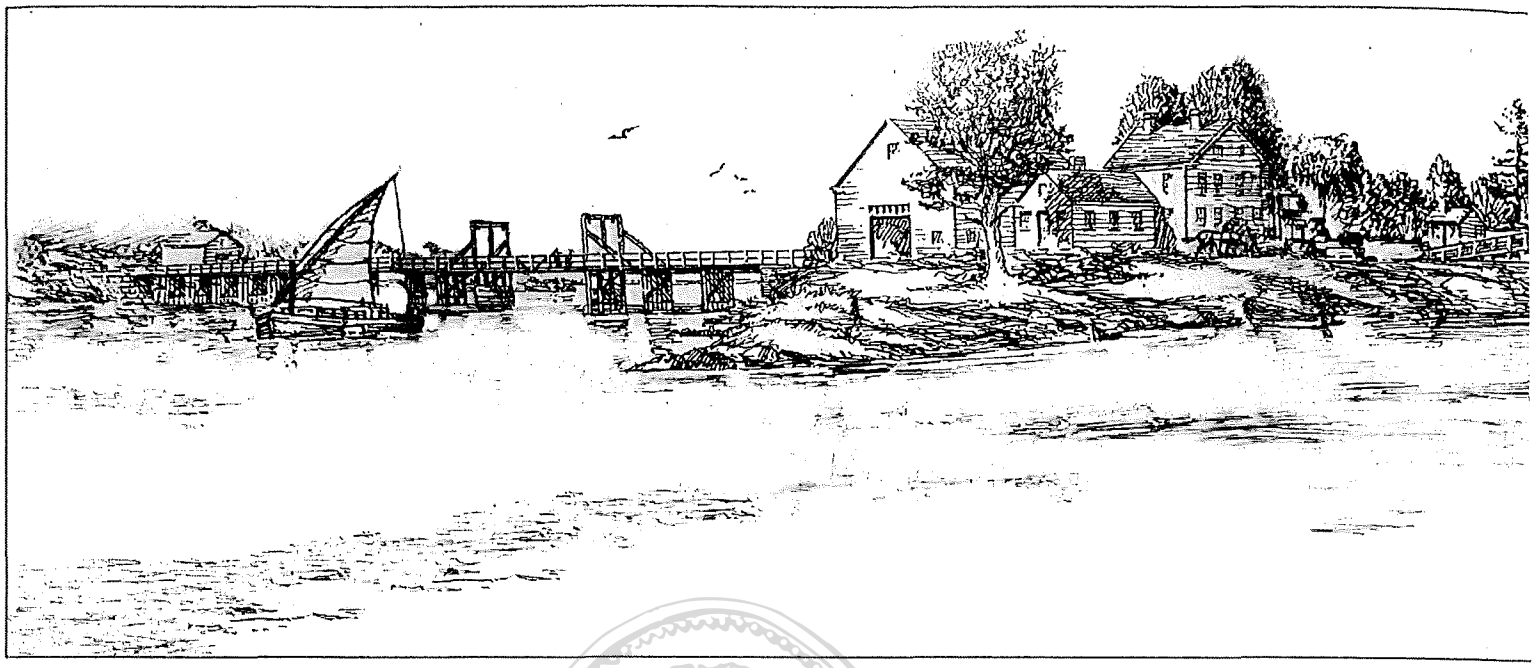


The Piscataqua River Bridge (1794-1855)

Helen H. Frink

Most families tell stories about their past, about hurdles overcome or perils weathered by their ancestors. The Frink family told the story of our great-great-grandfather Cyrus, who was born in Stonington, Connecticut. As a young man of twenty-one, he carried his carpenter's tools on his back and walked north to Newington, because he had heard that he could find work there building a bridge.

In Newington he married Abigail Nutter, and raised nine children. Several of them remained in Newington and married into the prominent families of the time: the Colemans, Hoyts, and Pickerings. We were told that the bridge Cyrus helped to build was damaged by ice and washed away several times. When it could no longer be repaired, some of Cyrus's sons salvaged the bridge timbers and built the barn at 272 Nimble Hill Road, still marked with the date, "Built 1837."

We treasure one symbol of this history: the silver-dollar-sized seal of the Proprietors of the Piscataqua River Bridge. As the story goes, the Frinks were also known for thrift, and for re-using salvaged wood. Once the deacons who counted the church offering at the end of the Sunday service discovered a metal button clinking among the coins in the collection plate. They speculated about who might have run out of coins and contributed the button instead. "Couldn't have been a Frink," someone volunteered; "They would have put in a bridge timber!"

