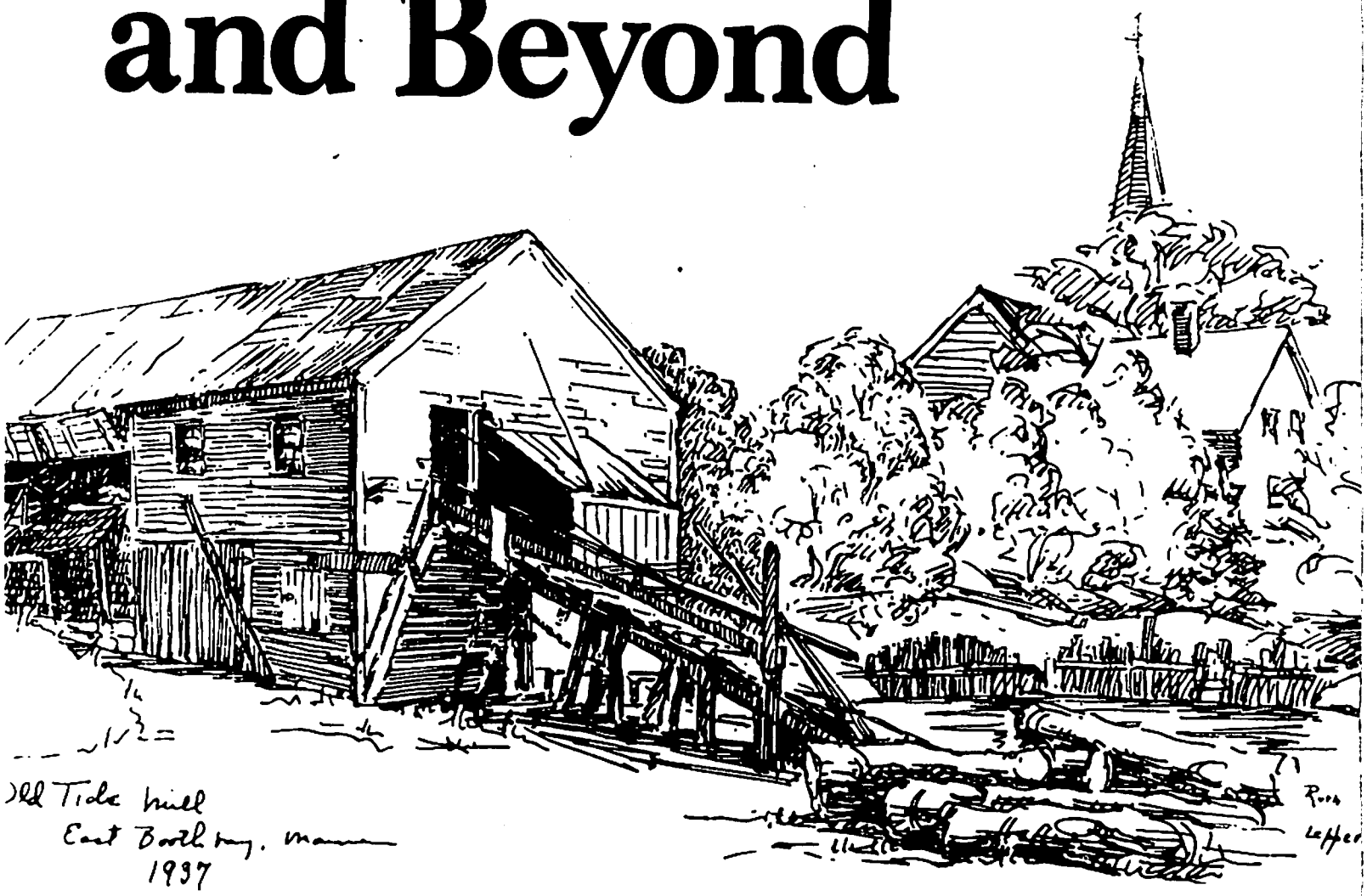
Tide Mills of Maine and Beyond



Compiled & Edited
By
George M. Carlton Sr.

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Ten Mills-one cent

'Tis refreshing at times to sit down, relax and review old scenes and activities, especially when they reflect on our Nativity.

Those of the "Gay Nineties" and before can readily recall the activities and usefulness of the Tide-Mills.

"Time and Tide wait for no man."

To be efficient these mills depended on the ebb tide for their power; thus the hours of employment varied from day to day and night to night.

The so-called "Old Mill Dam" was built prior to 1800. There were only two mills then and it is a strange coincidence that the oldest of all of them was the last to be operated and was finally abandoned. The Long Dam which was chartered by the Maine Legislature was built in 1835.

Each mill was equipped with two of the old fashioned up and down saws, but the tidal power was sufficient for each mill to saw from 2000 to 3000 feet of lumber on a tide. The original saws were of the most primitive type, working up and down by means of a crank attached to a shaft and driven by a single sweep. Later the overshot wheel was installed, to be followed by circular saws driven by a turbine wheel.

In the good old days it was not uncommon for ten or twelve "Brigs" to be loading or waiting for lumber cargoes at Winnegance.

One by one the mills were abandoned and allowed to fall apart. The last one was resigned to fate and passed into a state of innocuous desuetude in 1904.

Tidal Mills in General

Tidal Mills appeared early in the period of colonization in Maine or the Province of Maine as it was earlier called. Tidal power was cheap and locally available along the coast. Forests were plentiful and wood could be used except those trees allocated for the Royal Masts for the King's Navy. These were pine trees having a diameter of 22 or more inches. Corn was a staple crop. Hence it was natural that these tidal mills were built for sawing lumber and grinding corn.

Oxen were ordinarily used for transporting the raw goods to the mills but sometimes boats brought loads. Early roads were few and usually poor and as the ox was a strong and easily handled animal and required a simple diet, he was pressed into service.

Early years in Maine's history the settlers chief end of labor was converting trees into marketable lumber and clearing the land for the cultivating of crops. Much of the lumber was exported to the West Indies and exchanged for molasses and rum. Some was shipped to the southern states.

The Saw Mill

The sawing of lumber in the early days was slow and laborious. This process, known as "Pit Sawing" consisted of a pit in which one man was stationed while another man was stationed above him, together they pulled a long saw back and forth, thus accomplishing the production of a board or plank.

With the advent of the tide saw mill the sawing was done by a saw several feet long and several inches wide which was moved up and down by an arm connected to the water wheel. As can be seen in the picture, the teeth of the saw were shaped so that cutting was done only on the downward stroke.

The circular saw, which came into being in the early or middle 1800's was a great asset, although many mills continued the use of the "up and down saw".

Most of the mills were equipped to do grinding of grain as well as sawing lumber.

The site chosen for these tide mills was a tidal cove which could be separated from the river by a dam, thus creating a tidal basin. The dam was provided with gates so arranged that the basin could be filled by the flood tide and emptied by the ebb tide. This meant that when the basin was filled, a head of several feet was available for the operation of the water wheel. The tide amplitude varies at different locations on the same river. Near the mouth of the Kennebec the tide range is greater than at points further up the river.

This picture shows the "up and down" saw used in the beginning by most of the mills.

Notice the teeth of the saw are shaped so that cutting was done on the downward stroke.

The man on the left is Chester Boynton, a 1912 graduate of Bowdoin College. On the right is the author George M. Carlton Sr.

The Grist Mill

This mill consisted of two granite stones several feet in diameter and several inches thick, mounted one above the other in a horizontal plane. Radial grooves were cut in the adjacent faces. The upper stone was rotated by a shaft fastened to its center. There was an adjustment for changing the separation between the stones by a small amount. This distance governed the "fineness" of the grain. The stones were made of granite and had to be "dressed" (the grooves recut to sharpen the edges). An arrangement was made for raising the upper stone so that this "dressing" could be done. The grain to be ground was fed through the center of the upper stone into this space between the stones.

Since the only mill now remaining is the Perkins Mill at Kennebunkport, the data and pictures included here have been obtained from people who lived in the area (where a tide mill once existed) as well as from old deeds in the Lincoln County and Sagadahoc County court houses.

The types of wheels used in these mills were known as tub wheels, overshot and undershot wheels, and turbines.

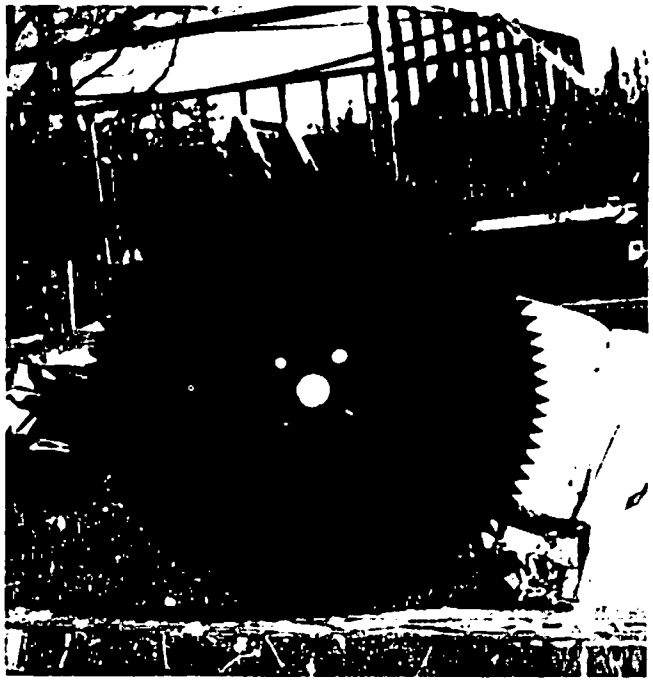
Most or all of the machinery used in these ancient mills was made by hand of wood. Some of the pictures shown here give a very good idea of what this machinery, gears, etc. was like.

The tub wheel or a modification of it was used very widely.

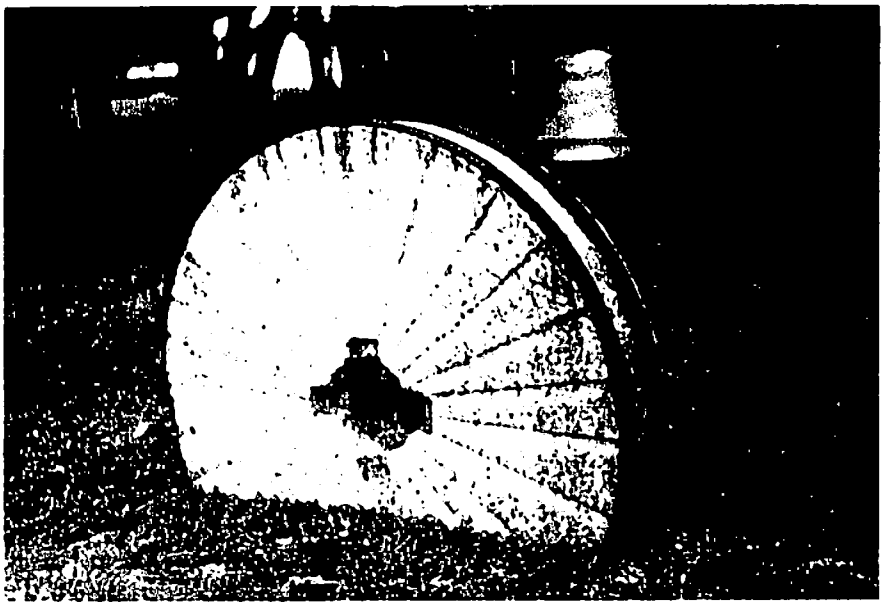
The overshot and undershot wheels were also quite common.

