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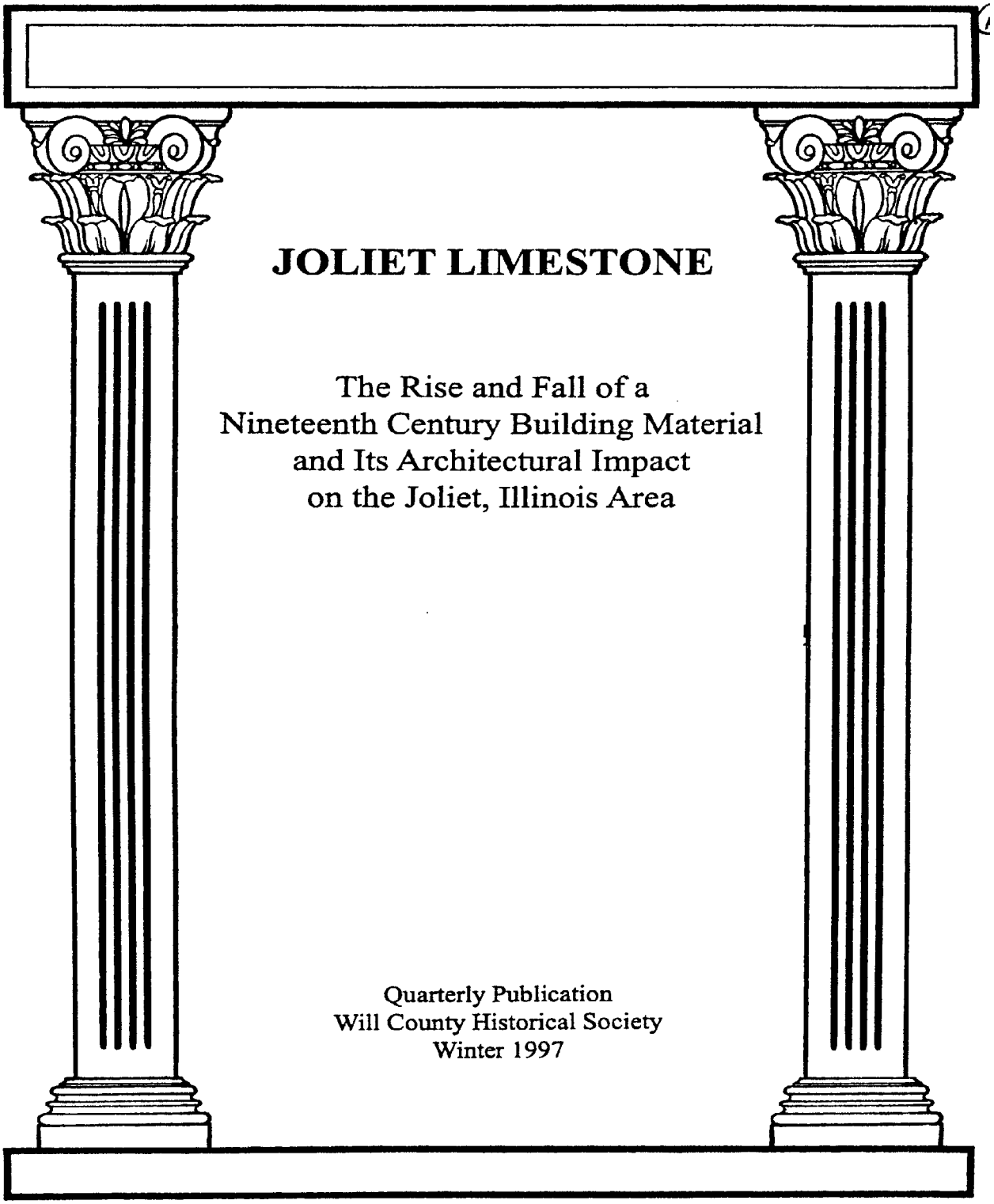

JOLIET LIMESTONE:
The Rise and Fall of a Nineteenth Century
Building Material and Its Architectural Impact
on the Joliet, Illinois, Area

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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 it 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 stone cutter 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 stone cutters 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 along a seam in the bedrock. Then these indentations were enlarged by driving metal bars into the rock. It is true that a contractor on the canal developed a rock drill, but this seems to have been used for clearing the canal prism of rick north of Lockport rather than for quarrying

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 carloads 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 carloads 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 be finished in the quarry.[12] Joliet was proud of itself because of the booming quarrying business and began calling itself the "Stone City." On the north side of town, where the quarrying business began and continued, 1st, 2nd, and 3rd streets were renamed "Stone," "Lime" and "Marble" streets, respectively in 1880.

