Cobblestone Buildings: Their Nature in General

As Rich and Sue Freeman say so well in the introduction to their book *Cobblestone Quest*, Upstate NY residents drive by cobblestone houses and usually give them very little thought. Most people barely recognize that this area was the pre-Civil War birthplace of a new form of construction. It's a method that remains peculiar to our region with over 90% of the cobblestone buildings in the entire United States being located within a 65-mile radius of Rochester, New York. Estimates vary, but approximately 700 to 1,200 cobblestone buildings were built in the United States. Between 600 and 900 of them are in New York State, spread over 25 counties, spanning from the Hudson River to Niagara Falls.[1]

Using an Ice Age residue of glacially-rounded native stones, pioneer craftsmen in the middle third of the nineteenth century perfected a form of folk art that was without precedent in America.[2] This cobblestone craft that developed in this greater Rochester area flourished, spread and died out within less than half a century. Nevertheless, it left its stamp permanently on this region. According to Rich and Sue Freeman, who wrote the book *Cobblestone Quest* in 2005, it holds a place in history as the last generation of completely hand-built houses.[3]

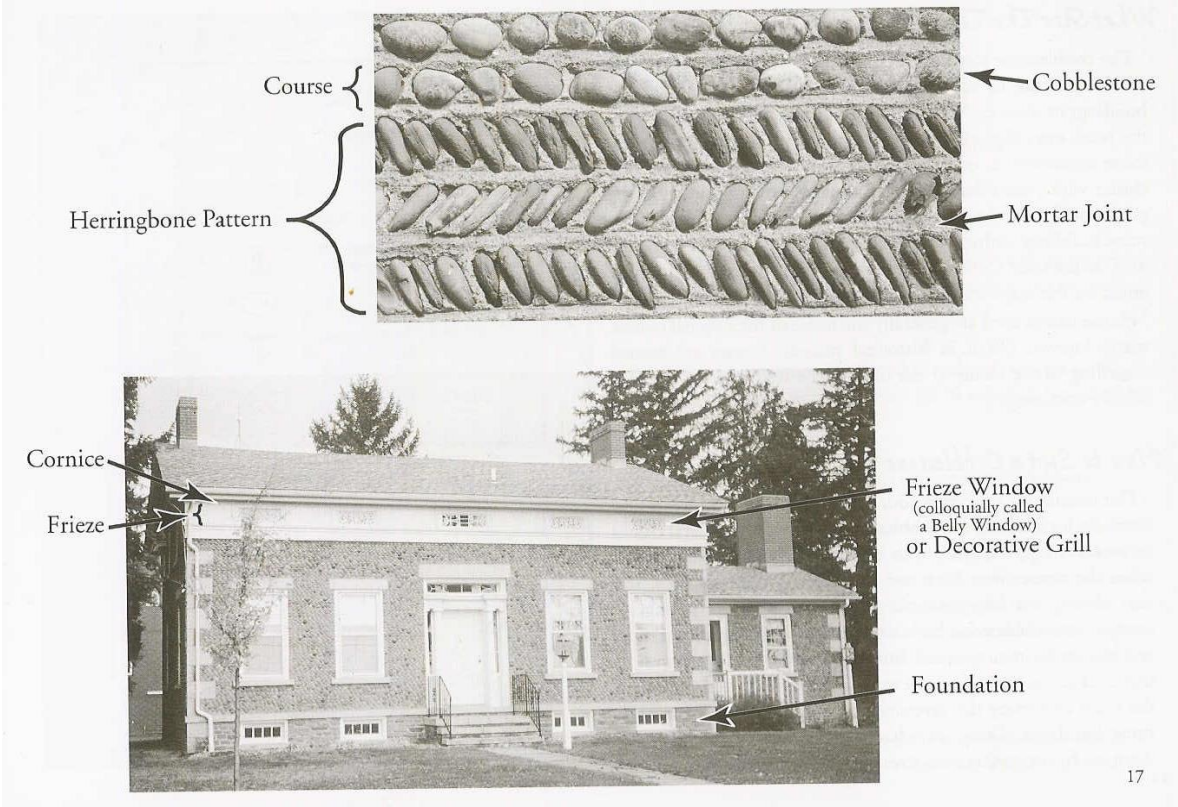
While this article is dealing with cobblestone buildings as a construction method—not an architectural style—it can be said that most cobblestone buildings are Greek Revival in style. Those constructed before 1835 were, however, usually in the Federal style. There are some rare instances of cobblestone buildings in the Gothic Revival and/or Italianate style.[4] With few exceptions, the Cobblestone Era ended with the beginning of the Civil War. There are three time periods of cobblestone architecture: the Early Period (1825-1835), the Middle Period (1835-1845), and the Late Period (1845-1861).[5] During the Early Period, masons predominantly used glacial field cobbles and built with crude, irregular designs.[6] Stones used in the early cobblestone construction varied considerably in size and were laid in uneven rows. One of the first stylistic innovations was to lay stones in more even rows. During the Early Period, stones were from two and half to three and a half inches high and from three to six inches long. Stones were sized by passing them through holes cut in a board or through iron rings called "beetle rings."[7] During this Early Period, the cobblestone buildings were typically constructed with an 18 to 20 inch thick, solid coursed rubble wall with 3 rows of field cobbles tied together with elongated or triangular shaped stones. The inner two-thirds of the wall used large stones. There was complete integration of the cobblestone surface with the interior wall—the whole wall was laid up as one. To finish off the interior wall, a horsehair plaster was applied to the stone.[8]