The advent of the water turbine replaced many of the old type wheels. However, many users of the tub wheels continued their use until the end.

Large shipments of corn were brought in bulk to be ground at the Basin Cove Mill. The schooners which brought the corn from New York and Baltimore discharged their cargoes in Portland since the channels leading to the Basin Cove Mill were poorly marked. Only native pilots were able to bring the cargoes to the mill. It is said that criticism of these unmarked channels led to the establishment of Half Way Rock Lighthouse. This is now one of the most valuable aids to navigation in lower Casco Bay.



This is the picture of the circular saw which replaced the up and down saw in many of the saw mills.



This mill stone is made of pieces of granite so the metal bands were necessary to hold the pieces together.

Halfway Rock Lighthouse

Halfway Rock Lighthouse was constructed in 1870, when Andrew Johnson was President, and Casco Bay was one of the most important centers for shipping in the United States. The lighthouse was built from Maine granite and cost more than $50,000. It is located half way between the lighthouses on Portland Head and Seguin Island. This picture was taken by a summer visitor to the light about 1920, and is another in a series of historical pictures being published by The Times Record.

Basin Cove Mill, Harpswell

In 1867 the Basin Cove tide mill in lower Casco Bay at South Harpswell was established. It was owned by a Portland wholesale grain dealer.

The mill was 45 by 50 feet, three stories high, and would accommodate 3 turbines. The capacity of the mill fully developed was estimated at 600 H.P. It could grind 600 bushels of corn daily. There were three pairs of granite mill stones each 8 feet in diameter and one foot thick.

The mill was situated on an excellent harbor; vessels of 8,000 bushel capacity could discharge directly into the mill which was fourteen miles from Portland.

Basin Cove tide mill continued to grind grain until 1885 when a combination of circumstances made its further operation unprofitable.

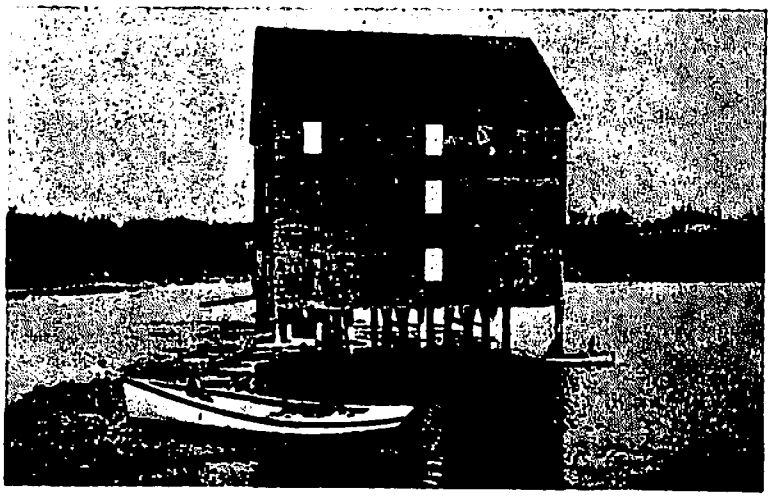
The following appeared in a Portland Paper in 1911.

South Harpswell, Maine

The Old Tide Mill

The largest tide mill in the state of Maine and possibly on the Atlantic seaboard was built at the head of Basin Point tidal cove at South Harpswell in 1867 for the sole purpose of grinding grain and power was available 12 hours a day by damming the mill cove. Fifty thousand bushels of grain were ground annually, creating a thriving coastal industry until cheaper steam and rail transportation took over. In 1885 mill operations at Basin Point ended and in the memorable "blow" of Nov. 8, 1919 what remained of the tide mill was blown down.

This mill furnished the background for Clara Louise Burnham's novel "The Open Shutters" a copy of which I have.



The Basin Cove Tide-Mill, South Harpswell, Maine

Castine Tide Mill

The following information was furnished by Mr. Ed Switzer, Lorelei Farm, Castine, Maine.

This old mill was built in Revolutionary times. It was a grist and shingle mill. The wheel turned one way on the flood tide and in the opposite direction on the ebb tide. The old mill was completely destroyed in a late November storm. Mr. Switzer has the two stones that ground the corn in the mill.

Old Mill Pond, Castine, Me.

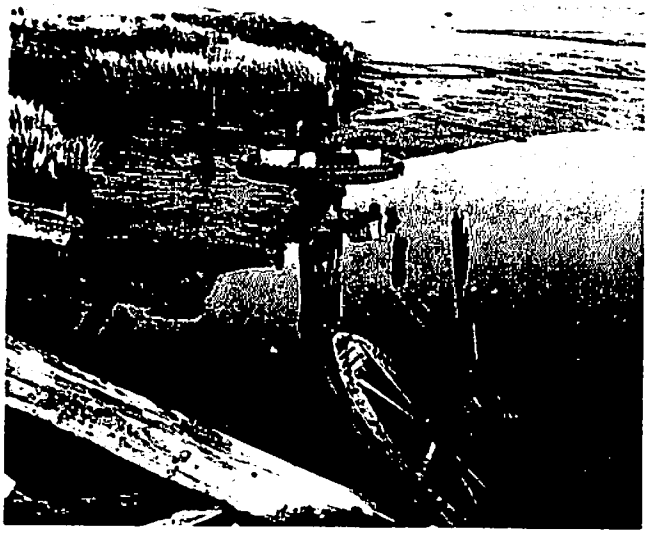
Crosby Mill & Machinery

The following data was taken from book No. 202, pp. 46-47, in the Lincoln Co. records office.

During the last years of this mill Charles Crosby owned the mill and did a very large lumber business.

John Potter sold saw and grist mill to Wm. Towle and John Bishop of Mass. for 200 pounds in Sept. 1784.

Rowland Fisher owned the mill in 1852.



This picture shows some of the machinery that came out of Swett and Fisher mill.

Rowland Fisher sold land to Nicholas Spinney in 1852.

John Fisher and Addison Fisher of Arrowsic, in Lincoln Co. in consideration of $150. paid by Woodbury Swett of Arrowsic sold ½ of the grist mill now standing on the premises in Back River known by the name of Swett and Fisher mill, together with right to use said privilege for any other purpose as he may see fit, excepting a saw mill. Witness by John and A.D. Fisher with their wives Frances D. and Ruth Ann, May 10, 1841.

Recorded March 8, 1854.

Rowland Fisher of Arrowsic sold for $150.00 to Woodbury Swett one half the grist mill now standing on the premises on Back River known as Swett and Fisher's mills with the right to use said privilege for such other machinery as clapboard, shingle machine, lathe machine, as he may see fit,. Aug. 6, 1841. Recorded March 8, 1854.

This picture shows the mill during it's active years.

Drummore Saw Mill

My Dear Mr. Carlton:

For a fortnight I have been unusually tied up. Sorry to keep you waiting like this. The Copy enclosed will give you the date of Drummore Mills (old spelling) beginning, also the names of the men who participated in the venture.

The Drummore Mill was a double saw mill. Early records show it was a busy place from the start. The action was like "bees flying in and out of a hive."

There was a lot of buying and selling of shares. The old deeds read something like this: "For the aforementioned sum I do sell and convey to ...¼ part of the westerly saw at Drummore Mill so called on Drummore creek..." or "2/3 of the privilege of 1 saw at Drummore Mill," etc.

You will let me know if there is anything further I can do to help. Just so often we are in Bath briefly; the next time we are there I shall try to contact you by phone. Perhaps by then I may have thought of something else that would interest you. Or found something among my notes. So far there is no description of the saws other than what is above. During the Mill's final years, quite sure a circular saw was in use.

Wishing you every success in your worthwhile endeavor,

Christine Cutting Beaven
February 18, 1970
58 Ash Street
Manchester, N.H. 03104

(Copy) May 9, 1785 - Know all men by these presents.

Whereas Elijah Drummond of Georgetown Commonwealth of Massachusetts, gentleman, Thomas Butler, of Georgetown, yeoman, and John Rogers of said place, yeoman, and myself, (William Lee, Jr.) are about to build a sawmill near the mouth of Drummore Creek, in the same town so called, and whereas it will be necessary to order there to, a proper dam should be built across the same creek adjoining the upland on each side of the same-wherefore, I, William Lee, Jr, of Georgetown, aforesaid gentleman, for the consideration aforesaid and for the sum of ten pounds, lawful money to me in hand paid by the said Elijah Drummond, Thomas Butler and John Rogers, the receipt whereof I do acknowledge - have released and forever quit - claimed and by these presents do freely, fully and absolutely and forever quit claim unto them, the said Elijah Drummond, Thomas Butler, and John Rogers, the one undivided half part of all my rights, title and interest, in and into same creek so far only as the same may be improved to the best advantage for the purpose of supplying the said mill or any other that may hereafter be

erected upon the said creek by the said parties, their heirs, or assigns with water, and for other purposes necessary and convenient for the support of a mill there - to have and to hold, etc. The said Elijah Drummond, Thomas Butler, and John Rogers do agree that the southern end of the dam to be built or that may at any time hereinafter be built by the said parties upon the said creek shall join upon the upland and be there maintained and supported as the said parties may think more beneficial for the purpose of the aforesaid...

Cutting Tide Mill at Dromore

Taken from "Scowing on the Sheepscot."

Bath Enterprise for September 20, 1809, under heading of Phippsburg.

Five scows were at the Cutting lumber tide mill at Dromore Thursday. Two of them left next morning with a load, one for Cundy's Harbor and the other for Boothbay Harbor. One left with a cargo Thursday morning for South Bristol. Captain James Bowker's scow went up to Winnegance Thursday morning and took on 5000 feet of lumber there then proceeded to Bath for brick, returning to Dromore to complete her load at the mill. She will carry two house frames, one to Small Point and another to Sebasco.

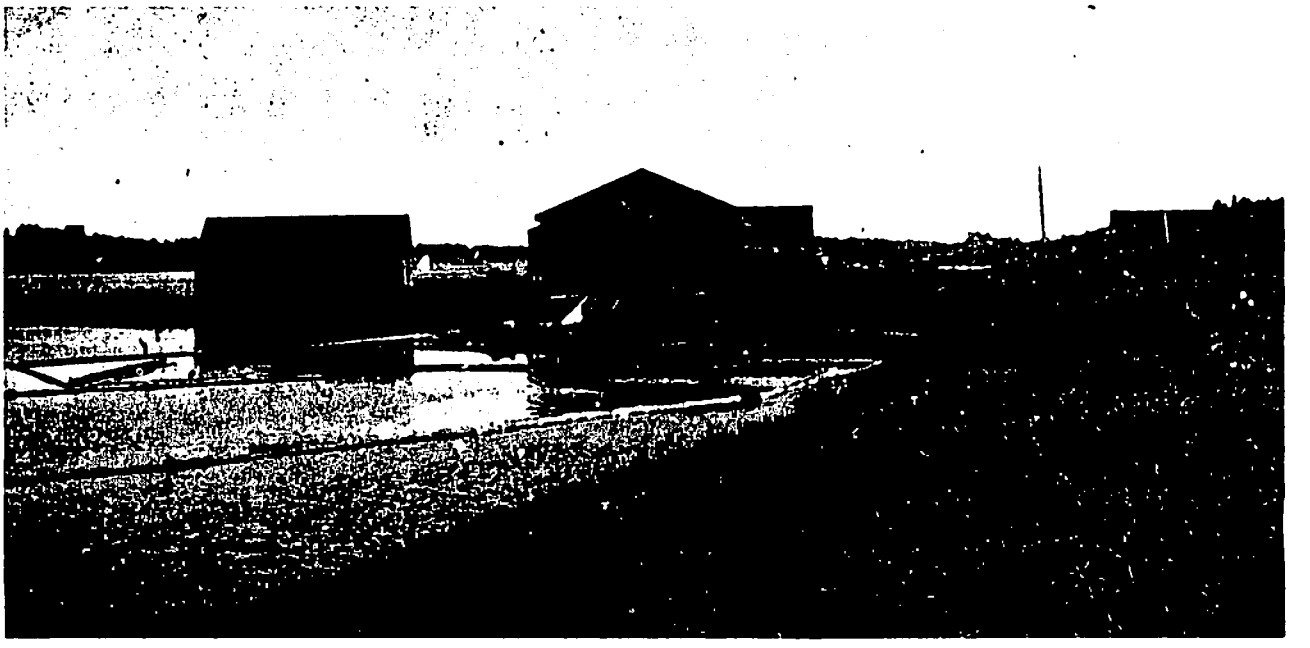
(Taken from Down East, October, 1973.)

