fuel in the kilns. The Morris Brick Company began production in the spring of 1908, completing its first kiln in late June. The product was said to be of a clean, rich colour, with a metallic hardness. By early August the firm was burning another kiln of 250,000 bricks under the supervision of a new master, a Mr. Dubreuil of St. Boniface. By early 1909 there seemed to be trouble on the horizon, for the firm was reorganized, with 51% of the shares being sold to a group of "practical" men headed by Winnipeg brick-maker Albert N. McCutcheon, well known from his St. Boniface yard. The group planned in install an up-to-date brick plant worth $7,000 that featured two machines – one for ordinary brick and the other for hollow tile. Work had begun on a CPR spur track into the facility, and by mid-May workers were reinstalling the 40 rows of brick racks, with their 405,000-unit capacity. The mill equipment had also arrived. The kilns were 36 feet x 320 feet in size, with a capacity of 1.8 million bricks from an output of 45 to 50,000 bricks per day. It is not stated what kind of kilns these were, but it is assumed they were tunnel kilns. The yard was to employ 40 to 45

workers. By September of 1910 the yard had shipped 50 carloads of brick to various points, and appeared to be a major success. It is known that the yard operated at full capacity in 1912, as the firm had a contract with the Grand Trunk Pacific Railway for three million bricks. After that time, however, operations slowed and virtually stopped. The plant was certainly shut down during World War I. It reopened sometime in the spring of 1920, when it was said that there was now an urgent demand for brick. The firm was reorganized as the Western Brick Company, Ltd. by a group of Winnipeg businessmen, with Mr. McCutcheon still in charge of local operations. Its final year seems to have been 1921.

La Riviere Press Brick & Tile Company

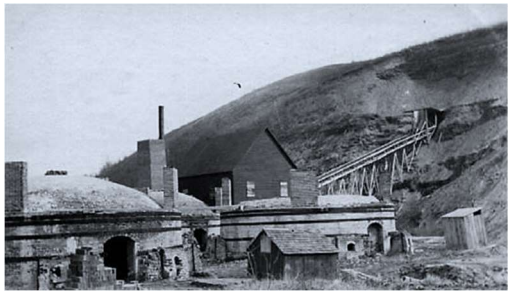
The establishment of a brick yard in La Riviere was first made public in 1902, when tests made on local clay and shale deposits proved positive, and a deal was stuck for the preferred site, just to the east of the town. The firm was called the Press Brick & Tile Company, Ltd., and was under the leadership of Elisha Frederick Hutchings, a wealthy Winnipeg entrepreneur. It was quickly determined to go ahead with the $20,000 brick plant. A manager was found in Minneapolis in May, and by the following month local workers were being hired. By July, when Hutchings visited the site, men had installed a brick yard dam, and a railway spur to the site was nearly complete. Early in September the plant made its first brick. The American manager, J.W. Carmichael, had the plant running “full blast” by mid-month, with a kiln of 250,000 bricks being burned and another 250,000 awaiting the fires. The following season (1903) saw the firm invest $10,000 in erecting four new beehive kilns and other improvements. Eleven cars of machinery were ordered, including an engine, numerous castings, a blower, 100 dryer cars, and other equipment. By late May the kilns were nearly complete, including an arched subterranean passage linking all four. The large dryer with its numerous brick divisional walls only lacked a roof at the time, but had a 40-foot high stack. Four more kilns were under construction by mid-June. Later that month the newly-installed machinery was tested. During mid-July, shale was being taken from the hillside source by night blasting, and then put on a carrier that took it down to the crusher where it was pulverized into clay. Reports

from the spring of 1905 show most of the old employees back at work, and improvements included a remodelling of the oldest kilns and the construction of a "lofty and strong" trestle from the mill across the creek to the shale ledge. In January 1905, a number of men were at work at the brick yard, sorting out and shipping the one million bricks on hand at the plant in preparation for the coming season. But something had happened with the firm's financing, and the plant was suddenly up for sale on 20 July 1906. William Brydon, an unknown commodity, acquired control, and the next six years of the plant's operations are somewhat shadowy. In 1910 samples of brick "of a beautiful colour and finish" were on display locally, and an advertisement in July 1910 showed that the plant had acquired a new manager—

A view, ca. 1905, looking southeast showing the extent of La Riviere's Press Brick & Tile Company. The shale deposits on the hillside were drawn by rail cars down to the mixing and brick-pressing building and then burned in one of the eight beehive kilns. (Courtesy Archives of Manitoba)

James Johnstone—as well as a new name: The Phoenix Brick-works. In April 1911 it was noted that the plant machinery was being fitted up, and a kiln was filled; given that there were at least eight kilns, this appears to be a modest production schedule. In June, Dominion Government geologists visited the plant, and observed that the brick-making process then included a disintegrator along with two short pug mills and a Bradley and Craven semi-plastic brick machine. Evidently some type of production was happening that summer, for it was also noted that salmon-coloured to dark-red bricks were being produced. It is not clear if the plant was in operation in 1912. It certainly was sold in 1913, to a Mr. Martin, who intended to renovate the complex, install new machinery, and place it on a sound footing. But that did not occur, and the plant was abandoned by 1914, as so many Manitoba plants were with the oncoming war.

A view, ca. 1903, looking west showing the mixing and pressing building on the left and the kilns of La Riviere's Press Brick & Tile Company. (Courtesy *Turning Leaves. A History of La Riviere and District*, frontispiece)

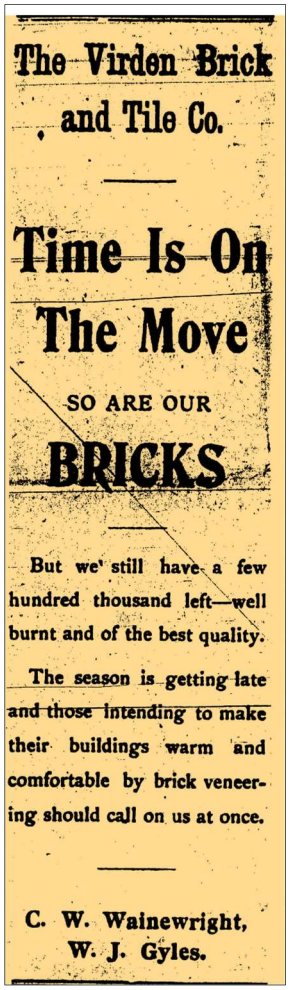


A view, 1908, looking up to the shale deposits on the hillside, and showing track and kilns of the L Riviere site. (Courtesy Archives of Manitoba, G.T. Barber Collection)