During the Middle Period, smaller stones that were rounded or oval water-washed stones were commonly used. Sometimes these water-washed stones were mixed in with glacial fieldstones.[9] The size of the cobblestones used was from one and a half to two and a half inches high and from two to four inches long. Masons began to use stones of one particular color, with red sandstones being especially popular.[10] These masons also became quite competitive for originality in their designs.[11] The typical Middle Period cobblestone building was constructed with a rubble core with a facing of cobblestones laid on front of the core, with longer cobble extending into the core of the building. Again the entire wall was laid up as one.[12]

Lake-washed cobblestones line the Lake Ontario shoreline.

During the Late Period (1845-1860), the cobblestone buildings were built typically with uniform small, round, single color stones, especially on the "front" (street-side) of the building.[13] "Small" meant one to one and half inches high and three-quarters of an inch to two inches wide. A herring-bone pattern was used frequently, as was alternate rows of white and red stones.[14] The cobbles became in many cases a "veneer" against a structural rubble stone wall.The construction was often criticized for being a monotonous, machine-made appearance. These critics felt that "craftsmanship" had given way to "skill."[15] Some of the Late Period cobblestone buildings were constructed with a rubble wall laid first, with a mortar and small stone veneer laid separately. In this construction process, there was no bonding between the two, making this the least permanent construction design of the various cobblestone building techniques. Typically the wall thickness would vary, with a 20 inches thick cellar and first floor wall and 18 inches thick second floor walls. In some cases, 16 inches thick walls were used throughout. Firing strips would be applied to the interior walls to provide an air space (sometimes 2 to 3 inches thick) between the stone and the interior wall. The interior wall would then be finished by lath and plaster.[16]

The two pictures immediately below shows some of the features typically found in a cobblestone building.[17]



The demise of cobblestone construction coincided with the outbreak of the Civil War. There are several reasons for this. One obvious factor is that the war caused inflation, making masonry labor simply too expensive. A second major factor is that the local supply of small stones became more difficult to come by, leading to rising costs of transporting the stones from further away. Cobblestone construction was replaced by more efficient technologies, such as the wooden balloon frame, fast-drying Portland cement, and mass-produces bricks.[18]

The term "cobblestone" needs explanation. Geologists classify stones by their size as "pebble," "cobblestone," or "boulder." In lay terms a pebble is a stone held by two fingers, a cobblestone is that held by one hand, and a boulder needs two hands to hold. So, we have "cobblestones" that are between 2.5" and 10.1" (or 64 to 256 mm.) in size. The word "cobblestone" comes from Middle English. "Cob" means a rounded lump. "Ston" means a small rock.[19]