The quarrying industry peaked in the 1890s and quickly declined at the turn of the century. What caused the rapid decline of the market for this popular building material? There were, I believe, three causes which are listed below, not in order of importance:

1. The popularity of Indiana Bedford Limestone. This limestone is a true limestone. It is cut from solid beds and, hence, is not layered like the dolomite limestone from the Joliet area. It had many advantages over the native stone. It could be cut and laid as a veneer over brick masonry; it did not have to be laid as the weight-bearing element. It was also easier to carve, being not quite so hard as the Joliet stone. It was easier to saw, and it gave a uniform gray look on a building, unlike the various subtle hues of the dolomite limestone (although to my eyes this stone has the dullness of concrete). However, the Bedford Limestone appealed to early 20th century taste, which exhibited a bent for classical buildings with uniform walls, uniformly laid with uniform color. New public buildings such as the Joliet Post Office and the Joliet Union Station were all built early in this century using the Bedford Limestone.

2. Another cause for the shift in popularity from the local stone was the development and spread in popularity of Portland cement. This new cement was harder than the old hydraulic cement which, though ideal for pointing masonry walls, was too soft to be used by itself as a structural medium. In

addition, the local limestone served as an ideal aggregate when crushed for use in the new cement. 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 Building, a commercial building, the material was also used for residences. The Demmond Building had six bays facing the street (Bluff Street). It was a typical, large Greek Revival building. It is now gone, but in the quarrying area in the northern part of the city along Broadway Street the homes built by quarry workers are still in existence. These residences were, as noted in 1849 by Joliet's *True Democrat*, in an area that is still mainly rural. These houses are basically Greek Revival style built by skilled stonemasons and stone cutters. The stone work was laid rubble with the corners buttressed by regularly cut stones for quoins. Sometimes the basic Greek Revival style is modified by the post-Civil War Victorian style bays made of regular cut and dressed stone. One of the most impressive products of the stonemasons of this era (who were mainly German immigrants) is St. John's Catholic Church, which was built in 1866. The Gothic church replaced the first structure that was built in 1855, also of stone. That structure was destroyed by a lightning storm in 1864.[15]

The first structure in Joliet designed by a major architect was the Illinois State Penitentiary, built in 1858. The architects were W.W. Boyington and D.W. Wheelock. Boyington continued to fashion Gothic-style structures using Joliet limestone, for in 1868 he designed the Chicago Water Tower and Pumping Station, still one of Chicago's most famous surviving castellated structures.[16] Boyington's designs illustrate that there was a stylistic preference in the use of the local limestone for either 19th Century Gothic or Richardson Romanesque architectural design.

In Joliet there were a number of architects practicing from 1870 to shortly after the turn of the century, but I want to single out four of them who were particularly associated with the use of the native stone. The earliest of these to appear on the scene was Hugo Boehm, who came to Joliet in 1871. He seems to have had no formal training in architecture, but like the others he had a background in Engineering. He was first an engineer at the steel rolling mill, and from 1875 to 1883 he was the Joliet city engineer.[17] It was this latter period that he began to do architectural work, particularly in the design of public schools. Though these buildings no longer exist, a Catholic school, St. Mary's, does survive and is currently used as a community center. Other buildings that he designed and that still stand, are a Lutheran church and a large Catholic church, St. Mary's, that is now standing vacant in downtown Joliet. One of his most characteristic Gothic designs is the Sehring house, now occupied by the Joliet Catholic Diocese. It has an abundance of castellated towers and uses rusticated heavy-appearing stone for the walls, towers, and cornice. All his surviving structures are designed in the style of the late 19th century heavy Gothic. Boehm was still practicing in 1900, but by then it appears that there was little interest in heavy native stone Gothic structures.

One of the most significant of these late 19th century Joliet architects working in stone was Julian Barnes. Barnes was born in 1856 and his family moved from the East to Joliet in 1858. In 1877 he went to Northwestern University to study engineering, and he remained in school until 1880. In 1881 he opened

practice in Joliet.[18] He was a very successful architect and one of his most important surviving stone structures is the Auditorium Building, built in 1891 in downtown Joliet. This structure was designed for multiple uses. It was owned by the Universalist Church, and its space was easily converted to a large auditorium. On the ground floor there were stores, and on the second and third floors, besides the auditorium, there were offices and a music college. The building has decorative turrets on the corners. These decorative features predominated in the commercial stone buildings. The arches for the windows on the main business facade extend from the third floor to the second. The six bays so formed encompass tall rectangular windows with two-story pilasters supporting the arch. On the first floor the lateral store front windows convey a lateral instead of the vertical thrust of the upper stories. The pillars used to support the entrance arches are made of granite instead of Joliet limestone. This was typical of 1890s buildings, namely, the use of other types of stone for the entrance.