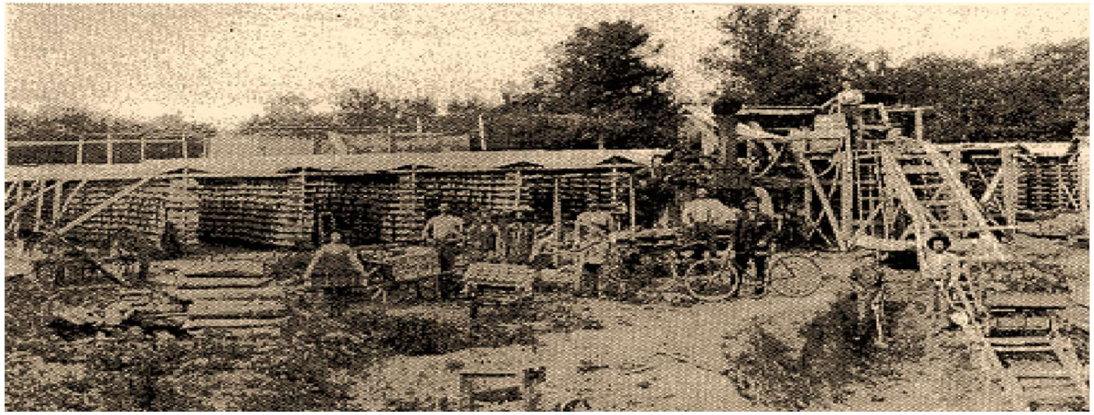
The last grouping of small-urban and rural brick operations from this period is a small one – just 10 sites: Virden, Wainewright/Gyles (14 seasons, 1902-15); Edrans, Mr. Blackwood (15 seasons, 1901-15); Pilot Mound, Mr. Dearlove (16 seasons, 1897-1912); Gladstone, Mr. Wilson (17 seasons, 1897-1913); Learys, George Leary (18 seasons, 1900-17); Lac du Bonnet, Lac du Bonnet (18 years, 1902-19); Brookdale, B,J, Hales (21 years, 1905-25); Hartney, Sackville/Kirkland (22 years, 1898-1919); Portage la Prairie and Gilbert Plains, J.A. Snyder (28 years, 1907-ca1935); and a second operation at Portage la Prairie, Harry Stephens (30 years, 1899-1928).

These 10 operations were amongst the longest and most active of yards ever in the province. Some may not have been particularly large or sophisticated, but they were still producing quality products that served the enormous demand for bricks in Manitoba and across the West. Some useful details about several of these plants suggest the nature of manufacturing at these operations.

For example, at **Brookdale**, the operation began with an investment from B.J. Hales (last seen at Rapid City, above) of $15,000 for a brick plant. In 1908 Hales formed a joint stock company to raise $40,000 to enlarge the plant and install more machinery in order to manufacture hollow brick, tile and sewer pipe. Hales employed 30 men each season, and one notable order came for 100,000 bricks for the Ninette Sanatorium. The **Gladstone** operation of Magnus Wilson saw the first season firing three kilns. Wilson typically employed 18 workers and shipped bricks along the Manitoba and North-western Railway to Dauphin. He also shipped some carloads to Winnipeg when, according to A.T. Andrew, the contractors in that city wanted an especially good article. Wilson's brick was probably used in 75% of the buildings in Gladstone, but the showcase was his house on the island on which his brick operation was also located. In 1905 he developed a special brick mould and produced the distinctive brick used there. The yard at **Gilbert Plains** was still using a number of scove kilns, each capable of burning 250,000 bricks at a time. And the 1907 output for the **Hartney** operation of William Kirlkand was said to be one million bricks, all produced in scove kilns. During 1913 Kirkland had maintained production at around



An advertisement for the Virden products of Wainewright & Gyles. (Courtesy *Virden Advance*, 22 September, 1904, p. 1)



Top: View of the Gladstone yard of Magnus Wilson, 1899. Shown here are the drying sheds and pug mill on the far right. It is notable that the pug mill was fed with small cars loaded with clay and pulled up to the pug mill. (Courtesy *Gladstone Then and Now*, p. 78)

Below: View of the Wilson House, built in 1905. For his own house, Magnus Wilson commissioned renowned Winnipeg architect James Chisholm, and the resulting building is unique, but also unparalleled in small-town Manitoba history. Inspired by the castles of his native Scotland, the Wilsons got an exceptional Queen Anne-style manor, complete with corner tower and various other features and details typical of that highly popular style. Of greater interest, the house is clad with unique bricks that were specially fired for this place, looking more like small stones than bricks.

one million bricks, most of which were shipped to Regina for use in the new Legislative Building. At **Lac du Bonnet**, in 1902, the plant was in full swing, making 40-50,000 bricks per day, both of the pressed and soft-mud varieties. The 50-ton press in use apparently produced a hard and beautifully moulded brick. The huge, beehive kilns produced an even, light buff colour, but certain other local clay beds would produce other colours such as old rose, pink, and ordinary red. Firing of the kilns was done with sawmill wastes.

All of the inventory entries (in Appendix 2) focusing on these operations are worth reading, with four selected here for focused coverage, given greater available information and typical situations: Edrans, Learys and two firms in Portage la Prairie.

Edrans / Edrans-Brandon Press Brick Company

J.A.C. Blackwood established a brick yard at Edrans (about 10 miles north of Sidney) in the summer of 1901. By September the new yard was rushed with orders, shipping its first carload of brick in early October. When it closed for the season, a month later, this first year was considered a success. Blackwood was back for 1902, burning his first kiln of bricks by mid-July, and regular production continued for the next two years. Late in 1904, L.J. Oakes, a Nova Scotia brick expert, made tests of the Blackwood clays, sending the samples to the Boyd Press Brick Company of Chicago where a few test bricks were make. The results were apparently of the highest standard. The tests were perhaps in anticipation of the creation of a new firm which would exploit the Edrans clays more efficiently. This ultimately took the form of the Edrans-Brandon Press Brick Company Ltd. which was incorporated at Brandon in July 1905. Members of the Blackwood family were principals in its organization. While its business office was at Brandon, the plant was built at Edrans. The new plant was constructed in the summer of 1905 on the 12-acre site with its “remarkable clay formation” which was a mound about 40 yards long by 180 yards wide. The yard was served by a CPR siding, and initially bricks were made on site in order to build the large, permanent kilns – images suggest these were tunnel kilns. A 60-horsepower engine was installed for power, along with a 60-foot high smoke stack, as well as a

large shed for clay storage. The main building was about 50 feet high and covered with corrugated sheet metal. The new plant, with its capacity of 20,000 pressed bricks per day, was fired up for the firm's Board of Directors on 3 November 1905. Production started in earnest in the spring of 1906, when the first of four kilns were finished. These kilns were unique, each with 14 chimneys. When completed the plant entered an era of regular production. During 1914, the yard was fixed up after a short period of closure, and was once again producing "good quality bricks." The Edrans plant was likely shut down early in World War I, but was back in operation in 1924. New owners, National Clay Products Company, Ltd., had its headquarters in Winnipeg, but was actually a creature of the Hales brick-making family, which had operated earlier plants at Rapid City and Brookdale. In this case, W. E. Hales, the son of the founder, was the President of National, and kept the operation going until at least 1931.