Dromore or Cutting Mill

The following was furnished by Christine Cutting Beaven of Manchester, New Hampshire.

On May 9, 1785, Elijah Drummond, Thomas butler, John Rogers and William Lee, Jr. all of Georgetown started the tide mill near the mouth of Drummore creek in the same town. This was a double Saw Mill and did a large business.

Drommore or Drummore Mill at Phippsburg also known as the "Cutting" Mill.



Friend Mill, Mass., The Old Corn Mill

From Evening Times, Beverly, Mass, Feb. 20, 1926.

The old corn mill built about 1647 by John Friend is shown in the picture. The schooner is the Island City which brought the corn from Long Island, N.Y. The Old Mill was situated near where the United Shoe factory now stands and the piles which held this mill can still be seen sticking out of the mud opposite McKay Street. One of the Mill stones rests on a pedestal on the lawn of the United Shoe Machinery Corporation near the Boston and Maine railroad tracks on Elliot Street. The value of the site of the mill (with it's convenient water power) on the Bass River was seen at a very early date; the water power site and two acres of land were secured by John Friend at that place as early as 1647. Mr. Friend lived in the vicinity and the cabin, or house, which he erected stood at about what is now the intersection of McKay and Elliot Streets.

Reference to the existence of the mill and of it's possession by Mr. Friend is first found in the records of the Salem town meeting of Sept. 5, 1653.

John Friend did not operate the mill for many years but sold it to Lawrence Leach, a selectman, for forty pounds. Mr. Leach operated the mill until his death in 1662.

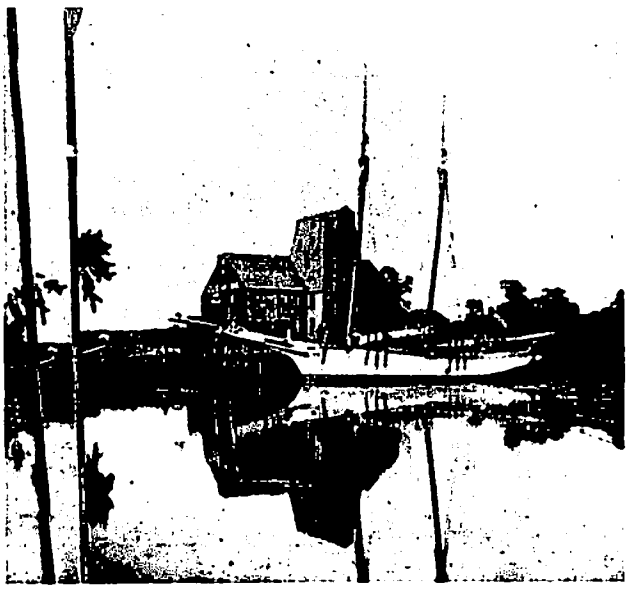
On Sept. 2, 1669, John Leach sold the mill to John Dodge Jr. for "ye sume" of 250 (shillings). He owned and operated that mill for at least 30 years. On Oct. 12, 1702 his son-in-law Ebenezer Woodberry purchased the mill for 2000 pounds and continued it's operation until his death in 1714. From this date no record of the ownership of the corn mill property could be found for several years.

The sale as the result of a public auction which was advertised in the Salem Gazette of May 26 and June 8, 1797.

Dr. Israel Woodberry became the next owner of the mill and operated it until July 17, 1797, when it was sold to Thomas Davis Jr. who owned it until his death on July 17, 1840.

Aaron Dodge became owner of this property on April 28, 1848. He operated the mill for at least 25 years.

Israel W. Dodge became the last owner of the mill on Feb. 13, 1871. The mill was operated under the ownership of Mr. Dodge for several years. it was estimated that the mill had been operated for two and a quarter centuries prior to his ownership. Finally the mill burned on June 4, 1873.



Georgetown Center, Maine

The following items were taken from the Lincoln County records office and refer to the mills at Georgetown Center, last known as the Todd Mills.

In 1829 Patience McFadden leased the tide mill at Georgetown Center to Wm. Potter at the annual rent of $100.

Book 175 P. 313.

On Oct. 22, 1838 Baxter Scott sold to Jos. Berry 1/3 part of the above mill for $900.

May 11, 1832, Wm. Potter and Woodbury agreement to pay $50. annually for her lifetime to Patience McFadden for the southern saw in the mill at Georgetown Center. This was part of the estate of John McFadden, husband of Patience.

Mills at Georgetown Center, Potters Mills.

Sept. 30, 1874, John Potter sold saw and grist mills for 200 pounds to Wm. Towle and John Bishop of Mass.

May 9, 1841 B175 314.

Johnathon Trafton Jr. sold to Joseph Berry for $800. 1/3 part of the above tide mill.

Lincoln Book 175 P. 312.

Sept. 4, 1837, Baxter Scott sold to Joseph Berry for the sum of $800., 1/3 part of a saw mill now standing on the west branch of Robinhood Cove.

Sag. Reg book 27, PP.46-7.

In 1866, Wm. Potter of Arrowsic, Sagadahoc County, bought from Woodbury H. Potter the mill (both parts including a grist mill) for the sum of $2000.

Woodbury H. Potter sold the mill at Georgetown Center to Wm. Potter in April of 1866.

The building on the right is the double saw mill. The building on the left is the grist mill.

Goosefalls Mill, Brooksville

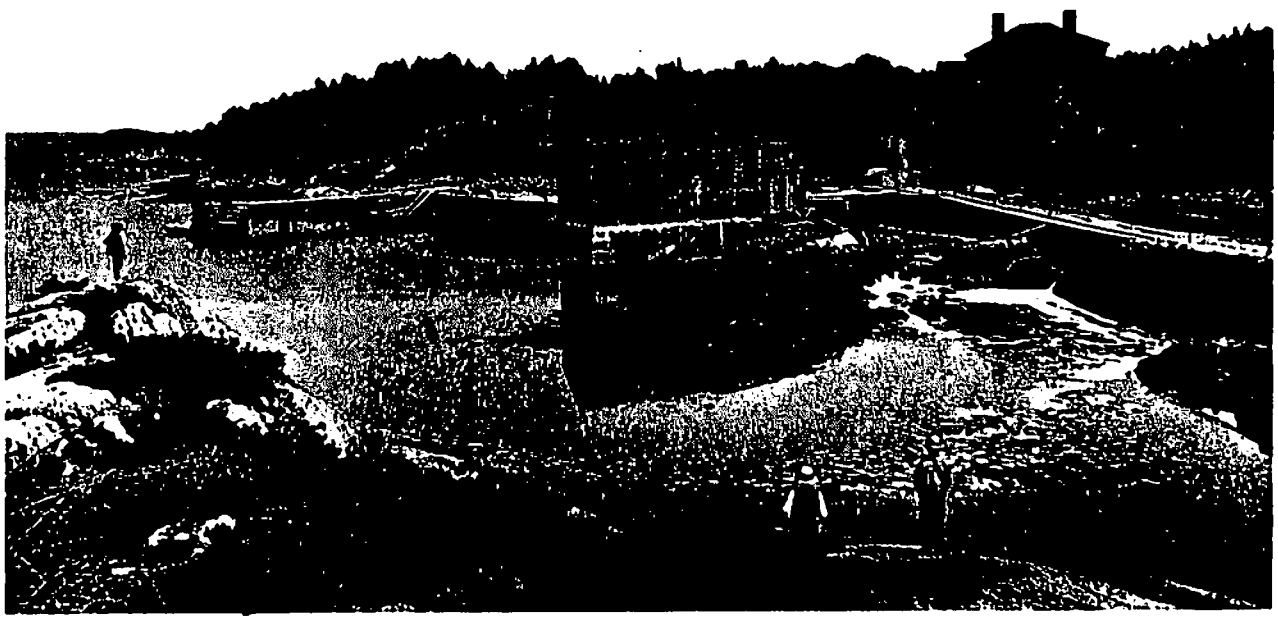
Philip L. Gray, M.D. Blue Hill, Maine Drake 4-2801.
Dear Mr. Carlton:

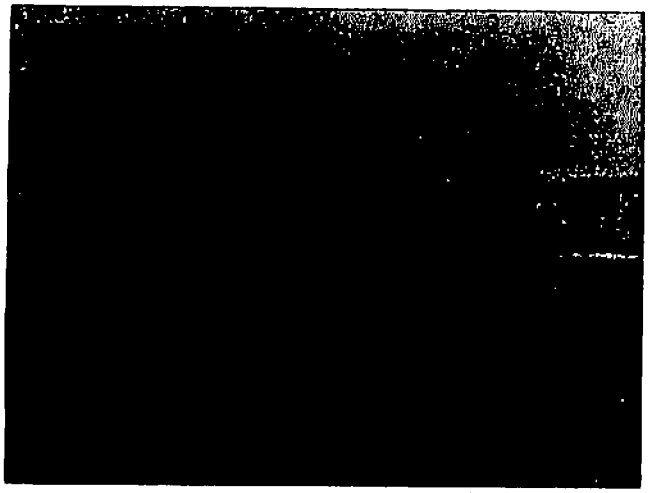
RE: the mill formerly at Goose Falls, Harborside (in Cape Rosier in the town of Brooksville):

It was a combined grist and saw mill erected probably in the early 1840's by a man named Barker. I think it may have replaced an older mill that may have been erected at, or near the site (over the Falls) by John Bakeman around the late 1700's (post-Revolutionary period) but I am not sure. At any rate, after operation for an indefinite number of years under Mr. Barker it was sold to my great grandfather Stephen Decatur Gray perhaps in the late 1870's. I think it was still operated as a combined saw and grist mill but the grist mill activity gradually phased out and in the late 80's there was only sporadic sawing of lumber, which probably ceased in the early 1900's. After that the mill was used largely for storage. Grandfather Decatur sold the mill to my Uncle Alvarado Gray and my father, Maurice L. Gray, around 1906 and they used it for storage of boats etc. until about 1913 when they tore it down. I think I can find a post card or snap shot picture of the mill in it's later days if that would interest you.

The foam at Goose Falls from the tidal pond was considerable at times and said to have given the name to the Falls from it's resemblance to goose feathers.

Yours respectfully,
Philip L. Gray M.D.





Heal Mills, Westport Island, Maine

On the west side of Westport Island were two tide mills owned by the Heal family.

The picture shows the upper mill. These mills used up and down saws and probably modified tub wheels until turbines became available. This mill was finally equipped with three turbines of 20 H.P. each, which ran 12 hours per day and could cut 1,400,000 feet of long lumber per year and plus much short lumber.

