

Old Millstones

By PAUL B. FLORY

When one ponders on the title of this paper, "Old Millstones," our mind's eye would swing back through the centuries to the earliest age of civilized man. But to trace the story of millstones from that early age to the present year (which is the year of our Lord 1950), would require a "book" rather than a "paper." Therefore, we will confine our paper primarily to millstones made and used in Lancaster County, Pennsylvania.

The first millstones used in this county were very crude indeed and were used by the native Indians. Ofttimes these stones were simply a rough concave stone, so formed by nature or crudely fashioned by the Indians, in which the native corn or acorns were placed, and crushed with a crude pestle. As these stones were not outstandingly different from other stones, it is difficult to find any authentic Indian mortars and pestles in Lancaster County today. However, an outstanding exception is to be found in the grinding mortars used by the Indians of the Cocalico Indian Settlement.

At this settlement were to be found many huge boulders in which nature had formed many large "water bowls" in the red sandstones. These bowls made ideal places in which to place the Indian corn or acorns to be pulverized into meal with a stone pestle. It is quite probable that the settlement was made at this particular place because of this gift of nature. That these boulder bowls were effective grain mortars can be attested to by the writer, who transported one of them to his home collection and has pulverized grain in it, with an Indian pestle found near his home.

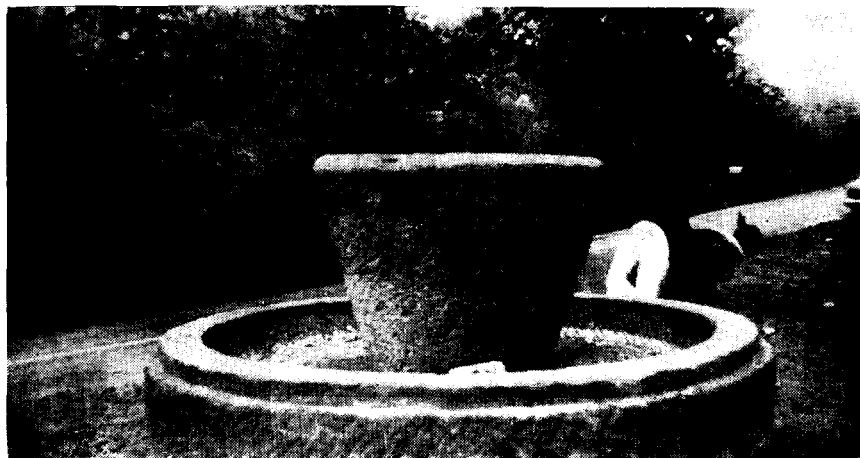
When the first white settlers came to Lancaster County, one of the first necessities was to find a method of converting the grain they grew on their clearings into flour and meal. Some of our earliest settlers, especially those in the eastern section of the county, went as far as the Brandywine "to Mill;" however, that was a time-consuming journey, and very little grain could be conveyed at one time by the best means of transportation. Hence, methods for grinding grain at home were sought and successfully developed.

One of these early developments was found on the Alger Shirk farm in West Cocalico Township (this farm was deeded by William Penn's sons to the Shirk family in 1732). This mill is designed on what is generally termed the Spanish type mill. This type of mill consists of a one-piece bed or basin stone (this particular one seven feet in diameter), about sixteen inches thick; the basin being about twelve inches deep. In this basin a three-foot stone about eighteen inches in thickness was revolved on edge, the motive power being oxen or horses. The grain was shoveled into the basin, about a bushel at a time, then the crushing and attrition action of the revolving stone would convert the grain into meal. It would then be removed by shovel and broom, and another "grist" placed therein. This mill was probably shared by many settlers in that vicinity. It can now be seen along with many other historic stones at the "Millstone Collection" at Martic Forge, in Martic Township.

There were many other mills devised for various purposes by the early settlers, such as hemp, cider, tannery, dye, pottery, clover, distillery, phosphate, buckwheat and many others, which can be found at the above collection. Among these stones are several which are initialed and dated; one bearing date of 1748 and one 1752. In this collection is a pair of stones, although not found in Lancaster County, of great historic interest; they were procured from the W. F. Russell estate in Sadsbury Township in Chester County. This property was originally deeded by William Penn's sons in 1714 to Nathan Dicks, and history records a mill operating there in 1747. This particular pair of stones was imported from England about 1740 and were used as oat hullers in the oatmeal mill. History records that this mill supplied meal

and grain to Washington's army during the historic encampment at Valley Forge in the winter of 1777-1778. These stones were idle many years prior to the modernizing of the mill in 1874, and when found about 1935 were almost completely buried in the ground outside the mill.

