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STEAMBOATS ON NARRAGANSETT BAY

A PAPER READ BY
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STEAMBOATS ON NARRAGANSETT BAY

BY WM. KING COVELL

One of the earliest attempts to move a boat by steam took place in Narragansett Bay. Elijah Ormsbee of Providence installed a primitive steam engine in a borrowed ship's long boat in the autumn of the year 1792. He used a large copper still as a boiler, and with this crude arrangement succeeded in propelling his boat against wind and tide. Ormsbee lacked the funds to develop his ideas, however, and so, in common with Fitch, Rumsey, Longstreet, Morey, and other early experimenters in steam navigation, he was compelled to leave to Robert Fulton the honor of constructing the first really successful steamboat.

There was no steam vessel running on Narragansett Bay from 1792 to 1817. In the latter year the "Firefly", a small boat built by Fulton in 1812 to run on the Hudson between New York and Newburg, was brought here to run between Newport and Providence. She rounded Point Judith on May 26th., being the first steam vessel to do so, and ran on the bay with some success during the summer. On June 28th. she carried President Monroe, en route from New York to Boston, between Bristol and Providence. Owing to opposition on the part of the owners of sailing packets and to the fact that their vessels, when the wind was favorable, could make the passage in much shorter time than the steamboat, the "Firefly" was withdrawn in September and returned to New York.

The first regular line of steamboats running on the bay was established in 1822, by the "Fulton" and "Connecticut". These boats had been built under the direction of Robert Fulton and had been intended for the route between New Haven and New York, on which they had run since 1816. They were controlled by the Fulton-Livingston monopoly, and consequently were driven from Connecticut waters by retaliatory legislation enacted by that state in 1822 at the instigation of the sailing packet owners. The "Fulton" had previously visited these waters, in August 1821, but that was

a special excursion trip only. Regular service between Providence and New York, stopping each way at Newport, was begun by the "Connecticut" on June 6, 1822, and in July the "Fulton" was added. Only one round trip a week, on the average, was made by each boat, and about twenty eight to thirty hours was required for the trip which is now made in ten hours or less. The boats were withdrawn during the winter but were put in service again the following summer, and continued to run each year. The "Fulton" was in service as late as the summer of 1829, but what finally became of her is uncertain. The "Connecticut" was sold in April, 1829, to run between Boston, Portland, and Bath. She ran later to Bangor, and was in service as late as 1838, possibly later still.

The first steamer to be built particularly for the Providence-New York route was the "Washington". This boat was completed in 1825. She had a pair of beam engines, each driving its paddle wheel independently of the other. So far as is known she was the first steamboat so equipped. In later years several Hudson River boats had two beam engines or "walking beams" as they are familiarly known, and there were isolated examples on the Great Lakes, the Atlantic Coast, and even in the transatlantic service, notably the famous "Vanderbilt" of 1855. The "Washington" is interesting also in that she was probably the first boat with beam engines, single or double, to appear on Narragansett Bay. She was larger and better furnished than the "Fulton" and "Connecticut", and had greater speed. In the winter of 1827-28 she was rebuilt and given more extensive sleeping accommodations. She continued in use until she was run into by the "Chancellor Livingston," May 14, 1831, when eastbound off New Haven. She was sunk, but the 52 passengers aboard were safely transferred to the "Livingston."

In 1828 the "Benjamin Franklin" and in 1829 the "President" were built for the line. Both had pairs of beam engines, similar to those on the "Washington," but were a little larger and better provided with accommodations. These early steamers burned wood for fuel, and the amount of it necessary for a fifteen to twenty hour trip to or from New York took up nearly all the space available on deck. The engines were run on very low steam pressure, which was provided by large copper boilers. Masts and sails were carried, to help the

engines when the wind was favorable. The boats were painted white, with decorative lines in green, blue, and gold, and with sails set, flags flying, and the brilliant copper color of the highly polished boilers, they must have made an interesting appearance when under way. The "Franklin" and "President" were in use as late as the summer of 1839, but shortly afterwards they were dismantled and converted into coal barges.

Later steamers were the "Boston," built in 1831, and the "Providence," built in 1832. The former was a larger edition of the "President," except that she had no masts or sails—the first Sound steamboat to rely wholly on her engine. The "Providence," the first steam vessel so named, had a single beam engine, of larger dimensions than those of the earlier boats. These two steamers formed a separate line, run with but not necessarily in opposition to the older line which operated the "President" and "Franklin." Developments were so rapid that these steamers were out of date on the line after a few years of service. The "Boston" was sold in 1838, and the "Providence" ran but a few years longer.