The second mill called Heals Lower Mill was located in the cove where the Bath boats used to land. This was a saw and grist mill equipped with two turbines of 20 H.P. each also operated 12 hours per day and would cut 700,000 feet of lumber and grind 5000 bushels of grain per year.

Hodgdon Mill

Caleb Hodgdon established a tide mill at East Boothbay in 1826. This was a saw and grist mill. A forty acre tidal basin was created by a dam near the mouth of the Damariscotta River.

Through inheritance this tide mill remained in the Hodgdon family for many years.

The following appeared in a local paper, date unknown:

Back in 1921, the construction of the Bowdoin for Commander Donald B. MacMillan's trip to the Arctic, brought worldwide publicity to Hodgdon Brothers boatyard in East Boothbay. The yard also launched many yachts, schooners and whaleboats during the 1920's. Despite the start of the depression in 1929, this yard built four yachts in 1920, two in 1931, and four in 1933.

The Bowdoin, named after MacMillan's College (at Brunswick) was so designed by William H. Hand under directives from the explorer, that when squeezed in by northern ice packs she would push upward instead of being crushed. She was a knockabout type, of specially strong hull construction and of 115 tons displacement. Her measurements were 88 feet, 10 inches in length, 19 feet, 7 inches beam, with draft of 9 feet, 6 inches. The Bowdoin was to carry a big spread of canvas on her two masts to supplement the 45-hp motor which burned crude oil.

Many persons came down on the Winter Harbor, landed at Southport, and made the run to East Boothbay by automobile to see the launching on April 9, 1921. Bowdoin was christened with flowers; the Wiscasset band provided music; and the Methodist Ladies Aid served dinner.

The impact of Maine upon the arctic, and vice-versa, is strong still today.

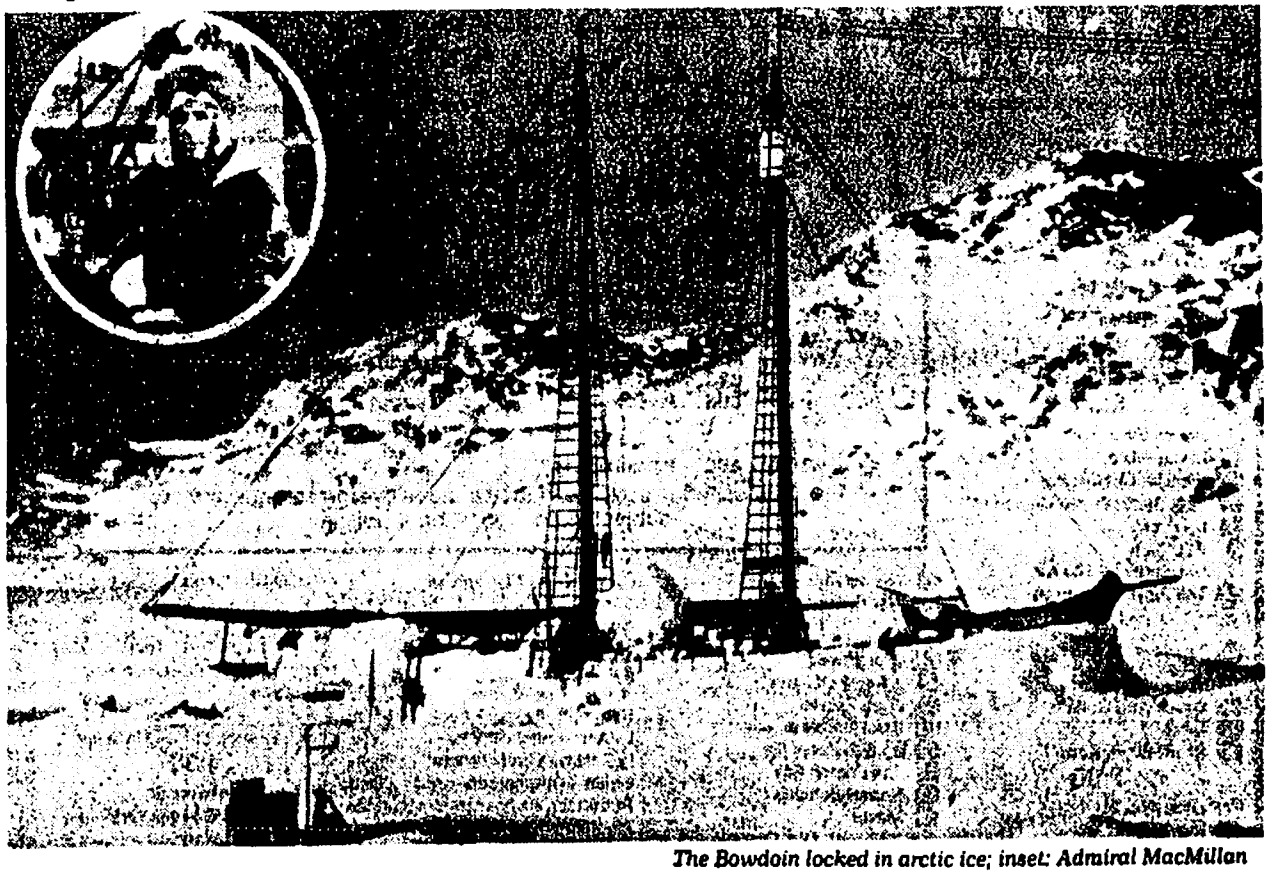
Moored in the Damariscotta River today is the schooner Bowdoin, stalwart veteran of 26 voyages of exploration and research into the ice floes of the arctic. Soon she will be hauled ashore near the spot where she was born 58 years ago, at the old Hodgdon Brothers shipyard in East Boothbay. There, at the adjacent Goudy & Stevens yard, she will be rejuvenated, restored, repaired, the work partially financed by a $95,000 federal grant.

Farther east along main's coast today lives Miriam MacMillan, widow of Rear Admiral Donald MacMillan, the Bowdoin graduate who sailed the Bowdoin some 300,000 miles on 26 expeditions toward the North Pole MacMillan died at age 95, in 1970.

Miriam MacMillan, now 74, made nine voyages on the Bowdoin working as helmsman. She is the only woman to make the arctic voyages on this historic schooner.

Bowdoin is small, possibly the smallest vessel ever to venture up to within 10 degrees of the Pole. Sixty-six tons, 88 feet overall, 21 wide and nine and a half deep. And it is possibly her small size which has saved her from desruction time and time again. Ships twice and three times her weight have, under pressure of an enormous ice-field, been crushed and ground to pieces. Bowdoin, having what is known to the sailor as sharp bilges, manages to escape by rising up and out and away from danger.

The Hodgdon Tide Mill, East Boothbay, Maine



The Bowdoin locked in arctic ice; inset: Admiral MacMillan

"She is said by good authority to be one of the strongest wooden ships in the world. Her frame throughout is of native white oak. She is double timbered and double planked, an unusual construction. Not nailed or spiked or even fastened with brass screws, but held there in place with locust treenails, or, as a sailor would say with 'trunnels,' a method used by shipbuilders of old. And outside of all is a five foot asset for her strenuous work in the ice fields is this: Moulded into her frame to crash through ice-fields are 21 tons of cement mixed with steel boiler punchings. This also serves as ballast which is immovable in heavy weather, or what is of far more importance, "fixed" when the Bowdoin is flat down on her side, and completely out of water as she has been on many occasions...Her beautiful spars are of Oregon pine, her rigging and stays of steel, her wide rails of oak, her decks and cabin houses of white pine, her ratlines of oak, her dead-eyes of lignum vitae..."

The Bowdoin cost $30,000 to build. She endured not only being crushed, thrown down on her side, mast flat on ice for long stretches, but she was also "froze in" from the middle of September 1923 and did not break out of her ice prison until the middle of the next July. But even that herculean test did not incapacitate her.

This Maine-built, Maine-named vessel racked up many "firsts" under MacMillan in scientific, technological and educational fields.

It made the first circumnavigation of Foxe Basin, northeast of Hudson Bay; the first survey of Refuge Harbor, North Greenland; the first use of airplanes for exploration beyond the Arctic Circle, with the planes under the command of then-Lt. Commander Richard E. Byrd, U.S.N. In addition, the first message ever sent by shortwave radio from the arctic was sent by the Bowdoin in 1925, call letters WNP, Wireless North Pole.

The Kendall Mill, Bowdoinham, Maine

An unusual tide mill was in operation on the Cathance river from 1872 to the early 1900's. The wheel which furnished the power for this mill was 27 feet in diameter with a part of the rim out of water at high tide. The spokes of the wheel were wide and set diagonally like the vanes of a windmill. It turned 18 hours of the day by tide power running one way with the flow and the other way with the ebb. It is claimed that with a one foot fall of the tide the wheel developed fifty horse power.

This wheel was installed near the center of the river on the Brunswick side of the bridge. A shaft ran to each side of the river. The grain mill (or grist mill) on one side of the river and the fertilizer (plaster) mill on the other were both operated by James Madison Kendall.

This unique wheel was presumably designed by John Sanford, originally from Topsham. It was purchased by Mr. Kendall from N.H. Macomber and Robert Butterfield in 1872.

So far as is known this unique wheel was the only one of its kind in the world.

The pictures show only sections of the big wheel.

Pictures courtesy of Mrs. Lang and the Marine Museum of Bath, Maine.

William B. Kendall was put in charge of the mill at the age of 16 years. There was a plaster mill and three runs of stones for grinding grain and a shingle machine in the mill. In 1880 the manufacture of fertilizer was carried on. After a time the fertilizer business outgrew the capacity of one end of the old grist mill where they first began it's manufacture, so a new grist mill was built adjoining the Maine Central Railroad and a shaft over 300 feet long was installed to convey the power from the old tide water wheel to the railroad. This new mill had a storage capacity of 20,000 bu. of corn and 200 tons of feed.