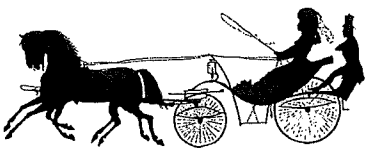
A few years ago the New Hampshire Historical Society paid $17,000 to acquire four boxes of documents of the Proprietors of the Piscataqua River Bridge. What a thrill to pore through these documents, many embossed with our bridge seal! I discovered contracts Cyrus had signed with the proprietors, a hand-drawn sketch of his proposal to re-design a portion of it, and other documents naming our great-grandfather Elias and his brother "Uncle" Darius, who owned our red brick farmhouse.

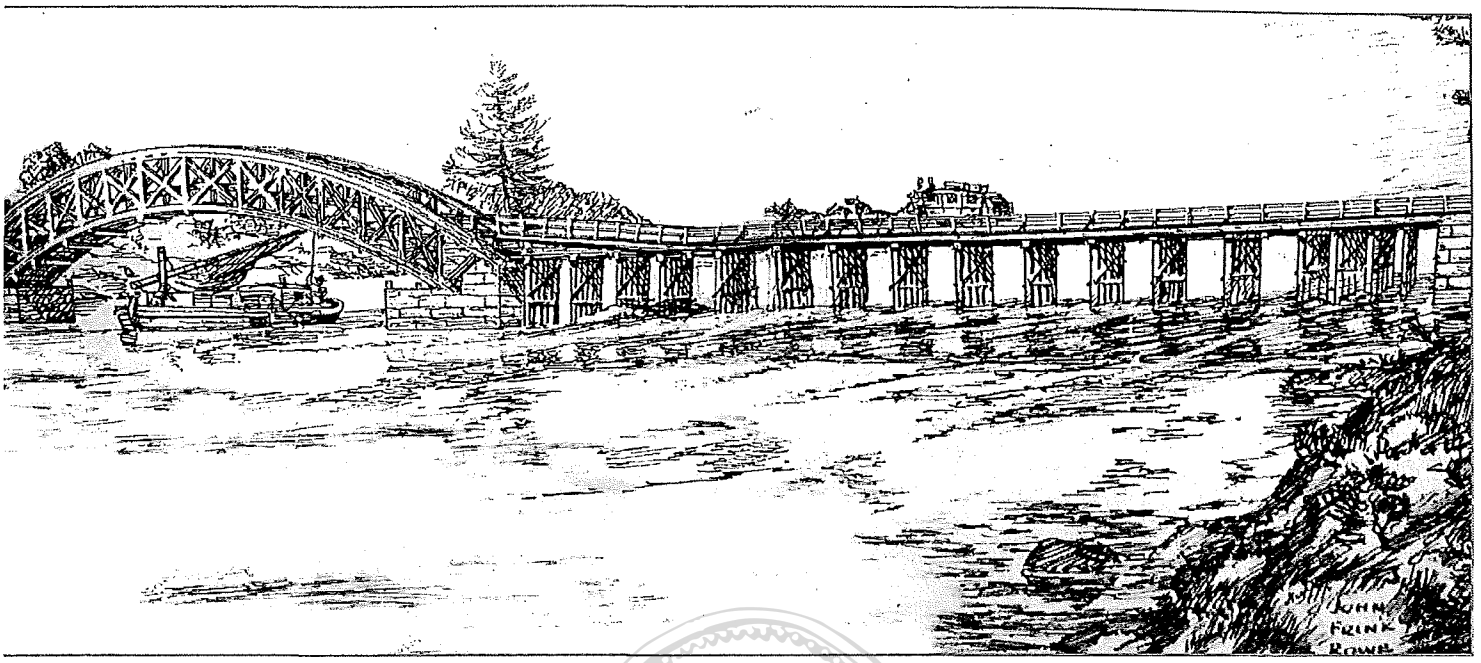
For sixty years, between 1794 and 1854, the main route from Concord, New Hampshire east to Portsmouth passed over this bridge spanning the Piscataqua River between what is now Cedar Point in Durham and Fox Point in Newington.[1] Historical markers at each site today identify the huge stone abutments, all that remains of an engineering feat unique in its day.