When the first water-power mills were built in this county, probably in the 1720's, the conventional millstones (later described) were used. The earliest stones were imported from England, and the English had a monopoly on the millstone supply to the



Distillery Stone (upper)

Found on the original Bausman farm, west of Millersville, dated 1752

Basin Stone (lower); Use Not Known

Obtained at Rohrerstown

colonies and with the states until about 1800,¹ at which time the French buhrs were introduced to America, and the development of native stones was begun. These two factors added to the trouble with England in the War of 1812, brought about a cessa-

¹ The Bowmans (Baumans), members of the Seventh Day Baptists, had a mill near the Ephrata Cloister. One of the family, Christian, followed the art of "millstone cutting," no doubt using the "Cocalico Stones," early in the history of the county, as proved by the following deeds in the local courthouse:

Book H, p. 329. Christian Bowman, "a stone cutter."

Book O, p. 62, 1769. Christian Bowman, "mill stone maker."

Book P, p. 394, 1773. Christian Bowman, "mill stone maker."

Book H, vol. 3, p. 459, 1797. Christian Bowman, "stone cutter."

—Editor's note.

tion of the use of English stones, never to be revived. Undoubtedly the origin of millstone making in Lancaster County began about this date. It was soon learned by the trial and error method that the stones best adapted for grinding of grains were found in the South Mountains in Cocalico and Clay townships, and the fame of the "Cocalico Stones," as they were called, was spread over a wide area.

Process of Cutting Millstones

For many years the writer was interested in millstones, especially the origin of the stones manufactured in Lancaster County, but it was difficult to find anyone who could supply any information on the matter, and a search of Lancaster County histories by various authors failed to shed any light on the subject. Knowing that the local stones were called "Cocalico Stones," several unsuccessful trips were made to the area around the crossroads village of Cocalico in search of someone who could supply the desired information. Then, at the suggestion of A. R. Showalter, owner of the Cocalico store, I was advised to contact William D. Nagle, who Mr. Showalter said had been raised in the mountains, close to Mount Airy, and now was an elderly blacksmith in the town of Denver, and whom he felt might be able to supply some of the desired information.

Mr. Showalter could not have directed me to a better source, for not only was Mr. Nagle born in the South Mountain (in 1877), close to Mount Airy which I learned from him was the center of millstone making; I also learned that he worked for several years in his young manhood as a "helper" in the actual cutting of millstones from the native mountain boulders. From him I was able to gather all the facts, fictions and technicalities, as to how millstones were made and where they were found. As this paper is primarily for historic purposes, it will be necessary to go into some technical details, which at present may be somewhat boring; but a century or two from now, if our Lord has not returned by that time, the information submitted may be of great interest.

Mr. Nagle informed me that the area of the South Mountains in which the "Cocalico" stones were found was in West Cocalico Township, extending into Clay Township beyond Hopeland and Clay. Another section where millstones were cut in Lancaster County was a section known as Turkey Hill, near Terre Hill.

Generally, a single millstone or a pair of millstones was cut from a single boulder. Ofttimes the boulders would be submerged deeper in the ground than above, necessitating the removal of the earth for a considerable radius about the boulder before work of "cutting" or "trimming" the rock could begin.

Not ever boulder was suitable for millstones; the stone cutter would carefully examine a rock, looking for "faults" or "seams" before starting work. However, even though all precautions were taken to detect "faults" or "seams" in a boulder, an occasional "fault" or "seam" would be found after several days' work had been expended on a stone; this was discovered when the stone was "split," as later described. A good quality Cocalico millstone was a very hard pebbly conglomerate, the pebbles varying in size from cherry stones to one inch, or one and one-half inches; the "cherry stone" size being the most preferable.