The steamers of the regular lines were so successful that they invited opposition from without, which was not long in appearing. The first opposition boat was the "New York," which ran at reduced fares for a short time late in 1824. In June, 1827, the "Marco Bozzaris" ran opposition for a few trips but without success. This boat had been built the year before and had run between Fall River and Newport, and at least once to New York. In 1829 she began running between Nantucket and New Bedford, and remained in that service until 1832 when she was sold and was sent to South America where she was used for several years.

The most important of the early opposition steamers was the "Chancellor Livingston." She was built at New York in 1816, and was the last boat designed by Robert Fulton as well as being the largest. She ran on the Hudson River to Albany until 1827, when she was largely rebuilt and given a new and more powerful engine. In the spring of 1828 she began running to Providence in opposition to the regular line. This continued until April, 1833, when she was sold to run between Boston and Portland. She remained in that service only a little over a year, however, as in the fall of 1834 she was

dismantled and her engine placed in a new steamboat, the "Portland."

The famous "Lexington" may also be considered as an opposition boat, for she was built and originally used to run to Providence against the older boats of the regular line. She made her first trip to Providence in June, 1835. Her arrival nearly coincided with the opening of the Boston and Providence railroad, and both factors influenced considerably the steamboat service for the years immediately following. She was built for Commodore Vanderbilt, and was his first considerable venture in steamboats for Sound travel. During her first summer she ran as a day boat between New York and Providence, with lower fares than those charged by the old line. In April, 1836, she began running again, but was transferred to the Hartford route in July, remaining there until late in the fall. About that time, probably during the winter of 1836-1837, she had berths installed in her lower cabin, and from then on she ran as a night boat. She ran part of the year 1837 to Providence and part to Stonington, for the Providence and Stonington railroad was opened in November, 1837, and from that time the travel was divided between Stonington and Providence. In 1838 she ran only to Stonington, and at the end of the year Vanderbilt sold her to the old line. The next year she was run mostly to Stonington. At the beginning of the next year, on January 13, 1840, she was burned off Huntington, Long Island, en route to Stonington from New York. The cause of the fire is thought to have been placing cotton bales too near the smokestack. She had over a hundred people on board but, partly because of the rapidity with which the fire spread and partly because of the very cold weather, only four survived. She was one of the fastest boats of her time, and raced frequently with steamers of rival lines, not always with safety to those on board, as she is said to have been on fire several times previous to her destruction.

Before the railroad between Providence and Boston was opened, on June 15, 1835, passengers en route from New York to Boston travelled between Providence and Boston by stage coaches. This was the quickest way to get from one city to the other. The other Long Island Sound lines, to New Haven, New London, Norwich, and Stonington, avoided

the often unpleasant trip around Point Judith, but they left a much longer distance to be travelled on land. Strange as it may seem to us today, travel by steamboat then was much the fastest way to get from one place to another. Consequently the route between New York and Boston which involved the longest water and the shortest land journey was the one most favored. It would, of course, have been no longer to travel via Fall River, but, although there were local steamers running to Fall River at an early date, no boats between that city and New York were put in service until the middle forties. An all-water route between New York and Boston was out of the question for regular service, because of the long time needed to sail out around Cape Cod and because of the fact that a large part of such a route would have been through the open ocean. Not until the early years of the present century was such a line established, and it did not become really successful until the Cape Cod Canal was opened, shortening considerably the distance and the time consumed and eliminating most of the route through the outer sea. For these reasons the Narragansett Bay ports early secured and have since retained a large part of the through steamer travel between New York and Boston. As the number of steamers running to Providence increased, the number of stage lines grew accordingly. Sometimes as many as fifteen to twenty coaches passed between Boston and Providence each day. The trip took five to six hours, and usually was broken for an hour at Wrentham where dinner was taken and the horses changed. So powerful had the stage lines become that they took little notice of the railroad when it was opened; but within a short time, as the intimated frightful disasters did not occur and the trains ran through with much greater speed and comfort to the passengers than the stages, the proprietors of the older form of transportation found themselves in a situation comparable to that of the owners of the sailing packets fifteen years or so earlier. They resorted to obstructionist tactics, as had the packet owners, but the effort to suppress the new order of things on land was as futile as it had been on the water.

At first the railroad functioned primarily as a feeder or adjunct to the steamboats. It prospered directly as did they by the increased travel which resulted from its opening.

In a few years, however, railroad owners began to acquire holdings in the steamboat lines, and this change, together with the construction of the Providence and Stonington railroad, which was opened on November 10, 1837, led to the railroads becoming the dominant influence. When it was possible to travel by rail from Stonington to Boston, via Providence, steamboat lines were quickly established from that town to New York. Stonington is the farthest east of the good harbors along the Sound, and so provided for the longest water route next to that to Providence. Also the journey from there to Boston by train was not inconveniently long, as it had been in stage coach days. A further advantage was the avoidance of the often rough passage around Point Judith. These conditions led to the railroads directing, and to some extent controlling, the routes of steamboat travel. Providence, instead of being the terminus of both steamers and the railroad, became an intermediate point, and had to share with Stonington the through travel. In ten years time the Stonington line had absorbed an appreciable amount of the business, and most of the rest of it went to the newly established Fall River Line, for which railroad connections had just been built. As a result the Providence line, although the earliest and for some years the only important route between New York and Boston, practically ceased to operate for some years. But before that time several important steamers were built and placed in service, and some of these must be considered in passing.