Until the First New Hampshire Turnpike was laid out in 1791, commercial traffic and travelers in southeastern New Hampshire moved by boat. Huge flat-bottomed barges called gundalows hauled timber, salt marsh hay, and bricks down the Piscataqua from Great Bay to Portsmouth, riding the tide toward the mouth of the river. Gundalows laden with coal, iron, and building materials lumbered back upriver on the incoming tide, powered by long oar sweeps or a lateen-rigged sail.[2]

When overland routes such as the turnpike led ox-drawn wagons and horse carts east and westward between Concord and the Seacoast, travelers relied on ferries to carry them across the river. As early as 1640 Trickey's Ferry operated under various owners between Hilton Point in Dover and Bloody Point in Newington, approximately the route of the present Spaulding Turnpike bridge. Further upriver a ferry plied between Furber's Point or Welshman's Cove in Newington across to Oyster River in Durham.[3]

But given the powerful current still visible today eddying around the pilings of the Spaulding Turnpike bridge, a ferry crossing could prove dangerous or uncomfortable. Furthermore the ferry's carrying capacity was limited, and passengers had to wait for it to make its way from shore to shore. The expansion of commerce after the Revolutionary War dictated that a better solution must be found.





The Piscataqua River Bridge (1794-1855)

Helen H. Frink

In 1793 the New Hampshire legislature granted the exclusive right to build a toll bridge to petitioners who incorporated as the Piscataqua Bridge Corporation and organized a subscription of 500 shares. Many shareholders were Portsmouth merchants; familiar names such as Sheafe, Haven, Rundlett, and Cutts appear among them. Bostonians and banks purchased other shares in hopes of earning handsome profits from tolls to be charged for crossing the bridge. The city of Portsmouth subscribed 1,000 pounds, anticipating that an increase in commerce would follow the establishment of a safe and reliable river crossing.

The proprietors decided to span the river between Fox Point in Newington and Durham's Cedar Point because two small islands could serve as foundations supporting sections of the bridge, reducing the actual length of bridge that needed to be constructed. Just off Fox Point lies Rock Island, about fifty feet long, which could support one end of an arch. The other end stood on Goat Island, a grassy few acres about 800 feet wide, adequate to site a tavern and stable at the midpoint of the bridge. An advertisement in the *Portsmouth Gazette* dated January 14, 1794 seeks building materials:

60 pieces White Oak Timber, length from 22 to 34 feet to square 14 by 14- two-thirds of the length for posts.

60 pieces Red Oak, length from 30 to 40 feet to square 16 by 16 inches- two-thirds of the length for posts.

30 pieces best Mast Pine Timber, length from 25 to 45 feet, square 16 to 18 inches

100 pieces ditto Pine, 14 by 10 or 14 by 14 square, 42 feet long, free from sap

10,000 feet Pine Plank, from 31/2 to 4 inches thick, square-edged

Workmen apparently ate a noonday meal at the construction site, for the same advertisement seeks a barrack to be built on Fox Point in Newington and a "few tons flour and Pork, for all which a generous price will be given."

The bridge was a masterpiece of engineering, completed between early April and November 22, 1794, when the first traffic crossed it. The best contemporary description of it appears in the December 9, 1794 *Portsmouth Gazette*, where its length is given as 2,362 feet, and width 38 feet. That article describes the three components of the bridge: first, a pile bridge from Fox Point in Newington to Rock Island, then an arch from Rock Island to Goat Island, and a third section from Goat Island to Durham, supported, like the first, "on piles from fifty-three to sixty-five feet, driven into the bed of the river by "large hammers of oak timbers, braced and framed on a new and improved plan."

The bridge construction used 3,000 tons of oak timber, 2,000 tons of pine, 80,000 feet of 4" plank; 20 tons of iron, 8,000 tons of stone. Enos Whiting of Norwich, Connecticut is credited with superintending the pile work, and also with constructing "a draw for the passage of shipping, which moves across in a horizontal direction, instead of being raised on hinges, but it is feared this expected improvement will not answer the purpose."

The Piscataqua River Bridge (1794-1855)

Helen H. Frink

The article in the *Portsmouth Gazette* gives the length of the arch between the stone abutments on Rock Island and Goat Island as "where the water passes" as

> two hundred and forty-four feet six inches. [I]t is composed of three tiers of girders or arches, the crown of the lower one next the water is sixteen feet from the chord, and twenty feet from high water. The second tier supports the planking on which the road passes, which is on a larger circle to facilitate the travelling. The third tier or cap pieces forms the top railing of the Bridge, which is handsomely ornamented.