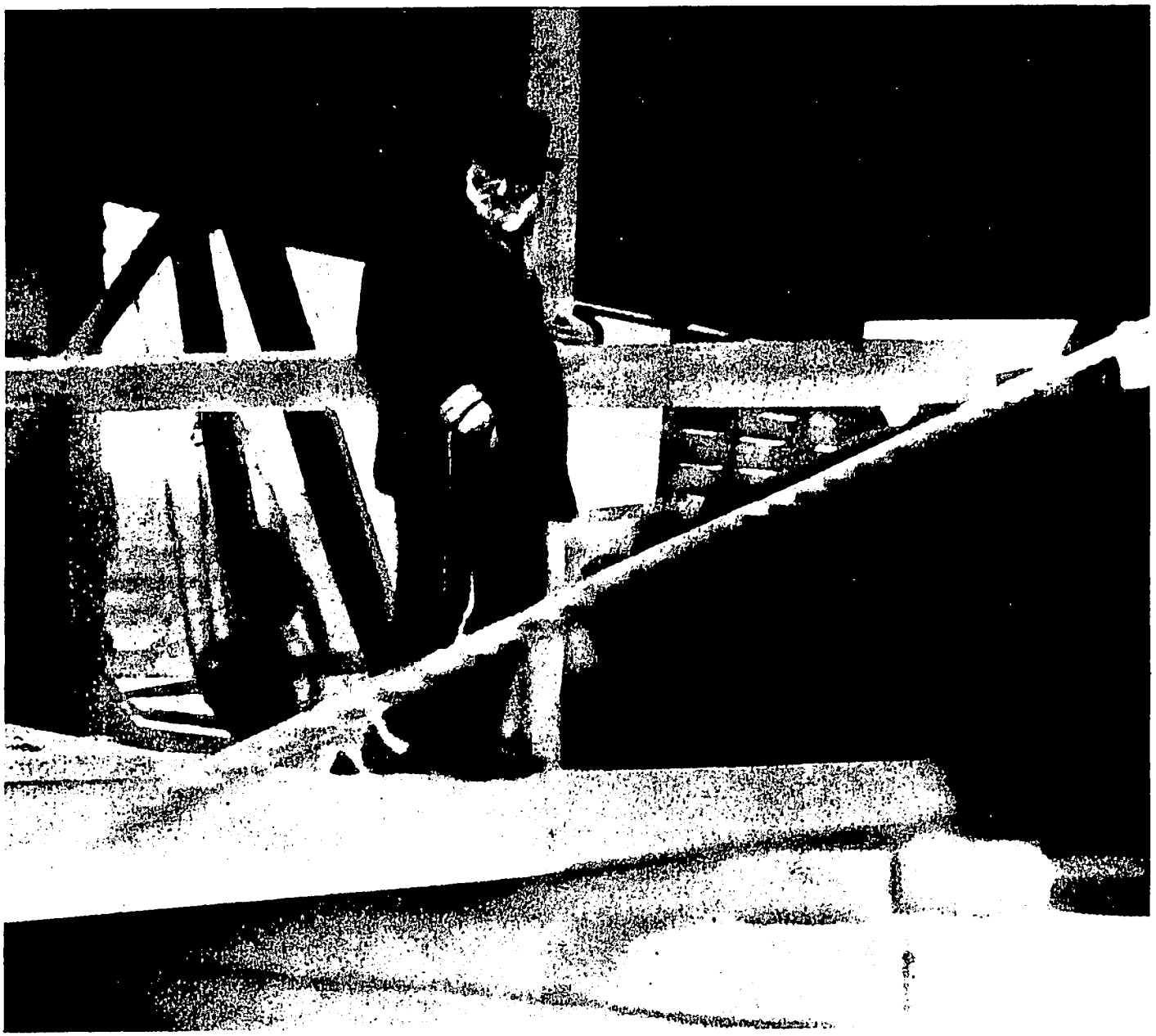
In the meantime the old grist mill had been greatly enlarged to accommodate the increasing fertilizer business - it employed forty to sixty men.

Ultimately the wheel was abandoned and disintegrated. Portions of it still protruded as recently as fifteen years ago. At the time of the town's bi-centennial, consideration was given the possibility of recovering portions of the wheel for exhibition, but difficulties proved insurmountable.

Jan. 8, 1972.

This picture shows the spokes or vanes on the wheel.

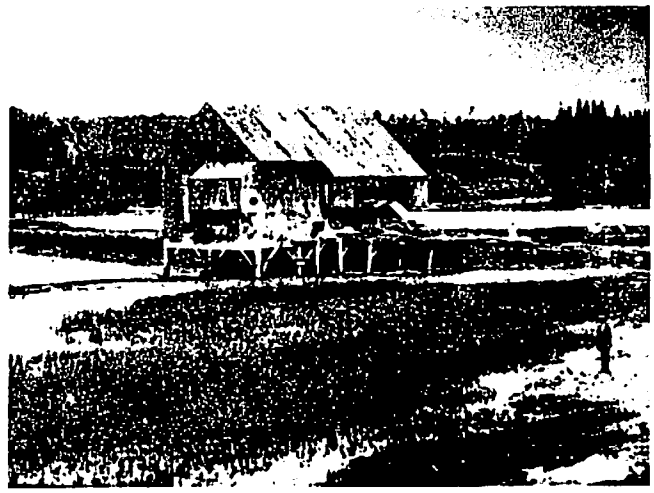
Kendall Mill Bowdoinham



Mill Cove Tide Mill

Mill Cove Tide Mill was standing as late as 1804. At this time, this mill was owned jointly by Silas Allen and Deacon James Wilson.

This mill was located at, or above, the causeway leading to High Head and was presumably a grist mill.



Mill Cove Tide Mill

Minott Mill

In 1795 James McCobb built a tide grist mill in Phippsburg, near the mouth of the Kennebec River. This tide mill, Minott Mill, was said to have been the first mill for the grinding of grain along the lower reaches of the Kennebec Valley. Soon this section became an important shipping and trading center. From the shores of the Kennebec and the New Meadows the fishermen-farmers brought corn in their boats to be ground.

After the mill was discontinued the sluiceway was closed and the dam rebuilt into a solid retaining wall over which the road to Popham Beach was routed.

Tide-Mill at Phippsburg, Me., built in 1795

Mills at Parker's Head

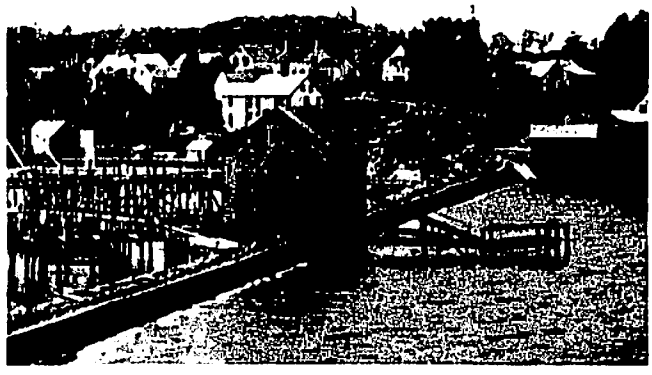
Daily Sentinel, Sept. 28, 1867.

Fire swept the saw mills at Parker's Head between 9 and 10 Thursday evening. The whole chain of buildings were entirely consumed. The mills consist of four separate buildings running 2 saws each, the whole group being under one roof. No fire engines are owned in the vicinity, so the devouring elements had full sway. The mills were owned respectively by Oliver Rollins, S.D. Reed Esq., G.H. Duley and the Jewett estate. The first named firm lost some $1800. worth of lumber. A house owned and occupied by Mr. Wright, with a yacht valued at $3000. on the neck side of the dam were destroyed. We learn that Mr. Wright's loss is nearly covered by insurance. No insurance on the mills or lumber. Estimated loss-$10,000.

This mill has carried eight up and down saws with the usual complement of small machinery, such as shingle, lath, picket etc.

It is considered the best privilege on the Kennebec river, being open all winter to navigation, is three miles from the mouth of the river and Fort Popham and ten miles from Bath.

Logs come down river to supply the mills.



Parker's Head Mill

The Perkins Tide Mill, Kennebunkport, Maine

In 1749, James C. Perkins built a tide grist mill at Kennebunkport. This mill was situated half a mile from the mouth of the Kennebunk River where it empties into the sea. Except for the addition of a modern cupola the old mill is much the same today as it was in 1749. This mill continued to grind grain every day except Sundays and holidays for over 200 years.

The grinding process has not operated since 1939, although most of the parts still remain, including the stones. The present dam no longer controls the flow of the water via a flapper gate, but does act to make a basin out of the Kennebunk River.

The Olde Grist Mill functioned as a tea room until the middle of the 1940's, but has since then been operated as a restaurant. A new dining room was added in 1968.

The interior of the mill has changed very little as shown by the old scales, the hopper and slender little elevator which carried the grist up in an endless chain of tiny carriers.

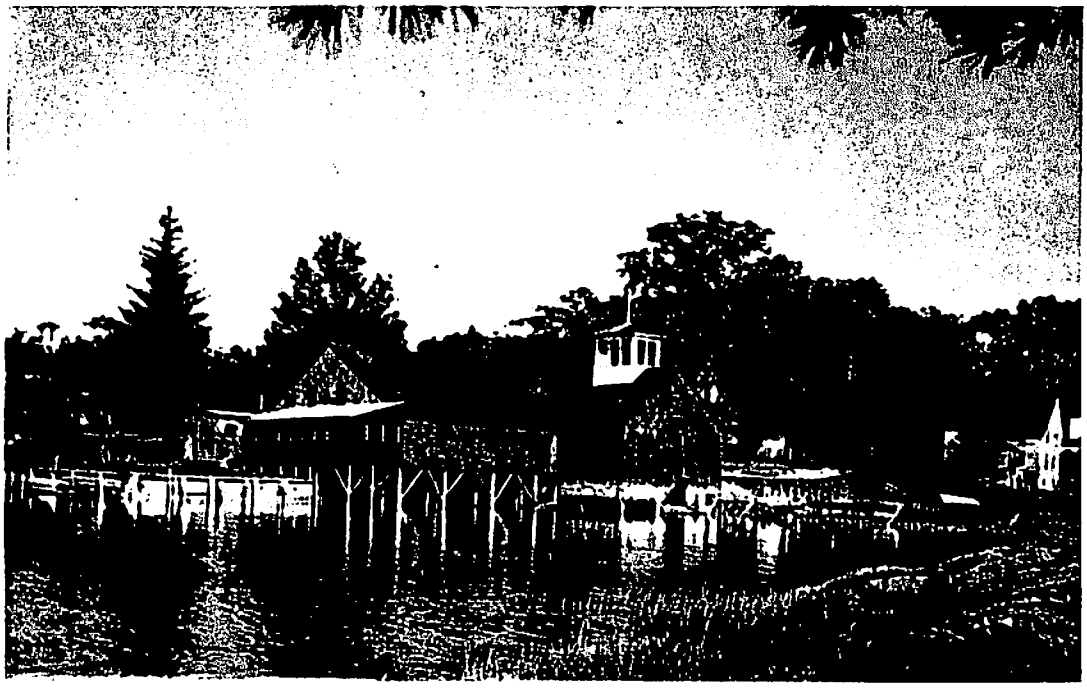
The Olde Grist Mill now acclaimed "Maine's Most Unique Eating Place", has served it's purpose of grinding corn for nearby farmers so it seems especially appropriate to offer in this colonial atmosphere it's delicious johnny cake, baked Indian pudding and other old fashioned dishes which are now a New England tradition.

History tells us that the natives of the area sought refuge from the hostile Indians in the old mill over 200 years ago.

The Perkins Tide-Mill, Kennebunkport, Maine

As it appeared when built (except the cupola).

As the mill appears today.



Phippsburg

The town of Phippsburg is made up of several villages.

The Center is well marked by the tall, white church spire, which is visible from many directions.

Winnegance, one of the villages is where most of the tide mills were located.

In 1837, a permanent dam was built and tide mills were erected. This dam was incorporated as the Winnegance Mill Dam Company.

It is said that the mills on the dam would saw 2000-3000 feet of lumber each on both the day and night tides.

These operations were discontinued in the early 1900's.

Recently a seventy acre tidal marsh was donated to the state by Frederick S. Morse in memory of his father James L. Morse, who was a former state legislator and Phippsburg selectman.

This marsh which borders on route 209 encircles the western shore of Fiddler's Reach at the north end of Phippsburg just south of the city of Bath.

The tidal streams that flow through the marsh once powered two tidal mills.