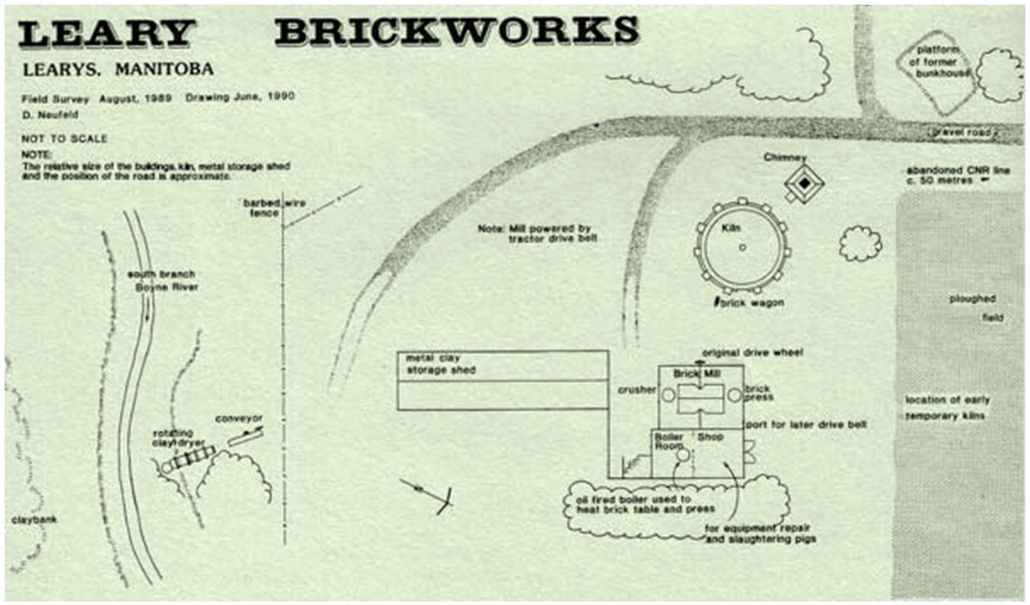
The yard at Edrans, ca. 1910. In the foreground is the raw clay, held in place with a rough log fence, a group pf workers and the impressive tunnel kilns, each with its distinctive line of chimneys along the length. In the background is the mixing and pressing building, whose tall form and steeply-pitched roof suggest vertical movement of material within the building. See next entry on the Leary operation for a possible explanation. (Courtesy *Brookdale Local History*)

Learys / Boyne Valley Brick Works / Leary's Brick Company

The brick plant at Leary, or Leary Siding as it was sometimes known, is the only surviving old-time brick factory left in Manitoba. Part of this is dependent on the isolation of the site, but its survival had chiefly come about because of the dogged determination of the Leary family. The founder, George Leary, was well-known throughout south-central Manitoba many years prior to his attachment with brick-making. He was involved in the life of the community, sending in crop reports to a Winnipeg newspaper, running for political office (and losing), as well as being appointed one of the provisional directors of the Manitoba and South-Western Colonization Railway. Over the years Leary became well-known in farming circles and as a grain buyer. During the 1890s he spent some time in Ireland as a Dominion Government immigration agent. He also developed a partnership with a relative by marriage, to Rodmond P. Roblin (later Premier of the province), as he pursued a career as a grain dealer at the Grain Exchange. Leary's interest in brick-making was first noted in the fall of 1900, when the Manitou newspaper reported of his plans to start a large brick and cement business on three sections of land which he had bought six miles north of Altamont and located on Boyne Creek. In March of 1901 the Boyne Valley Brick Works Company, Ltd. was incorporated, and in April all the machinery was said to be in place with brick ready to burn. During 1902 a Canadian Northern Railway spur track was mooted to run from Altamont over to the site. Leary hoped to sell his brick for $8.00 per thousand from his two varieties of clay. In 1903 more brick machinery was shipped to Leary's factory, which was superintended by Mssrs Snowdon and Carmichael. With this, yard operators hoped to make a half million bricks that summer. A visit to the plant by federal government geologists in 1907 stated that the plant turned out red dry-pressed brick from an 1897 Boyd dry-press machine. This report is a reminder that the Leary operation, like that at nearby La Riviere, exploited shale, rather than clay, for its brick production. This kind of situation required a crusher (which is still installed at the Leary site) that reduced the shale to a powder. The 1907 output was 1.7 million bricks, and the operation employed many men whose wages averaged $2.00 per day. After 1910 Mr. Leary and his sons operated the factory as Leary's Brick Company, which managed to hold on

View of the Leary Brick Factory, ca. 1910. (Courtesy Ina Bramadat) The brick plant, seen to the left of the chimney, enclosed the crusher and press, on either side of the main floor. The building's height and roof design were required by the use of an elevator to move raw shale within the system.

A Leary brick. (Courtesy Manitoba Historical Society)



Top: Site plan of the Leary Brick Factory; north is to the bottom right of the image. The drawing shows the shale bank on the left, dryer and conveyor further right, and then a concentration of buildings on the right: storage shed, crusher/boiler room/ shop/ brick mill, kiln and chimney. The illustration also shows the location at the upper right of an old workers' bunkhouse and CNR line further west. (Courtesy Ina Bramadat)

Below: Letterhead used for Learys shows the buildings and sitings, along with an imagined large storage building seen behind the chimney. (Courtesy Ina Bramadat)

through the early years of the World War I, finally closing up in 1917. But this was not the end of the Leary saga. A son, William Leary, would by the late 1930s regain control of the family plant, and along with a relative, Rod Ager, worked through most of the summer of 1947 putting the plant and its machinery back in order. That November the fires in the 80,000-brick kiln were ignited once again, and Leary's went back into small-scale production. Some 7,000 bricks from this first kiln were delivered to Carman that summer to be used in the new vault extension for the Bank of Commerce. Leary's brick plant operated on a part-time basis for the next several years, and became the last of the old time brick plants to do so. But Ager died in 1952, and William Leary himself died in 1953, and after some further (failed) brick attempts and alternate ownership, the old brick site finally reverted back to Leary family descendants.