The year 1836 is of particular interest, for during that year three large steamboats were completed for the Providence line. These were the "Massachusetts," the "Rhode Island," and the "Narragansett." The "Massachusetts" was placed in service in April, 1836. She was somewhat larger than the earlier boats and was one of the first Sound steamers to carry her boilers, which were made of copper, on the guards. This custom originated on the Hudson River in the late 1820's and prevailed there for more than fifty years; it was introduced to the Sound in the middle 1830's and remained until the middle 1860's, and it appeared occasionally even in coasting steamboats, as in the "State of Maine" (1848). The "Massachusetts" burned wood, as had all her predecessors, for coal was not used regularly for fuel until the 1840's

—indeed it has been said that the difficulty of burning coal under boilers designed for wood may have caused the "Lexington" disaster, as that vessel began to use coal only a week or so before her loss. The "Massachusetts" was a late example, probably the latest on the Sound, of a boat with double beam engines. She ran to Providence for several years, and later ran to Stonington for a time. In 1847 she was chartered to the Fall River Line, and ran with the "Bay State" until the "Empire State" was completed, early in the following year. In 1849 her copper boilers were replaced by two new ones of iron. As late as 1855 she was used as an excursion boat at New York, but what finally became of her is unknown.

In August, 1836, the "Rhode Island" made her first trip. She was slightly larger than the "Massachusetts" and differed from that vessel in having a "square" engine, which was one of the largest of that type ever constructed. The square engine was a development from the engines constructed for Robert Fulton. It was practically universal in the first decade of steam navigation, but from about 1820 it began to be supplanted by the early forms of beam engine. In the 1830's it was distinctly less favored than the beam engine, and after 1840 examples of it are rare—the "Massachusetts" (1842), running to Nantucket, and the "Bradford Durfee" (1845), running between Fall River and Providence, being among the latest. The "Rhode Island" was one of the last of the Sound steamers to have that type of engine. She ran at first to Providence, but when the Stonington railroad was opened, she and the "Narragansett" began running between New York and Stonington. She remained in that service until sold, in 1846. In 1849 she ran between New York and Philadelphia for a short time, and in the next year she started for California, as did many other river and Sound boats, totally unsuited to open sea navigation, at the time of the gold rush. When only a few days out of New York she ran into a heavy storm, in the Gulf Stream, and foundered, but not before her crew had been taken off by a passing sailing vessel.

On October 13, 1836, the "Narragansett" arrived at Providence for the first time. She was very narrow in proportion to her length and was given an engine of unusual

power for a vessel of her size with the hope that she would be very fast. In fact she was built purposely to surpass or at least to equal the "Lexington" in speed, but she did not succeed in either. She was very unsteady in a seaway, and on one occasion lost her equilibrium altogether and lay over on one side. There were further difficulties in her operation caused by the fact that the engine was too powerful for the hull and strained it badly when the vessel was pushed. She ran to Providence, and later to Stonington, with the "Massachusetts" and "Rhode Island," until sold in 1846. On October 28, 1846, when on the way to New Orleans to go into service on the Gulf of Mexico, she was stranded at Mosquito Inlet on the Florida coast and became a total loss.

Two years after these boats were built, the most interesting of the later opposition boats was put in service. This was the "John W. Richmond." She was built in Providence, both hull and engine, and was put in commission in June, 1838. She proved to be equal in speed to the best of the steamers of the old company, and when those interested in the old line found that even the "Narragansett" could not beat the "Richmond," they offered Vanderbilt a good price for the "Lexington," provided she proved to be the faster boat. The result was a race, during the fall of 1838, from Stonington to New York, in which the "Richmond" was the winner. Probably the "Lexington" was actually the faster boat, but she was outmanoeuvred by those in charge of the opposition boat. The "Richmond" continued running until 1840, but in that year the old line obtained enough stock in the company which owned her to give it control, with the result that she was taken off at once and sold to run between Boston and Hallowell, Maine. On September 30, 1843, she was accidentally burned at the wharf in Hallowell.