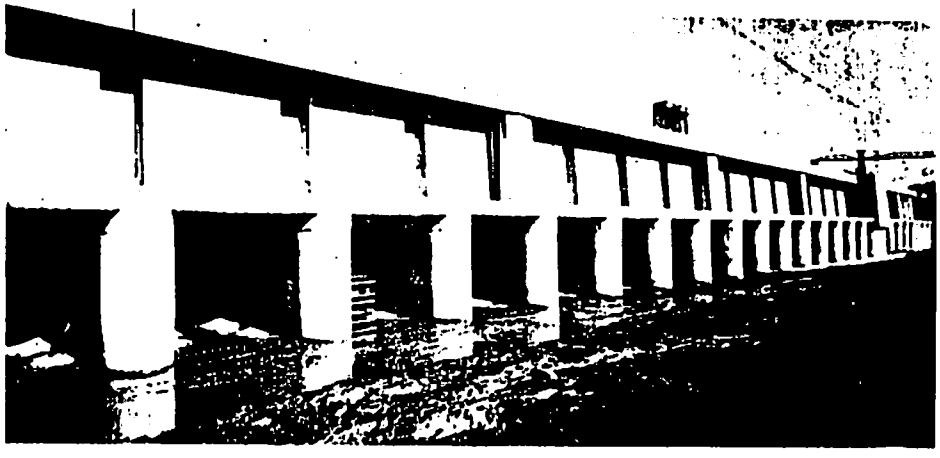
Rance River, France

On November 26, 1966, on the Rance River in Brittany, near the town of St. Malo, the coffer dams were removed from the turbines of the first hydroelectric plant to use the energy of the tides. Full operation of the plant began in 1967.

In the world's first actually-operating system, the difference of from 30 to 47 feet between low and high tide produces approximately 544,000 kilowatts of electrical power.

An unusual feature of the Rance River plant is its reversible operation. Power is tapped from the waters as they rush upstream at high tide, and again when the flow is reversed.

THE RANCE RIVER PLANT *from the estuary side. This photograph was taken a few days before the water was let in. (Baranger, Electricité de France)*

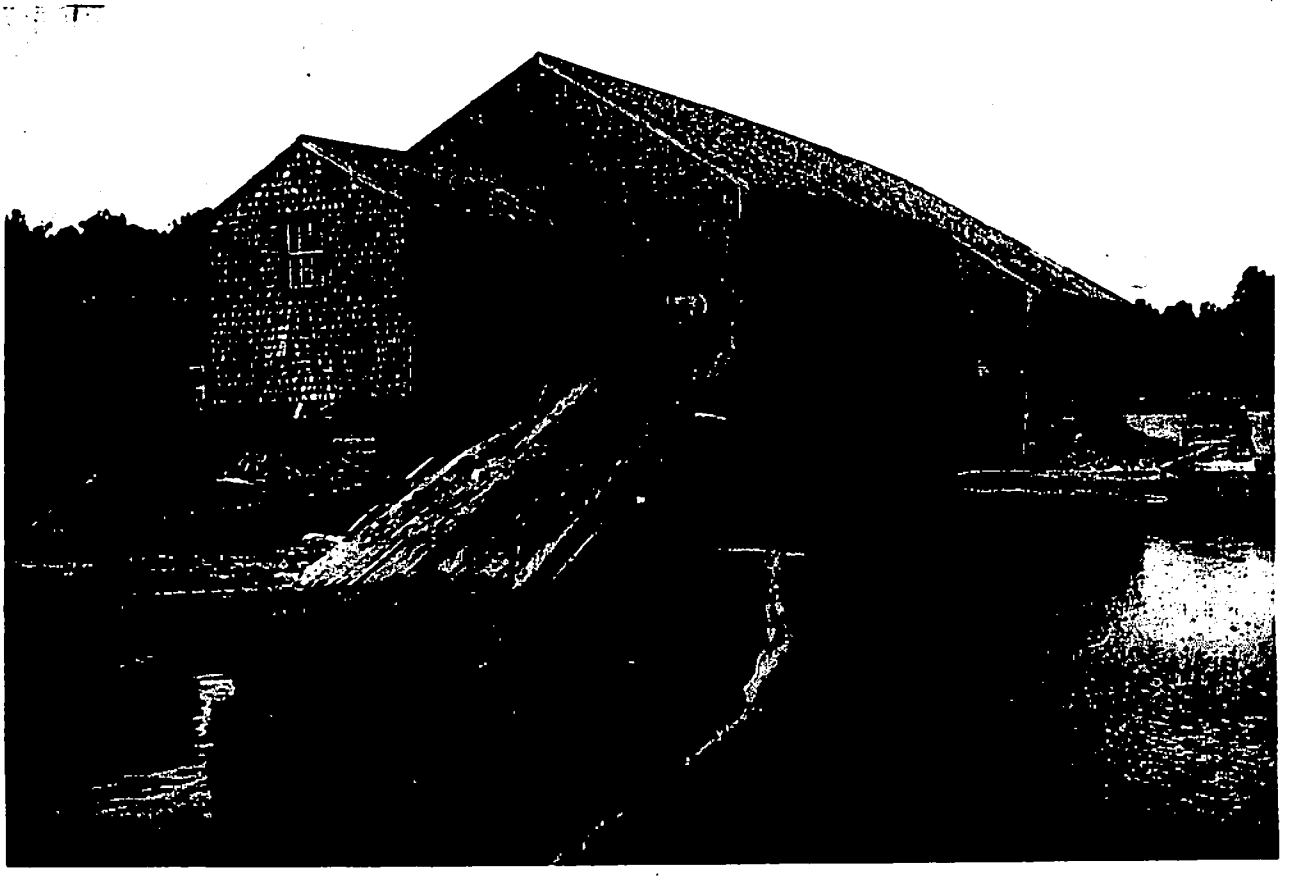


Rogers Mill, Whiskeag

Peterson's to Rogers, Vol. 34 pg.202.

Be it remembered that on the 12th day of August 1820, it is agreed between Levi Peterson and Daniel Peterson, both of Bath in the County of Lincoln on the first part, and Samuel H. Rogers of Phippsburg in said County on the other part, in manner and form following to wit, the said Levi Peterson and Daniel Peterson for the consideration here in after mentioned doth for themselves, their heirs, executors and administrators, covenant with the said Smauel H. Rogers, his executors, administrators and assigns to take the mill at Whiskeag in said Bath in the situation they are now in and repair the dam in a good and workmanlike manner to the satisfaction of good judges and build a saw mill to carry one saw and one grist mill to carry two pair of stones, one suitable for Indian corn and one pair for English grain together with one good coult suitable for making flour. The saw mill roof is to be shingled and the walls to be battened. The grist mill is to be shingled, both roof and walls. The said Rogers is to find all the materials except here in after mentioned. All the iron for both mills and nails for both mills are to be found by said Levi and Daniel Peterson. The said Smauel Rogers is to find all the stock for running gear and have it made for both mills. All the above work is to be completed in a good and workmanlike manner to the full satisfaction

Rogers Tide Mill, Whiskeag, N. Bath.



of good judges. When complete, the said Rogers is to come in full possession of one third part of both mills together with one third part of said stream. It is understood that said Rogers is to come into possession of one third part either of said mills as soon as either may be got to work, this third part of mills and stream is to be in full to said Samuel H. Rogers for all the materials and labour layed out on said mills so the mills are equally owned, one third part to each party likewise we agree to find a house, as it now is free of rent to Samuel H. Rogers, while the mills are building also we agree to pay six dollars a piece for two wheels, one cast iron, one of stone, We also agree to find oxen to haul up all the timber necessary to be used on said mills. It is also understood we find a man to drive the teams, we also will find two cast iron wheels, and Sam. H. Rogers is to find the stone wheels and the mills are to be completed as soon as possible and the aforesaid Daniel and Levi Peterson doth agree and by these presents do find themselves their heirs executors and assigns to give unto the said Rogers his heirs, executors and assigns a good and Sufficent Deed of one third part of all the Mill Privilege with the appurtenances thereunto belonging as soon as the mills aforesaid are in operation and We the undersigned do hereby bind ourselves, our heirs, executors and assigns in the final Sum of Eight hundred Dollars for the faithful performance of the above Agreement in Witness whereof we have here unto set our hand and seals this day and date above written,

Samuel H. Rogers, Seal
Levi Peterson, Seal
D. Peterson, Seal

Jane M. Peterson
Received April 26th, 1851, At 9 and ½ , o'clock a.m.
Recorded from the Original, Lincoln County Courthouse, Wiscasset
Attest, John H. Thompson, Register.

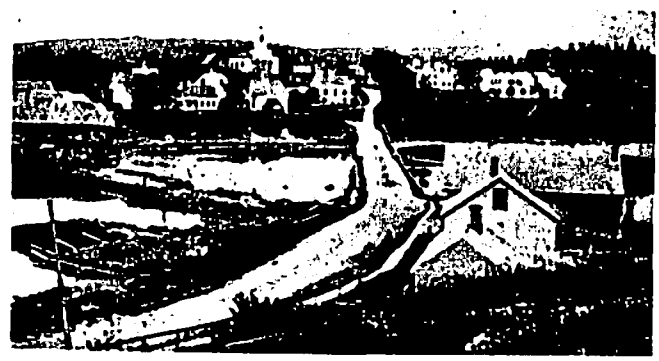
The Sedgwick Mill

The following information was furnished by H. Theodore Smith of 63 Hancock Street, Ellsworth, Maine.

The original tidal mill was built by Moses Eaton in about 1785. He with others, later built the mill shown in the picture and was below the site of the present bridge across the Benjamin River. This mill was in operation in 1808, since it is referred to in the town records of Sedgwick.

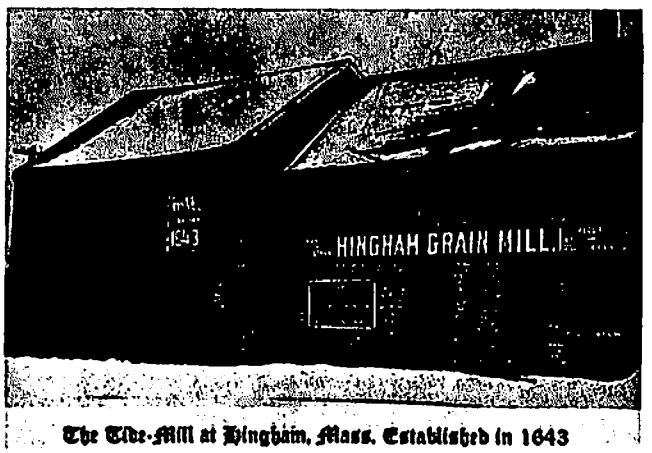
This mill was in three parts. At the Sedgwick end was a saw mill. In the center was a grist mill and at the Brooklin end of the dam was a cloth mill. Probably the cloth mill was in operation for a short time. Colby's Atlas of 1881 shows the saw mill, operated by Watson, Dority and Eaton and the grist mill operated by E. Eaton. These mills did considerable business thru the 1880's.

Sedgwick Mill on Benjamin River



Old Mills and Sewalls Bridge

Sheepscot Mill



The Tide-Mill at Hingham, Mass. Established in 1643

In 1643 at Hingham, Mass., a grist tide mill was located at the mouth of a natural tidal basin.

Sewalls Tide Mill, Bath, Maine

From the returns of James Wakefield Esq., the following information was obtained.

Fall of 13 ft. Twenty H.P. will grind 10,000 bushels of grain and saw 20,000 feet of lumber. One saw operates 8 months. Two wheels H. Blakes patent thirty and thirty-six inches in diameter.

Sheepscot Mill

This picture was taken below the falls. The scow with sails up is "The North Star."

Mr. Frank Palmer built the mill at Sheepscot.

The mill was located in the Alna part called Sheepscot.

This mill could saw 20,000 feet of lumber at one tide using a circular saw.

Spinney's Mill

Much information could be obtained from old deeds.

The following is a Verbatim copy of a transaction concerning the mills last known as "Spinney's Mills." This was copied from Book 63 Page 230 in the Sagadahoc County records office in Bath, Maine.