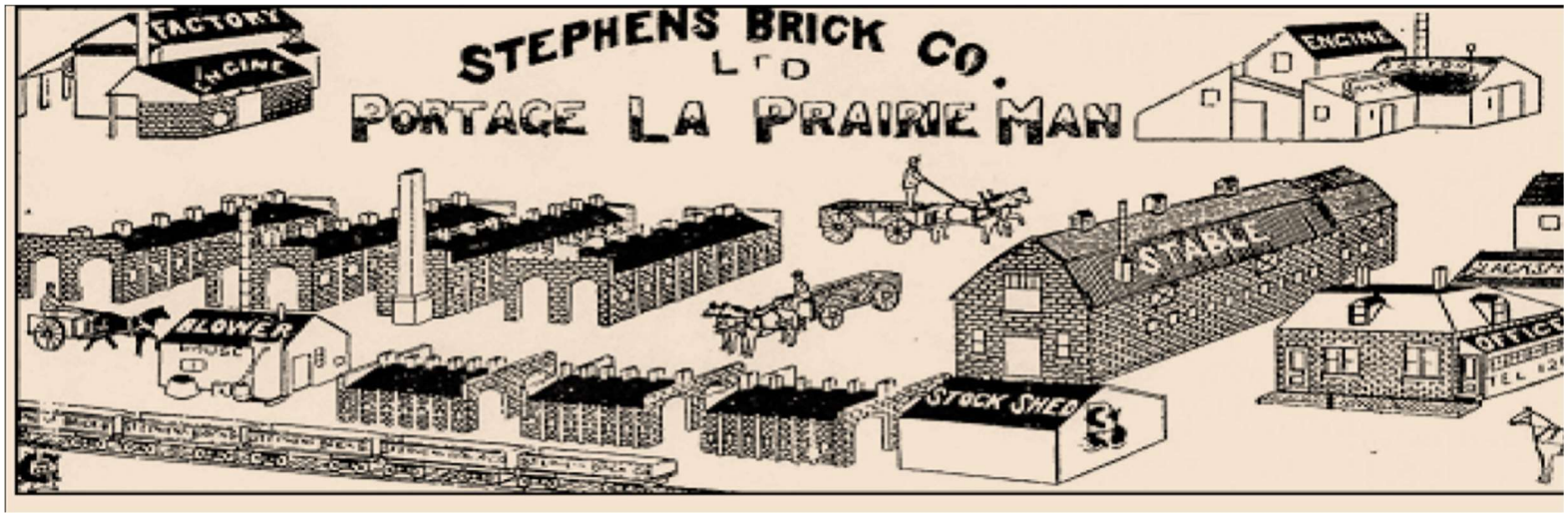
Portage la Prairie – Harry Stephens

Two Portage la Prairie brickyards were amongst the most successful in Manitoba history – long-lived, productive and highly respected. Harry Stephens started his Portage la Prairie Brickyard Company about 1899, and between 1902 and 1904 the capacity of his yard had trebled to meet the demands of the western Canadian building boom. The Stephens plant was about a quarter mile east of town, and had a capacity of 40,000 bricks per day with two soft-mud machines in use. By 1906 Stephens had 12 "furnaces" (beehive kilns) for burning brick, with each one holding 100,000 bricks. 8.5 million bricks were produced in the 1909 season. Stephens employed 80 workers and had his own CPR spur track. A 1911 visit by a Dominion Government geologist found this to be "one of the largest and best managed [brick companies] in Manitoba." In 1912 Stephens acquired a new yard in the vicinity, and was able to produce 14 million bricks between the two yards annually. 1912 appeared to mark the height of production for Stephens, whose operation, like all others, was beginning to feel the effects of a construction decline, and would certainly suffer during and after World War I. Stephens Brick, however, carried on in a much-reduced form until 1928, when its incorporation charter was finally cancelled.

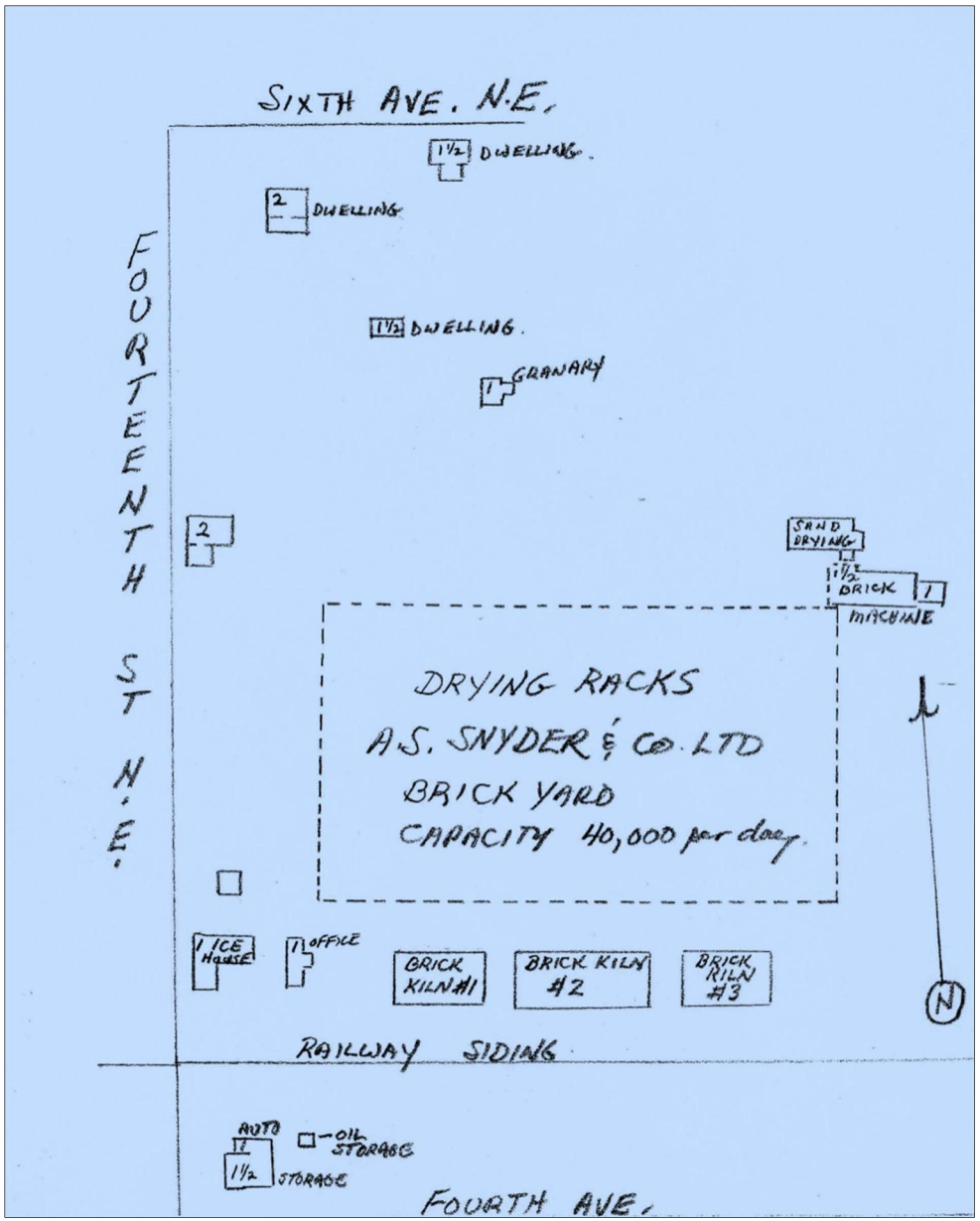
Sample of a brick from the John Snyder yard at Portage la Prairie. (Courtesy Manitoba Historical Society)