In the early 1840's passenger travel tended more and more to go by way of Stonington instead of Providence. One difficulty with running to Providence was the lack of water. The steamers were being built larger and so required greater depth of water in the channel. Dredging was done in 1853 and occasionally in the years following, but not until 1873 could a vessel be assured of a twelve foot channel all the way to the docks. The direct result was that the newer boats ran only to Stonington, where there was ample depth of

water. Another factor was the elimination of the ferry at Providence which connected the railroads to Stonington and to Boston. After May, 1848, it was possible to travel without change from Stonington to Boston, which had not been possible before that time. Perhaps the most important reason for the decline of passenger steamboat travel through Providence was the opening of the Fall River Line, in 1847. The new steamers built for that line were larger and better than any others then running on the Sound, and the result was that the Providence line ceased to be served by the large passenger boats which had formerly run there.

Although the old line withdrew its steamers entirely from Providence, there was several small steamers running between that city and New York during the 1840's. Most of them had previously been used on other routes. The "New Haven," from the New Haven line, was running in 1841 and 1842; the "Cleopatra," from the Connecticut river, and the "Charter Oak," also from Connecticut, were on the line in 1842 and occasionally later; the "Curtis Peck" appeared in 1843; and the "Neptune" and the "New Jersey" began running in 1844. The "Neptune" ran for three successive years. Four of these steamers are documented by old posters which were given to the Historical Society by Dr. Terry some years ago.

The only line of steamers running regularly to Providence in the 1850's was the Commercial Line. That company began business in 1851 with three small propeller steamers. A few years later a similar but slightly larger boat was added to the line, and in or after 1858, four more steamers larger than those preceding. For a short time the boats carried passengers, but by mutual agreement with other Sound lines the passenger accommodations were removed. Freight was the principal source of revenue, and in that the new line competed successfully with the Stonington line. In 1862 two of its steamers were sold to the Government to be used as blockaders, and three more boats were chartered to the War Department for use as transports. The result was a necessary decrease in the service. In 1864 the Commercial line sold out to the Neptune line.

The Neptune line was begun in 1863. They had built several small propeller steamers, having at one time as

many as nine in commission. In 1864, as mentioned, the Commercial Line was purchased and in the next year the combined lines were consolidated with the Stonington Line. The new company was called the Merchants' Steamship Company. It contracted for two new steamboats larger than any then running on the Sound. These boats were to be named "Pilgrim" and "Puritan," but when finished they were known as the "Bristol" and "Providence." They were intended to run to Bristol, connecting there with the railroad to Boston, in opposition to the Fall River Line. Shortly after these boats were begun, three serious disasters occurred. The old "Commonwealth," built in 1855, which had come into the possession of the new company, was burned on December 29, 1865, at Groton, Connecticut.

On January 17, 1866, the "Plymouth Rock" was stranded, but she was refloated and repaired, although at great expense. Late in the same year, on December 27th, the "Commodore," of the Stonington Line, went ashore in a heavy storm and was lost. These three losses, none of which was covered by insurance, caused the bankruptcy of the company. The "Bristol" and "Providence" were then incomplete and work on them was suspended for some months until, early in 1867, they were purchased by a new company, the Narragansett Steamship Company, and by them completed and put in service in June, 1867. Their subsequent history is a part of that of the Fall River Line.

The steamers, other than the "Bristol" and the "Providence," which had belonged to the Merchants' Company, were divided between two new companies. Three of the large fleet of propeller steamers, which had run originally in the freight service of the Neptune Line, were placed on the outside line to Boston—that is, they ran from New York directly to Boston, out around Cape Cod. They never returned to Narragansett Bay, hence their subsequent history does not concern this paper. The other steamers were obtained by the Providence and New York Steamship Company, which ran them to Providence, carrying freight only, until April, 1875. In the meantime the Stonington Line, which had been suspended after the loss of the "Commonwealth" and "Commodore" and the resulting failure of the Merchants' Company, was re-established in January, 1868, largely by

the Stonington Railroad, the welfare of which was at the time directly dependent upon steamer connection to New York. This revived Stonington Line was consolidated with the Providence and New York Steamship Company in 1875. The resulting corporation, known as the Providence and Stonington Steamship Company, decided to reopen passenger service to Providence, which had been abandoned since 1847, and so had built the steamer "Massachusetts" in 1877. She ran with the "Rhode Island," which had previously been running to Stonington. These two boats were the first large passenger steamers, comparable to those of the Fall River and other Sound lines, which had run to Providence. The "Rhode Island" had been built in 1873, and when new had been one of the fastest steamers on the Sound. She ran until November 6, 1880, when she ran ashore at Bonnet Point, on the west shore of the Bay just below Saunders-town, and was wrecked. Only the engine was recovered, but that was placed in the new "Rhode Island," built in 1882. This engine in turn was removed in 1890 and in its place a compound beam engine of unusual form was installed. This second "Rhode Island" ran for many years to Providence, and later, from about 1910, was laid up at Fall River, where the writer remembers seeing her. In 1916 she was purchased, dismantled, and converted into a four-masted schooner, but before making a voyage she was sunk in New York harbor. The "Massachusetts," in her first year was nearly wrecked on Long Island, on October 14, 1877, but she was refloated and repaired. After this event her career was uneventful for many years. In the summer of 1902 her walking beam broke, and after that she was laid up at Stonington. In 1904 she was dismantled and burned at Boston.

