

AN EARLY GUNPOWDER MILL IN LOUISVILLE, KENTUCKY

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The production of gunpowder was an important early industry in Kentucky that, during the peak years spanning approximately 1800-1815, employed hundreds and possibly thousands of workers in both the procurement of the raw ingredients and in manufacture of the finished product. The industry was stimulated by the interruption of trans-Atlantic commerce through embargoes and blockade as a consequence of international tensions that culminated in the War of 1812. Production of gunpowder and its primary component saltpeter or "nitre" (potassium nitrate) were essential to the war effort, and Kentucky gunpowder was used not only in the battles of the northwest territory but was also sent southward down the Mississippi River for the culminating Battle of New Orleans on January 8, 1815. The resumption of importation of low-cost saltpeter and high-quality English gunpowder after the war resulted in the virtual extinction of the gunpowder industry throughout the interior of the American continent save for a handful of the larger and more efficient powder mills.¹ Kentucky was the primary source region for the potassium nitrate used in American gunpowder mills, extracted from the numerous dry caves and sandstone rock shelters of the region. This circumstance accounts for the rapid if brief expansion of the industry in the state during the New Republic era. Powder mills tend to cluster in proximity to the sources of nitrate. One significant mill cluster was located near Lexington, which was both central to the surrounding saltpeter production region and the hub of the early transportation network, with mills operating in the Inner Bluegrass counties of Bourbon, Fayette, Jessamine, Scott and Woodford. Another area of mill concentration was in the south-central counties of Adair, Barren, Cumberland, Edmonson, Green, Hart and Metcalfe, associated with the cave region around Mammoth Cave.²

In this context, it would initially appear that the Phoenix powder mill, established circa 1820 and situated near Louisville, Kentucky, was an anomaly by operating both after the heyday of gunpowder production within the state and some distance from the caves which yielded the requisite niter. The viability of this manufacturing enterprise was, however, fostered by a number of recent developments in transportation which in turn affected the regional economy. At the end of the War of 1812, powder mill operators in Kentucky found themselves at a distinct disadvantage because they simply could not make gunpowder cheaply enough to compete with either imported British gunpowder or that produced by American powder mills located on the eastern coast. It was all about the cost of raw materials. Great Britain controlled the world's most abundant supply of saltpeter, obtained from the Crown colony of India, which was available at very low cost shipped to American port cities. This low-cost saltpeter, however, became very expensive when shipped to Kentucky, which was in many ways isolated from the commerce of the east because of the difficulties in transportation of goods to the interior over the mountains or by flatboat upriver against the current of the Mississippi.³

¹ Angelo I. George, "Saltpeter and Gunpowder Manufacturing in Kentucky," *Filson Club History Quarterly* 60(April, 1986):189-217; Gary A. O'Dell, "Saltpeter Manufacturing and Marketing and its Relation to the Gunpowder Industry in Kentucky During the Nineteenth Century," in Kim A. McBride, W. Stephen McBride, and David Pollack, eds., *Historical Archaeology in Kentucky* (Frankfort: Kentucky Heritage Council, 1996), 67-105;

² Gary A. O'Dell and Angelo I. George, "Salt-Peter Mines of Eastern Kentucky," *Historical Archaeology* 48:2 (2014), 91-121; O'Dell, "Saltpeter Manufacturing"; O'Dell, "Bluegrass Powdermen: A Sketch of the Industry," *Register of the Kentucky Historical Society* 87(Spring, 1989), 99-119; George, "Central Kentucky Gunpowder Factories," *Journal of Spelean History*, 20(April-June, 1986), 28-34 (see also reprint in this issue of *The Millstone*).

³ Angelo I. George, "Pre-1815 Demise of the Domestic Saltpeter Industry in Kentucky," *Journal of Spelean History* 22(April-June, 1988), 15-20; O'Dell, "Saltpeter Manufacturing."