The cobblestones of our area were laid down as glacial deposit from the Ice Age about one million years ago. The ice and water polished the rocks and scattered them throughout the topsoil and subsoil of the lands even miles away from Lake Ontario.[20] Cobblestones in our area can be differentiated as either "fieldstones" or "water-rounded stones," depending upon where human beings have picked them up out of the ground, and their physical appearance. Fieldstones are angular stones gathered from glacial till and outwash deposits from the glaciers. The water-rounded stones are also glacially derived but have been rounded by wave action, either along the Lake Ontario shore or long ago by a glacial lake and then left in an out-washed deposit.[21] These stones were plentiful and would need to be removed from the soil so that the land could be farmed. Using the picked-up stones for building material was a fortunate result.

Cobblestone construction did not originate in New York. As far back as the third century, the Romans had built massive walls as part of their coastal fortifications in the English countryside, using water-worn flint cobbles. In the Middle Ages, cobblestone streets, houses and outbuildings were built throughout England and Europe. Cobblestone construction was adapted and refined by the American craftsman to become a uniquely American form of building construction. Settlers in the United States used fieldstones gathered from the fields to build fences and foundations for their buildings. Sometime between 1825 and 1830 some unknown mason built a house using smaller stones in horizontal courses. This design idea spread rapidly.[22] Both the exact location and name of the mason of the first cobblestone building remains a mystery. We do suspect, however, that it is somewhere south of Lake Ontario. We also theorize that the actual construction of cobblestone buildings began on farms and later migrated to villages, but remained a predominantly rural construction method.[23]

There are some major historic connections between the completion of the Erie Canal in 1825 and the advent of the Cobblestone Era. The Erie Canal created an economic boom. Farmers in the areas surrounding the Erie Canal now were becoming financially prosperous from the marketing of their wheat, flour, and other cash crops on the Atlantic seaboard. The newly prosperous farmers were now able to build houses reflecting this prosperity and their confidence in the future. This encouraged farmers to clear more land, necessitating "getting rid" of those stones in these new fields. As the farmers prospered, they wanted a "more showy" home and a "cobblestone house" was a logical option. A cobblestone house would be much more fireproof than a conventional wooden frame house. The cobblestone house would give an air of

"permanence." As paint was expensive, a cobblestone house would be easier and less expensive to maintain. The building material—the cobblestones—was free, and could be rather easily gathered from plowed fields or brought home in oxcarts after delivering wheat to ports such as Sodus for shipment.[24]

The stone-gathering task was the responsibility of the future homeowner. Often boys were paid ten cents a day to walk beside a stone boat to collect stones turned up from plowing. The stone-gathering could often take several years. The gathered stones had to be sorted by size, and sometimes by color. This was a job for children and women. Sometimes there would be a neighborhood "bee" to sort the stones, followed by a big supper, and then music and dancing.[25]

A common folklore is that the cobblestone buildings masons were formerly canal masons These masons had been lured to the area to build the locks on the Erie Canal and were looking for work following completion of their work on the Erie Canal. They wanted to stay in the area, having seen the beauty of the region and because of the reasonable land costs.[26] The reality is that the Erie Canal was such an economic success that the canal masons had follow-up work throughout all three cobblestone building periods. More specifically, a widening and deepening of the original Erie Canal began in 1832 and continued through 1862. Almost one-half of the cobblestone buildings were built between 1836 and 1846 when the canal masons would have been employed in this canal work. The demand for masons on the Canal was primarily for building locks and aqueducts, with over 65% of these structures being built east of Syracuse but only 4% of the cobblestone buildings found east of Syracuse. The masonry for canal locks and aqueducts consisted of working with large blocks of stone, not small cobble stones. Interestingly, in Lockport, New York, where canal masons built a series of five locks to climb the Niagara escarpment, the masons built their homes of cut stone blocks, not cobblestones! It also needs to be pointed out that some cobblestone buildings were built as early as 1810—predating the start of Erie Canal construction in 1817, let alone its completion in 1825. Some canal masons may have built cobblestone houses. It was, however, probably local masons or even local farmers who learned the skills and built their own and their relatives' homes. A periodical from the *Genesee Farmer* published a series of inquiries and responses from farmers asking about the process of cobblestone building. The responses printed in this periodical say nothing about needing specialized masonry skills or about locating a skilled mason.[27]

