"Joliet Limestone: The Rise and Fall of a Nineteenth Century Building Material and Its Architectural Impact on the Joliet, Illinois Area." *Quarterly Publication*. Lockport, Ill.: Will County Historical Society, Winter 1997.

JOLIET LIMESTONE:
The Rise and Fall of a Nineteenth Century Building Material and Its Architectural Impact on the Joliet, Illinois, Area

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Prepared for the Illinois History Symposium
of the Illinois State Historical Society

This paper addresses the architectural use of dolomite limestone, a particular type of stone found in outcroppings along the Des Plaines River between Chicago and Joliet. This stone has been and still is quarried for a number of construction uses. It is quarried today as crushed rock, and was quarried and fired in the 19th century to make lime for hydraulic cement. It was also quarried for a flux used in processing steel. But I want to look at its use as a load-bearing building material between the 1830s and about 1917. This type of construction requires the stone to be cut and then laid in courses as it was found in the quarries. It could only be used as a weight-bearing wall. It was formed over a period of several million years in layers beneath prehistoric lakes. In the process, lime was deposited in layers of various thicknesses. The glaciers grew and subsequently receded at a later period. So the material wasn't deposited in solid blocks as were other stone building materials such as Bedford limestone, marble and granite.[1] Because of its formation, when using the dolomite limestone for construction, the blocks had to be laid as they were in the quarries.

This paper will explore the development of this material in building structures, how architecturally its use changed, and why its use for solid weight-bearing masonry disappeared in the 20th century.

The first use of this stone for construction was in 1835 when stone outcroppings on the western side of the Des Plaines River in Joliet were quarried by Joliet's first stonecutter and mason, C.W. Brandon, to build a stone for Martin Demmond.[2]

In 1836, construction began on the Illinois and Michigan Canal. The construction of the locks, bridges and aqueducts required the quarrying of the local stone. Also, it was fired to produce the lime that became hydraulic cement used for mortar in those structures. This brought a number of stonemasons and stone cutters to the area. The quarries that were opened were located close to the canal and seemed to provide stone for local construction only.

A number of these quarries were located on the north side of Joliet near the river and the canal, in what was known as the Canal Trustees' Addition. There were also a number of stonemasons and stonecutters located in that area[3]. In 1849, Joliet's *True Democrat*, reporting on developments in the Canal Trustees' Addition, notes that a number of stone houses were under construction[4]. The quarries in that area are still quite visible along Broadway Street in Joliet.

In 1850 there were three quarries in Joliet employing nine men. By 1860 one quarry had eight employees and was producing the more sophisticated "dressed stone" used in building construction.[5]

As already noted, this material in the quarries was layered. It was mined by drilling, which consisted of pounding with metal bars to create indentations

itself.[6] In the quarry the upper layers of rock were thinner and the stone was used for sidewalks and vaulting over cellars. The lower levels of a quarry produced thicker veins which were used for dimensional stone in buildings, and in the 1870s and thereafter these dimensional stones were carved for various building features.[7]

It seems that most of the stone commercially quarried before the Civil War was used for foundations, lintels, water tables, and sills. The most significant project was the State Penitentiary in Joliet. The site for this project had plenty of accessible stone, so it could be used for construction, and it was later quarried by prison labor for sale.

Until the late 1860s most, if not all, of the quarrying was for stone to be used locally. After 1867, that changed, and the quarrying industry became so active it could scarcely keep up with the demand. The change occurred largely because of the construction of the Rock Island Arsenal in Illinois. The director of this project, Col. Rodman, decided after making tests of various Midwestern stone to use the Joliet limestone particularly from H. H. Steel's quarry, located just north of Joliet.[8] This project required a huge amount of stone to be shipped, basically by railroad. In 1869 alone 29,925 railroad loads were transported for the project. The demand soon eclipsed the capabilities of Joliet's quarries, and Lemont quarries subsequently entered into contracts with the Army.[9] The result was that demand for the dolomitic limestone from the Des Plaines Valley expanded not only from the quarrying, but also from the use of the stone for public buildings in Illinois (among them the new State Capitol building), as well as in buildings in Iowa and Madison, Wisconsin. W. A. Steele, the mayor of Joliet, besides being a leader in the stone industry, noted that by 1871 from 550 to 750 men were working in the quarries at Joliet, and more quarries were being opened.[10]

By 1884 it is reported that the quarries were open nine months of the year, and they employed 700 to 1,000 men, and they shipped about 3,000 loads per month. The stone was in demand not only because of its strength, but also because it was cheaper than brownstone, marble or granite.[11] It was shipped by railroad as well as by the I & M Canal, as there were many quarries located on the banks of this waterway. Quarries such as the Joliet Stone Co. had steam-driven saws, polishers, and rubbing blocks so that it was possible for the stone to

addition, the local limestone served as an ideal aggregate when crushed for use in the concrete. Crushed rock quarrying was less labor-intensive than block quarrying. In the 1890s this type of mining made its appearance, and it continues at a high level of activity even today.[13]

3. The third cause of this decline was, in my opinion, the consolidation of the quarries in the 1890s. This, in part, was a response to the strikes and labor conflicts in 1885. These troubles caused the consolidation of quarries along the Des Plaines by companies such as the Western Stone Co. The cut stone still being produced at that time was flagstone for vaults over basement entrances for coal storage. Also, rubble stone was being produced for foundations in residences. But most of all, the production was crushed stone.[14]

The mining of this local product produced over the 19th century a variety of architectural styles that gave a distinctive appearance to the Joliet streetscape. Although the first structure built of the material was the Demmond

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