The "Connecticut" was built for the Providence line in 1889. She had a wooden hull, by exception, as the Sound steamers had been built of iron or steel from about 1880. Her engine also was unusual. It was of the oscillating type, similar in plan to the engines of river and coasting side wheel boats in Europe. This form of engine had been successful when used for small steamers, but when adapted to a large boat, with high pressure steam and increased size, it proved to be very unsatisfactory. Probably this is the reason why the Connecticut was not kept in service as long

as other steamers. She was retired about 1910, and in 1912 was dismantled and burned.

In 1893 the New York, New Haven and Hartford Railroad obtained possession of both the Boston and Providence and the Old Colony Railroads, and with them it acquired ownership of the Providence and Fall River Lines. Since that time no new boats have been built for the Providence service, although several steamers, built originally for other routes, have run to Providence from time to time. Among these were the "Pilgrim" and "Puritan" of the Fall River Line. From 1905, when the "Providence" of the Fall River Line went into service, she and the "Plymouth" ran between Providence and New York each summer until 1918, when, because of the war, the line was suspended. For several years after the war there was no regular line boat service, but within the past few years, the "City of Lowell" and "Chester W. Chapin," originally of the New London and New Haven lines respectively, have run to Providence all the year round.

There have been "opposition" lines running to Providence in recent years as well as in the early days of steamboating. The Joy Line, organized in 1899, was the best known. It began running steamers in 1900, having at first two coast of Maine steamers, the "City of Richmond" and the "Tremont." In 1901 the "Penobscot" of the Boston to Bangor Line was added. In August, 1902, the "Cumberland," which had been built in 1885 to run between Boston and St. Johns, New Brunswick, was purchased and renamed "Larchmont." A short time later her sister boat, the "State of Maine," built in 1882 for the same route, was also added to the Joy Line and renamed "Edgemont." The older boats had been disposed of, and the "Larchmont" and "Edgemont" ran between Providence and New York until, on February 10, 1907, the "Larchmont" was run down, when off Watch Hill, by a schooner and was sunk, with the loss of over a hundred persons. This disaster reminds one of the loss of the "Lexington" in that it occurred, as did the earlier one, in the coldest of winter weather. There was not, of course, in this case, the element of fire. The Joy Line had been acquired indirectly by the New Haven Railroad in 1906, and after the loss of the "Larchmont" the line was withdrawn and the

"Edgemont" sold. Until five or six years ago she was in use as an excursion boat on Chesapeake Bay.

A few years after the Joy Line was discontinued, the Bay State Line was organized. It ran the "Tennessee," which had come from Chesapeake Bay and had been run by the Joy Line as an opposition boat from Fall River, and in 1910 bought the "Georgia." These two steamers were run until about five years ago, when they were laid up. The Bay State Line was controlled by the New Haven railroad, and when the old line was recommenced by the "Chester W. Chapin" and "City of Lowell," the "Tennessee" and "Georgia" were no longer needed.

In 1910 the Colonial Line was begun, largely through the efforts of one of the original proprietors of the Joy Line. It purchased the "Washington" and "Norfolk," which had been built in 1891 to run between those two cities, and renamed them "Concord" and "Lexington." They have been run continuously ever since. The Colonial Line has had control of other vessels from time to time, such as the "Cambridge" and the "President Warfield," but the "Concord" and "Lexington" have been their regular steamers in the service.

At one time there was a prospect of another line of passenger steamers to Providence, but it did not materialize. The Grand Trunk Railroad proposed to build a connection between Providence and the Central Vermont Railroad, which would have given Providence direct contact with Canada and the west. The project was commenced and was carried on for some time, but was finally left unfinished. In the meantime, anticipating the opening of the new railroad, two steamers were built to connect with it and to run between Providence and New York. They were completed in 1913, but were never used for the route for which they were intended. They were tied up at New London until 1917, when the Navy took both vessels and used them to carry supplies across the English Channel between England and France. These steamers were named "Narragansett" and "Manhattan." After the war, the "Manhattan," which had been renamed "Nopatin," was purchased by the Hudson River Day Line and rebuilt to serve as a river excursion steamer. She is now known as the "De Witt Clinton," and is used on the

lower Hudson. Her draft is too great to permit her going up the river above Poughkeepsie.