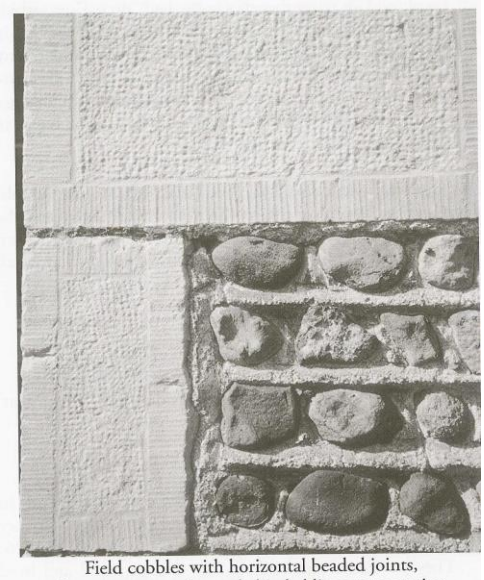
Yet today most of the cobblestone buildings masons remain anonymous. It is unlikely that these masons brought their skills from Europe, since the early cobblestone construction here in the greater Rochester area lagged the skills shown in English construction by fifty years. There must have been many masons for these various cobblestone buildings because of the large number of cobblestone buildings constructed over a short period. It is believed that only a few masons built more than three or four cobblestone buildings. It is likely that many cobblestone houses built were built by their owners who learned the construction techniques by word of mouth or from their temporary work on the Erie Canal. The evolution of the building style during the three periods described above shows an increasing skill and sophistication in the masonry.[28]

A good mason could lay 4 courses (about 18 to 24 inches of wall) per day. The daily pay for a mason in 1850 was $1.00 to $1.50, plus "board" for working a 10 to 12 hour work day.

Generally only one mason worked on a building at a time. This would allow the necessary time for the mortar to begin to set. [The nature of the mortar will be discussed in a later paragraph.] This also meant that it could take a season to complete the building, and in some cases as long as two or three years. A mason might work on 2 or 3 buildings concurrently per season. Because each mason had his own style of selecting and assembling the cobblestones, it is possible to look at cobblestone buildings and find others nearby that so resemble each other that they were likely built by the same mason.[29]

A soft lime mortar was the glue that held the cobbles together. This mortar was made of lime, sand and water, but each mason tended to have his own unique recipe. The magic of soft lime mortar is that it cured slowly, letting the stones settle and bear weight. It could take up to 35 years for the mortar to harden fully—giving the building time to settle without cracking. The reader needs to understand that these were pre-Portland cement days, so the cobblestone buildings today can't be repaired with modern mortar. This is because the modern mortar dries too hard and too fast and would push the cobblestones out.[30]

From the beginning, masons used stone quoins at the corners of the houses. Quoins are rectangular stones used to strengthen corners and to improve the appearance of the building. Initially, these were small stone blocks about two or three courses of cobblestones high. Later, they used square stones twelve inches high, six to eight inches thick, and sixteen to eighteen inches long. As the size of the stones selected became smaller, four courses, then five courses, and, finally, six courses of stones were finished with a twelve-inch-high quoin at the corners.[31]


Field cobbles with horizontal beaded joints, 4 courses per quoin, and chiseled limestone quoins.