Portage la Prairie – John Snyder

A capable competitor for Harry Stephens was John Alexander Snyder and his family-operated brick yard. Indeed, the Snyder name would outlive that of Stephens in local building supply circles until its affairs were taken over by Winnipeg's Alsip Brick & Tile in 1945. In turn Alsip would remain on the Portage la Prairie scene until 1972, when it appears to have ceased manufacturing brick. If this was the case, then the old Snyder yard at Portage la Prairie was one of the longest-running brick plant from its outset, at 68 years, beginning in 1904. Initially known as Snyder Brothers, by 1907 the firm was renamed A. Snyder and Company, with 200 acres of land. Its Martin brick-press was capable of producing 40,000 bricks a day, and the site required 35 workers. Its output that first year was a very impressive 3,250,000 bricks. The Snyders acquired a second yard at Gilbert Plains in 1907, and by 1912 that yard was burning in its several scove kilns about 250,000 bricks per kiln, to a total of about 5 million bricks a year. The Gilbert Plains operation was silent during World War I but was active again in 1919, and was intermittently operational until 1929. The whole Snyder empire was renamed Snyder Brick Yards, Ltd. in 1930, and the Portage operation continued under Mr. Snyder, until his death in June of 1937.



Drawing of Harry Stephens's Brickyard, Portage la Prairie, ca. 1909. The image shows four large tunnel kilns, three smaller kilns, a large brick stable, brick office building and engine and factory buildings. (Courtesy Archives of Manitoba)



Site Plan of A.S. Snyder's Portage la Prairie brick plant, traced from original Western Canada Underwriter's Insurance Plan, June, 1920, Sheet 56. (Courtesy Archives of Manitoba) The drawing shows a large area for brick-drying, three brick kilns (presumably of the tunnel variety), a sand-drying site and beside it the brick-making factory. A railway siding was situated to the south of the kilns, to facilitate easy unloading of the kilns onto freight cars.

Holdovers from 1881-1896

As was noted at the opening of this section, there were 11 small urban and rural brick-making operations that were discussed in the previous section that were still going strong into the early 20th century:

Sampson yard in Brandon (started in the 1890s and going to 1917); Mr. Ruston's Cypress River yard (from 1896 to 1904); Mr. McGarvey's Deloraine yard (from 1896 to 1909); Mr. Payne's Hartney operation (from 1895 to 1901); Dagg & Mawhinney in Holland (1894 to 1904); Mr. Church in Killarney (1896 to 1901); the Marion yard at Oak Lake (1893 to 1900); the two Davis yards near Sidney (E., from 1893-1910 and H., from 1895-1900); Squire Sowden's Souris yard (from 1892 to 1901); and in Wawanesa the Naismith/Town yard (from 1896 to 1904).

The fine main street of Hartney, ca. 1910. (Courtesy WikiCommons) Most of these buildings were put up with brick from one of three local yards: Harry Payne's (1895-1902), George Sackville's Hartney Brick and Delft (1898-1902) or William Kirkland's Hartney Brick Works (1897-1914).

Conclusion – The State of the Industry at 1917

Over the course of 20 years, from 1897 to 1917, Manitoba's brick-making industry had matured into a solid, stable, reliable enterprise. Major operations, with industrial-scale production and the most up-to-date machinery, kilns and processes were attendant on several of the province's biggest yards – at Portage la Prairie (Harry Stephens and John Snyder), La Riviere, Sidney, Edrans, Morris and Carman, and in Winnipeg (Birds Hill Brick and Standard Brick) and St. Boniface (Alsips, McCutcheon, Kelly Brothers, Cartier/Lamontagne and Couture/Marion). Ever-growing demand for brick, for the thousands of new buildings that were replacing the first generation of smaller and often more modest structures, ensured that the province's brick-makers were busier than ever. And there was even major demand for Manitoba brick in the new provinces of Saskatchewan and Alberta (added to the Confederation in 1905) – during 1913 the yard of William Kirkland at Hartney sent 1,000,000 of its bricks to be used at the new Legislative Building in Regina.

Throughout this period, 15 of the yards started in earlier years were still going strong, and at least 60 new operations entered the fraternity. Six of these newcomers were in Winnipeg and St. Boniface, with the other 54 in small-urban and rural situations. And while the trend to short-lived operations continued during this period, with 23 closed a year or two after formation, 37 were more enduring. The area around Mission/ Archibald/Youville in St. Boniface was still a major area of brick-making activity, with concentrations of yards outside the city in a rectangle of clay and shale beds that included Portage la Prairie on the east, La Riviere on the south, Gladstone on the north and Sidney/Edrans to the west.

The familiar levels of production noted in the previous era—25 to 50,000 bricks a day and a million bricks a year—were repeated at many of the yards active between 1896 and 1917. And typical ongoing improvements to brick-making machinery were certainly attendant at many yards at this time. But we are much more commonly hearing of 10 and 20 million-brick-a-year operations: at for example Standard Brick,

Birds Hill, and Alsips in Winnipeg/St. Boniface, and at La Riviere and the Portage la Prairie yard of Harry Stephens.

