

The conglomerate millstone makers of New York and Virginia in the United States

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Conglomerate millstones were manufactured in several states within the eastern United States with New York and Virginia as the first and second largest producers. Millstones were quarried in New York State as early as 1732 and the industry continued until the mid-1950s while the millstone industry of Virginia began in the early nineteenth century (and perhaps earlier) and continued until the early 1940s. The New York millstones were called Esopus Stones while the Virginia millstones were called Brush Mountain Stones. This paper utilises the U.S. Population Census schedules from 1850 to 1940 to identify stone-cutters involved in the millstone industries in Ulster County, New York, and Montgomery County, Virginia. The census records indicate that a few families dominated the industry in both states. Surprisingly, most of the millstone makers were born within the states where they worked. Men as young as 17 and old as 73 years were involved in the industry at various times but the most common ages of the workers were between 26 and 45 years. Most millstone makers resided together in close proximity in the same neighbourhoods. Some of the older millstone makers were able to accumulate modest amounts of both personal estate and real estate. When looking at the number of men involved in the millstone industry, New York was dominant between 1850 and 1910 as well as 1930; Virginia took the lead in 1920 and then again in 1940.

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Introduction

Conglomerate formations were quarried for millstones in several states within the eastern United States. These include Alabama (Hockensmith 2005, 2009a), Arkansas (Hockensmith 2009a), Connecticut (Hockensmith 2009a), Kentucky (Hockensmith & Meadows 1996, 1997, Hockensmith 2003, 2006, 2009a, 2009b, 2011), New York (Hockensmith 1993a, 1993b, 2003, 2006, 2009a, 2013, 2014, Ball & Hockensmith 2007a, 2007b, Hockensmith & Coy 2014a, 2014b), North Carolina (Hockensmith 2004a, 2009a), Pennsylvania (Hockensmith 2009a), Tennessee (Hockensmith 2004b, 2009a, Ball & Hockensmith 2005, 2007c), Vermont (Hockensmith 2009a), Virginia (Hockensmith 1999a, 1999b, 2003, 2006, 2009a, Hockensmith & Coy 1999, Hockensmith & Price 1999, Ball & Hockensmith 2007a, 2007b), and West Virginia (Hockensmith 2009a). Little is recorded about most of these quarries since they are only mentioned briefly in geological and historical reports. Much of the available literature focuses on the quarries located in New York and Virginia, and to

a lesser extent on Kentucky and Pennsylvania. Since the conglomerate millstone quarries in New York and Virginia were the best known and most extensive, they were selected for this study. Earlier studies of the New York and Virginia millstone industries have primarily focused on compiling available literature and conducting oral history interviews. The current study shifts the focus to the men who worked in the industry. Since the industry also lasted much longer and was larger in New York and Virginia, census records of those states should include many individuals connected with the millstone industry.

The major objective of this paper is to compile information on the men who worked in the American conglomerate millstone industries of New York and Virginia. This paper is the first attempt to compile detailed data on millstone makers in the United States rather than on the quarries where they worked. Before discussing these millstone makers, overviews are provided of the conglomerate millstone industries in New York and Virginia. Readers desiring more

detailed treatment of these industries should consult the author's earlier publications (Hockensmith 2003, 2006, 2009a, 2011, 2013). This paper seeks to achieve its main objective by extracting information on millstone makers who resided in one precinct of Ulster County, New York and one precinct in Montgomery County, Virginia from the U.S. Census records dating between 1850 and 1940. Initially, detailed tables were compiled for each state and census year, which provided information on each millstone maker found. Because of space constraints, information contained in these tables is summarised in this paper. Interested researchers can consult a forthcoming publication that will include the New York tables (Hockensmith 2014). Summary comments and other observations about the millstone makers are included in the discussion section. The paper ends with some concluding remarks.

As previously noted, the two centres of the conglomerate millstone industry within the United States were located in New York and Virginia. New York was usually the leading producer of millstones in the United States (Katz 1920:217). Virginia was typically the second leading producer of millstones and occasionally the leading producer. The geological literature indicates that the New York quarries were restricted to Ulster County and the Virginia quarries were limited to Montgomery County. Millstones were quarried in New York State as early as 1732 and the industry continued there until the mid-1950s. The millstone industry of Virginia began in the early nineteenth century (and perhaps earlier) and continued until the early 1940s. The author and his associates (Hockensmith 1999a, 2003, 2006, 2013, Hockensmith & Coy 1999, 2014a, 2014b, Hockensmith & Price 1999) have previously examined various aspects of the millstone industry in these two states. Websites such as Ancestry and Heritage Quest have provided access to U.S. Census schedules that were previously only available on rolls of microfilm at major libraries within the state they dealt with. In earlier years, I had given thought to searching these records for millstone makers but it would have been costly to travel to New York and Virginia to conduct this library research. Once the Kentucky Historical Society Library began subscribing to the Ancestry and Heritage Quest websites, it was possible for the first time to check these records from Frankfort, Kentucky.

To locate the men who worked in the millstone industries in Ulster County, New York, and Montgomery County, Virginia, the U.S. Population Census schedules dating between 1850 and 1940 were carefully searched. The years between 1850 and 1940

were selected because 1850 was the first census year that included occupations (Meyer 2009:151) and 1940 was the most recent census that had been released. The 1890 census was not included in this study since most of those records were destroyed by a fire. These census records provide useful information on ages, races, places of birth, listing of family members, occupations, and other details for the men who produced conglomerate millstones in these two states. An effort was made to check census schedules for those townships in Ulster County that contained communities that were historically associated with the millstone industry. According to Newland (1909:38), the millstone quarries were located in the Rochester and Wawarsing townships. All of the census records for the Rochester, Wawarsing, and Marbletown townships, plus most for the Esopus Township records (1850–1860, 1900–1930), were examined. While there were numerous stone-cutters and quarry workers listed in the Marbletown Township, millstones were not specifically mentioned. It is possible that some of these Marbletown stone-cutters could have been associated with the millstone industry, but it is also very likely that many of these men were employed by the large bluestone quarrying industry. In the Wawarsing Township, a few stone-cutters (unspecified industries) were listed between 1850 and 1880 but there were eight millstone-cutters listed there in 1900 census along with some bluestone industry stone-cutters. The Esopus Township records did not contain any individuals specifically identified with the millstone industry. Since the Rochester Township contained stone-cutters known to be associated with the millstone industry through both geological records and oral history, a decision was made to use only this township as the sample for Ulster County, looking at the villages and small communities within the Rochester Township known to be associated with the millstone industry. For Montgomery County, Virginia, all of the census records for the Blacksburg area were examined, as were some census schedules for other communities within the county. Since both the geological literature and oral history, indicates that the Blacksburg area was the location of the Virginia millstone industry, the Blacksburg census records were selected as the Virginia sample for this paper. However, it is possible that a few millstone makers could have been living across the precinct lines in adjacent areas at various times. Overall, I feel that the Rochester and Blacksburg census records represent the best precinct samples (although not 100

% inclusive of all workers) and are very representative of these millstone making regions.

Even with digital versions of the census records available online, it was still a very tedious and time consuming task to assemble this information. All the census schedules contained handwritten entries that were recorded on printed forms. Due to various handwriting styles, ink smears, fading, and age spots, some of the schedules were challenging to read. To locate people associated with the millstone industry, I started on page one of every precinct schedule selected and then visually scanned all the occupations for the people living in that precinct or township. When a stone-cutter or millstone maker was encountered, the information about that person was hand copied onto notebook paper. Sometimes several election districts within a township had to be searched to ensure complete coverage. During the course of this research, over 1,800 pages of handwritten census forms were visually scanned on websites for the precincts comprising the Rochester Township of Ulster County, New York and Blacksburg area of Montgomery County, Virginia. Another 2,900 pages of census forms were examined for other communities in these counties before the final precincts were selected.