* * * * *

The Fall River route was started much later than that to Providence, but it has maintained its importance more constantly than any other Sound Line running to New York, with railroad connection from its eastern terminal to Boston. From the beginning the Fall River Line steamers have been larger and finer in every way than other boats running on the Sound. They have been more closely connected with Newport than the Providence steamers, for they have been making stops here, in both directions, practically from the first, whereas the boats running to Providence, except in the early days when there were few steamers connecting the towns on the Bay, have run through without stopping.

There were steamboats running from Fall River to Providence, Newport, and other towns on the Bay as early as 1826, but not until 1844 was there direct connection by steamer with New York. Earlier than that it had been necessary for anyone in Fall River wishing to go to New York to travel by boat to Providence or Newport and take the steamer thence to New York.

In 1844 the steamer "Eudora" was built and placed in service between Fall River and New York. She was a small propeller boat, built at New York and launched April 27, 1844. In July she was completed, and on the 31st. of that month she made her first sailing from Fall River westbound. For a short time she ran to Norwich, carrying freight primarily, but her regular route was to Fall River. She was not a success financially. At first she made two round trips a week, but in 1846 the service was reduced to one trip a week. In spite of the fact that railroad connection to Boston had been made through the construction of the Fall River railroad, which was opened on June 9, 1845, the boat could not be made to pay. She was sold in October, 1846, and on November 19th. she left Philadelphia for the Rio Grande, to be used as a government transport. In 1849 she was lost by stranding on the Florida Coast.

It is interesting to observe that the first steamer running

between Fall River and New York was a propeller boat. That route has been served ever since by side wheel boats, among which have been some of the largest and finest examples of that type of steam vessel ever constructed. To students of the history of naval architecture, abroad as well as at home, the Fall River Line boats have long been known in that connection, and it is, therefore a curious anomaly that the very first of them was not a side wheeler at all. Strictly speaking the "Eudora" was not of the Fall River Line, for she was owned by a group of individuals, not by an organized company. The Fall River Line may be said to have been inaugurated in 1846, when the Bay State Steamboat Company was organized. Its purpose was to provide a line of steamers to New York, to connect at Fall River with the railroad to Boston. Some of the proprietors of the "Eudora" were later active in organizing the new company, but that is the only connection between the "Eudora" and the larger, side wheel steamers which soon followed her on the Fall River-New York route.

The first steamer built to run to Fall River was the "Bay State". She was launched at New York on December 1, 1846, and began running in the summer of 1847. Her running mate was the "Massachusetts," which was chartered from the Providence Line and has previously been described in connection with it. The "Bay State" was built more heavily than the earlier Sound boats had been. Most of them had been similar to contemporary Hudson River boats, which were necessarily built as light as possible in order to give them great speed and also to keep their draft of water to a minimum, to enable them to reach Albany. Sound boats did not need such restrictions as to depth, and moreover those running around Point Judith had every need for heavy construction, for some twenty miles of the route is through the open ocean. In other words, the Fall River to New York route combines the conditions of river, bay, sound, and ocean navigation, and as a result a compromise type of vessel, neither exclusively a river boat nor a coasting steamer, is needed. This fact was recognized at the very beginning, and the "Bay State" was planned and built to meet the existing conditions. It is very interesting to trace the development of the Fall

River Line type of steamer, from early times to the present, by comparing it with contemporary vessels built for service under more uniform conditions, but the scope of this paper hardly permits such a discussion. It is well to mention, however, that at least one of the Fall River Line steamers, the "Metropolis", to be discussed presently, was framed as heavily as were contemporary coasting and even transatlantic steamers, and in that respect she represents a further development of the principles first adopted in the case of the "Bay State".

This steamer remained in service until 1864. In that year she was dismantled. Her hull was converted into a barge, and the engine was rebuilt and given a larger cylinder and in 1865 placed in the steamer "Old Colony".

The year after the "Bay State" began running, a similar but slightly larger steamer was put in service. This was the "Empire State". She was built at New York by Samuel Sneedon, who had built the "Bay State", and her engine also was by the same firm which had made that for the earlier vessel, the Allaire Works. She was launched on March 18, 1848 and made her first trip in July or August of that year. Soon after being put in commission, on January 13, 1849—just nine years to a day from the time of the burning of the "Lexington"—the "Empire State" caught fire at her wharf at Fall River and was burned. There was this difference however: she was tied up at her wharf, so no lives were lost. She was towed to New York and there rebuilt, returning to the line in June, 1849. She had other troubles later, for on July 26, 1856, the steam chimney on her starboard boiler exploded, and twenty-one persons were injured, some fatally. In October, 1857, and again in March, 1858, she ran ashore at or near Hell Gate and was sunk. Hell Gate, in those days, long before any dredging or blasting had been done, was even more difficult to navigate than it is now. The "Empire State" remained in service until 1871, when she was sold. She was used as an excursion boat at Boston, and later at New York, and finally was burned at Bristol, R. I., where she had been laid up, on May 14, 1887.

