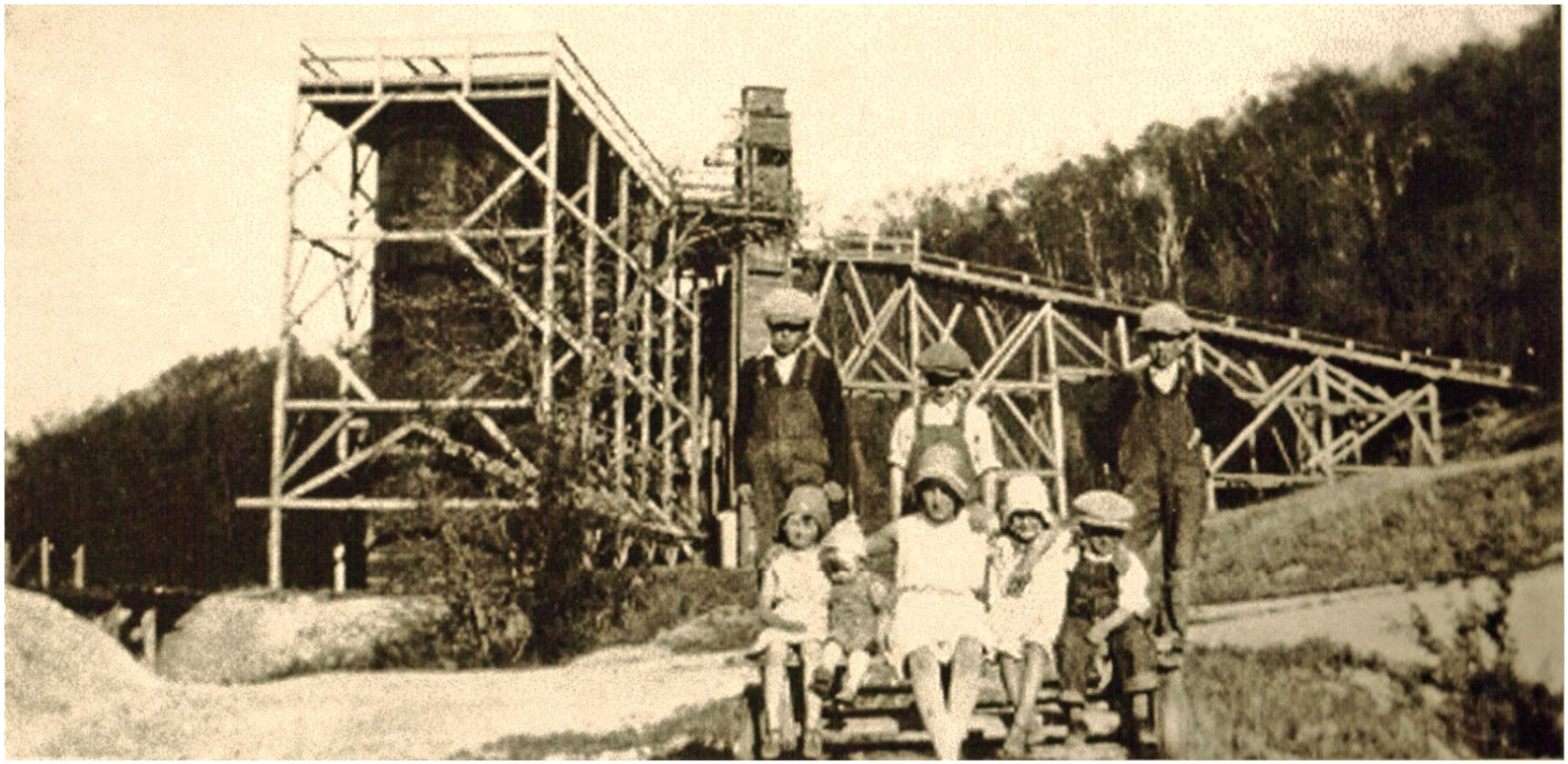
THE COMMERCIAL CEMENT COMPANY

An Investigation of an Early Manitoba Industry



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The Commercial Cement Company, An Investigation of an Early Manitoba Industry has been developed by Dado Projects, a Manitoba heritage research initiative of David Butterfield. These projects are supported by Heritage Manitoba, an informal coalition of municipal heritage associations dedicated to the appreciation and preservation of Manitoba's history. The project is part of a series focusing on Manitoba's early industrial development, especially in small-town or rural situations. Other projects in the series include:

The Former Manitou Gas Company Plant
The James White Sash and Door Factory (Carberry)
John Gunn's Water Mill (R.M. of St. Clements)
St. Peter's Dynevor Windmill (R.M. of St. Clements)
Leary Brick Works (R.M. of Lorne)

On the Cover: A view of the Commercial Cement Company, ca. 1930. (Courtesy Ina Bramadat)

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Introduction

This project focuses on a short-lived, but nevertheless fascinating niche in the history of Manitoba's construction industry—the production of natural cement—and one of only two known provincial sites where natural cement was manufactured – at the Commercial Cement Company. Located in the South Boyne River Valley about 22 miles (35 kilometres) west of the Town of Carman (or 5.5 miles, 9 kilometers, west of the Village of Roseisle), the Commercial Cement Company operated for about 17 years, from 1907 to 1924. It was here, at a site named Babcock, that all the typical features and apparatus for such an operation—mine site, large masonry kilns, processing facility, rail spurs, and various houses and storage buildings—were nestled into the bucolic landscape just south of the meandering South Boyne River. The other natural-cement site was at Arnold, about five miles west of Miami and east of Deerwood on NE 16-5-7W. The first production of cement in Manitoba was undertaken here, but there are no remains of the site, and only modest documentary references – nevertheless that story is presented in the section further on in this study, in "Cement Production in Manitoba." This site was about 10 kilometres (as the crow flies) southeast of Babcock – so presumably part of the same geological formation.

Sadly there is very little left of the Babcock site – the desiccated concrete foundations of the processing plant are the most obvious remnant, and there is still a great deal of debris from the old kilns, which were pulled down in the 1930s. One can still make out the old mine opening in a nearby hillside, and trailways in the vegetation suggest the original placement of tracks, paths and roadways. A few foundation remnants of other buildings also survive. The site has been mostly reworked as a pleasant residential compound, with the old processing plant remnants recast for garden uses – seating and as the current foundations for other small storage buildings. But it is still possible to make out the original layout of the place, and sympathetic owners have ensured that the key remaining features found upon their possession of the site are still visible and accessible.

Given the niche quality of this industry, with modest documentary material, and scant physical remains, this project is by nature largely conjectural (or perhaps as in legal terms, based on good circumstantial evidence). It is difficult to accurately, or confidently, describe or graphically illustrate the details one would hope to use, if there were surviving buildings (even in ruins), to describe the operation of the plant or of the construction of the buildings and structures. Nevertheless, there are several key surviving materials related to the Babcock site—local history entries, documentary materials on company development and personnel, archival photographs, recollections from local authorities—and a great deal of contextual information available in other sources about natural cement production, that allow for an exploration and explanation of this remarkable place.

The primary purpose of this project is to illustrate what the old Commercial Cement Factory looked like, and how it operated. There are thus several drawings and photographs that inform that part of the project. But before an exploration and explanation of Babcock can be undertaken, it is useful—even essential—that the long history of the processing of limestone byproducts be briefly explored, including the various kinds of operations that arose in Manitoba in the late nineteenth and early twentieth centuries. This background will not only place the Commercial Cement Company operation at Babcock within this fascinating history, it will provide information about production innovations and technologies that will inform the various surmises undertaken.