The census records permitted an examination of the changes occurring within the New York and Virginia conglomerate millstone industry's workforce for over a 90-year period. These records revealed how long individuals continued working in the industry, whether particular families made millstones for many years, the age ranges of the work force over time, the number of men working in the industry at different points in time, whether the workers were native born or came from other states or countries, and whether they owned land or had personal property. With the exception of the author's compilation of census and family data for the Powell County, Kentucky millstone makers (Hockensmith 2009b:30–45), no other attempts have been made to use census data to learn about American millstone makers. Thus, the census data collected for New York and Virginia offers scholars their first detailed look at the men involved in the millstone industries of these states.

The most extensive conglomerate millstone quarries in the United States were located in Ulster County, New York. Situated in southeastern New York State, where the state boundaries extend southward between southwest Connecticut and northeast Pennsylvania, most of these quarries were distributed along the northern edge of the Shawangunk Mountains (Newland 1907:43–44).

Shawangunk grit possessed qualities suitable for making millstones along a 10-mile (16.1 km) long area between High Falls and Kerhonkson (Phalen 1908:69). The Ulster County millstone quarries were located within the Rochester and Wawarsing townships, primarily following the route of the New York, Ontario and Western Railroad (Newland 1909:38). Communities associated with the millstone industry included Accord, Allgerville, Granite, Kerhonkson, Kyserike, St. Josen, and Wawarsing (Newland 1907:43–44, 1909:38). Millstones were also shipped from Kingston, on the Hudson River, and New Paltz, located on the railroad (Newland 1909:38).

The Ulster County millstones, colloquially known as Esopus Stones, were manufactured from single blocks of Shawangunk Conglomerate and were usually banded with iron hoops (Howell & Keller 1977:69, Sass 1984:viii). The Shawangunk Conglomerate is a light grey to white conglomerate, containing quartz pebbles, occurring in outcrops on Shawangunk Mountain (Newland 1907:43–44). The rounded quartz pebbles in this conglomerate are often only a fraction of an inch (less than 2.5 cm) in size but sometimes can reach 2 inches (5 cm) across (Newland 1907:43–44). Millstones manufactured at these quarries ranged from tiny 15-inch (38 cm) diameter stones up to the huge 90-inch (2.29 m) diameter stones (Newland 1907:43–44). The most popular standard millstone sizes sold were 24, 30, 36, 42 and 48-inch (61, 76, 90, 100.07, and 122 cm) diameter stones (Newland 1907:43–44). Prices varied from \$15 for a pair of 30-inch (76 cm) stones to about \$50 for one 60-inch (1.52 m) stone; larger millstones could sell for between \$50 and \$100 each (Newland 1907:43–44). An 1875 advertisement for the Esopus Millstone Company indicated that they produced millstones for grist mills, paving and colour mills, and paint and chemical mills as well as potteries and china works (Howell & Keller 1977:71).

Two types of Esopus millstones were produced in Ulster County. One type consisted of the traditional "face grinders", where one disk-shaped millstone rotated horizontally above a corresponding stationary millstone. These stones worked by a shearing action and were used in mills for grinding grains and mustard. The other type of millstones were called "chasers" since they were used in pairs at opposite ends of short axles and were so called because one stone followed or chased the other millstone. These millstones rolled vertically on their edges in circles and used their rolling weight to crush minerals on a stone bed. Materials commonly ground included quartz, feldspar, barytes,



Fig. 1. View of the rubble at one of the work areas at the Lawrence Hill millstone quarry in Ulster County, New York. Note the millstone blank setting up on smaller stones in the centre foreground. Lewis Waruch is standing on the left side and Fred E. Coy, Jr. is standing in the centre. Photo: Charles D. Hockensmith April 15, 1998.

cement, talc, and mineral paint (Newland 1907:43–44, Hartnagel 1927:56). Both types of Esopus millstones were made in a variety of sizes to meet the needs of various industries that used them.

Undoubtedly, there were several men who owned small companies that made millstones in Ulster County. It appears that nearly all of these small companies were unincorporated and did not have names, but two exceptions are mentioned in the literature: the Esopus Millstone Company and the W.C. Addis Stone Company. The Esopus Millstone Company operated between 1875–1937 in Alligerville and then High Falls (New York State Museum 1918, 1934, Hartnagel 1927:57, Bowles & Davis 1934:901, Davis 1935:1005, Johnson & Davis 1936:887, 1937:1293). The W.C. Addis Stone Company made millstones at Granite and then Kerhonkson between ca. 1919 to 1937 and perhaps later (Hartnagel 1927:57, New York State Museum 1934, Davis 1935:1005, Johnson & Davis 1936:887, 1937:1293).

Most Esopus millstones were shipped by two major modes of transportation. Initially, millstones

were shipped both east and west on the Delaware and Hudson Canal, completed in 1828, which was located close to the quarries (Nason 1894:393) and provided a transportation route between Honesdale, Pennsylvania and Kingston, New York (Shaw 1990:84–85). Railroads were also an important way of moving millstones to market. Nason (1894:393) noted that millstones were shipped on the Wallkill Valley Railroad from the Rosendale station. Later, millstones were transported on the New York, Ontario and Western Railroad (Newland 1909:38). Cross (1996:9) reported that a special cut was made on the rail siding near the Accord railroad station that permitted millstones to be easily loaded onto railroad cars at ground level. Since Kingston was a known shipping centre for millstones, it is likely that many stones were transported by boat on the Hudson River to eastern destinations (Newland 1909:38). Finally, it is probable that heavy-duty horse drawn wagons, and later on (ca. 1930s–1955), trucks were used to make local deliveries of millstones.



Fig. 2. Photograph taken during an April 1998 interview at the Lawrence family home place kitchen. Left to right, Vincent Lawrence, Wallace Lawrence, and Charles D. Hockensmith. The Lawrence brothers helped their father make millstones at the Lawrence Hill Millstone Quarry in Ulster County, New York. Photo: Fred E. Coy, Jr April 14, 1998.

Steve Hirsch (pers. comm. 2005) shared that he had personally observed at least 50 small millstone quarries while hiking on the Shawangunk Ridge east of the communities of High Falls, Alligerville, and Accord. Since he has explored only a portion of Shawangunk Ridge, there are probably hundreds more small millstone quarries located along the 10-mile (16.1 km) long segment of the ridge known to have had quarries.

During April 1998, the author and Dr Fred E. Coy, Jr. drove to Ulster County, New York and visited some of the millstone quarries near Accord (Fig. 1). We interviewed Vincent and Wallace Lawrence, two brothers in their eighties, whose father and uncles were millstone makers. The Lawrence brothers (Fig. 2) shared their memories of millstone making during their youth (Hockensmith & Coy 2014a). Lewis Waruch, whose mother's family, the Coddingtons, were also millstone makers, was interviewed as well (Hockensmith & Coy 2014b). The Society for the Preservation of Old Mills (SPOOM) plans to publish a book containing these interviews along with a

detailed archival overview of the Esopus millstone industry (Hockensmith 2014).