The next steamer to be added to the line was the "State of Maine", which was purchased in March, 1849. She was built in 1848 to run between Portland and Bangor, but was a larger

boat than could be supported by the amount of travel on that route at that time. After being brought to Fall River she was kept as a spare boat, for use when an accident should occur to the "Bay State" or the "Empire State" or when those boats were taken off the line for repairs and painting. In the summer of 1853 she ran for a time as a day boat between Newport and New York. It should be noted that there have been several attempts to establish a day line between Newport or Fall River and New York but none of them have been successful. The "State of Maine" was used also in excursion business, running at times to New London and to Nantucket. As she had been built for outside service, to run down east from Boston and Portland, she was as good a sea boat as the two larger steamers which had been built for the line. She remained on the Fall River route until 1863, when she was chartered to the Government for use as a hospital boat on the James River. After the war she returned to New York, where she was used as an excursion boat for a few years. Later she was sent to the West Indies, but what finally became of her is not known.

The "Metropolis," previously mentioned, was the next boat built for the line. She was launched at New York on April 27, 1854, and arrived at Fall River on January 9, 1855, where her furniture and other fittings were put aboard. She did not go into service until May 7th. of that year. Her builder was Samuel Sneedon. The engine was by the Novelty Iron Works, and had a cylinder 105 inches in diameter—the largest ever cast up to that time. She was built as solidly as were ocean going steamers of that period, the essential difference being that the hull timbers only extended to the second deck, where they were strongly tied together with iron bands and rods, in contrast to ocean going vessels, where the outside planking was carried up a deck farther than was needed on this intermediate type of boat. In other words she was structurally as strong as a deep sea vessel but her outside planking did not extend up so high above the water line. Because of this heavy construction the hog frame, which was needed in most boats of this sort to distribute over the entire length of the hull the weight of the boilers, engine, and paddle wheels, was not required, and so was omitted. She had four boilers instead of the usual two, but the boilers,

placed in pairs on the guards, shared a single stack between them, in contrast to the later "Newport" which also had four boilers but four stacks, one for each. The paddle wheels were made entirely of iron, and probably were the first so built on any Sound steamer. In spite of the weight and solidity of her hull, the "Metropolis" had great speed, due to the power of her engine. She made a fast trip from New York to Fall River on June 9, 1855, in eight hours and fifty-one minutes, with an average speed of 20.5 miles an hour. Probably her speed was not equaled until the "Newport" began running, in 1865. After about 1867 the "Metropolis" was retired from regular service, and was laid up for a time at Bristol. In 1873 she was towed to Newport, and her superstructure removed. It was intended to make her into a railroad car ferry, to run in New York harbor, but after she was dismantled it was discovered that the shafts between the engine and the paddle wheels would interfere with loading the cars. It was inexpedient to alter their position, so the "Metropolis" was never used in her changed state. She remained at anchor off the Point shore, opposite what is now the Naval Hospital, for a number of years, and in 1879 she was sold and taken to Boston and there broken up. It is interesting to recall the fact that the carving on the pediment of the Newport Artillery Company's building on Clarke Street came from this steamer. It was formerly at the center of the radiating fanlike front of one of the two paddle wheel boxes, and was removed from the steamer when she was dismantled. Colonel Powel purchased it and presented it to the Artillery Company, thus preserving a very interesting relic of an important Sound steamer of the mid-XIXth. century.

In 1863 the first of several changes in ownership took place. The primary cause was the extension of the railroad from Fall River to Newport. It was thought that it would be more advantageous to have the boats connect with the trains at Newport, so for a time the steamers did not run through to Fall River. In fact, for six years, until 1869, it was in essence the "Newport Line," although, for sake of continuity, the distinction is not usually made. The company was reorganized as the Boston, Newport and New York Steamboat Company. Most of the stock was held in Boston, although there were two Newport representatives on the

Board of Directors: Benjamin Finch and Rufus B. Kinsley.

The next year, 1864, the company had built at Medford, Mass., a small wooden hull propeller boat designed to carry freight only. She was not a good sea boat, however, and had a very limited freight capacity, so she was not in regular use. She was broken up in 1880. Her name was "Fall River"—not to be confused with the later and much larger "City of Fall River," also a freight boat, which was as successful as the early "Fall River" was a failure.