These circumstances had begun to change by 1820, however. Wishing to overcome the commercial isolation of the interior by linking the eastern coast to the Ohio River, the federal government began construction of the “National Road” at Baltimore in 1811, following the course of the old “Braddock’s Road” cut by George Washington nearly sixty years before. Construction of the National Road reached Wheeling, in what is presently West Virginia, and the Ohio River in August 1818, providing a far more accessible route for commerce with the Ohio Valley. A second factor contributing to the potential success of a gunpowder production facility at Louisville was the tremendous improvement in river transportation ushered in by the advent of steamboats on the Mississippi and Ohio Rivers. Previous to the steamboat era, river commerce had been carried by flatboats and keelboats; because these were poled by hand, most goods were shipped down-river and very little was moved up-river against the current; such as took place was of much greater expense. The very first steamboat on western waters, the *New Orleans*, had a 371-ton capacity and was launched into the Ohio River at Pittsburgh on October 10, 1811, making its maiden voyage to Louisville. By 1819, thirty-one steamboats were plying the western waters, primarily between New Orleans and Louisville. As a result of the burgeoning waterborne commerce, Ohio River cities such as Cincinnati and Louisville began to expand rapidly; Lexington, formerly the commercial and cultural center of the west, was soon eclipsed in significance by the Falls City. A final consideration is in regard to the navigational impediment which provided Louisville with its nickname, the so-called Falls of the Ohio.⁴

The Falls are a series of rapids formed by limestone outcrops over which the Ohio River drops 26 feet over a distance of nearly three miles (**Figure 1**). These constituted the only navigational hazard over the entire 981-mile length of the river, and was extremely difficult for vessels of any size to circumvent. The relatively small boats engaged in river traffic, prior to 1830, could generally pass the rapids during high water, but at low water were forced to unload their cargo at Louisville, which was then carted to the other side of the Falls and loaded into another vessel for further travel. Naturally enough, the citizens of Louisville were very interested, at an early date, in the possibility of excavating a canal through the rock ledges to allow river commerce to bypass the Falls unimpeded. As early as 1792, Gilbert Imlay observed, that the “inconvenience may be easily removed by cutting a canal from the mouth of Beargrass [Creek], the upper side of the Rapids, to below the lower reef of rocks.” Beginning in 1804, several corporations were organized to build such a canal but in each case insufficient stock was subscribed to allow construction to begin. In January, 1818, the legislature created yet another corporation for the purpose, and in view of the urgent need for a canal in consequence of increasing steamboat traffic on the river, realization of the canal project seemed assured. The stock issue again remained undersubscribed, and it was not until the Louisville and Portland Canal Company was created in 1825 that the canal was actually built, opening in 1830. Nevertheless, the mood of Louisville residents during this period was confident that the canal would be constructed in due time.⁵

These circumstances, all of which served to improve access to Louisville by both land and water, facilitated the development of manufacturing industries and promoted the growth of the city as a regional economic powerhouse. Hence the establishment of the Phoenix Powder Works on Corn Island in 1820 or

⁴ Billy Joe Peyton, “Surveying and Building the Road,” In Karl B. Raitz, ed., *The National Road* (Baltimore: Johns Hopkins University Press, 1996), 123-158; Leland D. Baldwin, *The Keelboat Age on Western Waters* (Pittsburgh: University of Pittsburgh Press, 1969 [1941]); Richard E. Banta, *The Ohio* (Lexington: University Press of Kentucky, 1998 [1949]), 291-294; Louis C. Hunter and Beatrice J. Hunter, *Steamboats on the Western Rivers: An Economic and Technological History* (Mineola, NY: Dover, 1993 [1949]), 3-60;

⁵ Gilbert Imlay, *A Topographical Description of the Western Territory of North America* (London, 1792): 47-48; Anon., *History of the Ohio Falls Cities and Their Counties*, Vol. 1, (Cleveland: 1882), 41-49; Stuart S. Sprague, “The Canal at the Falls of the Ohio and the Three-Cornered Rivalry,” *Register of the Kentucky Historical Society* 72(January, 1974), 38-54.