The New York Census records

Specific information on the millstone makers that once lived in the Rochester Township of Ulster County, New York was initially compiled into tables. The majority of the men included from Rochester Township are known millstone makers or were somehow connected with the industry. It is possible that a few men included in the sample could be stone-cutters involved in another local quarrying industry. Also, we know that some millstone makers resided in the adjacent Wawarsing Township in Ulster County. The census records between 1850 and 1940 served as the primary source of the information for this paper (United States Population Census 1850–1940a). The 1850 census and the 1860 census included ten men each for both censuses that were listed as stone-cutters. By 1870, the number of stone-cutters in the Rochester Township had increased to 17 men

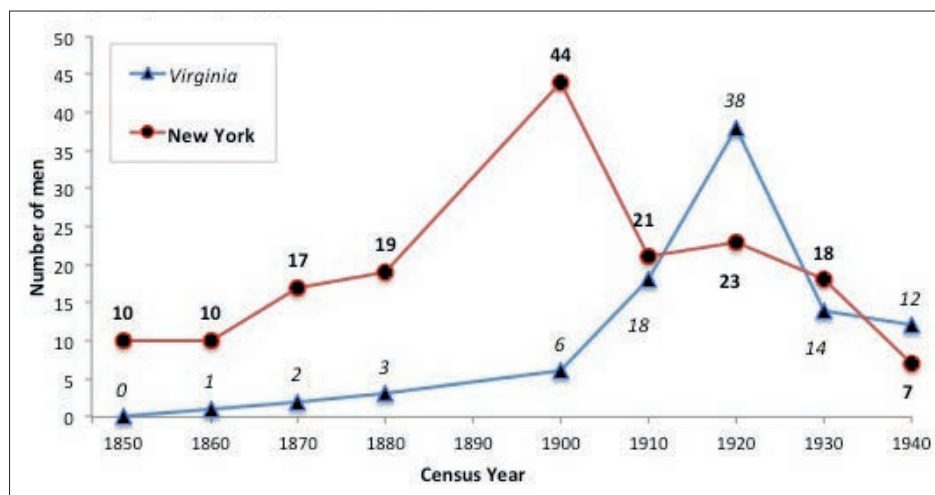


Fig. 3. Millstone makers in Rochester Township, Ulster County, New York and Montgomery County, Virginia, 1850–1940.

and to 19 men by 1880. The 1900 census revealed that the number of men ($n=44$) in the millstone industry more than doubled since 1880. In the 1910 census, the number of men in the industry drastically declined to 21 men. The industry increased by two men ($n=23$) in the 1920 census and declined further ($n=18$ men) in the 1930 census. A major decline occurred in the 1940 census, with a low of seven men (see Fig. 3). Some of the same millstone makers and other men involved in the industry were listed in various other publications.

The Virginia millstone industry

Virginia was usually the second leading producer of American conglomerate millstones and for a brief period was ranked number one. Montgomery County is located along the eastern edge of the western tail of Virginia, just southwest of Roanoke. It is two counties south of the West Virginia line and three counties north of the North Carolina line. The millstone quarries were located near Prices Fork, approximately 5 miles (8.05 km) west of Blacksburg where quarries were opened along a 3-mile (4.83 km) long stretch of Brush Mountain (Watson 1907:401). The Ingles conglomerate, which outcrops near the crest of Brush Mountain, was quarried in both pits and from underground shafts (Campbell *et al.* 1925:26, Metcalf 1941:1246). This conglomerate is typically a white or light grey sandstone containing rounded quartz pebbles up to 1½ inches (3.8 cm) in diameter (Campbell *et al.* 1925:26, Phalen 1910:613, Watson 1907:401). These millstones were known as Brush Mountain Stones (Parker 1894:670, Watson 1907:401).

Brush Mountain millstones, like the New York millstones, were manufactured in the traditional disk-shaped “face grinders” and vertical running “chasers”.

A variety of sizes were made for both types of millstones to meet the specifications of different industries that used them. Metcalf (1941:1246) reported that the millstones produced on Brush Mountain ranged from the small 12-inch (30.3 cm) stones to the large 72-inch (1.83 m) stones.

The available literature mentions three millstone manufacturing companies that had names: the Virginia Millstone Company was operated by J. Fred Shealor in Blacksburg between 1935–1937 (Davis 1935:1005, Johnson & Davis 1937:1293); the Virginia Abrasive Company, also in Blacksburg, was owned by P.L. Olinger between 1935–1937 (Johnson & Davis 1936:887, 1937:1293) and the Interstate Millstone Company operated at Christiansburg between 1946–1947 (Metcalf & Holleman 1947:1366, 1948:100). We also know that Jack Long, a black man, operated a millstone quarry on Brush Mountain during the early 20th century (Hockensmith & Price 1999:68).

The Brush Mountain millstones were transported to market on the Virginia Railroad. They were loaded onto railroad cars at the Whitethorne Railroad Station, about five miles (8.05 km) from the quarry (Hockensmith & Coy 1999:44). In the earlier years, horses and wagons were used to transport the millstones to the railroad station, but by the final years of the industry an old four-wheel drive Army truck was used to haul millstones (Hockensmith & Coy 1999:43–44, Hockensmith & Price 1999:81).

The last two living millstone makers who worked at the Brush Mountain Quarry came to the author’s attention in 1990. During May 1990, the author and Fred E. Coy, Jr. travelled to Montgomery County, Virginia and interviewed elderly millstone makers Robert Houston Surface and W. C. Saville. Surface started in the millstone industry around 1927 and the younger Saville

began around 1941 (Hockensmith & Coy 1999:9). This interview was recorded on video and audio tape, then edited and combined with Jimmy Price's 1985 interview with Robert Houston Surface to create a book (Hockensmith & Coy 1999, Hockensmith & Price 1999). During 1995, the *Roanoke Times & World News* published excellent articles about Mr Surface and Mr Saville (Freis 1995a, 1995b). Three years later, Freis (1998) wrote a story about Robert Houston Surface's death.

The Virginia Census records

Information for individuals involved in the millstone industry of Virginia was compiled from census schedules for Blacksburg. The 1850 Population Census for Montgomery County, Virginia (United States Population Census 1850–1940b) did not include any men listed as millstone makers, stone-cutters or other occupations related to millstone making. Huston Surface noted that millstone makers in Montgomery County worked at the quarry only when there were orders for millstones (Hockensmith & Coy 1999:34) and at other times some men worked as farmers and other men worked as coal miners. Apparently, there was not sufficient demand for millstones to employ the stone-cutters year round. A low demand for stones might have resulted in the Virginia millstone makers of 1850 spending the majority of their time working at other occupations and therefore being classified as such in the census.

A thorough search of the Montgomery County 1860 Census revealed only one man in the Blacksburg area who was involved in the millstone industry. Since millstone makers usually worked in teams, other men were probably working in the industry part time but were classified by the census taker under other occupations. No millstone makers or stone-cutters were observed in the census schedules for the Blacksburg area in the 1870 Census (though it is very faded and difficult to read) and only three stone-cutters were listed within District 52 at Blacksburg in the 1880 Census (United States Population Census 1850–1940b).

Specific information on the millstone makers that once lived in the Blacksburg area of Montgomery County, Virginia was available in the census schedules between 1900 and 1940 (United States Population Census 1880–1940b). The majority of the men included in these schedules are known millstone makers or were somehow connected with the industry. It is possible that

a few men included in the tables could be stone-cutters or workers involved in another local quarrying industry. The 1900 census revealed that only six men were working in the Virginia millstone industry. When the 1910 census came out, the work force had tripled to 18 men. The Virginia millstone industry more than doubled in the 1920 census to 38 men. However, the 1930 census revealed a drastic decline in the industry to 14 men. The industry slightly declined in the 1940 census to 12 men (see Fig. 3).