Timothy Palmer of Newburyport, Massachusetts (1751-1823) designed the 244-foot Great Arch between Rock Island and Goat Island. Hailed in the newspaper account as "one of the most ingenious architects of the present age," Palmer also designed bridges on the Merrimack and Connecticut Rivers (from Windsor, Vermont to Cornish, New Hampshire) and built the first permanent bridge across the Schuykill River in Philadelphia.[4]

A contemporary account states that there were sixty-one wooden piers or trestles on the Durham side of the bridge and sixty-five on the Newington side, the trestles standing twenty-three feet apart to support the width of the bridge.[5] The arch, composed of three rows of girders, was a particularly daring and much admired innovation: Palmer ordered timbers up to 16x18 inches in section, over 50 feet long, with a natural curvature to match the curvature of his three chord members."[6]

When the bridge opened in 1794, its arch was the longest span in the world. Although such bridges were sometimes built during the winter when ice provided a temporary foundation, the Piscataqua bridge was built during the warmer months. Work began on April 1, 1794, and the bridge was passable by November 22nd of that same year, a pace of work nearly as remarkable as the structure itself!

In 1797 Robert Gilmor of Baltimore traveled north to Portsmouth by stagecoach. His "Memorandums made in a tour of the Eastern States in the Year 1797" contains the only extant drawing of the bridge, which he describes as "the only one of its kind in America, and a surprising work."[7]

The bridge cost $65,974.34, which the proprietors intended to recoup by hosting travelers at a hotel and livery stable already visible in Gilmor's sketch from 1797, and by charging tolls. Yet from its inception the bridge failed to earn financial rewards for its investors.

Announcements in the *Portsmouth Gazette* show that shareholders were assessed for payments of ten or fifteen dollars several times during 1794, and warned that their payments were urgently needed to cover the costs of materials and labor. Several delayed or refused to make these payments (which totaled at least eighty-five dollars in 1794) and shares in the bridge continued to be offered at auction through 1830.

In an effort to win public support, the proprietors advertised tolls in the *Portsmouth Gazette* in November, 1794 which were lower than the limit allowed by law:

For each foot passenger 3 and ½ cents

Each Horse and Rider 8

Horse, Chaise, Sulkey or Chair 20

Each Sleigh drawn by one Horse 12 ½

Each Sleigh drawn by more than one Horse 20

Each Curricle 30

Each Coach, Chariot, Phaeton, or other four wheel Carriage 40

Each Cart or other Carriage drawn by one beast 12 ½

Each Cart, Waggon or Carriage of burden, drawn by two beasts 17

If drawn by four beasts 25

If drawn by more than four beasts 30

Each Sled drawn by one beast 10

____ drawn by 2 beasts 12 ½

____ drawn by more than two beasts 25

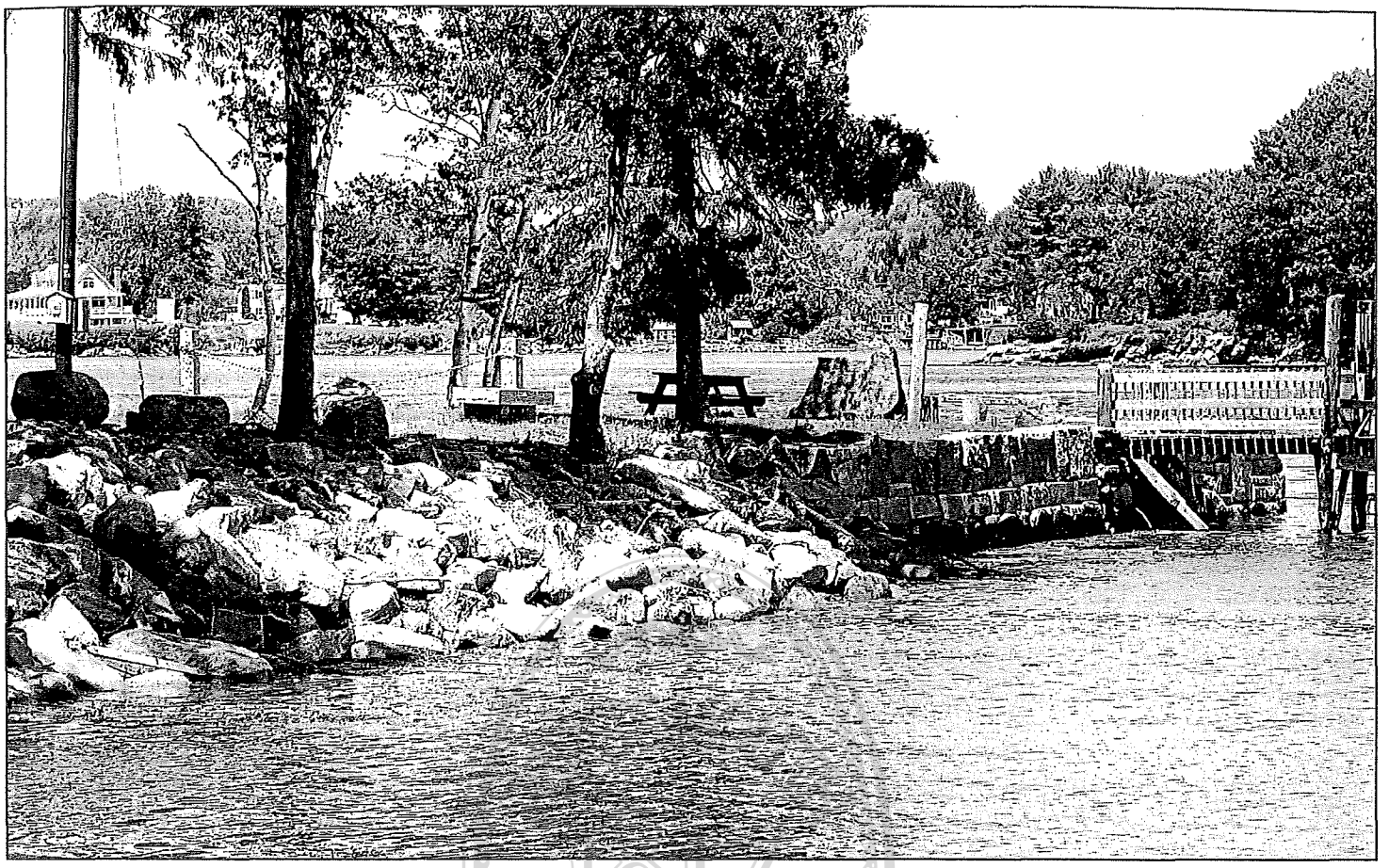
Each horse or neat creature [oxen or cattle] exclusive of those rode or in Carriages 5