There are occasional references to the costs of capitalization of a new brick plant, with values not dissimilar from those noted in earlier periods: $20,000 for the plant at La Riviere (equivalent to half a million dollars in 2018), $50,000 for the Winnipeg Brick facility ($1.2 million in 2018), and $100,000 for the Canada Tile plant in Carman ($2.5 million in 2018, with the expectation of $175,000 for a phase 2 – and thus an additional $4 million).

The exploitation of shale beds (rather than the more familiar clay beds) was undertaken in south-central Manitoba, notably at La Riviere, Carman and Learys, with new extraction and grinding technologies, and of course new dry-pressing brick manufacturing processes which typically produced more fine-edged and harder brick.

The most obvious change on many brickyards was the introduction of new kiln technologies and attendant forms. The most apparent was the beehive kiln, which was to be seen at many of the larger yards, with its evocative domed shape made entirely of brick. New tunnel kilns were also being used at many yards – the yard at Morris Brick claimed a tunnel kiln that was 36 feet wide and 320 feet long.

Even with greater sophistication of operations, the hugely increased demand meant that most yards still required a significant staff contingent, and so there are consistent observations about dozens of men working at most yards of any size – at least for the typical season, still from April to October. Some of the larger yards required even greater workforces – 50 men at Canada Tile in Carman, 40-50 men at Morris Brick, and 80 men at Standard Brick in Winnipeg (which also had 15 teams of horses as part of the yard's activity). The great size of some of these operations obviously translated into great profits. As was noted in the previous section, with prices per thousand still averaging $12.00, it would be possible for some of the owners of larger yards to earn net profits of $100,000 or more.

It was during this period that the new Manitoba Agricultural College in Winnipeg, opened in 1905, began to offer a course in "practical brick-making," ensuring a greater level of local knowledge of brick-making processes.

Media attention to the brick industry declined through this period; the novelty and interesting claims had diminished by this time. But there were other venues for information on the activities of the larger yards, and for the technical aspects of an increasingly sophisticated industrial enterprise. Articles and studies in institutional and government magazines and reports ensured that information, data, images and reliable drawings were available to architects, engineers, contractors and brick-makers across the country.

For 15 years, from 1897 to 1912, the brick industry in Manitoba appeared to know no bounds. There were huge investments in places noted above. Manitoba clay and shale deposits seemed sure to keep the industry going, and growing, for years to come. There must have been quiet jubilation amongst the growing brick fraternity. Perhaps the best was yet to come.

But 1912 marked the high watermark of Manitoba's brick industry. By 1913, and through to 1914, the province, like other places, was upended by two successive recessions, which knocked many smaller brick companies out of the industry. But these economic turmoils, which certainly curtailed growth of the industry, were nothing compared with the tremendous upheaval caused by World War I, from 1914 to 1918. That cataclysm not only removed young men from the workforce, but the war also disrupted nearly all construction activity. Some of the larger rural and small-town operations were closed or moth-balled: Edrans, La Riviere, Carman and Morris. As was noted in the introduction to this section: by 1916, at the height of hostilities, there were only 14 operations producing any brick in Manitoba.

Things certainly seemed bleak for the once mighty Manitoba brick industry.

M O D E R N

1918 – 1990

MODERN ERA. 1918 – 1990

The carnage and turmoil of World War I, from 1914 to 1918, certainly delivered one of the major blows to the brick industry in Manitoba, and Canada. But the interruption of the war was not the only blow – a construction downturn caused by an economic recession had already begun in 1912. And it was a simple fact that the building requirements of the province had very much been met – there just was not the need for new buildings, or for the brick that had been so readily available to builders over the previous 25 years.

Before the war there were at least 60 operations going strong in the province, but nearly all of these were shuttered by the war's end, including some of the largest and most productive from that period – Gladstone (closed 1913), La Riviere and Carman (closed 1914), Virden (closed 1915), Edrans and Morris (closed during the war). Only 11 pre-war yards survived past 1919, with three of these lasting into the 1920s (in Winnipeg/St. Boniface, Kelly Brothers to the early 1920s, and in rural areas, Brookdale to 1925 and Stephens in Portage la Prairie to 1928). Some firms made it into the 1930s: Wood's and Winnipeg Brick into the mid-1930s, the Gilbert Plains yard (a branch of the Snyder operation in Portage la Prairie) and the venerable Marion Brick Company (which had claimed the title of "Oldest Brick Yard in Manitoba") which made it to 1937.

A few operations gained new hopeful owners, but typically without long-lasting success: at Morris (where the Western Brick Company was established but only managed two seasons of operations, from 1920-21), at Sidney (where Sidney Brick and Clay Works took over in 1920 and lasted six seasons of operation), and at Learys (where William Leary, son of the original owner, got the place going for several years, 1948-52, until his untimely passing).

Alsips of Winnipeg would remain at their site on the border of St. Boniface and Elmwood, "silent" during the war years, with the clay for their production depleted by the early 1930s. But Alsips took over the yards at Sidney in 1928 so that the still-productive clay beds there could be exploited and material shipped back to Winnipeg for processing. And while the Snyder operation at Portage la Prairie was productive until 1942, it too was also taken over as a clay site by Alsips, which used that site until 1972.

There were just five start-up firms from this period. Two of these were of minor consequence – a small site at Whitemouth started by John Wardrop and only operational in 1920; and at Swan River, where Swan River Clay Products relocated the old equipment from the closed Edrans yard (see below), and was able to burn kilns from 1953-55 and again in 1959 before closing up. The other three yards—the Edrans yard noted here, a second operation at Whitemouth, and a major establishment near Lockport—were much more substantial.