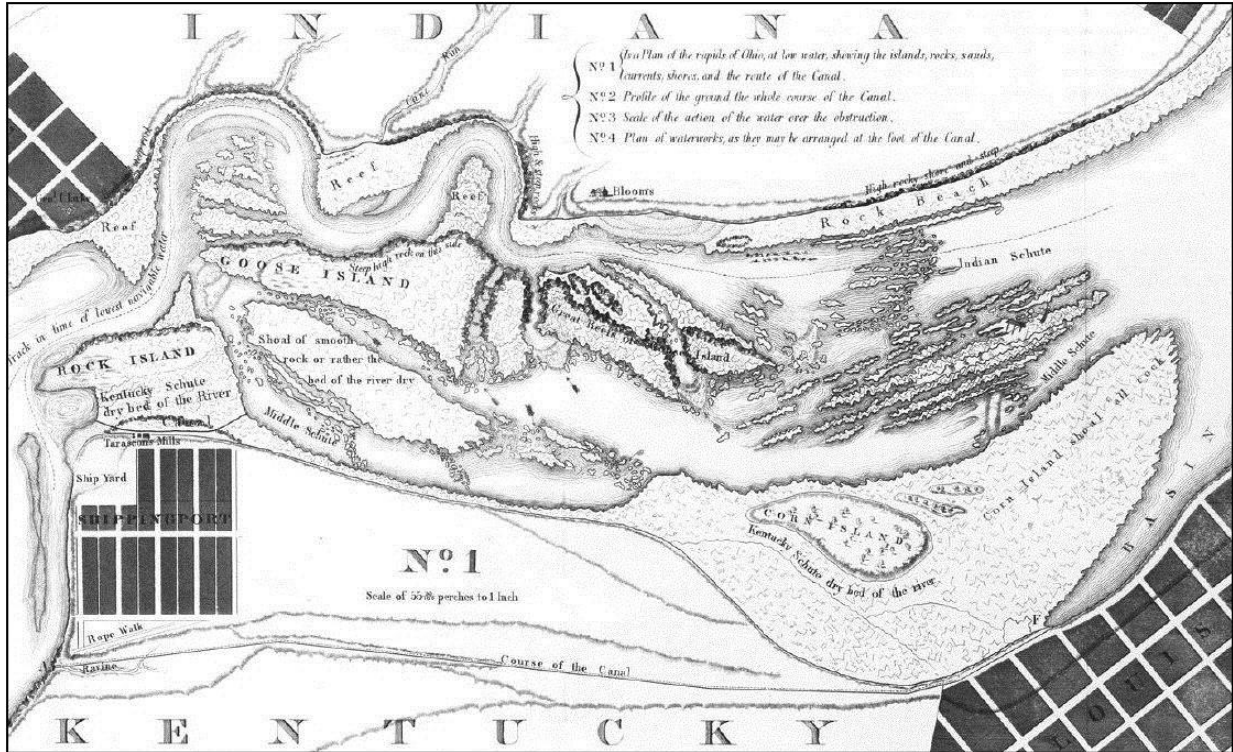


Figure 1. The Falls of the Ohio River (detail). Survey and map by Jared Brooks, 1807. Louisville is shown at the bottom right corner, and Clarksville, Indiana, at upper left corner. In the bottom left corner is Shippingport, founded by the Tarascon brothers in 1806. Just above Louisville, slightly to the left, is Corn Island, on which the Phoenix Powder Works would later be erected (reproduced courtesy The Newberry Library, Chicago, Call Number: Map4F G3707.05 1807 .B7).

1821, next to the Kentucky shore of the river just opposite the burgeoning city of Louisville, at a time when few other powder mills were able to operate successfully in the state. Louisville provided advantages that no other location within the Commonwealth could boast.

Corn Island was the original site of the settlement which later became Louisville. The island, which extended along the waterfront of present-day Louisville from Fifth to about Fourteenth Streets, measured about 4,000 feet long by 1,000 feet wide when first mapped by Thomas Hutchins in 1766, containing about seventy acres of land. The island had a rocky base and was heavily timbered with immense sycamores and cottonwoods; at one point it was possible to wade across to the Kentucky shore, and during periods of very low water it sometimes formed a connection to the mainland. When George Rogers Clark came down the Ohio River in 1778 on a military expedition against British outposts in the Illinois Country, he established a small settlement on the bit of land he named Corn Island as a communication post in support of the campaign. During the following year, the settlers moved across to the mainland and a charter obtained to found the town of Louisville. Afterwards, Corn Island remained uninhabited but was a favorite spot for picnicking, duck shoots, fishing parties, and other amusements. During the nineteenth century the island gradually shrank in size as a result of soil erosion from deforestation and quarrying of the limestone bedrock, until in 1889-1891 most of the remaining island was blasted out of existence by the U.S. Army Corps of Engineers to clear the channel for navigation (Figure 2).⁶

⁶ George Yater, "Louisville," In John E. Kleber, ed., *The Encyclopedia of Louisville* (Lexington: University Press of Kentucky, 2001), 220; Anon., *Ohio Falls Cities*, 155-177; Herman Rave, "Blowing up Her Island," *Louisville Courier-Journal*, September 22, 1891.



Figure 2. View of the Ohio River at Louisville circa 1930, looking northwest. At left is the entrance to the Louisville and Portland Canal, between the Kentucky mainland shore and Shippingport Island. Construction began in 1826, was completed in 1830, and the canal has been modified and widened several times since. The remains of Corn Island, site of the former powder mill, are visible in the center of the picture (reproduced with permission of Digital Collections, Archives and Special Collections at the University of Louisville).