Comparison of the employment trends for New York and Virginia show that although Virginia's employment lagged by about two decades, the industries of both states followed similar trends of moderate growth, one decade of boom, and a rapid decline. Fig. 3 illustrates the numbers of millstone makers in Ulster County, New York and Montgomery County, Virginia over time. The New York numbers may in fact be higher since some millstones were manufactured in the Wawarsing Township and it is possible that some stones were made in other townships in Ulster County. Overall, the New York quarries employed more men than those in Virginia. New York was the leader between 1850 and 1910 as well as during 1930. Virginia surpassed New York in the number of millstone makers during 1920 and again in 1940. When looking at the general trends, the number of millstone makers in New York started increasing in 1870 and reached a peak in 1900. Beginning in 1910, the New York millstone industry began substantial declines and reached a low point in 1940. Virginia, on the other hand, had very slow growth prior to 1910 when it tripled in size. In 1920, the Virginia millstone industry more than doubled in size. The industry experienced a major decline in 1930, which continued during 1940.

The millstone industries in New York and Virginia persisted beyond the 1940 census. For New York, the reader is directed to the author's book *The Millstone Industry* (Hockensmith 2009a:104). Information is compiled for the number of New York millstone producers between 1903 and 1955. In 1903, there was a high of 17 producers to a low of one producer in 1955 (Hockensmith 2009a:104). Likewise, information was compiled for the Virginia millstone makers between 1903 and 1943 (Hockensmith 2009a:106). The Virginia industry was much smaller, with 2 to 3 producers for most years and a high of 5 producers in 1912 (Hockensmith 2009a:106). It is not known how many employees each producer had.

The U.S. Census records, geological reports, and oral history were not the only sources of information on



Fig. 4. Historic photograph taken at the Brush Mountain millstone quarry during the early twentieth century. In addition to the millstones, note the wooden rollers and shaping debris. The millstone makers, left to right: Enos Fisher, John Fisher, Fred Shealor, Albert Olinger, John Shealor, John Snider, Byrd Shealor, Robert Olinger, Guy Shealor, and Leonard Price. Original photograph from Betty Olinger Surbaugh, Ripplemeade, Virginia. Made from a copy of the original by Lewis Dale Collins of Pembroke, Virginia.

the Montgomery County millstone industry. Among other surviving resources are early twentieth-century photographs of the Brush Mountain millstone quarry. Two sections of a large historic photograph (Fig. 4 and Fig. 5) are reproduced here. In addition to showing the posed millstone makers, we can see some other interesting details. Fig 4 shows a number of medium sized millstones and one small stone near the centre. The sizes of the eyes (central holes) vary according to the industrial functions of the stones. Also, note that the flat grinding surfaces of several stones were irregular indicating that they had not yet been completely levelled. Several tools are visible in the photograph but only the sledgehammer (held by the man on the far right) used for hitting drills can be identified. The stone debris on the ground indicates that only final shaping was undertaken in this area. The small sections of poles (lying on the ground) probably served as wooden rollers for moving larger stones. Finally, the millstone on the far right is sitting on a platform where it had been placed for shaping.

Fig. 5 shows a wooden shed on the left side (perhaps the blacksmith's shop) with the end of a large axle protruding through the wall and two large iron bars leaning against it (perhaps pry bars for moving stones). An elevated tram-line is visible in the background, which was used to move waste rock from the main quarry to the dump area. Also, visible near the centre is a large vertical post with several boards nailed to it for steps, a large diagonal timber (a boom?) is to the right, and a roll of cable is nearby, all of which are most likely parts of a derrick used for moving stones. Small to medium sized millstones with different sizes of eyes are laying around the work area. Note that two stones in the upper left do not yet have their eyes cut. In the lower right portion of the photograph are several roughed out blanks for small millstones. The tools on the left side of the photograph include two small striking hammers, drills, and a point. Beginning on the right side of the vertical post, the tools held by the men include a chipping hammer, a hammer for striking chisels, a blocking hammer, and a sledgehammer. The



Fig. 5. Historic photograph taken at the Brush Mountain millstone quarry during the early twentieth century. Note the various types of millstones, the building, and the elevated track for hauling waste rock away from the quarry. The millstone makers, left to right: Arthur Shealor, Olen Shealor, Robert G. Surface (father of Robert H. Surface holding a chipping hammer), Thomas Cromer (holding a hand hammer for striking chisels), Samuel Olinger (holding a blocking hammer), Edward Cromer (holding a sledge-hammer), and Robert Olinger. Martin Olinger is standing on the track (left side) with three unidentified youths to his right. Original photograph from Betty Olinger Surbaugh, Ripplemeade, Virginia. Made from a copy of the original by Lewis Dale Collins of Pembroke, Virginia.

very small size of the stone debris indicates that only the final shaping was accomplished in this area.

Discussion

The census schedules that were examined for the period from 1850 to 1940 offer insights into the millstone makers of Ulster County, New York and Montgomery County, Virginia. We are given a glimpse into the American conglomerate millstone industry's work force for these two areas at ten-year intervals. These schedules provide information on the longevity of individual millstone makers and indicate that some families were involved in the manufacture of millstones for multiple generations. The schedules also provide information on the ages of the men involved in the industry over time. When looking at the census records over time, information becomes available on the specific occupational titles used, the names of

families involved in the industry, the worker's places of birth, age ranges for the workers over time, living areas for workers, personal wealth of workers, the number of men working in the industry, and the decline of the millstone industry (as revealed by numbers of men employed).

My friend, archaeologist Donald B. Ball, made a comment that got me thinking. His comment was about the men who made millstones between the census years. Potentially, many men may have worked only a few years in the millstone industry between the census years and thus were never included in the U.S. Census records as millstone makers. Likewise, if a man was mentioned in one census year but not the subsequent census, we don't know how long he worked in the industry. If one calculates a nine-year gap between each available census, that would result in a total of 63 years between the census years plus another 20 years between 1880 and 1900 (the 1890 census was destroyed by a fire). Thus,

we have a total of 83 years where we may never know all the names of short-term millstone makers working between the census years. Fortunately, some millstone makers were mentioned in other records such as geological reports and reports published by the U.S. Bureau of Mines between census years.

Occupational titles

Millstone makers were listed by different occupational titles at various times and places. However, the most common title used for millstone makers was stone-cutter. The term "stone-cutter" appears in all the census records for the Rochester Township in Ulster County between 1850 and 1940. Occasionally, other terms were used in the same census schedules, such as "millstone cutter" and "millstone manufacturing", both used in 1860. "Millstone maker" was used in 1880 and 1900. Both the occupation and industry were recorded in later census schedules. During 1930, men were listed as "stone-cutter/millstone" and "stone-cutter/mill rock". In other words, the men had an occupation of "stone-cutter" and worked in the "millstone" or "mill rock" industry. Other related occupation/industry jobs in Ulster County included "tool draughtsman/millstone" (1910) and "laborer/millstone quarry" (1930).

The term stone-cutter was also used most frequently in the census schedules for Montgomery County. One exception was in 1870 when a known millstone maker was listed as a stone mason. When both the occupation and industry were included in the census schedules there were titles such as "stone cutter/mill" and "manufacturer/millstones" for 1910. The 1920 Virginia census had the most complete listing of job titles for the millstone industry: occupations and industries included "stone-cutter/quarry", "stone cutter/stone quarry", "stone cutter/millstone quarry", "blacksmith/stone quarry", "blacksmith helper/millstone quarry", "foreman/millstone quarry", "laborer/stone quarry", "quarry laborer/millstone quarry", "quarryman/millstone quarry", and "teamster/stone quarry". It should be noted that a blacksmith was a key member of the millstone maker's team and he ensured that the tools were frequently re-sharpened in order to cut through the hard conglomerate. Also, blacksmiths could fabricate and install iron bands if they were needed for millstones. By 1930, the occupations and industries included "stone cutter/quarry", "quarryman/mill rock", "stone cutter/mill rock quarry", "stone cutter/rock quarry", "laborer/stone quarry", etc. Finally, the 1940 census included occupations and industries such as "stone cutter/millstone", "stone cutter/quarry", "stone

cutter/contractor", and "stone cutter/stone quarry". Some of the men known to be associated with the millstone industry were not stone-cutters but middlemen that took orders for stones.