The first step after selecting a likely looking boulder was to mark it for splitting to desired thickness, for a lower stone or "bed stone" this was usually eight to twelve inches, and for an upper or "runner stone" sixteen to twenty inches. Using single mouth drills, holes would be driven every eight to twelve inches around the outside circumference of the boulder and about three inches deep; then using special steel wedges about four inches long, carefully and evenly hammered into each drill hole the boulder would soon "spring" or separate. If the "split" was a success, i.e. not having uncovered any unseen "fault" in the middle, the stone was ready for the next process, that of marking for diameter desired. The standard stone was four feet in diameter, although for special mills and uses stones varied from two feet to four and one-half feet, and a very few as large as five feet.

Using a tree twig with a nail on one end for the center, and a piece of slate held at the other at the distance desired, a circle was described on the face of the rock. Using heavy steel chisels weighing about forty pounds, the work of "trimming" the stone was begun. One man would hold the chisel while one or two men would strike with sledges. The stone would be "trimmed" down one-half of its thickness around the outside circumference, and then the "eye" of the stone, i.e. the center hole, eight to ten

inches in diameter if a "runner," or an eight- to ten-inch square hole if a bed stone, would be cut one-half way through; this operation required special tools and very exact measurements, and was done by the foreman or head cutter.

The surface to be used for grinding was then leveled. This was done entirely by "facing hammers." These facing hammers were made of specially tempered steel, with a face of about two and one-half inches square, having about twenty or twenty-four points. All the irregularities had to be literally pulverized into



French Buhr Runner Stone and Large Size Cocalico Runner Stone
Exhibited by
Editor M. Luther Heisey (left) to His Friend, George Dillahunt, of
Springfield, Ohio. Flory Collection at Martic Forge.

dust until a perfectly level surface was obtained. Mr. Nagle informed me that this dust was very harmful to the lungs, and was one of the reasons he did not continue at the millstone trade, as it was common knowledge that millstone cutters died comparatively young.

The stone was then turned upside down and the trimming completed on the outside circle and the center hole cut through to exactly meet the other side. The bottom surface of a "bed" stone or the top surface of a "runner" stone required very little trimming especially if the split had been fairly straight, so when that was completed the stone was ready to be "iron bound," which procedure will be described later.

The foregoing paragraphs described the process of cutting a millstone or pair of millstones from a single boulder, which was the usual practice. Occasionally, an unusually large deposit or ledge of this pebbly conglomerate would be found which could be split into sections and then cut for stones. The largest such deposit known, very close to the mountain home of Mr. Nagle, was said to produce twenty-four pairs of stones. The crater, or hole, from which these stones were removed is still in evidence. We can assume by the foregoing description of the methods used in making millstones, that it was a time-consuming task. The average time to produce a pair of stones was about one week's work for a foreman and two helpers.

Although millstone cutting was classified as one of the skilled crafts in its day, it is interesting to note the wages these craftsmen received for their labors. Mr. Nagle tells me that one dollar per day was considered "top" pay for a helper. The foreman usually worked on a contract basis, being paid a certain amount for each pair of stones produced.

In describing the methods of stone cutting, we have learned that it must have constituted a fight of steel against stone, hence, the better the steel, the easier the battle. To keep the steel drills, chisels, facing hammers, etc., in good working order, it was necessary for the stone cutters to be blacksmiths also, which is borne out by my informant's present trade; so the stone cutters sometimes built small shops close to a supply of boulders where they could dress their tools when they became dulled. On rainy days, and inclement weather they would prepare a supply ahead.

The last work of the millstone makers, that of binding the stones with iron, required real blacksmithing skill or "know how." First, the true circumference of the stone would be taken, and a steel band was riveted and welded to that size in the shop. This "hoop" was then taken to the location of the stone, where a large fire was made, wherein the "hoop" was placed, until the proper degree of heat was attained, usually a "cherry red," then it was applied or "shrunk" on the stone on the same principle that an iron tire was applied to a wooden felloe of a wagon wheel. This iron band served a dual purpose, that of protecting the stone from breakage in transporting, and also as a safety measure to prevent it from flying apart while in operation in a mill.

