

TECHNIQUES OF COBBLESTONE MASONRY

by

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Most of you have heard my lecture on Cobblestone Architecture and would not care to hear it again. However, as members of the Cobblestone Society I believe it is necessary to do more research and to examine more carefully some of the structural features of this type of masonry. We should do more research in the various methods the masons used in laying the cobblestones, the many ways they struck the horizontal joints and embellished the vertical joints. How did they make the mortar that has withstood the elements for more than a century and a quarter? What methods did the masons use in erecting the walls?

Today we shall examine the development of cobblestone masonry and a few of the many ways in which the masons laid the stones in the walls.

There is no particular secret regarding the construction of cobblestone walls. Masons have used small stones to build walls for centuries. Some of these examples, particularly those in France, closely resemble the early cobblestone work in this area. Near Dieppe there are sections of the old city wall dating back to the fifteenth century that are built of small stones laid in horizontal rows. Strange as it may seem, I have never found any records of cobblestone masons in western New York with French names. There are also walls in England built of small stones laid in rows and there they are called "flint heads."

When the pioneer farmers came to western New York they found the fields covered with stones dropped by the glaciers. These stones were a great source of trouble to the pioneer farmers,

trying to plant and cultivate their fields. The stones were laboriously gathered and built into many miles of dry-stone-wall fences to separate fields and pastures. The men who built these stone fences were known as "dry-stone-wall" masons. Thousands of tons of fieldstone were used to build foundation walls for houses and barns. These walls were built of various size stones and small boulders, but no attempt was made to lay them in horizontal rows and the face of the wall was flush. There was no indication of horizontal joints in these early walls.

Then, sometime, between 1825 and 1830 some mason or masons who no doubt built or witnessed the building of similar walls in Europe, erected a masonry wall using small field stones, about three or four inches high in horizontal rows. The face of the wall was nearly flush since the stones projected only a fraction of an inch and only here and there did the mason emphasize the horizontal joint by striking a "V" shape with the trowel.

Architecture is always in a process of development or deterioration. It never stands still. The same is true of the era of cobblestone masonry, and its development can easily be traced through the usual divisions of early, middle and late periods. Please do not assume there are definite lines or dates that separate any periods. The trends are only definite at the height of a period.

For convenience I have dated the periods approximately as follows:

Early	1825-1835
Middle	1835-1845
Late	1845-1860

The cobblestone era ended during the Civil War for two

reasons, I believe. The over-supply of masons, due to the building of the Erie Canal, has passed on; also, inflation, due to the war, increased wages which made the slow process of building a cobblestone wall too expensive.

During the first half of the Early Period the masons used stones of various sizes and shapes as well as different colors, just as they were gathered from the fields. The exposed stones were from two and one-half to three inches high and from three to six inches long. A few stones eight to ten inches long are also found scattered in the wall. The horizontal mortar joint varied from one to one and one-half inches wide. It was a wavy, irregular line, formed into a flat "V" shape, the sharp edge projecting, and was formed by the mason holding his trowel at an angle when striking the joint.

This form of "V" joint greatly appealed to the masons and it spread very rapidly. Soon the sides of the "V" are pitched more sharply and it is made a continuous line as straight and even as a trowel can form it. The "V" joint made the stones appear to project beyond the surface of the wall and in the sunlight each stone has a highlighted and shaded surface as well as a shadow. The effect of sunshine playing on such a wall made of various colored sandstones and granites is like the painting of the early modernists, myraids of dabs of color that vibrate in the light.

During the latter half of the Early Period the masons became more careful in selecting stones of a more uniform size and laid them more evenly with straight horizontal mortar joints. They also began to embellish the vertical joints between the stones with a projecting "V" shape of mortar or building up a

small pointed pyramidal shape. But this embellishment of the vertical joint was never permitted to touch or interfere with the continuous horizontal joint. The tendency throughout the cobblestone era was to use smaller and smaller stones and to reduce the width of the horizontal joint.