Millstone making families

To a large degree, the knowledge of making millstones was passed down from one generation to another. As a male dominated industry, sons learned from fathers, brothers, uncles or other family members. No females were listed as millstone makers but some women likely worked as bookkeepers or in other capacities for larger operations. Fortunately, the census schedules listed the relationships between the individuals living in the same households. Several examples of these relationships appear in the census records where more than one millstone maker was living in the same household. For Ulster County, New York, examples exist between 1870 and 1930. For 1870, there were Stephen R. Wantz and his son, Lucius L. Wantz, as well as Andrew Dunning and his son, Elezer Dunning. The 1900 census included four examples: Christfer Schoonmaker and his son, Benjamin Schoonmaker, John Hendrickson and his son, John Hendrickson, Jr., David Percell and his brother, William Percell, and Isaac Smith and his son, Edward Smith. In 1910, Miles Decker and his son, Floyd Decker were listed. The 1920 census included Benjamin Bush and his son, Stanford Bush. Two examples for 1930 were William Countryman and his son, Oscar Countryman and Benjamin Rose and his son, Arthur Rose.

There were also several examples of family members living in the same households who worked in the millstone industry of Montgomery County, Virginia. Three examples for 1910 included Sheridan W. Price and his nephew, Arthur S. Shealor, David Shealor and his son, John D. Shealor, as well as Samuel D. Olinger and his son, John S. Olinger. The 1920 census contained five examples: John W. Snyder and his son, Albert S. Snyder; John D. Shealor and his brother, Olen Shealor; Bsil Vaught and his brother, Eliza Vaught; Adolphus Henderson and his son, Grant Henderson; and brothers, Byrd A. Shealor and Fred Shealor. For 1930, Jackson Long and his sons, Donald Long and Thomas Long were involved in the millstone industry. Finally, Jack Long and his son, Donald, were listed again in the 1940 census as living in the same household.

Certain families were prominent in the millstone industries of New York and Virginia. Some families were involved in the industry for long periods of time, while other families had minor involvement in making

millstones. In the Rochester Township of Ulster County, New York, the most prominent families making millstones included the Coddington, Lawrence, and Schoonmaker families. The Coddington and Schoonmaker families had long-term involvement and were both included in the 1850 through the 1930 census schedules. The Coddingtons were also listed in the 1940 census. Thus, the Coddingtons were included in the industry for at least 90 years, while for the Schoonmakers were in the industry for 80 years or more. The Lawrence family was first listed in the millstone industry in the 1870 census and continued to the 1920 census. When looking at the total number of all family members listed in New York between 1850 and 1940, the most dominant families were Coddington (21 %), Schoonmaker (18 %), and Lawrence (6 %). Approximately, 43 other families were involved in the millstone industry at various times between 1850 and 1940. These families will be discussed in detail in another publication (Hockensmith 2014).

Several families were prominent in the millstone industry of Virginia. In the Blacksburg area, the family with the greatest longevity in the industry was the Price family (1860–1940), with at least 80 years of involvement. Other prominent families making millstones in the early 20th century included the Cromer (1910–1930), Fisher (1900–1940), Long (1900–1940), Olinger (1910–1930), Saville (1910–1920, 1940), and Shealor (1900–1940) families. When looking at the total number of all family members listed in Virginia between 1860 and 1940, the most dominant families were Price (17 %), Shealor (15 %), Long (8.5 %), and Olinger (7.4 %). Twenty-three other families were

involved in the millstone industry at Brush Mountain at various times but played a smaller role as families.

Birth places of millstone makers

At the conception of this study, it was thought that the “place of birth” category on the census schedules would be revealing. It was assumed that men involved in the millstone industry would consist largely of locally-born individuals but also include some men from other states or countries. Once the results were compiled, the study revealed that virtually all the millstone makers were born in the state in which they worked, demonstrating that the millstone industries in New York and Virginia employed local men. In the Rochester Township of Ulster County, New York, *all* of the men in the millstone industry were born in New York State; in Montgomery County, Virginia, most of the millstone makers were born in Virginia. However, the 1920 population census for Montgomery County, Virginia included four men born in North Carolina and one man born in Pennsylvania, though this was hardly the expected level of diversity in “place of birth” that had been expected. Perhaps this highly skilled trade was not appealing or open to people relocating from other states or countries. It is assumed that new comers to these areas may have found employment easier to obtain in other industries requiring less specialised skills.

Millstone maker's age groups

An important category in the census schedules is the ages of the millstone makers in New York and Virginia between 1850 and 1940, and these provide a snapshot

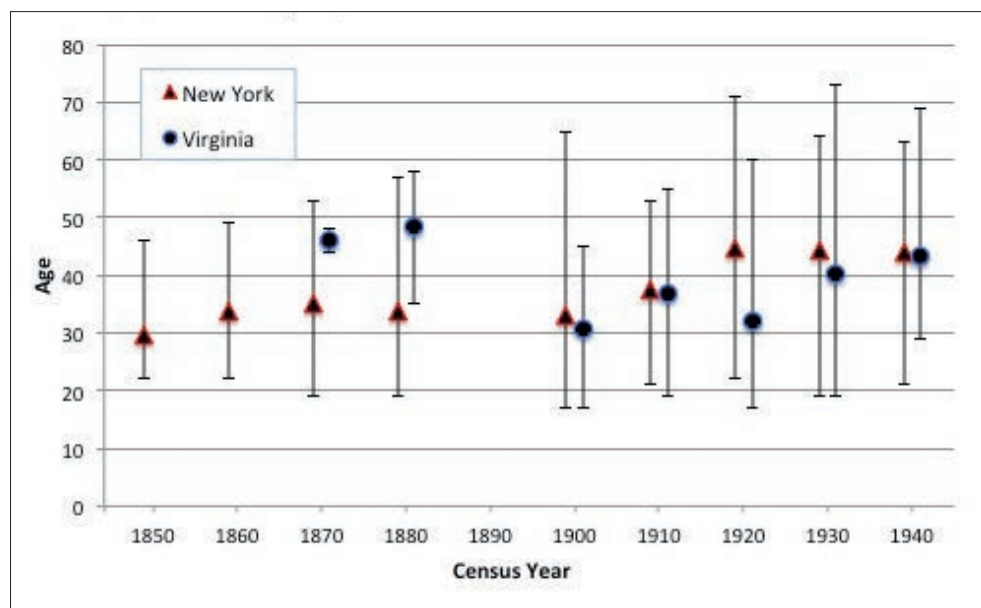


Fig. 6. Comparison of mean age and spread of ages of millstone makers in New York and Virginia, 1850–1940.