Limestone blocks and slabs for quoins (for structural strength at the corners of the building), sills, and lintels could be easily and economically transported from area quarries. A sill is the horizontal piece at the bottom of a door or window opening; a lintel is the horizontal piece over a door or window that bears the weight of the structure above it. During the construction of the Erie Canal, quarries had been established at Albion, Geneva, LeRoy, Medina, Phelps, and Rochester.[32]

The most distinctive feature of cobblestone buildings is their texture. Texture is determined by the size and composition of the cobblestones, by the mortar joint treatment, and by the patterns created by mortar joins and cobblestones. Most cobblestone buildings have smaller stones used on the front and larger stones on the sides and rear. This can be immediately seen when the number of cobblestone courses in height is counted at the stone quoins. Closer inspection of the cobblestone wall will reveal an added dimension of artwork expressed in the mortar between the rows of stones. Since the cobbles are laid in horizontal course, the horizontal mortar joint is usually in the shape of a projecting V, with the point of the V forming a continuous horizontal line between courses. Occasionally this horizontal joint has been finished

with a beading trowel, which makes a continuous bead or half-round projection. This continuous line helps to bring order to what otherwise could be a random collection of stones. The desire for ornamentation led builders to exploit the inherent character of the stones in various ways. For example, sometimes there was a herringbone pattern achieved by laying the stones diagonally and reversing the direction in each successive row or course. Color could be used to achieve special effects by the careful collection and sorting of water-rounded stones by color. The real beauty of cobblestone buildings depends on light. Without this, particularly sun light, the texture of the stones and mortar joints are minimized, and the fascinating patterns recede. "Sunlight, raking across the textured surface, gives vibrancy to the building that is unique. Perhaps the most harmonious manifestation of man and nature in upstate New York is the rural cobblestone building dappled by sunlight and surrounded by open fields."[33]

Not only homes, but also churches, schools, and stores were constructed of cobblestones. In addition, an octagonal blacksmith shop in Alloway, a factory in Perry, and a Masonic Temple Building in Pittsford were built of cobblestones.[34] There were cobblestone barns, smokehouses, mills, carriage houses, gate and toll houses, privies, etc. There was even at least one cobblestone tombstone (in Meridian, NY)![35]