Each Sheep or Swine 1

These toll rates provide a glimpse of the variety and amount of traffic passing over the bridge. The proprietors received tax exempt status from New Hampshire, and their 1798 petition pointed out that tolls for the bridge's first four years yielded $8,181.75, while expenses reached $2,812.31.[8]

In the early 1800s the bridge's toll-gatherers collected three or four thousand dollars a year, and semi-annual dividends from two to four dollars a share were paid irregularly between 1801 and 1810, with a high point of ten dollars per share paid in 1807. Assuming that each of the 500 original proprietors had invested about $132 per share in the bridge's construction costs, these payouts do not indicate a profit.

Pascataqua Bridge. From "A Tour of the Eastern States in the year 1797," by Robert Gilmor, of Baltimore. This is a pen-sketch by the author. Published by the Boston public Library.



The remains of the Fox Point Bridge abutment showing repairs that were made in 2009 and 2010.

The Piscataqua River Bridge (1794-1855)

Helen H. Frink

The bridge's tollhouse was re-located from the Durham edge to Goat Island; perhaps the halt necessitated by paying toll was an inducement to pause at the tavern for food or drink. Cyrus Frink rented the "Goat Island Hotel" and advertised in *The Portsmouth Oracle*:

> The subscriber informs the public, that he has taken the convenient and pleasantly situated tavern above mentioned; where ladies, gentlemen, travelers, and parties of pleasure will find good entertainment, constant attendance, and civil treatment; he intends to provide the best wines, spirituous liquors, tea, coffee, etc. and good stabling for horses.
>
> NB: wanted: a capable, well-qualified man, to attend the bar and wait on company; and a capable Woman who understands the most approved methods of cookery; good wages will be given. Apply to Cyrus Frink, Piscataqua Bridge, October 27, 1804.

Contracts with various tavern-keepers record the tavern's furnishings: "namely two birch canopy framed bedsteads – 35 Windsor chairs, 1 pair iron dogs, [andirons for fireplace] and 1 pine kitchen table." Apparently dining was more important than accommodations on Goat Island. Other contracts refer to a tollhouse garden, ice house, wharf dock and smith's shop among the tavern's "appurtenances."

Within its first decade the bridge incurred heavy expenses for repairs, chiefly due to ice damage, and the costs of its upkeep outpaced the income from tolls. In 1803 the New Hampshire legislature granted proprietors the right to raise by lottery $15,000 to repair the bridge. The bridge company borrowed from the Portsmouth Bank, New Hampshire Union Bank, and New Hampshire Bank in 1805-06.

The Piscataqua River Bridge (1794-1855)

Helen H. Frink

Portrait of Cyrus Frink (d. 1849)

The major engineer and overseer for bridge repairs was Cyrus Frink, great-great-grandfather of this author. He contracted for virtually all major re-design and repair work on the bridge until his death in 1849, often hiring his sons Darius, Elias, Simes, and Isaac. Elias (1813-1897) followed in his profession as contractor, toll-gatherer, and tavern-keeper between 1844 and 1853. Cyrus Frink built a handsome mansion at Fox Point and his son Elias lived a half-mile further inland, with yet a third Frink farm located conveniently on the Fox Point Road, the route from the bridge to Portsmouth.