Many of the histories of Corn Island and early Louisville that have been published during the last 120 years make note of an unnamed powder mill that briefly operated on the island, but the date for the establishment of the mill is always given incorrectly as 1824. The original source for the 1824 date appears to be a history of Corn Island by Hugh Hays that appeared in the *Louisville Courier-Journal* in February 1882, in which he rather vaguely and briefly records, “In 1824 some one [sic] built a powder-mill on the island. I do not recall who built it.” This statement has evidently been considered authoritative ever since. The evidence, however, is clear that the mill was in operation by 1821 and possibly earlier, as indicated by the name “Phoenix Powder Works” appearing in advertisements that suggests rebirth of a previous establishment. An 1821 navigation map of the Falls of the Ohio depicts the island with the label, “Corn Id. Powder Works,” this possibly being the name under which it operated prior to being known as the Phoenix Powder Works (**Figure 3**). Additional evidence for an earlier operation date is provided by a September 29, 1821, advertisement in the St. Louis *Enquirer* offering gunpowder for sale. The advertisement provides a long list of items available in the store, among them “100 kegs Trotter’s and Corn Island Powder.” The “Trotter” gunpowder was manufactured in Lexington by the largest powder

mill operation ever conducted in Kentucky (from 1810-1833), that of Samuel Trotter in Lexington, who shipped powder throughout the region.⁷

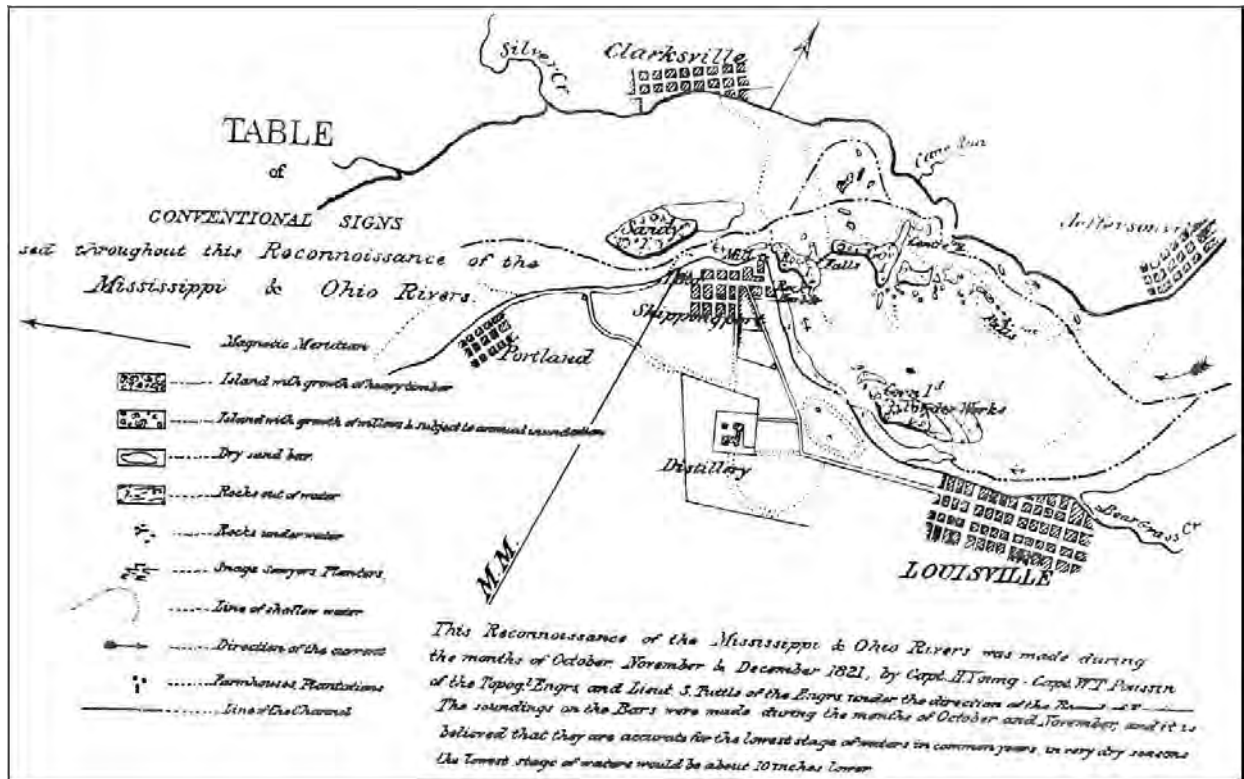


Figure 3. Section from the 1821 Reconnaissance of the Mississippi & Ohio Rivers, a survey of the waterways from Louisville to New Orleans authorized by Congress to address the navigational needs of the nation. Corn Island is shown just above Louisville and labeled “Corn Id Powder Works” (map courtesy of Phil J. DiBlasi, University of Louisville; public domain figure).