Distribution of Millstones

Among the earliest millstone dealers in Lancaster County was the Konigmacher family in the Ephrata area. Adam Konigmacher of Ephrata was the last of the family to be thus engaged, operating until shortly after 1900. However, millstones were not the only type stone dealt in by this family, as the nineteenth century was still largely in the "stone age," stones being cut for street curbs, steps, fences, and used almost exclusively for railroad bridges and many large public buildings. In fact, the Konigmacher family supplied stones for our Lancaster County jail from the Ephrata area.

The last millstone dealer in Lancaster County, and probably the most widely known locally, was Benjamin Wissler. Mr. Wissler also operated a "four-run" grist and flour mill on Middle Creek, near Millway. Due to an interesting chain of circumstances, this Benjamin Wissler had a virtual monopoly of the millstone supply in the Cocalico area at the close of the nineteenth century.

The general method of obtaining millstones was for a stone cutter to locate a desirable boulder or boulders in the woods or fields, and obtain permission from the owner to cut and remove the stones. If the boulders were in a cultivated field the owners were always willing to give permission, for that was a method whereby their fields could be cleared of some huge boulders without any effort on their part.

As the demand for millstones increased, it became more difficult to find desirable boulders from which to cut stones, hence, the cutters had to go farther into the woods and the more remote mountains slopes to locate them. There was one family, however, who had never granted permission to remove stones from their land. This land was known as the "Erb tract" and it was heavily studded with desirable boulders, suitable for Cocalico Millstones. Mr. Wissler, together with one of the Erbs and a Mr. Weidman, formed a partnership and bought the tract and started to remove the stones; later Mr. Wissler secured the entire interest in the tract, and operated it thus for many years, being assisted in the latter years by one of his sons, Christian Wissler. The tract became known as "Wissler Woods," and any individual or firm who wished to procure a good "Cocalico Millstone" would, for

economy and necessity, have to purchase the same from Mr. Wissler. Mr. Christian Wissler informed me that a pair of four-foot millstones sold for \$60, F.O.B. the Ephrata railroad station. Until these stones would be delivered to a mill and be ready to grind grain, the cost would be nearly doubled.

We have seen that a great amount of work was involved in the process already described, but a millwright considered these stones as "stones in the rough," for it was his task to insert the "yoke" in the "runner" stone, cut the notches for the driving iron and last but not least, to lay out the grinding surfaces into

WEIDMAN & WISSLER,

MANUFACTURERS OF GRAIN AND SPICE

COCALICO MILL STONES.

JUST OPENED A NEW QUARRY

Of Superior Quality at Reduced Rates,

WARRANTED TO GIVE SATISFACTION.

ALSO.

SAND STONES OF ALL KINDS,

HEARTH, CURB, COPE, HEAD, PAVING
AND BUILDING STONES, &c.

STONE TROUGHS, DOOR AND WINDOW SILLS, &c.

LINCOLN, LANCASTER CO., PA.

S. P. A. WEIDMAN.

BENJAMIN WISSLER.

Advertisement in Directory of 1869

"lands," then cutting the "furrows" in the "lands" and the final "dressing" and balancing for the particular use desired. As this was a specialized job, there arose individuals and firms who made a business of buying "stones in the rough" and finishing them and finding markets for same.

That "Cocalico Stones" enjoyed a wide distribution was learned from Mr. Christian Wissler, who relates that his father shipped stones to many points in Pennsylvania, Maryland and other states. He also recalls that eight or ten pairs of stones were shipped to an oatmeal mill in Tilsonburg, Ontario, Canada. We



also have a paper, read before the Historical Society of Franklin County in 1937 by the late John Stoner, on "Old Millstones." We quote: "It is not known that any millstones were ever quarried in this neighborhood, but McCauley says three factories for finishing stones had at various times been in operation in Franklin County. Stones in the rough were brought by wagon to these factories, many of them from Cocalico Township, near Ephrata in Lancaster County. One hundred years ago millstones constituted quite a large trade."

We have referred earlier to the English millstones, and to the French buhrs. The stones imported from England were similar to the native stones; however, the English prided themselves on the external finish of their stones, as well as the grinding surfaces. The top surface of the stones oftentimes had ornamental rings cut therein and were perfectly smooth; whereas the American stones were irregularly rough on the upper surface and balanced by lead weights attached to the binding irons, or else had a top coating of plaster of Paris several inches thick.