former blacksmith shop in Alloway

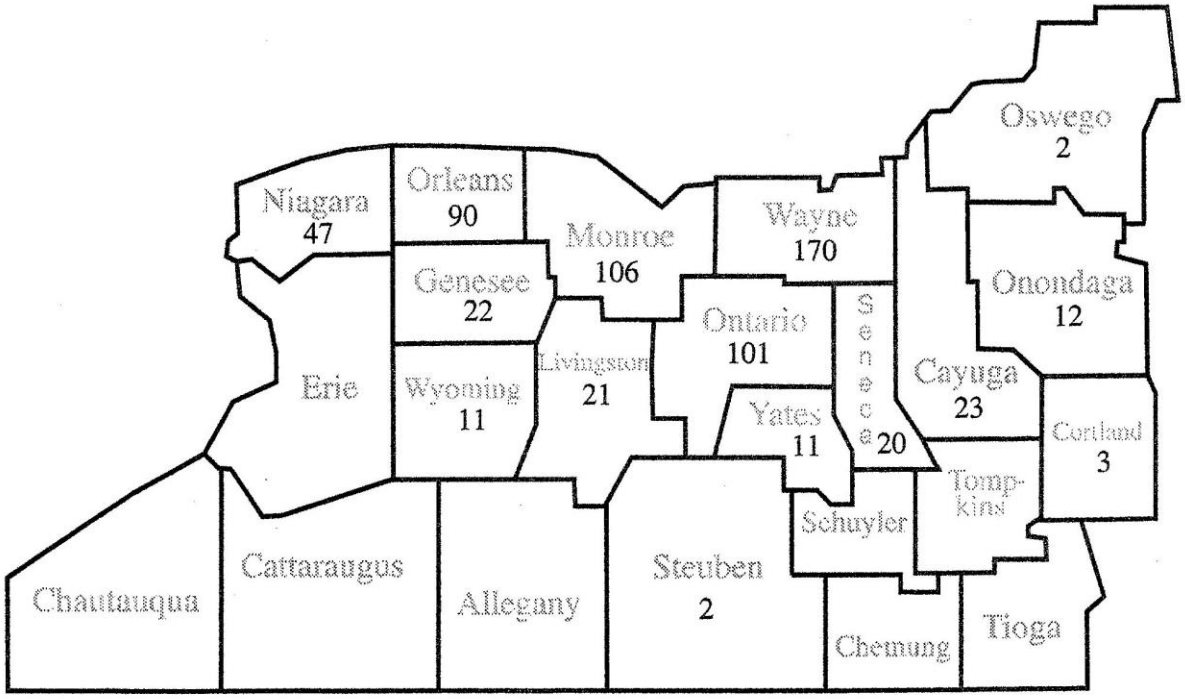
Kimball gravestone in Meridian

Conclusion

Interest in cobblestone structures tapered off as labor costs increased. Cobblestone construction was very labor intensive, and also the advent of steam-powered sawmills and the availability of wood from Pennsylvania and from the Adirondacks lowered the cost of construction with wood.[36]

Although some of the cobblestone houses have been lost, most of their owners today appear to be maintaining them properly. They certainly are worthy of being preserved. Rochester architect Claude Bragdon referred to the Cobblestone Era as "evidence of our architectural Golden Age." In his opinion, "Austere and humble as these buildings are, they show a beauty and integrity of a kind which made this country great, and should serve as inspiration to us today."[37]

The map shows the approximate number of cobble stone buildings per county in central and western New York.[38]



Approximate number of cobblestone buildings per county.

[1] Rich & Sue Freeman, *Cobblestone Quest: Road Tours of New York's Historic Buildings*, Pine Glen Court, FL: Footprint Press, Inc., 2005, p. 7.
[2] Olaf William Shelgren, Jr. et. al, *Cobblestone Landmarks of New York State*, Syracuse: Syracuse University Press, 1978, p 1.
[3] *Cobblestone Quest*, p 7.
[4] *Cobblestone Landmarks of New York State*, p 4.
[5] Emerson Klees, *More Legends and Stories of the Finger Lakes Region*, Rochester: Friends of the Finger Lakes Publishing, 1997, pp 146-149.
[6] *Cobblestone Quest*, p 8.
[7] *More Legends and Stories of the Finger Lakes Region*,
[8] *Cobblestone Quest*, p 12.
[9] *Cobblestone Quest*, p 8.
[10] *More Legends and Stories of the Finger Lakes Region*,
[11] *Cobblestone Quest*, p 8.
[12] *Cobblestone Quest*, p 12.
[13] *Cobblestone Quest*, p. 8.
[14] *More Legends and Stories of the Finger Lakes Region*, pp 146-149.
[15] *Cobblestone Quest*, p 8.
[16] *Cobblestone Quest*, p 13.
[17] *Cobblestone Quest*, pp 16-17.
[18] *Cobblestone Quest*, p 9.
[19] *Cobblestone Quest*, p 7.
[20] *Cobblestone Landmarks of New York State*, p 1.
[21] *Cobblestone Quest*, p 7.
[22] *Cobblestone Quest*, p 9.
[23] *Cobblestone Quest*, pp 9-10.
[24] *Cobblestone Quest*, p 10.
[25] *Cobblestone Quest*, pp 10-11.
[26] *More Legends and Stories of the Finger Lakes Region*, pp 146-149.
[27] *Cobblestone Quest*, pp 13-14.
[28] *Cobblestone Quest*, p 12.
[29] *Cobblestone Quest*, p 12.
[30] *Cobblestone Quest*, pp 11-12.
[31] *More Legends and Stories of the Finger Lakes Region*, pp 146-149.
[32] *More Legends and Stories of the Finger Lakes Region*, pp 146-149.
[33] *Cobblestone Landmarks of New York State*, pp 25-27.
[34] *More Legends and Stories of the Finger Lakes Region*, pp 146-149.
[35] *Cobblestone Quest*, pp 15 and 173.
[36] *More Legends and Stories of the Finger Lakes Region*, pp 146-149.
[37] *More Legends and Stories of the Finger Lakes Region*, pp 146-149.
[38] *Cobblestone Quest*, p 7.

Notes: The pictures were taken by Walter Gable, Seneca County Historian.
This article was written by Walter Gable, the Seneca County Historian, and revised on April 24, 2006.