Census year	Number of men		Average age		Age ranges	
	NY	VA	NY	VA	NY	VA
1850	10	—	29.80	—	22–46	—
1860	10	1	33.70	37.00	22–49	—
1870	17	2	35.18	46.00	19–53	44–48
1880	19	3	33.79	48.33	19–57	35–58
1900	44	6	33.02	30.67	17–65	17–45
1910	21	18	37.38	36.94	21–53	19–55
1920	23	38	44.83	32.21	22–71	17–60
1930	18	14	44.22	40.29	19–64	19–73
1940	7	12	44.14	43.17	21–63	29–69

Table 1. Summary of millstone makers' ages from census records for the Rochester Township, Ulster County, New York (NY), 1850–1940 Censuses and Blacksburg, Montgomery County, Virginia (VA), 1870–1940 Censuses.

of how the industry evolved over a century (Table 1 and Fig. 6). The New York figures (Table 2) are as follows. During 1850 and 1860, the men working in the industry ranged from 22 years old up to their mid to late forties. However, most of the workers in the 1850 census were between 22 and 33 years of age and most of the 1860 workers were between 22 and 49 years of age. In 1870 and 1880, the ages dropped down to 19 years of age for the younger men while the more senior workers were a little older than the previous two decades. When looking at the figures as a whole, most of the 1870 and 1880 workers were between 19 and 40 years of age. By 1900, the entry level in the industry had dropped to 17 years of age and the oldest worker was 65 years old. Most of the 1900 workers were between 17 and 43 years of age. The 1910 workers ranged in age from 21 years to 53 years of age, with most men being between 21 and 43 years of age. In 1920, the New York millstone industry had its most mature group of workers overall, ranging from 22 to 71 years of age. However, most of the 1920 workers were between 27 and 55 years of age. Finally, in 1930 and 1940, the millstone workers ranged from 19 to 21 years for the younger men and 63 to 64 years of age for the older men. Overall, most of the 1930 workers were between 29 and 59 years old while most of the 1940 workers were between 35 and 63 years of age. The older workers included in 1940 may be a product of

the declining millstone industry, which was no longer attracting younger men. When looking at all the men listed between 1850 and 1940, six age groupings are the largest: 31–35 years (31 men), 36–40 years (29 men), and 26–30 years (23 men), 46–50 years (17 men), 56–60 years (7 men), and 51–55 years (6 men). The two oldest groups, 61–65 years (5 men) and 66–71 years (2 men), had the smallest number as expected. When averaging the ages for each census year (Fig. 7), the average millstone maker tended to get older over time. In 1850, the average age was nearly 30 years but between 1860 and 1900 ages ranged between ca. 33 and 35 years. By 1910, it increased to over 37 years and between 1920 and 1940, the average age was over 44 years.

The age ranges for the Virginia millstone makers (Table 2) overlapped with the New York age ranges but were slightly different. We have no information for Virginia in 1850 and only one individual for 1860 who was 37 years old. The 1870 census for Virginia only included two men (44 and 48 years of age) while the 1880 Virginia census included only three men (35, 52, and 58 years old). The 1900 sample was slightly larger with men between 17 and 45 years of age. During 1910, the Virginia workers ranged from 19 to 55 years of age. The largest groups were 21–25 years old and 36–45 years old. In the 1920 census, the Virginia workers were both younger and older, ranging from 17 to 60

Table 2. Demographics of millstone makers in Ulster County, New York, and Montgomery County, Virginia, from the 1850–1940 Censuses.

Ages	New York							Virginia						
	17–20	21–30	31–40	41–50	51–60	61–71	totals	17–20	21–30	31–40	41–50	51–60	61–73	totals
1850	0	7	1	2	0	0	10	0	0	0	0	0	0	0
1860	0	3	5	2	0	0	10	0	0	1	0	0	0	1
1870	2	4	7	3	1	0	17	0	0	0	2	0	0	2
1880	1	7	8	2	1	0	19	0	0	1	0	2	0	3
1900	6	11	19	6	1	1	44	2	1	1	2	0	0	6
1910	0	4	6	10	1	0	21	1	6	3	5	3	0	18
1920	0	4	5	7	4	3	23	6	14	10	6	2	0	38
1930	1	1	7	3	4	2	18	1	2	5	4	1	1	14
1940	0	1	2	2	1	1	7	0	1	3	6	1	1	12

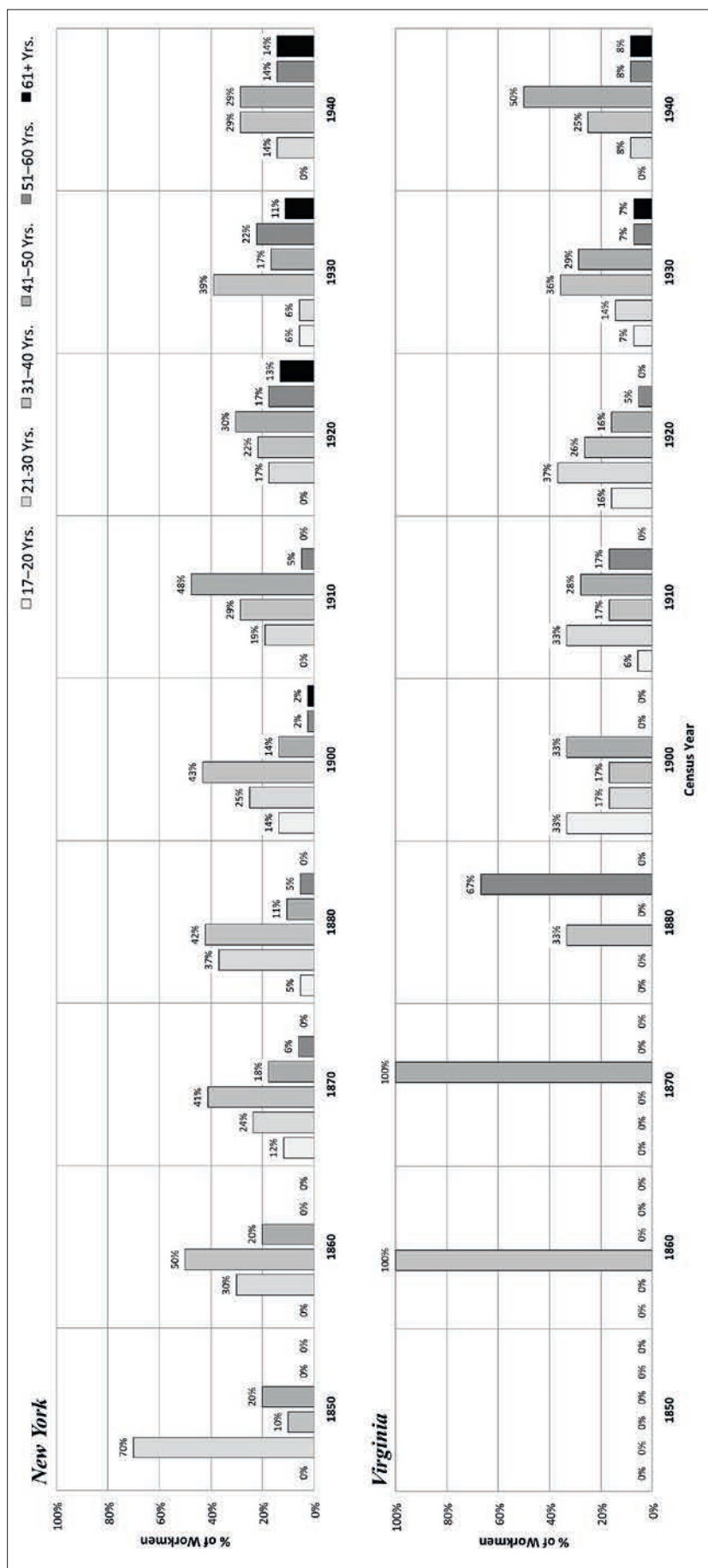


Fig. 7. Normalized demographic populations of millstone makers in Rochester Township, Ulster County, New York and Blacksburg, Montgomery County, Virginia, 1850–1940 Censuses.