Edrans / National Clay Products

The first version of the Edrans yard, noted earlier, was started in 1905 on the 12-acre site with its "remarkable clay formation," which was a mound about 40 yards long by 180 yards wide. At its height, the operation had four kilns and although it was highly productive, and producing "good quality bricks," like many others of the day the plant was shut down early in World War I. In 1924 the National Clay Products Company, Ltd., a creature of the Hales brick-making family, which had operated earlier plants at Rapid City and Brookdale, took over the site. In this case, W. E. Hales, son of the founder, was the President with the firm's motto being: "Better Bricks for Beautiful Buildings and Bungalows." Hales and his family would live at Edrans during the building season, and in fact gave a social for the plant employees when production resumed in August of 1925. The bricks were said to be as hard as flint, as well as uniform in size and shape. It was observed that National had put much time and money into research and experimentation – not only for efficient production but also for new brick needs. Edrans bricks came in six different colours, and the firm had

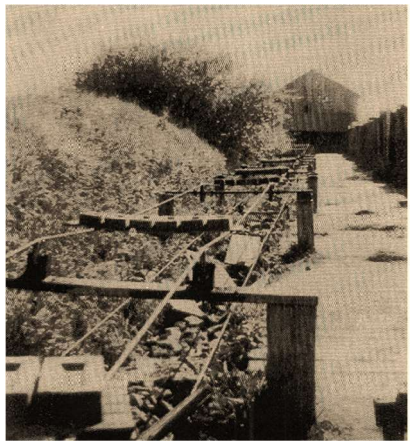
sold half a million between the spring of 1925 and the following November. Hales also planned to make rough-texture and tapestry bricks, both popular new aesthetic qualities sought by architects. In 1926, the family patriarch, Robert D. Hales, came out of retirement to superintend the Edrans plant, and the family expanded and improved the operation by early 1928. National Clay Products became one of the last of the old-time brick plants still producing brick into the 1940s, likely to the end of World War II.

Whitemouth / Wardrop Yard

In June of 1922, Walter Wardrop, brother of John, noted above, purchased the McCutcheon brick yard just west of town. This operation would prove much more successful than earlier attempts at brick-making at Whitemouth, and was run as a family business. At start-up, the yard was producing 26,000 bricks per day, with a proposed increase for subsequent kilns to 40,000. The Wardrop yard is still looked on with considerable local affection, given that it remained open throughout most of the Depression of the 1930s, providing work for otherwise unemployed local men. The Wardrop family continued to run the yard until its sale to Alsip Brick, Tile and Lumber in 1945. Under Alsips, production increased to 1.25 and 1.5 million bricks per year, employing 52 men. The yard finally closed in 1957, and the plant was dismantled the following year, with machinery going to Alsip's Elmwood operation in Winnipeg. There they were put to use in the production of the cheaper and easier-to-make concrete blocks.

Lockport / Red River Brick and Tile

The last brick operation in Manitoba had shallow roots in the province, not being one of the established operations from previous decades. Called Red River Brick and Tile, whose parent firm was 1-XL Industries Ltd., out of Medicine Hat, Alberta, the Manitoba operation ran for nearly 20 years, from 1971 to 1990. The firm located in Lockport for its proximity to rail lines and at least one of its clay and sand sources – at nearby Ladywood. It also hauled in clay from Ste. Rose du Lac. The company was a major producer – with a capacity of 15 million bricks a year. The plant employed 30



Images of the Whitemouth yard of Walter Wardrop; top of the conveyor system, showing brick pallets in use; and below of the brick shed. (Courtesy *Trails to Rails to Highways*)

people for its yearly nine-month operation, and offered bricks in three sizes and twelve shades. While Manitoba was its primary market, Red River Brick and Tile also sold in Alberta, Saskatchewan and Ontario. It has been observed that a labour dispute in 1990 caused Red River Brick to close its Manitoba operations. The large brick-pressing plant and offices still stand, but the huge tunnel kilns were demolished.

View in 2017 of the brick-pressing building and main offices of the Red River Brick and Tile site near Lockport.

Work crew in front of the kiln shed at Walter Wardrop's Whitemouth operation. (Courtesy *Trails to Rails to Highways*)

CONCLUSION

Conclusion

The legacy of Manitoba's brick industry is a remarkable one. The billions of bricks that were produced by the more that 190 firms operational over 130 years of activity went into thousands of buildings, many of which are still standing. These sturdy, and often beautiful, brick walls offer a clear expression of the skill of the brick-makers, and the durability of that ancient product, formed from the very materials within our landscape.

Manitoba's brick-making industry was a major achievement, with fascinating stories of triumph, perseverance, imagination and sometimes of failure, occasionally spectacular failure. The industry went through a typical evolution attendant on any activity that lasted so long. It began in the 1860s with rudimentary attempts to form and burn bricks, mainly for use in chimneys, and proceeded through the 1870s and 1880s with many small yards, most operating with hand-made brick forms and rudimentary clamp kilns, but some with the most up-to-date brick-making machines and scove kilns.

The industry then proceeded through the 1890s and early 1900s to develop ever-more sophisticated operations, with highly mechanized production and finishing systems, including co-ordinated beehive and tunnel kilns. By the onset of World War I, in 1914, Manitoba's brick-making industry was a major player, sending its well-regarded high-quality products across the province and to sites further west. But the war, and an economic downturn that had begun in 1912, proved to be a death-blow to many brick operations, and by 1920 there were just 13 yards still producing, albeit at an industrial scale, with highly sophisticated operations.

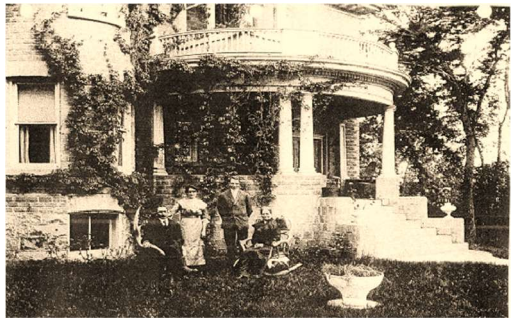
Over the course of this history, there were distinct concentrations of brick operations in the province. The most notable was in St. Boniface, where at least 17 firms (six of them long-lasting) undertook clay extraction and brick production over the course of

The exquisite architecture of the Beautiful Plains County Court House in Neepawa, from 1884, is a remarkable reminder of the power of a finely crafted brick wall to inspire both pleasure and reverence. (Courtesy ArchiSeek)

about 60 years, from the mid-1880s to the late 1940s; and all within a fairly concentrated area, along the Seine River south of Mission Street, north of Plinquet and adjacent to Youville Street. In 1910, W.A. Marion recalled the days when the St. Boniface yards were burning 38 million bricks annually (which, if extrapolated, would suggest this small beehive of brick-making activity might have produced more than 2 billion bricks over its lifetime). A swath of south-central Manitoba, which included Portage la Prairie, Gladstone, Edrans, Brookdale, Sidney, La Riviere and Somerset, was also rich in brick-clay and shale deposits, and produced at least a billion bricks – most of the yards at these places were active between the mid-1890s through to 1914.