The original builder and operator of the gunpowder mill on Corn Island is presently unknown, but it may have been an enterprise of the brothers Louis and John Tarascon, ambitious French entrepreneurs who operated a merchant fleet on the Ohio River out of Pittsburgh. The Tarascons founded a commercial community called Shippingport in 1806 on a peninsula of land just downriver from Corn Island and Louisville, to allow them to navigate the lower Ohio and Mississippi rivers without negotiating the hazardous passage of the Falls of the Ohio. On this peninsula, which became an island after construction of the Louisville and Portland Canal in 1825, the Tarascons erected a grist mill, rope-walk, and warehouse facilities, and the location soon began to attract settlers, primarily French families fleeing the chaos of the aftermath of the French Revolution. A shipyard was planned but never built. Shippingport, which reached a population of nearly 600 during the mid-1820s, became a serious competitor with Louisville as Kentucky’s most important river port. An enormous six-story grist mill was built of stone by the Tarascons between 1815-1820 at a cost exceeding \$150,000, having a production capacity of more

⁷ Hugh Hays, “Corn Island,” *Louisville Courier-Journal*, February 12, 1882; Hugh Young, William T. Poussin and Stephen Tuttle, “Reconnaissance of the Mississippi & Ohio Rivers” (map) (Washington, D.C.: Library of Congress, Map Division, 1821); John Shackford, advertisement, *St. Louis Enquirer*, September 29, 1821; Gary A. O’Dell, “The Trotter Family, Gunpowder, and Early Kentucky Entrepreneurship, 1784-1833,” *Register of the Kentucky Historical Society* 88(Autumn, 1990), 394-430.

than 500 bushels daily. No documentation has been found to link the Tarascon brothers to the powder mill on Corn Island, but such an endeavor would have been typical of their energetic approach to life.⁸

The first known advertisement for the Phoenix Powder Works was published in the *Kentucky Reporter* on May 19, 1823:

FOR SALE OR LEASE
FOR A TERM OF YEARS
The Phoenix Powder Works

THE above works are situated on Corn Island, within half a mile of Louisville. They have been constructed on the most approved plans, are extensive and finished in the best manner. In their erection no expense has been spared to guard against accidents by explosion or otherwise.

The facility offered by water communication to obtain the crude materials and transportation of the manufactured article in every considerable market in the Western and Southern states, renders the location of the above works pre-eminent. To persons wishing to embark in the manufacturing of Gun Powder, these works will be an object worthy their attention. The conditions of sale or lease, will be made easy.

For terms apply to JAS. C. JOHNSTON

The only Johnston of record in Louisville by this name during the period was the noted physician, Dr. James Chew Johnston (1787 -1862). James was the son of William Johnston, who came down the Ohio with George Rogers Clark in 1778 and participated in the Illinois Campaign against British-held Kaskasia and Vincennes, and was later elected the first clerk of the city of Louisville. James C. Johnston was educated at Princeton and practiced medicine at Louisville for many years, but as one biographer noted, “increasing wealth and the cares of his estate ultimately drew him altogether away from [medicine].” This can likely be interpreted as an increasing participation in business affairs. In 1816, James C. Johnston was in partnership with Craven P. Lockett, operating a mercantile house on Main Street. Whether Johnston invested in the erection of the Corn Island powder mill or later acquired the establishment is not known at present and will require additional research. It is of interest to note that, according to the advertisement, raw materials were shipped in to the mill via the Ohio River, indicating that the saltpeter used was not made in the Kentucky cave region.⁹

The Phoenix mill was purchased in 1824 or early 1825 by John Cleaveland of Louisville. This acquisition date may account for Hugh Hays’ belief that the powder mill on Corn Island was first established at that time. Very little is known about Cleaveland; he is virtually an invisible man as far as the historical record is concerned. The U.S. Census reports for 1810-1840 list various John Cleavelands (with alternative spellings of the last name) living in Bourbon, Garrard, Harrison, Shelby, and Woodford counties in Kentucky, but none as resident in Jefferson County, where Louisville is located, nor across the river in Indiana. On March 2, 1825, Cleaveland reported that he was now occupied in the manufacture of gunpowder, an advertisement that was repeated on June 4:

**PHOENIX POWDER WORKS
JOHN CLEAVELAND**

Has taken the powder works, on Corn Island, near Louisville, which are believed to be superior to any in Kentucky, and where he manufactures gunpowder, warranted to be equal to any in the United States. Merchants and others may be supplied, by applying at this office, second door below Wm. H. Neilson’s tobacco factory, Main street [sic].