In the Middle Period the stones averaged from one and one-half to two and one-half inches high and from two to four inches long, and were more carefully selected for size and shape. About the late "thirties" the masons began to mix rounded water-washed stones with field stones. These round or oval shaped water-washed stones found in the gravel pits and along the shores of Lake Ontario had a certain fascination for the masons because they became the preferred material. At first the lake-washed stones were laid up in walls of various colors from gray to dark red. Then it became fashionable to carefully select the stones all of the same color. Since red sandstone is abundant in this area, most of the houses were built of various shades of red or red-brown stones.

The horizontal mortar joints were reduced in width, averaging about three-quarters to one inch wide. The horizontal "V" joints and the pyramidal embellishments between the vertical joints were carefully made with a small trowel. However, in the early "forties" some mason made a metal form that would strike a bead or half circle about one inch wide to form the joint and also used some form of straightedge or guide to make a perfectly straight line.

During the Late Period the masons carefully selected lake-washed stones of the same color and size. The tendency throughout the period was to use smaller and smaller stones and to reduce the

width of the horizontal joint. The stones averaged from one inch to one and one-half inches high and the horizontal mortar joints, either a "V" shape or bead, were not more than three-quarters of an inch wide.

One can readily see that the appearance and character of the cobblestone wall had completely changed. In the early period the stones were actually an integral part of the wall--they were a part of the construction. But when we reach the Late Period the small cobblestones were merely a veneer, applied against a structural stone wall. The small lake-washed stones had no structural feeling, and all the sparkle and life of the variegated colored walls disappeared. The Late Period cobblestone wall had a monotonous machine-made appearance because all the stones were of the same size and color. The beauty of the walls built of larger stones of various colors and shapes during the latter part of the Early Period and the first half of the Middle Period is apparent even in a photograph. These walls expressed a feeling of material correctly used and did not make a display of mechanical skill as was done in the Late Period.

We divided the cobblestone era into three states: as early, middle and late to more easily understand the process of its development. It simplifies teaching, but we must realize that all craftsmen in an epoch did not follow these divisions. Some masons learned how to lay up the cobblestone walls in the Early Period and continued to lay up this type of masonry through the Middle and even into the Late Period. This is true of any building phase in any style. For instance, there were some carpenters who continued to run-out their own wood mouldings with moulding planes long after woodworking shops were cutting mouldings with steam-power machines. There are houses built as

late as the early 1850's in which the cobblestones were laid in the Early Period manner. But we do know that a cobblesone wall built of rounded water-washed stones was not built before the late 1830's, and that a wall built of small lake-washed stones, all of the same color was not built before the Late Period.

It was during the Middle Period when craftsmanship and skill were nearly balanced, that the best work was done. The masons vied with each other in experimenting with new methods and patterns of laying the cobblestones and embellishing the horizontal and vertical joints between the stones. Some masons selected only squarish stones, others oval shapes, and still others only rounded stones. The oval shapes were set in the walls vertically or diagonally. Some sloped to the right and others to the left. Sometimes they selected elongated oval shapes from three to six inches long and from one-half to one inch thick, and laid them in the wall in a herring-bone pattern, which is sloping the stones at an angle of forty-five to sixty degrees, to the right in one course and then with the same slant to the left in the next course above.

The development and embellishment of the horizontal and vertical joints is of great importance. The masons began by forming the horizontal joint in the shape of a very flat "V" with the trowel. It varied in width and was not very straight but it had an artistic feeling like a beautiful pencil line drawn by an artist.

During the Late Period the horizontal joint was formed by a metal tool and the tool was run on a straight edge so that it was very straight and even. The vertical joints were first embellished by a small "V" shaped dab of mortar which was not permitted to

intersect with the horizontal "V" joint. Later small pyramidal dabs of mortar were used. Some masons also used a metal bead to form an impression of a bead between the cobblestones.

When I first became interested in the cobblestone houses, I was often told that all the cobblestone buildings were built by a single group of masons who went about the country side erecting these structures in groups. All the evidence in the field is against this story.

After carefully examining cobblestone walls one can detect peculiar characteristics of individual masons. A mason's technique is as individual and as characteristic of him as is the line of a pencil draftsman or the brush stroke of an artist. The great variety of the techniques prove that many masons found employment in building the cobblestone structures.

This paper was given by Carl F. Schmidt
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