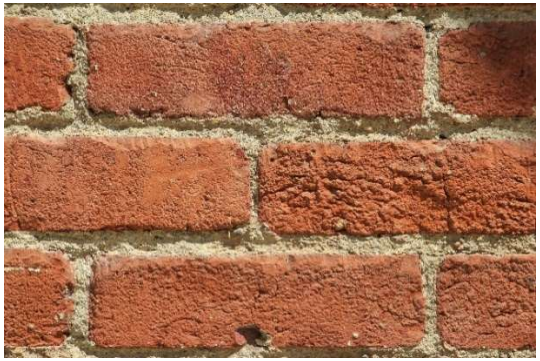
But first, some terminology.

Any masonry building—that is, of stone or brick—requires in its construction a vital, but easily overlooked ingredient: mortar. And in the twentieth century another related material—concrete—has revolutionized construction practices. It is important for this project to understand the distinct and important differences between these two materials (mortar and concrete), as well as two other key ingredients used in their formulation – quicklime and cement.

So what are these four constituents? Both quicklime (often just called lime) and cement are granular (even powdered) components that are the key reactive ingredients in mortar or concrete, the paste-like materials that we are more familiar with. Quicklime and cement are the ingredients that make mortar and concrete "work" – that is, harden quickly, and then endure over the years. Both quicklime and cement have been known for centuries, even millennia. Quicklime is the easier material to produce, the result of heating small chunks of

limestone, which burn off that material's carbon dioxide, leaving a slightly caustic residue. Cement is a more complex composition, made up mainly of limestone, but also with various clay derivatives along with alumina, silica, iron oxide, and magnesium oxide. While cement had been used in ancient Greece and Rome, it was not until the early 1800s that European experiments led to the understanding of modern cement constituents and manufacture, and in England to the formal name that has been used ever since: Portland cement (an aspect of an early marketing strategy that proclaimed the material's similarity to a well-regarded building stone quarried near Portland). The ingredients of both quicklime and cement must be heated in kilns to attain their necessary reactive potential. In 2025 there are several chemical configurations for various mortar mixes, and eight distinct types of Portland cement, refined to adapt to different construction requirements. An aside, but an important one for this project, concerns a type of limestone that contains significant quantities of clay or shale (the technical term for these kinds of limestones is argillaceous). Mined and fired in a kiln, this so-called natural cement—to distinguish it from "artificial" cements that required the addition of clay and other ingredients for the proper Portland cement mix—was widely popular especially in North America for many years before being overtaken by Portland cement in the early 1900s (more on that to come). Natural cement is no longer produced, except when needed in highly technical heritage restoration projects.

As to mortar and concrete: at its simplest level, the difference rests on ingredients. Today, both mortar and concrete contain sand, water and cement (before 1900 nearly all mortar was mixed using quicklime as the active ingredient), but concrete also contains one additional ingredient – aggregate, basically gravel. It is the aggregate that makes concrete harder, much stronger and more durable than mortar; in fact it sets up to be as hard as stone. This is, ironically, one of the reasons that mortar is still the preferred option for brick and stone construction. Because concrete is as hard (or harder) than the materials with which it would be binding, it can lead to cracking in a masonry wall; the comparatively softer mortar is more flexible, moving as the building shifts over time. An additional difference between mortar and concrete in modern situations is the addition of more water in a concrete mix, making it much thinner than mortar, and thus preferable in structural projects, where it is often poured into forms and reinforced with steel reinforcing bars (often just called rebar) to maintain its structural integrity. Mortar mixes are typically much thicker than concrete, but less durable – mortar should be replaced every 25-50 years, making it impractical for structural situations.



Mortar at work: In this detail image of a typical brick wall we see the regular lines and clear colour contrast between the light grey mortar and the edges of red brick. To enhance the contrast, and emphasize the bricks, the mortar is here pushed back slightly from the main brick faces. On close inspection you can see the irregularities of the mortar and even the sand particles that are a key part of the material. The vital binding component—quicklime or cement—is nearly impossible to discern with the naked eye.

***** Readers interested in the earliest history of concrete use in Manitoba can consult another project in this series: *The Poured Process: The First Production of Cement and Concrete in Manitoba & Our First Concrete Buildings.*