The French buhrs were entirely unlike either the English or native stones, each buhr composed of from six to twenty or more pieces securely bound together by iron bands. It appears that these stones of a colorful silica-quartz combination are found in very irregular shapes embedded in deposits of clay, sand and gravel, in the hills around Paris. They have a more or less honeycombed surface containing many irregular cells, which give them a keen grinding surface and also help to dissipate the heat generated by friction in the grinding process. Another factor contributing to the cool grinding qualities, is the multiple sections comprising a buhr. Due to the extreme hardness of this silica-quartz combination, a French buhr would outlast two native or English stones. The French buhr also had a certain amount of advertising value, for the miller who owned a pair was supposed to be a step ahead of his upstream or downstream competitor. The stones comprising these French buhrs were brought over "in the rough" to millstone manufacturers at the ports of Philadelphia and Baltimore. They were used as ballast for ships, and if the ships did not have a full load returning to Europe they would not unload, hence, some of the stones used in these buhrs crossed the Atlantic many times.

The irregular shapes of the stones (as many as nine angles being cut on a single segment), and their varicolored hues, combine to make very beautiful and artistic designs when assembled in a buhr, and where a group of buhrs are assembled together, it presents many interesting studies in design and color. It may readily be assumed by the foregoing that the French buhr, because of their superior qualities and longevity, were naturally expensive to procure.

In Conclusion

The writer, being the third generation of a milling family (and not a historian), before concluding, would like to insert a word for the "millers" who made practical use of "Millstones."

The first recorded mention of a miller in world history was a hieroglyphic inscription appearing on the royal tombs at Bab-el-Moluk, which stated, "The fruit was brought to the (Divine) Miller, at Heliopolis that he might grind it." Bab-el-Moluk's sumptuous tombs date from the 19th dynasty (about 1500 B. C.).

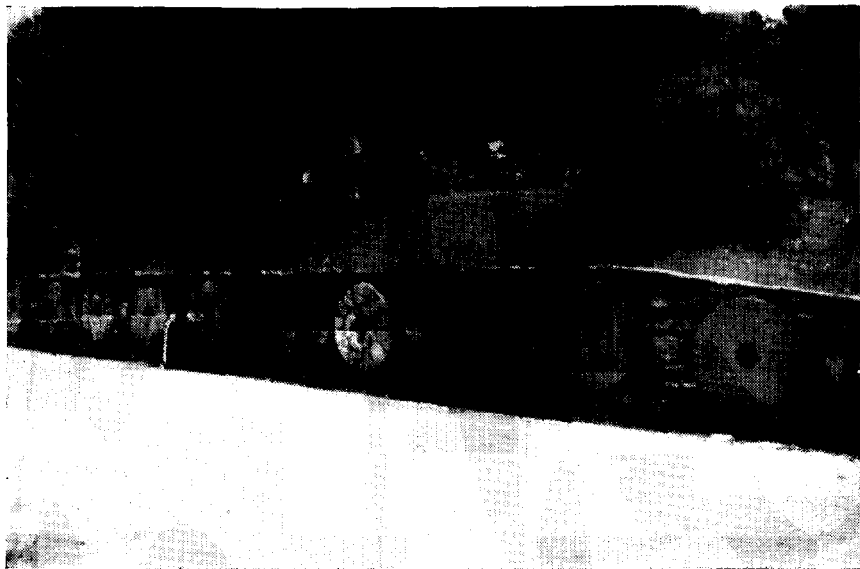
It is generally conceded that the "millers" in early American history, were generally prominent men in their respective communities. This was due to the fact that they had to have some financial status, as it required capital to build a mill and develop the water power to operate it.

However, many are the quips about the miller and his propensity to over toll, one often told in the "old days" was concerning the miller who had two sons assisting him in the mill. The father asked Ben, the oldest son, if he had tolled Farmer Jones grist. Ben replied that he was not sure but he thought he had. Then the father asked John, the other son, if he had tolled the grist, John said he had, where upon the father said, "John, you always did lie," and proceeded to toll the grist himself, so he would know *surely* that it was done.

Then there were many stories concerning the millers' fat hogs and cattle. The humorist, John G. Saxe in rhyme commends Jerry the Miller in this wise:

"Jerry had shunned the deadly sin,
And not a grain of over toll
Had ever been dropped into his bin,
To weigh upon his parting soul."