The same style of commercial architecture is carried out in other less imposing buildings of that period, as can be seen in the Stevens Building (now known as the Eby Brown Building). It has two-story arched windows, decorative corner turrets, and the lateral statement on the ground floor (which was originally occupied by a harness and bicycle store). These distinctive touches indicate that the building was designed by Julian Barnes. It was built in 1895.

Equally interesting, although not so imposing as the Auditorium Building, is Julian Barnes' home in Joliet. The sophistication of the stone work on this local stone building gives some indication of the skill of the quarry workers in the 1890s when it was built. Julian Barnes died around 1910.

Another one of these architects was John Barnes, a brother of Julian Barnes. He was born in 1867. He was trained at the University of Illinois, where he studied under Nathan Ricker, who was much influenced by the work of H. H. Richardson. Before practicing in Joliet, Barnes worked in Denver and Iowa. In Joliet he was particularly associated with school buildings. Although none of these buildings survives, he designed the Lockport Central Square school building (built in 1896), which property mirrors his Farragut School in Joliet. He also designed the Richards Street Methodist Church in Joliet. These buildings have rusticated stone walls of irregularly laid limestone.[19] It is interesting to note that he also designed the Cutting Building in Joliet using a Bedford limestone veneer over brick masonry. The building, built in 1900, is designed in the old style with arches, turrets, and ample decoration instead of the classical limestone buildings of a later era. In 1914 Barnes ceased practicing architecture and opened a car dealership.

The last of these four architects I want to examine is Frank S. Allen (1860-1930). He came to Joliet in 1887 to design the Christ Episcopal Church. It is a 19th Century Gothic style, called "Old English" in contemporary accounts. It has an atrium-type entrance and a cloistered walk. It is now on the National Register of Historic Places. Another of his surviving stone buildings is a commercial structure called the Barber Building, located in downtown Joliet. This building has been badly butchered, but a few of the original details such as arches and pilasters remain on the second floor. The last building Allen did in Joliet was the Joliet Township High School in 1900. The walls are of Joliet limestone, but all the trim and lintels on this academic Gothic building are of Bedford limestone. In 1903 Allen left Joliet for the West Coast.

In 1903 the Daniel H. Burnham firm was hired to design the Joliet Public Library. Again, the load-bearing walls are of the local product, but the decorative elements are of granite and the ubiquitous Bedford limestone.[20] It seems that the public buildings had still to retain some element of the material that made Joliet the "Stone City." It should be noted that these four local architects mentioned above designed the structures in materials other than dolomitic limestone. Judging by those buildings that have survived, it appears that those most significant were built using this material.

Besides schools, churches, residences, commercial and government buildings, one other type of structure was designed by architects that used the local materials, namely, factories or manufacturing facilities. The architect most associated with this type of structure was C.W. Webster.

By 1910 the architects associated with the use of the local dolomite had quit practicing, died, or departed the area. However, nestled in among the earlier stone residences in north Joliet near Broadway between Stone and Lime streets is a small cow barn that was constructed by Matthew Bouchar in 1917. Bouchar was not a stonemason or stone cutter, he simply used local rubble stone to build a simple stone building. It is not vernacular architecture, but folk architecture. Bouchar was an immigrant from Croatia who worked in the Joliet steel mills. He felt that the local stone was an attractive material, and though it required much effort to build his simple shed, the result of his labor still stands today as mute evidence of the versatility and longevity of the fine building material known as Joliet Limestone.[21]

FOOTNOTES

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5. *Industrial Census*, 1850 and 1860.

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7. p. 20, *Joliet News*, Historical Edition, Joliet, Illinois, 1884, published by F.H. Ferris.

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18. *Ibid*. p. 41.

19. p. 30, *Come to Joliet*, op.cit.

20. pp. 58-59 and 117, Sterling, Robert E., *Joliet: A Pictorial History*, G. Bradley Publishing, St. Louise, 1986.

21. Information obtained by the author from an oral interview with Tom Bouchar, Matthew's son, in December 1993.