Know all men by these presents that I, Wm. Potter of the County of Sagadahoc and State of Maine, in consideration of fourteen hundred dollars paid by John G. Potter, of said Arrowsic, in the receipt whereof I do hereby acknowledge, I do hereby give, grant, bargain, sell and convey unto the said John G. Potter, his heirs and assigns forever the north half of the double mill, situated on the Kennebec River in said Arrowsic, together with all the privileges and Appurtenances thereunto belonging, together with the grist mill privilege in connection with the same.

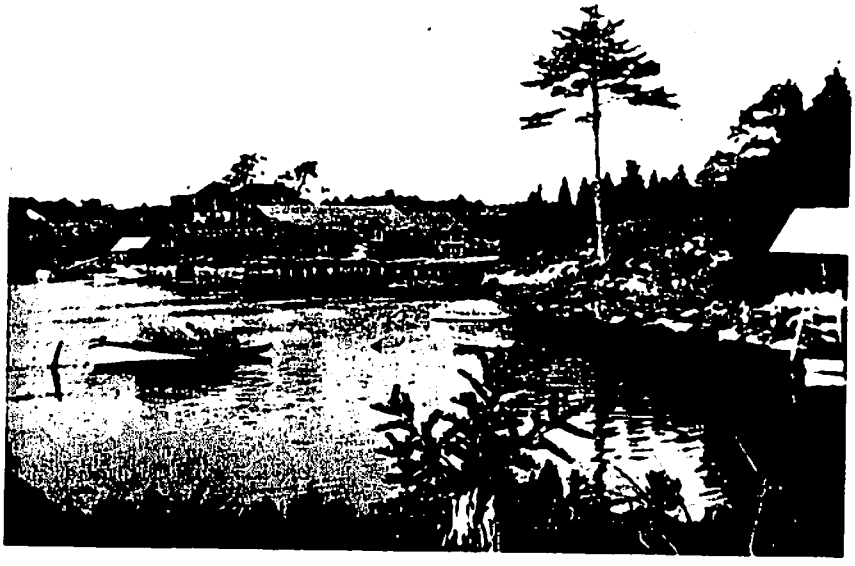
This transaction took place in 1883.

Know all men by these presents, that I, John G. Potter of New York City, County and State, and Pamela Potter, widow, in relinquishment of her dower rights in consideration of one dollar paid by William H. Spinney of Arrowsic, County of Sagadahoc, State of Maine and James L. Spinney of Bath in said County and State, and G.P. Spinney and Mathew F. McKendry of said Arrowsic doing business at said Arrowsic under the title of Wm. H. and J.L. Spinney and Company, I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said M.H. and J.L. Spinney and Company their heirs and assigns forever the north half of a double saw mill situated on the Kennebec River in said Arrowsic together with all wharves, privileges and appurtenances thereto belonging and all the mill machinery therein and also the Grist mill privilege in connection with the same.

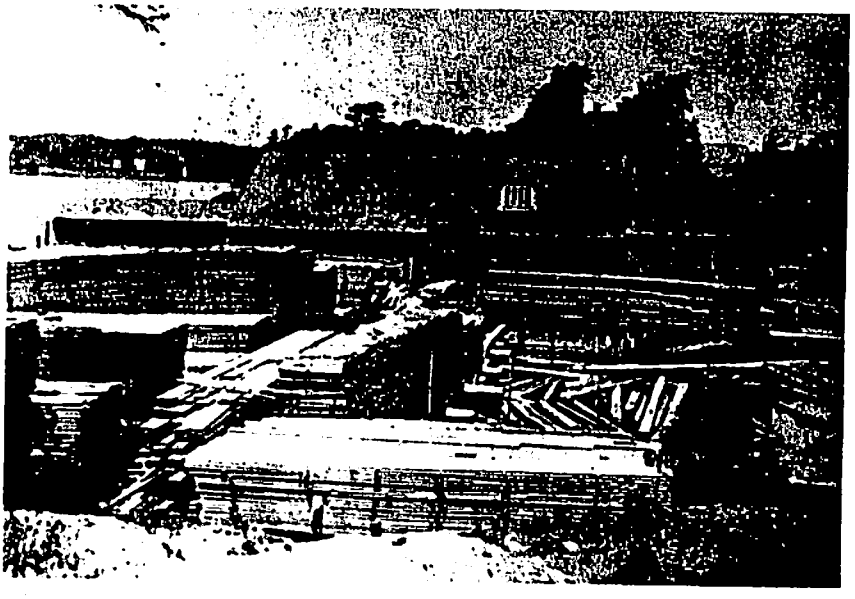
Oct. 2, 1883.

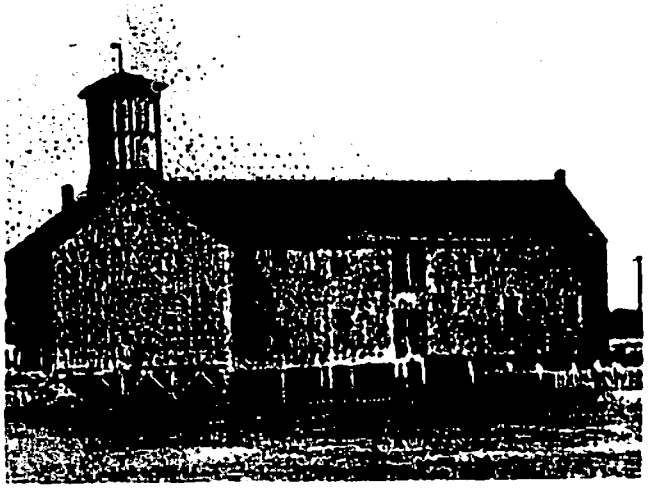
Know all men by these presents that I, Woodbury H. Potter, of Bath, County of Sagadahoc, State of Maine in consideration of two thousand dollars to be paid by William Potter of Arrowsic, County and State aforesaid, the receipt whereof is hereby acknowledged do by these presents, grant, remise, release and forever quit claim unto the said William Potter, his heirs and assigns all my rights, title, interest and estate in and to a double saw mill in said Arrowsic, it being an undivided half part of the South saw in said mill and was willed to me in common with the other half by my late Father, William Potter, with all the privileges and appurtenances to the same belonging with all my right, title, and interest to erect and maintain a grist mill on said water.

Executed in 1866.



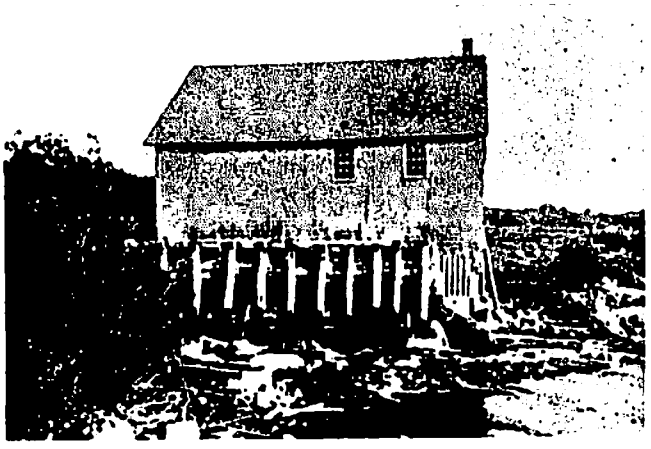
Spinney's Tide Mills in Arrowsic





Stroudwater Tide Mill

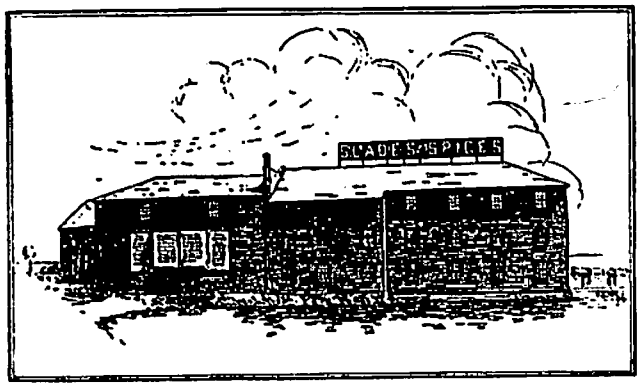
Once Upon A Time...Many people will recognize the Fickett grist mill which operated on the Fore River tide at Stroudwater until torn down about the time of World War I. At the far left is the causeway leading into the city and at right is the river. The Stroudwater Grange Hall is out of the picture across the (Congress) street. Atop the mill is a "fanning machine" arrangement that kept the neighborhood awake with a "clackety-clack" while it winnowed the grain. Boys often climbed the roof to jump into the river which was 15 feet deep at high tide.



Wells Saw Mill

Site on Rt. 1, just above Moody's Corner on the left. Remains of dam can be seen. This is (or was) presumably a tide mill.

Both Booth Tarkington and Kenneth Roberts have incorporated this old mill in their writings.



The Slade Spice Mill, Chelsea, Mass.

Slade Spice Mill
Chelsea, Mass.

The Slade Spice Mill is located between Chelsea and Revere, Mass. It was built in 1721. This tide mill ground corn for almost 200 years. By an ancient provision in the original charter it must at all times hold itself ready to grind corn for any citizen of Chelsea providing that the corn is raised in Chelsea.

Westport Mill

This photograph was published in the Coastal Journal at the request of George M. Carlton Sr., a retired College Professor and amateur historian from Woolwich.

Mr. Carlton's request was to find people in the coastal area who were able to identify the picture, which he hoped to include in his current research project. Mr. Carlton is compiling information on old tide mills in the area.

Response was immediate and Mr. Carlton has given the results to this newspaper for publication. We reproduced the picture for readers who may not recall it the first time it appeared in the paper.

The old tide mill pictured in the Coastal Journal has been positively identified as the tide saw mill located on Long Cove on the east side of Westport Island. Mrs. Templeman of Westport remembers the mill from childhood. E.A. Jewett of Bath was employed at this mill for many years.

The mill was probably built in the early 1800's by John or Joseph Hodgdon. The second owner was Samuel Tarbox and the last man to own it was Hartley Hilton.

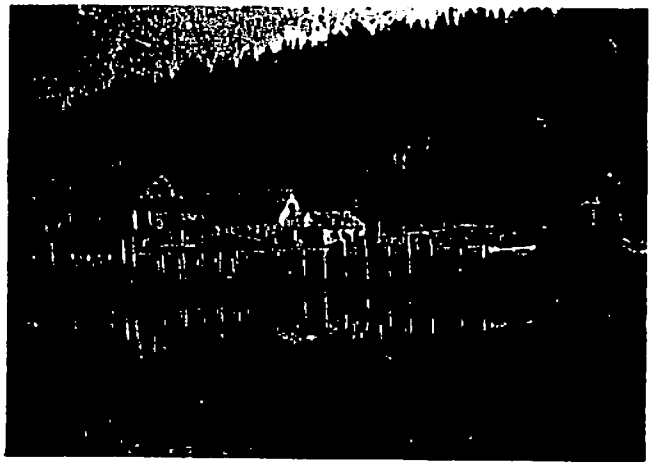
According to Mr. Jewett, the sawing was done by a reciprocating up-and-down saw. Later, a circular saw, which came into general use in 1850, was installed. much lumber was prepared for the construction of cottages on the Island as well as on Dog Fish Head at West Southport.

At this point on the coast there is an average tide of approximately nine feet. The machinery was always run on the ebb tide and could be started when the tide was half way out. Because of the tidal feature of this mill, it was in operation day and night.

The activity of the mill was brought to an abrupt halt when it was completely destroyed by fire on May 8, 1918. This fire, originating on the west side of the Island fanned by a high wind, spread across to the eastern shore consuming everything in its path. Help came from Bath, Wiscasset, Robinhood and Southport. In spite of all that could be done, an area four miles in length and two miles in width was burned over, causing an estimated damage of a quarter of a million dollars. Most of the dwellings burned were summer cottages and unoccuppied at the time of the fire.