The proprietors contracted with Cyrus Frink on February 26, 1810 to cover twenty feet of the width of the bridge by July 1, "in a good and workmanlike manner, according to the best of his art and skill," from the Newington shore to the southerly abutment of the arch with white pine plank, two inches thick when seasoned, seams "close and tight," ribband 2" thick and 4" wide of hard pine [and] to secure said plank to the floor of said bridge."

Also on the northeasterly side of Goat Island make and completely finish a dock, 80 feet long, 30 feet wide; its posts to be 12 inches through at the top of the posts at the easterly side of the dock. Also make and completely finish on said Goat Island an ice house . . . for the safe keeping of ice during the summer months." Cyrus would be paid $24 per thousand board feet of plank and ribbands measured after they had been laid; he was to furnish all iron and spikes to lay plank, earning $80 for said dock, and $35 for the ice house. The Historical Society's files contain several such contracts for bridge repairs.

Cyrus Frink's skills exceeded carpentry or repair work; contracts show that he also redesigned the bridge. In 1818 he replaced the arch with "an entire new bridge, according to a wooden plan by him exhibited to the directors." The reconstruction, including the new arch, was to be completed between June 4th and September 15th without obstructing or impeding the passengers. A hand-drawn sketch done in pen and ink, likely by Cyrus Frink himself, shows that he also numbered the bridge sections. Unfortunately his "wooden plan" has not survived.

A serious blow to the financial viability of the Piscataqua Bridge came with the opening of a new bridge further downriver between Portsmouth and Kittery, Maine. This rival bridge opened in September 1822; its builder was Cyrus Frink, who gained financially whichever direction bridge traffic took. The Portsmouth-Kittery Bridge extended from Rindge's wharf in Portsmouth at the north end, to Ham's island, with a draw for vessels to pass beneath. The other part extended from the easterly end of Ham's island to Kittery shore. It was built on piles,

> which, being strongly framed together, are driven into the bottom of the river, and strings are laid from one set of piles to the next, on which the flooring of the bridge rests. Toward the westerly end of the bridge is an arch or space fifty feet wide, fifteen feet above high water, for gondolas, boats, and small craft to pass . . . Towards the easterly end of the bridge is a draw or hoist for vessels to pass through in going up or down the river. The whole bridge is 1600' long. The river at the deepest places is from forty-seven to fifty-three feet deep at low water. The whole has been completed in five months, and cost $30,000.[9]

The author of this account, Nathaniel Adams of Portsmouth, had served for many years as clerk for the Proprietors of the Piscataqua River Bridge. Thus his prediction for the success of the new Portsmouth to Kittery bridge was well-founded: "Great advantage is anticipated from this bridge, as most of the travel from the eastward will pass through this town, which has heretofore passed round the heads of the river, or over Piscataqua bridge."[10] Adams's prediction proved true: tolls on the Portsmouth bridge averaged $6,500 around 1840, far exceeding the income from the older span. In the early 1840s this bridge was expanded to carry railroad traffic, diminishing still further the traffic and tolls on the Durham to Newington route.[11]

Despite the loss of revenue which this competing route brought to the Piscataqua bridge, its proprietors continued to contract with Cyrus Frink for repairs and improvements.

The Piscataqua River Bridge (1794-1855)

Helen H. Frink

One of the original signs for the Piscataqua bridge hangs over the kitchen fireplace in the Pickering farmhouse.

Bridge work paid handsomely; Cyrus billed directors one dollar a day for his labor in 1818 and a dollar-fifty per day in 1821, perhaps because he used his own oxen to haul gravel. He was also charged with hiring and paying a blacksmith and laborers, often his own sons. Another source of income was selling pine and oak timber for the bridge construction; white oak brought five dollars per ton, or $62.80 for 12 tons and 23 feet of white oak timber.

Beyond his duties as architect and construction foreman, he represented the bridge corporation in court. In 1832 he received $13.25 from the proprietors "for attending court at Concord on their bisnes, 2 days $6; stage fair [fare] and expenses $7.25."

As Cyrus Frink aged (he died in 1849), his sons assumed a greater role in bridge maintenance and eventually ownership. Elias Frink was paid $200 per year for taking toll between 1844 and 1853. He headed a work crew of six or seven men and labored to repair the bridge in the early 1850s earning $1.50 per day. Among the workers was his brother Isaac who earned $1.25 per day.