Along with the approximately 3 billion bricks from St. Boniface and south-central Manitoba yards, all of the other Manitoba brick operations, in Winnipeg and scattered across southern Manitoba, contributed greatly to the province's output. A careful examination of brick quantities recorded in the attached inventories is helpful in this regard, but far from satisfactory – some of the data appears quite reliable, but there are more often major gaps in this kind of record, as well as a complete absence of quantity counts for many of the operations. This is certainly no fault of the inventory authors – the fact is that these kinds of values were often unrecorded. At the same time, it is possible to sketch out a total, including the 3 billion already noted – and get an approximation of 12 billion bricks: a truly remarkable achievement.

Some of the names and places that define Manitoba's brick-making history need to be recalled and honoured whenever the subject is raised: William Alsip, Zoel Marion, Alex McCutcheon, Kelly Bros. and Cartier & Lamontagne (who all operated in St. Boniface), Robert and William Hales, (at Rapid City, Brookdale and Edrans), George and William Leary (near Roseisle), Magnus Wilson (at Gladstone), Elwin Davis (at Sidney), Harry Stephens and John Snyder (both in Portage la Prairie), and Walter Wardrop (at Whitemouth). There were of course thousands of people who laboured at Manitoba's many brickyards over the years, many of them with critical knowledge and skills about forming and burning the billions of bricks that were produced. But it



Magnus Wilson, seated left, in front of his fine Gladstone house, 1916. (Courtesy *Gladstone – Then and Now*) This house, which is still standing and in excellent shape, is highly significant in Manitoba's brick-making history – not only a rare surviving house connected to an important brick-maker, but also constructed with specially formed bricks from the Wilson yard.

was these notable men, whose long and productive association with the industry, made it such a resounding success.

Like other historic industrial activities in Manitoba—our once-vibrant lumber industry for example—the physical presence of the province's brick industry has mostly vanished into the mists of time, and even from the landscape. This cannot be surprising. The heyday of the industry, from about 1890 to 1912, was so long ago that many people would not likely be aware that we once had such a remarkable industrial activity as part of the economy. Moreover, many of the sites themselves were usually unimpressive, with utilitarian buildings and structures, and so with little of the architectural pleasure that attends buildings like churches and major public buildings. And so with little to recommend them to the public, these sites often have reverted to nature or were overtaken for other uses. This can be seen with all of the small rural yards, but also with once-huge operations, like the Canada Tile and Fire Proofing Company plant at Carman, a gigantic (and expensive) project that lasted barely four years (1912-15) and whose huge brick buildings were by 1924 used as rubble in Carman's streets.

There are a few remnant sites that hint at this history – at Sidney and Edrans there are modest subterranean remnants, and at a few other places, like the Wardrop yard at Whitemouth, there are scattered remains of old bricks and materiel. A stretch of the Seine River just east of Youville Street in St. Boniface hints at the enormous brick-making activity that once defined this area. But these insignificant remnants are minor and frankly un-evocative.

Subterranean remains of the former National Clay Products operation at Edrans, seen in 2016. (Courtesy Devin Seaman and Manitoba Historical Society)

A brick-lined drying tunnel, one of the few remnants of the Sidney Brick and Tile operation, seen in 2013. (Courtesy Manitoba Historical Society)

Views of two major areas of brick production in Manitoba – above, left and centre, of the area near the Seine River in St. Boniface, which once hosted several important brick yards; and above right of the former site of the Wardrop yard near Whitemouth, in southeastern Manitoba (this image courtesy Manitoba Historical Society). These views reveal the contemporary situation of such places. At Whitemouth there are only scattered brick shards scattered across a field to suggest the 17 years—1929-45—of brick-making activity there. At the St. Boniface site, just east of Youville Street, the gentle curves of the river, and the oddly wide expanse of open riverbank, suggest an earlier activity – when at least 17 yards located near here extracted as much clay as they could to burn more than 30 million bricks a year for several decades.

While much of the legacy of Manitoba's brick-making industry has been lost, there is one completely intact brick factory site remaining – Learys, about 10 kilometres west of Roseisle, in the lovely rolling hill country west of Carman. This is a revered place. The old Learys site (begun in 1900) still contains all of its original buildings, structures and features – the shale beds used for brick production (along with the crusher used to refine the shale for brick-making), the evocative beehive kiln, the tall brick smokestack and all of the pieces of machinery, mainly housed in the brick plant. While they are weathered and even rickety in places, the Leary fixtures are all in near-pristine condition, unmarred by upgrades or selected removals. It is questionable, however, how much longer the site can hold out – the re-use options for such a place are difficult to imagine, and the issues attending remediation and upgrade would be prohibitively expensive.

View ca. 2005, of the old Leary Brick Works site, in the rolling hills west of Carman. The factory was inaugurated in 1900 by George Leary, was mothballed from 1917 to 1946, and was revived by George's son William from 1947 to 1952. It is the last remaining site associated with Manitoba's historic brick industry, and is even more remarkable for presenting nearly every form, function and detail of a sophisticated brick-making yard: the brick plant (far left) in which shale from the hill behind was ground and then pressed in brick forms (the two processes via huge and heavy pieces of machinery), the beehive kiln (centre), where bricks were fired, and the 60-foot chimney (right), used in the burning process to draw hot air through the kiln. Just a half mile to the east of the Leary Brick Works site stands a fine brick house, built by the Learys, with Leary bricks, another important connection to Manitoba's brick-making history.

While it is nearly heart-breaking that so much of Manitoba's brick-making infrastructure has been lost, and so much forgotten, it is presumed that this study will go some way to raise the profile of the people and places associated with such an important and fascinating aspect of our past. And the survival of the Learys site has allowed for the production by this author of a meticulous historical and technical study of that special place, available on-line via the Carman-Dufferin Community Heritage Website:

http://carmandufferinheritage.ca/local%20heritage/special%20places/leary-brick-works.html

But there are even more opportunities to connect to the history of Manitoba's brick industry – in the very structures built up from those bricks. And there are thousands of such places. It actually makes the most sense to visit smaller communities around the province, where it is easier to connect the buildings to the land and to the yards once nearby that manufactured the bricks – in places like Hartney (from the yards of Harry Payne or William Kirkland), Gladstone (from the yard of Magnus Wilson), Souris (from the yard of "Squire" Sowden) and Portage la Prairie (from the yards of John Snyder and William Stephens).

The buildings in these communities will presumably stand for hundreds of years more, and through them we can continue to appreciate the hard work, skill, talent, grit and determination that animated so much of the work that attended our once-vibrant brick industry.

Two of Virden’s fine brick buildings. Handsome and durable, landmarks like this will continue to connect Manitobans to the hundreds of brick factories that provided the billions of bricks required to build up the very walls of the province.