years of age but most were between 17 and 35 years old. The Virginia millstone makers of the last two decades were both older than the previous census years, 19 to 73 years in 1930 (most 26–35 years old) and 29 to 69 in 1940 (most 41–45 years old). When looking at all the millstone makers between 1850 and 1940, six age groupings were the largest: 26–30 years (15 men), 31–35 years (14 men), 41–45 years (14 men), 46–50 years (11 men), 51–55 years (5 men), and 56–60 years (4 men). Only two men were in the 66–73 years group. When looking at the average age for each census year (Table 2), the average millstone maker in 1870 and 1880 was in their mid to upper 40s in age. Between 1900 and 1920, the rounded averages ranged between 31 and 37 years of age. The average age increased during 1930 and 1940, ranging from 40 to 43 years. This suggests that the Virginia work force started out in their upper 40s, decreased to their 30s for twenty years, and became older again for the last two census years (see Fig. 6).

When one compares the demographic spread of the New York and Virginian millstone industries as glimpsed from the U.S. Population Census records, and despite very small numbers in some years – especially for Virginia – the changing trends in the industry start to appear (Table 2, Fig. 7). The appearance of workers in their 60s and 70s in the later decades is most obvious (black bars), as is the decline in proportion of younger workers. The industry, it would seem, began as a young man's industry, but at least on average those workers stayed with the industry and may also have later been more likely to spend their entire careers in it.

The roles of the older millstone makers listed in the census records are unclear. Since men of earlier generations were usually physically stronger and tougher than the typical man of today, it is conceivable that some older men were still actively involved in the millstone industry. It is unknown whether they were still able to do the difficult physical labour required to make millstones or if they were serving as supervisors or were quarry owners. Another possibility was that some men were no longer engaged in the manufacture of millstones (retired) but still considered themselves to be millstone makers by occupation. Meyer (2009:165) noted that "...many older or disabled persons who might not expect to work again were recorded as having an occupation because it was part of their ongoing identity...". Perhaps the roles of the older workers might represent a combination of these factors.

Since silicosis (from breathing the rock dust) was a disease reportedly affecting some older millstone makers, it was assumed that older men would be rarer in the

work force. The presence of more older men than expected in the census schedules, especially between 61 and 73 years of age, suggests that silicosis was not as severe as expected. That said, exposure to rock dust may be related to the specific jobs that workers did at the quarry. The steps involved in the manufacture of millstones may offer potential insight into those workers getting silicosis (see Hockensmith 2009b:143–147 for manufacturing steps). Men involved in the initial shaping of millstones were probably subjected to only very small amounts of rock dust since they were removing larger pieces of stone. On the other hand, the skilled workers who levelled the grinding surface of the millstones would be subjected to much larger quantities of rock dust. The levelling process involved running a pigmented staff across the stone's surface and then using a bush hammer (which has rows of sharp teeth) to pulverise all the high spots. This process was repeated until the surface was flat and level. Each time that the high spots were pulverised, the worker was subjected to more fine rock dust that could be inhaled into their lungs. Another potentially high-risk job might be the person who held the drill (in a kneeling position) while other men hit it with sledge-hammers, as they were closer to the rock face, where the impact from the hammers hitting the drill reduced the stone into dust as the hole was drilled. Thus, it is likely that those millstone makers who levelled stones or perhaps held the drill, had a much greater chance of suffering from silicosis, regardless of age, than those who performed other shaping tasks.

Living arrangements and race

According to the dwelling numbers and family numbers recorded in the U.S. Census schedules, most of the millstone makers lived in the same neighbourhoods, frequently next door to one another. This pattern was true for both Ulster County, New York and Montgomery County, Virginia. The majority of the men involved in the millstone industry were white, although a few black and mulatto millstone makers worked in Virginia. There did not seem to be racial barriers between the millstone makers near Blacksburg as white and black millstone makers lived in the same neighbourhoods and in some cases lived in adjacent houses. In one instance during the early twentieth century, Jack Long, a black man, even operated a millstone quarry near Blacksburg with several white men working for him (Hockensmith & Price 1999:68). Since Jack Long had a mulatto son, it appears that he married a white woman long before inter-

racial marriages were common or perhaps even legal. The millstone makers in the Rochester Township of Ulster County, New York, were all white, although some black stone-cutters were listed in other Ulster County townships, where other types of stone, such as bluestone were quarried. Currently, we don't know why blacks were not working in the millstone quarries within the Rochester Township. However, the 1860 census indicated that only 42 free coloured males of all ages resided in Rochester compared to 2,316 white males of all ages (Kennedy 1864:343). The 1860 census did not give a breakdown for Blacksburg but listed 80 free coloured and mulatto males (of all ages), 1,141 black and mulatto male slaves, and a total of 4,193 white males for all of Montgomery County (Kennedy 1864:517). The lack of black millstone makers in the Rochester Township could therefore, be a result of their smaller numbers there, or their smaller numbers might indicate a local bias against hiring them in the dominant industry.

Millstone makers worked together, lived in the same neighbourhoods, probably socialised together, and undoubtedly shared a similar worldview. It is therefore plausible to expect that there was a lot of intermarriage between the children of those involved in the millstone industry. Wallace and Vincent Lawrence in Ulster County indicated that millstone maker John Smith was their mother's brother, connecting those two families by marriage (Hockensmith & Coy 2014a). Our interview with Lewis Waruch in Ulster County indicated that there was also intermarriage between the Coddington and Lawrence families (Hockensmith & Coy 2014b). The connection between two Virginia families was apparent in the 1910 census, since Sheridan Price was the uncle of Arthur Shealor. Robert Huston Surface mentioned that his father-in-law was Leonard Price (Hockensmith & Price 1999:68). Also, Mr Surface noted that Tom Cromer, John Fisher, and John Snyder were his uncles (Hockensmith & Price 1999:68). These examples demonstrate the frequent intermarriage between millstone making families in both New York and Virginia.

Personal wealth of millstone makers

Very limited information is available on the personal wealth of the millstone makers. Only the 1850–1870 census schedules provided spaces for recording the values of real estate and personal estate of each individual, but these spaces were often left blank. Between 1880 and 1930, spaces were not provided for financial information and the 1940 census had a space for recording

yearly wages but this space was often left blank or had a zero recorded there.

Some information is available on millstone makers' finances for the Rochester Township for Ulster County, New York. For 1850, five millstone makers were listed as having real estate values of between \$150 and \$1,000, with most values being over \$800. No personal estate information was available for these men. Information was available for ten men in 1860. Real estate values ranged from \$300 to \$1,000, with most men having between \$300 and \$500 worth of real estate. Personal estate values for millstone makers in 1860 ranged from \$100 to \$500 but most were \$200 or less. During 1870, partial information was recorded for 14 millstone makers. The real estate values for 1870 ranged from \$200 to \$2,000, with no major clusters of values. Personal estate values ranged from \$200 to \$2,000, with most \$500 or less. As would be expected, older millstone makers usually had higher values for both real estate and personal estate. In the 1940 census, annual wages were only recorded for three men with a range of \$160 to \$420.

Little financial information was available for the millstone makers living near Blacksburg, Virginia. Only one man was listed in both the 1860 and 1870 census schedules. He had \$400 of personal estate for 1860. In 1870, he had \$300 of real estate and \$200 of personal estate value. Wages listed in the 1940 census can be examined by specific occupation/industry distinctions. A stone-cutter for millstones made \$1,000 in annual wages. Stone-cutters/contractors made between \$400 and \$1,700, while stone-cutters/quarry made between \$300 and \$900.