⁸ George H. Yater, “Tarascon, Louis and John,” In *Encyclopedia of Louisville*, 866-868; Henry McMurtrie, *Sketches of Louisville and Its Environs* (Louisville, 1819), 158-164.

⁹ *Kentucky Reporter*, May 19, 1823; James Craik, *Historical Sketches of Christ Church, Louisville, Diocese of Kentucky* (Louisville, 1862), 28-31; Anon., *Ohio Falls Cities*, 171, 200; *Louisville Western Courier*, May 23, June 13, July 25, 1816.

On March 2, 1825, the same date as his initial announcement, the Louisville mercantile firm of McDonald & Co. announced that they were now stocking “100 kegs Cleaveland’s powder, from No. 20 to 30 warranted equal to any made in the western country.” In October of the same year, Cleaveland placed another advertisement, similar in wording but providing more detail on packaging, noting that “Merchants and others may be supplied, with [gunpowder], in kegs of 25 lbs, 12-1/2 lbs. or 6-1/4 lbs, by applying at his office.” By this time, Cleaveland had relocated his office to “the house of I&W Stewart, Main Street,” this being the firm of Isaac and Willis Stewart. The advertisement ran in successive issues from October 1 through November 23.¹⁰

The last known advertisement for Cleaveland’s gunpowder appeared in a Louisville newspaper on September 27, 1826, when the Stewart mercantile firm placed a long ad that included mention of “Trotter’s Brooking’s, Cleaveland’s and S. Cooper & Co., warranted gunpowder.” Angelo George (1988) has speculated that the reason for the cessation of public advertising by the Phoenix Powder Works in 1826 may be because the mill’s entire annual production was being absorbed by the massive Louisville & Portland Canal project. This is a reasonable assumption. Work on the canal began in March of 1826 to create a ship passage between the Shippingport peninsula and the Kentucky shore of the river. It soon became apparent to the builders that most of the canal would have to be blasted through solid rock, requiring large quantities of gunpowder. When completed in December of 1830, the canal, although only two miles long, was enormous in its dimensions compared to other canals of the era such as the Erie Canal. Construction involved the excavation of more than 660,000 cubic yards of soil and nearly 150,000 cubic yards of bedrock. The Ohio River canal had three lift locks, each with a lift of slightly over eight feet, a length of 183 feet, and a width of 50 feet. The sloping banks of the canal rose more than 100 feet above the bottom of the channel, and were 200 feet apart at the top.¹¹

In 1830, just as the canal was nearing completion, the Phoenix Powder Works was completely destroyed in a tremendous explosion which killed several of the workers. The facility was never rebuilt, and the only powder mill ever to operate at Louisville vanished into the pages of history.¹²

ACKNOWLEDGMENTS

The authors are grateful to KOMA member Roger Berry of Owensboro, Kentucky, for bringing the Phoenix Powder Works to our attention and thereby stimulating the writing of this account. Appreciation is also due to Angelo I. George of Louisville for sharing his research concerning this mill, and to Philip J. DiBlasi of the University of Louisville who provided the scan of the 1821 navigation map of the Ohio River.

¹⁰ *Louisville Public Advertiser*, March 2, June 4, 15, October 1-Nov 23, 1825.

¹¹ Angelo I. George, “Phoenix Powder Works on Corn Island,” *Karst Window* 24(March, 1988), 8-9; Paul B. Trescott, “The Louisville and Portland Canal Company, 1825-1874,” *Mississippi Valley Historical Review* 44(March, 1958), 691-694; *United States Telegraph*, Washington, D.C., February 19, 1829. The Brooking powder mill was located in Hart County, Kentucky, and operated from 1825-1833; see George, “Central Kentucky Gunpowder Factories.” The Trotter and Cooper mills were located in Lexington; see O’Dell, “Trotter Family” and O’Dell, “The 1818-1839 Spencer Cooper Powder Mill, Lexington, Kentucky,” *The Millstone* 11(Spring 2012), 27-33.

¹² Hays, “Corn Island.”