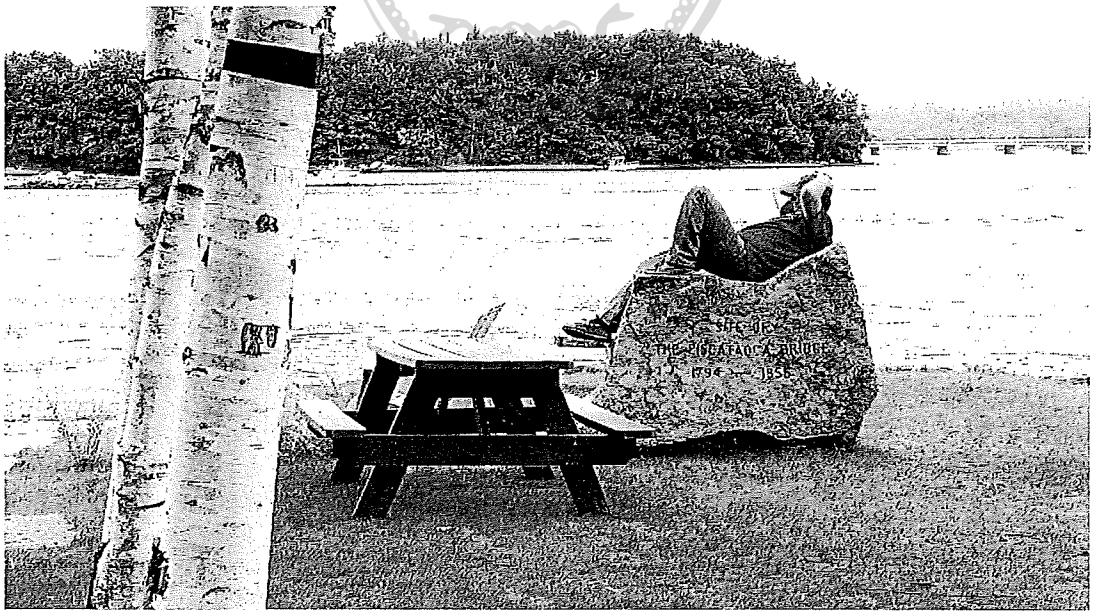
Elias also sold bridge timber, sometimes buying the used bridge timbers, and eventually the old barn on Goat Island for his own purposes. Elias bought up 46,942 feet of new pine timber for the bridge at $12 per thousand feet in July 1849; pine plank fetched $9 per thousand feet and balance pieces for the arch $13 per thousand. His brother Darius also sold oak timber to the bridge in 1849. Other bridge materials paid for by the proprietors' agent include: red and white lead, lamp black, glue, 30 squares 8 x 10" glass, lanterns and oil, turpentine, hinges, screws, nails.

The numerous repair contracts for the bridge document the frequent damage it sustained; a confluence of spring thaw, high tide, and ice could wreak havoc. *The Portsmouth Journal* and *Rockingham Gazette* reported on March 13, 1830 that about four hundred feet of the bridge section supported by pilings between Fox Point and Rock Island "was carried away by the force of the waters and a great pressure of ice, of about three acres in extent in the afternoon of Monday last."

Anxious to accommodate traffic without loss of revenue, the proprietors advertised in the next week's issue a ferry between Goat Island and Newington: "one boat for foot passengers only, another as large as the one formerly used at Rice's ferry in Portsmouth for the accommodation of persons with horses, teams, and carriages."

(The reference to Rice's ferry is interesting; in 1822 the proprietors of the rival Portsmouth to Kittery bridge compensated Alexander Rice $4,000 for the loss of the ferry business he had run between those two towns.)

The August 7 issue of the *Portsmouth Journal* reported that the bridge had been "most thoroughly rebuilt" and "will be in as good if not better order than it has been for years."



Today, a large stone marks the site of the Piscataqua Bridge (1794-1855)

The Piscataqua River Bridge (1794-1855)

Helen H. Frink

Salvaged bridge timbers in Frink barn

Again in early 1854 ice damaged the bridge so severely that it had to be closed. Elias Frink and Francis Marden [?] reported to the directors ten days later that they had determined that it would cost $5,000 beside the stock at hand to repair the bridge "so as to be safe for travel and secure against ice."

It appears that the bridge was subsequently repaired, although by this time tolls had fallen below a thousand dollars a year. Travelers could cross the Portsmouth to Kittery bridge by train or carriage, and three packets crossed the Piscataqua daily between Dover and Portsmouth. As travel along competing routes increased, bridge traffic declined.