No evidence exists that the mill was ever rebuilt.

This mill at one time also ran a grist mill, but it was discontinued before the fire. The last owner was Hartley Hilton.



Tide power at Long Cove, east side of Westport Island. This was a saw and grist mill, using a turbine wheel of 20 Horsepower.

This picture shows the roofs of eight of the ten tide mills at Winnegance.

Winnegance Tide Mills

Winnegance Tide Mills are three miles from Bath and four miles from Phippsburg Center. These mills ran 16 saws and some machinery for small lumber. Nine mills were on the Phippsburg side of the pond and seven on the Bath side.

These mills were controlled by a corporation whose president was Winslow Morse. This mill's privilege total power was 333 H.P. and operated nine months of the year using Kendal wheels.

Morse Mills Phippsburg - 8 Winnegance Mills in the background.

Woodbridge, England

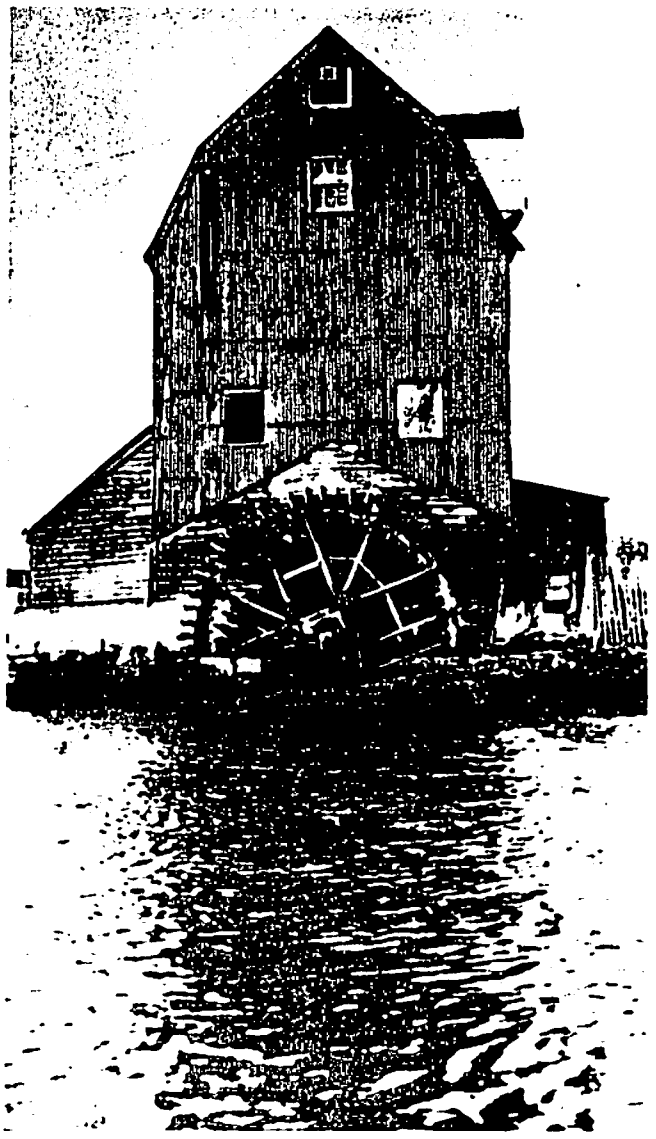
Dear Prof. Carlton;

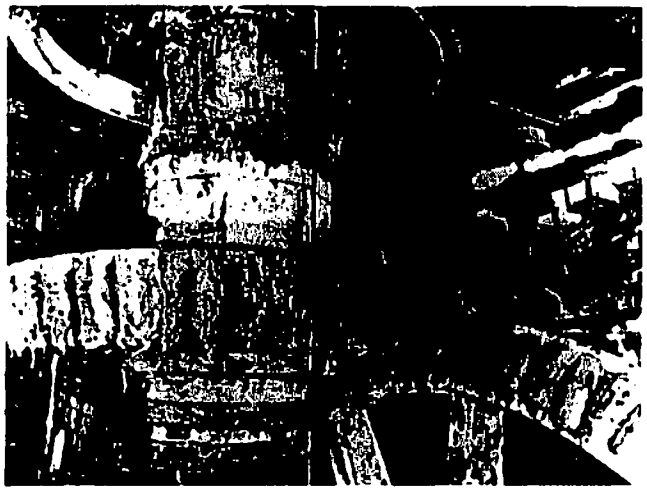
Your letter of 13th. July has been passed to me by the Woodbridge Tide Mill Trustees, since being the millwright concerned with the repairs to machinery I have been asked to explain to you the reasons and workings of a governor in a watermill.

First of all I must state that governors in watermills and by this I mean waterwheel driven corn mills, are very rare. This is not because of their few numbers but the fact they were not normally required in watermills grinding corn. Governors were mostly used in windmills and can still be found in great numbers in Europe and particularly in Britain, where the windmill was the most highly developed anywhere in the world.

I should perhaps say that I am not convinced yet that the governor at Woodbridge actually performed the duty for which it was intended but never having seen the mill at work I am at some disadvantage. However, when repaired, I hope to be able to put it into action and find out whether or not it is effective. This will of course depend entirely upon whether the Trustees can raise sufficient funds to create a small tidal pool to work the wheel.

In Woodbridge Tide Mill the governor is driven by belt from the main vertical shaft and it controls all four pairs of French bur stones. I trust you understand the working of a governor in that as the speed increases the balls fly out and raise a collar on it's shaft. To the collar are connected four long levers called steelyards and in turn these are connected by pivots and linkage to the lever or bridgetree which supports each top or runner millstone. There is also a manual adjustment on the bridgetree so that the miller can set his stones initially to grind to the desired quality etc. and then the governor maintains this setting. Very briefly the action is that with any variation in speed of the waterwheel there is a corresponding variation in the grain feed to the stones, hence as the mill goes faster the feed to the stones increases and the runner stone tends to rise up on the grain. However, the governor senses this and by the system of levers it very slightly lowers the top stones to maintain a constant quality of meal. The total movement of the top or runner stone is only in terms of thousanths of an inch so you will see the adjustment is somewhat fine.





In windmills a governor was regarded as an essential item of the plant because as you will know the wind strength can vary from one minute to the next and so some fine control could be kept of the meal quality even though the speed of the mill was never constant. With watermills it is much better because once set the wheel would run at a more or less constant speed and this explains why governors were not needed.

At Woodbridge I can only see two possible reasons for a governor, these are:

A. The tidal pool of the mill was purely tidal and was not supplemented by any stream or river so as the mill was used the level in the pool gradually lowered and hence as it emptied it caused a slowing down of the waterwheel because of the reducing pressure of water.

B. At the mill there was an ingenious sluice gate system which allowed the waterwheel to operate as either Breast shot (3 o'clock) or Undershot (5 o'clock) and thereby take advantage of the highest efficiency at any particular level of the millpool. When the pool was full it was most efficient at Breast shot but at a lower level this arrangement is not as efficient as undershot. So the sluice could be very simply altered to change the running to Undershot. This changing over of the system would certainly lead to fluctuation in speed of the mill which the governor may or may not have been able to cope with. Only time will tell whether this was part of the governors job but I doubt it myself.

These are the explanations of the governor in Woodbridge Tide Mill and I trust you will be able to follow the details. It is not easy to describe them but a little easier with drawings and even better when seen in action. It is all the more interesting when you realise it was all thought out about 150 years ago.

Yours sincerely,
B.J. Reid

Woodbridge Tide Mill is at the present time in a very bad state of repair and efforts are being made to raise the funds for restoration. I think, therefore, that the appeal brochure will give you most of the information you require.

At Woodbridge, the pond has an area of 7½ acres. This has now been converted into a yacht marina. The machinery remains complete, however, and is a fine example of the millwright's craft. The 20-foot water wheel drove four pairs of stones, controlled by a single pair of governors, the only known instance in a tide mill.

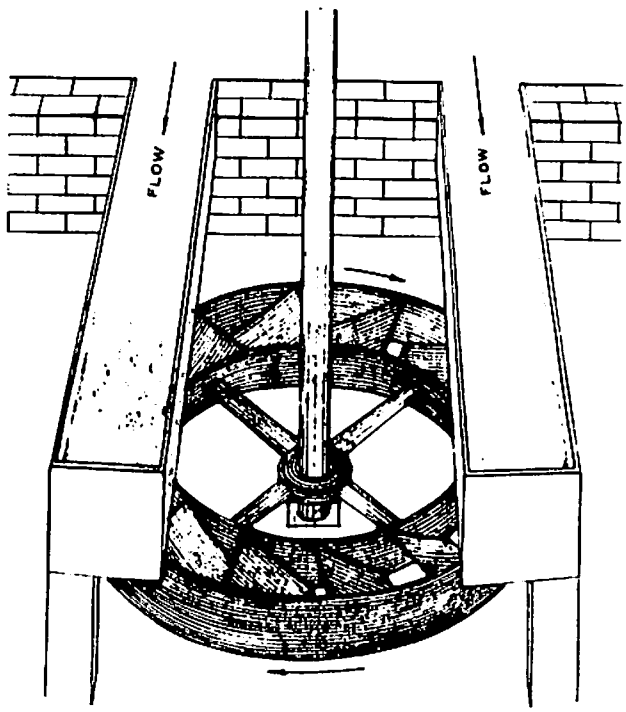
The machinery can be put back into working order for demonstration purposes. This will involve totally dismantling and rebuilding it and the mill may then once more be worked by the water from a new and smaller pond.

The above data was furnished by Mr. B.J. Reid, secretary of the Woodbridge Tide Mill Trust.

The Tub Water Wheel

The wheel rotates in a horizontal plane on a vertical shaft. The body of the wheel is made of blades or vanes set at an angle with the vertical so that the impact of the falling water striking the surface of these slanted blades or vanes produces a horizontal thrust causing the wheel to rotate as shown by the arrows. The wheel was four to six feet in diameter and ten to eighteen inches deep.

Even after turbines came into use many mills continued to use the tub wheel.

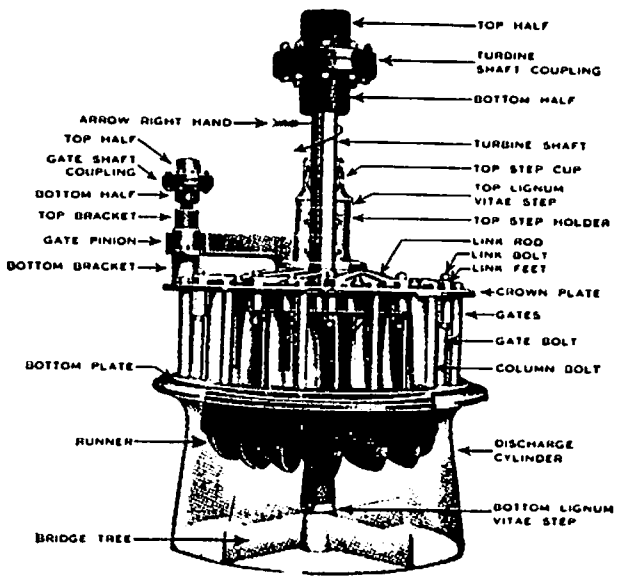


TUB WHEEL

Water Turbine

This water turbine became available in the middle 1800's - a welcome addition to tide mills.

Water Turbine



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