Decline of the millstone industries

Near the end of the conglomerate millstone industry, it is likely that fewer young men decided to select this occupation. On the other hand, older millstone makers probably continued in the industry since millstone making was their only source of livelihood. Katz (1926:328–329) observed that this trend was already under way for the American millstone industry during 1923:

“Formerly the millstone manufacturing industry was much larger than at present... The decline is due in part to the fact that the manufacture of millstones is a hand craft in which, as in many others in the United States, the old master craftsmen who are gradually disappearing are not being replaced. In part also the change is due to new processes in the grain, paint, and mineral milling industries in which the old-style burrstones

and chaser mills are being supplanted by grinding equipment of an entirely different type.”

Summary and conclusions

The millstone makers of New York and Virginia played a major role in supplying stones to various industries within the United States. Millstones produced at these quarries were used to grind grain, mustard, and cement as well as to crush various minerals. The workers that made millstones were a very special breed of men. They were skilled craftsmen that could quarry slabs of conglomerate and then carefully shape the stone into a perfect, flat, and balanced disk. This was a back-breaking occupation that required hard physical labour in a primitive quarry setting. Many of these men were able to derive a full-time living from the millstone industry. Some men worked part-time in the industry when they had orders for millstones but worked at other jobs the remainder of the time. Both the full and part time millstone makers were essential to meet the demand for millstones in the United States.

This paper has compiled information about the men involved in the millstone industry within the Rochester Township of Ulster County, New York and the Blacksburg area of Montgomery County, Virginia. Several general conclusions are apparent when looking at the U.S. census records from 1850 to 1940. In terms of occupational titles, the term “stone-cutter” was frequently used and sometimes the term “millstone cutter” was used. Beginning in 1910, spaces were provided on the census schedules for both a person’s occupation and the industry they worked in. During 1910 and the subsequent census years (1920, 1930, and 1940), millstone makers’ occupation was often listed as stone-cutter while the industry they worked in was millstone, mill rock, millstone quarry, stone quarry or just quarry.

The census records suggest that millstone making was largely performed by certain families. Although other families were involved in the industry, a few families had multiple generations that worked in the industry. Apparently, they formed tight knit communities where stone working skills were passed down from one generation to the next. Virginia millstone makers, Robert Surface and W.C. Saville, said that it took years to learn how to make millstones and the learning process never stopped (Hockensmith & Coy 1999:32). Because of the high skill level required, someone without prior experience in making millstones would have great

difficulty in finding a job at a millstone quarry. On the contrary, boys who assisted their fathers at the quarries would accumulate a lot of knowledge by the time they were old enough to make a decision about their future career. Thus, it is not surprising that many young men followed their fathers into the industry with which they were most familiar.

The census schedules for Ulster County indicate that there was employment available in many different industries. Montgomery County, on the other hand, was a much more remote rural area with fewer employment opportunities. It is possible that the millstone industry may have generated more income than other locally available jobs. While family tradition may have played a role in the decision to make millstones, the pay may also have encouraged some men to follow their fathers into the profession. Additional research will be necessary to answer this question.

The millstone makers, for the most part, were locally born people. This was especially true for Ulster County, where all the millstone makers were born in New York State. Hansen (1995:2) sheds light on this issue, noting that in 1875, Ulster County ranked third in all of New York State for the largest percentage (71.65 %) of county-born indigenous people. Rochester had an even higher percentage of county-born citizens with 88.7 % in 1855 and 95.5 % for 1875 (Hansen 1995:2). Thus, there were very few out-of-state people available to work in any industry in Ulster County. In Montgomery County, most of the millstone makers were natives of Virginia, the only exception was during 1920 when four men from other states worked there.

Men working in the millstone industry ranged from 17 to 73 years of age. When looking at the New York figures as a whole, there were millstone makers in every age group as would be expected. Likewise, Virginian millstone makers were represented in most age groups as well. When looking at New York and Virginia millstone makers together, the most common ages of millstone makers were between 26 and 45 years. These would be the men most physically able to perform the hard work at the quarries. The younger men may have worked as apprentices or general helpers while the older men may have served as supervisors or mentored younger men learning the trade. Some of the older men may have been inactive (retired) but still considered themselves to be millstone makers.

Millstone makers in both New York and Virginia lived near one another in the same neighbourhoods. Their proximity to one another was apparent from the dwelling numbers and family numbers assigned

by the census takers. The numbers were sometimes in sequence and at other times close together. It is assumed that the millstone makers were living in small communities and the surrounding countryside in close proximity to the quarries. The race of New York millstone makers was uniformly white while the Virginia millstone makers were predominately white but included a few African Americans. In Virginia, the black and white millstone makers lived in close proximity to one another, suggesting harmony between races.

Limited information was available about the financial resources of the millstone makers. Most of the Virginia sample was too small to meaningfully compare with the New York samples. In 1850, the real estate values ranged from \$150 to \$1,000. For 1860, real estate values ranged between \$300 and \$1,000, with personal estates ranging from \$100 to \$500. The figures for 1870 ranged from \$200 to \$2,000 for real estate values, while personal estate values ranged from \$200 to \$2,000. Finally, annual wages for 1940 ranged from \$160 to \$420 for New York and \$300 to \$1,700 for Virginia.

Millstone makers were listed in the census records for Ulster County, New York between 1850 and 1940 and in Montgomery County, Virginia between 1860 and 1940. During the 1940s, the millstone industry was in its final stage of decline when the Virginia millstone industry closed down sometime in 1943, leaving New York as the only producer of American conglomerate millstones. The demise of the industry had been largely due to the replacement of millstones by steel roller mills for producing flour. The industry survived during the 1940s by producing chaser millstones for crushing minerals and the occasionally selling replacement millstones for rural grist mills. In 1955, the New York quarries closed and the American conglomerate millstone industry came to an end.

It is hoped that future researchers will explore other potentially productive sources in the quest for greater knowledge of the millstone industries in New York and Virginia. One significant resource is the U.S. Manufacturing Census, which recorded information on businesses. These business records should provide important details about the owners of millstone companies, their investment of capital, number of employees, wages, costs of raw materials as well as the quantities of millstones and their annual value. Currently, these hand-written records are only available on rolls of microfilm. A second possibility is interviewing older members of families that once were involved in the millstone industry. Such interviews may yield oral

history about millstone makers, historic photographs of workers and quarry scenes, account ledgers, and other information. Family histories represent a third resource that may yield additional information on millstone makers. The genealogical research usually contained in family volumes would potentially show the relationships between millstone makers with the same surnames and possibly mention other millstone making families related by marriage. Fourth, local newspapers published in Ulster County, New York and Montgomery County, Virginia will contain important information about the millstone industry. Such information might include industry stories, brief news items, advertisements for millstones, and news about the marriages and deaths of millstone makers. Transportation records constitute a fifth potential source of information on the millstone industry. The railroads that transported millstones may have records in their archives or perhaps such records have survived in historical societies and libraries. Such records might include the various companies that shipped millstones, the location to which they were shipped, and the number of stones shipped each year. Likewise, records may exist for the Delaware and Hudson Canal that could contain information for millstones shipped on canal boats. Finally, when the 1950 U.S. Population Census is released in the future, information will be available for the last generation of Ulster County millstone makers. The above sources and other resources have the potential to further expand our understanding of the conglomerate millstone industries of New York and Virginia.

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