Between 1836 and1854 Cyrus's sons Simes, Darius, Elias, and Isaac Frink bought up as many shares as possible from the proprietors. The last tolls on the Piscataqua River Bridge were returned by Wallis Lane from January until February 1, 1855 and totaled just $39. After five hundred feet of the bridge were carried away by ice on February 18, 1855, it was never repaired.

Cyrus Frink and his sons salvaged many bridge timbers, some of which were incorporated into the Newington barn built in 1837 by or for Darius Frink, and now owned by John Darius Frink. Some of the bridge timbers are numbered, likely following the original sections of the bridge. Some timbers still reveal sawn off trunnels. The barn's south-side haymow is floored with bridge planks, two inches thick, and thirteen feet long. Three such planks, laid end to end, would have made up the thirty-eight foot width of the bridge, plus the half-foot width of railings on either side. These old planks are bored with holes to drain water through the bridge decking.

Endnotes

[1]Four boxes of papers of the Proprietors of the Piscataqua River Bridge are kept in the Library of the New Hampshire Historical Society in Concord. Information in this article not specifically referenced comes from this collection. Newspapers referenced here are also located in Library of the New Hampshire Historical Society in Concord.

[2]For an illustrated history of this boat see John P. Adams, *The Piscataqua River Gundalow*, 1982 and Richard E. Winslow III, *The Piscataqua Gundalow; Workhorse for a Tidal Basin Empire* (Portsmouth Marine Society, 2002).

[3]John Frink Rowe, *Newington, New Hampshire* (Newington: Newington Historical Society, 1987), p. 27.

[4]Francis E. Griggs, "Timothy Palmer and the Permanent Bridge," *Journal of Bridge Engineering* 14 (Nov.-Dec. 2009): 507-517.

[5]Unpublished article by Francis E. Griggs, "Piscataqua Bridge," p.8. This manuscript includes details of the bridge's structure and Palmer's engineering, contemporary descriptions of the bridge, and diagrams.

[6]Griggs, "Timothy Palmer, The Nestor of American Bridge Builders."

[7]*Boston Public Library Bulletin* (Apr. 1892).

[8]Griggs, "Piscataqua Bridge," p. 16.

[9]Adams, Nathaniel. *Annals of Portsmouth* (Exeter, NH: C. Norris, 1825), p. 383.

[10]Adams, p. 384.

[11]Eric Stoykovich, "Bridge Over Troubled Waters: Dover v. The Proprietors of Portsmouth Bridge and the Changing Economic and Legal Landscape, 1815-1845," *Historical New Hampshire* 59 (Fall 2005): 92-98.

A Little Frink Geneaology

Helen H. Frink

Cyrus Frink married Abigail Nutter, a great-great-granddaughter of the (in)famous Hatevil Nutter who persecuted Dover Quakers and is immortalized in John Greenleaf Whittier's poem, "How the Women Went from Dover."

Abigail's older sister Mary married into the Peavey family, owners of the Peavey tavern (the site of our farm) which Cyrus bought in 1816. Portraits of Cyrus and Abigail are hanging in our parlor.

They had nine children. Brothers Simes, Darius, Elias, and Isaac Frink went into business buying up shares in the badly damaged bridge. The odd name Simes comes from Abigail Nutter, whose mother was Anna Symmes of Portsmouth.

Our great-grandfather, Elias (1813-1897), married Elizabeth Pickering, and we have magnificent portraits of them, done about 1847.

Elizabeth died childless the following year, and Elias married her niece Mary, who had four daughters and one son, our grandfather Darius. Elias's brother Darius (we call him Uncle Darius, 1810-1893) had no children, so he left our brick house and farm to his nephew and namesake, Darius, who was Harold's father, our grandfather.

Elias Frink's oldest daughter, Jane, married George Rowe of Portsmouth, and their son was John Frink Rowe (1886-1918). He was the father of John Frink Rowe (1909-1986), who was Harold's second cousin.

The younger John Rowe left us the portraits of Cyrus and Abigail and some of his books on local history. He did a pen and ink drawing of the Piscataqua Bridge, adding details that were as accurate as his research and naval or engineering knowledge could make them. My brother John has a handsome, large one and I have a smaller copy.

Elias's brother Isaac (1802-1864) married Ann Sarah Hoyt. Their son Cyrus (born 1852) was the father of Simes Frink (1889-1963). I remember that he was the sheriff of Rockingham county and owned a farm near the Newington-Portsmouth line where the BJ's and Market Basket plaza now is.

Simes's son Sidney Hoyt Frink (1928-1988) was Marlon's and Denise Frink Hoyt's, and Karen Frink's father.