In the peak of the milling industry in Lancaster County there were over two hundred grist and flour mills in operation; this was in the latter part of the nineteenth century. Close to the turn of the century the flouring mills started to die out, due to the expansion of the milling industry in the west, and then the advent of modern machinery, especially the portable grinding mill which traveled from farm to farm, was the death knell to practically every custom grist mill in our county. Today there are only about a score of active mills, mostly flour mills, in operation.



Native Cocalico and French Buhr Stones
Embedded in a Retaining Wall by the Flory Tennis Court, at Martie Forge.

The year in which this paper is written (1950) saw the closing chapter written on the operation of the last truly customer "grist mill" when on Monday, December 11, death claimed Charles M. Bender at the age of seventy-four years, who had operated his stone-equipped, water-powered custom grist mill near Letort, in Manor Township, for over fifty years. The writer on Saturday evening, August 18, stopped at this mill, which had just ceased operation for the day. The miller, who was a bachelor, had gone over to the mill house where we had a long conversation with

him. He complained of not feeling very well and mentioned it was getting hard for him to handle the barrels of corn and the bags of meal (imagine such a thing at age 74!). Later, having permission to go through the mill, we were greeted by that combination of odors peculiar to a water-powered grist mill, that immediately brought back many pleasant memories of my boyhood days. I suppose every "shop" has its own particular odor or just plain "smell," but one who was born and lived about water-powered grist mills in their youth will never forget that combination of smells, which is a blending of freshly ground grain, feed bags, and particularly that of the water emanating from the "trunk" and wheel pit.

We felt the still warm grist in the sacks hanging on the bagger. On the two upper floors of the mill we saw the traditional separate bins for each farmer's "grist" (we counted twenty alone on the top floor), the barrels in which to hoist it by rope from the farmers' wagons, and several bins with "corn on the ear" awaiting to be ground. We felt instinctively that we were beholding the last stand of a passing era in our county. We have wondered since if the corn seen on that upper floor was ever run "through the mill," for only a few months later we read "Chas. M. Bender, after an illness of several months died."

Thus ends an era, for our locality, in the ever changing cycle of life, bringing the words of the great hymn writer, Henry F. Lyte, to our mind —

"Change and decay in all around I see." Yes, in *material* things, all is change and decay. Yes, change and decay! But, we shall not end with such a gloomy note, but rather "We will look to the Mountain from whence cometh our strength," yea, we shall look to Mount Zion, to the Lord of Hosts, and we shall say, with the hymn writer, "O Thou who changest not, abide with me."

Then with our feet firmly established on the "Living Rock," we who are privileged to carry on our work, whatever it may be in this "Garden Spot of America," shall with *His* Help, create new, and worthwhile history for our descendants to record.

ABOUT THE AUTHOR

Paul B. Flory, son of the late Benjamin Eby Flory and Elizabeth (Lizzie) Frantz Bowman, was born October 4, 1898, in Warwick Township, Lancaster County, Pa., the youngest in a family of four boys and two girls; of French descent on the paternal side (Fleury), and on the maternal side of the early Lancaster County pioneer, Wendell Bowman. What scant formal education was acquired, he obtained in one-room schools in Warwick and Martic townships.

Mr. Flory took over the management of the home mill and farm in Martic Township several years prior to purchasing it in partnership with his brother, Jacob B., in 1920; acquired one-half interest in the John Gingrich (old Kaufman) mill in Manheim Township in 1926, which is still in active operation as a flour mill, now known as "Flory's Mill," managed by the partnership of "Flory Bros."

Mr. Flory is affiliated with the Lancaster School of the Bible, which he assisted in establishing, the Lancaster Gospel Center, the Lancaster Camp of the Gideons, secretary of the Water Street Rescue Mission, and founder and collector of the Millstone Collection at Martic Forge, which comprises over one hundred stones, and represents about a score or more of industries.

He was married in 1928 to Florence Abel Wilde, and had a family of eight children, seven of whom are living—Florence, Elizabeth and Dorothy (twins), Patsy Anne, Suzanne, Paul Thomas and Gwendolyn.