In 1865 two new side wheel boats, the "Newport" and the "Old Colony" were added to the line. The "Newport" was slightly the larger of the two, but they were of similar model. The only obvious difference was that the "Newport" had four smokestacks, one to each boiler (in contrast to the pairing of boilers which was the arrangement on the "Metropolis"), but the "Old Colony" had the more usual two boilers, one on either side, each with its own stack. Except for the "C. H. Northam" of the New Haven Line, built in 1873, the "Newport" and the "Old Colony" were the last steamers with boilers on the guards which were built for Sound service. They were used at first between Newport and New York, but later, after the amalgamation with the Bristol line, they ran occasionally to Fall River. The usual arrangement from the middle 70's onward was to run the "Newport" and "Old Colony" in summer only, between New York and Newport, and the "Bristol" and "Providence" all the year around, between New York and Fall River, stopping at Newport when the two smaller steamers were not in commission. The "Newport" was thought to be as fast a boat as the "Metropolis," because, although her engine was smaller, her hull was much lighter and narrower. Whether she actually attained greater speed than the earlier boat is not known. The "Newport" had a very large hog frame—perhaps the largest, in proportion to the size of the boat, ever carried by a steamer. Both boats had the usual experiences of breakings of shafts, engine accidents, boiler replacements, and the like, but they continued in use until the late 80's when they were supplanted by the larger boats then built. The "Newport" was dismantled in 1889 and her hull was converted into a coal barge. The "Old Colony" remained in use until about 1892, but what finally became of her is uncertain.

Two years after these boats were put in commission, the Bristol line was opened by the "Bristol" and "Providence." These boats have been mentioned previously in connection with the Providence line. They were intended to run in opposition to both the Fall River (Newport) Line and the Stonington Line. For two years, 1867 and 1868, they did so, but in 1869 the Narragansett Steamship Company, which was the company operating the Bristol Line, combined with the Boston, Newport, and New York Steamboat Company and withdrew the service to Bristol. In the same year boat service to Fall River was resumed, with stops in both directions at Newport, except when separate steamers were running to Newport only, in which case the Fall River steamers ran through without stopping. Fall River has been the terminus ever since.

The "World Renowned, Mammoth Palace Steamers, BRISTOL and PROVIDENCE," as they were called in contemporary announcements, were among the most distinguished steam vessels which have run on Long Island Sound. In relation to other steamers of their time they were even more distinguished than their successors have been. Just now, because of the beautiful model of the "Bristol" which Dr. Terry has presented to the Society, it is perhaps justifiable to discuss them in greater detail than any of the other steamers which have been mentioned. Instead of commenting upon them directly, I propose to quote certain passages. For example:

"The 'Bristol' and 'Providence' were built in 1866 by William H. Webb, of New York, in a very substantial manner by day's work, and nothing was omitted which money could procure to make them in every respect the finest specimens of marine architecture of their day. The engine of each vessel was the largest engine of its type in any steam vessel of the time, and was constructed by John Roach at the Morgan Iron Works, from designs by Erastus W. Smith, engineer, of New York. Each vessel had 240 staterooms and over 300 berths in all for the accommodation of passengers, and were able to care for 840 passengers with comfortable sleeping

quarters on a trip. Their freight capacity was placed at 40 freight cars each.”¹

And again:

“The ‘Bristol’ and ‘Providence’ in their construction were so far in advance of the type of steamboats heretofore built that they were looked upon as marvels and their fame was world-wide. They were larger, more powerful, and carried more passengers than any of their rivals. . . . An additional deck upon these boats permitted a gallery tier of rooms. When they were building they attracted much comment because of the great height from the keel to the dome deck, and some folks declared that they would be top heavy. They were lighted by gas, and later on steam heating and steam steering gear were installed. Each boat carried a band of music and the officers and crews wore uniforms—two innovations that helped to make the ‘Bristol’ and ‘Providence’ famous.”²

Furthermore:

“The ‘Bristol’ was one of the most celebrated steamboats ever built, and, with her sister-ship, the ‘Providence’ became world-renowned, being the most magnificent vessels known in the history of steam navigation, and the largest, most complete, and finest for many years. The “Bristol” cost, when new, \$1,250,000, and was built for service on Long Island Sound; had accommodations for 1200 night passengers, room for a large quantity of deck freight, and great speed. Water-tight compartments, floors of solid white oak, every beam bolted fore and aft and cross-braced with iron from the keel to the tops of the paddle boxes, in addition to being strengthened by heavy hog frames. Internal

fittings of the most complete and elaborate description, beautified with carved work, frescoing, gilding, and the richest of carpets, furniture, and hangings.”³

“The ‘Bristol’ and ‘Providence,’ of the Fall River Line of Sound steamers between New York and Boston, for size, proportions, and general magnificence of appointments have attracted the attention and admiration of travellers from every portion of the world. They are 373 feet long, 83 feet beam, 3000 tons register, and cost \$1,250,000 each. During the Centennial season, 1876, the passengers carried in safety and comfort by these mammoth steamships were numbered by hundreds of thousands. Over one thousand persons frequently made the trip in one of these steamers without discomfort or crowding. The fresco-work and gilding of the interior is elegant and elaborate, the shading and coloring having a most harmonious and beautiful effect. The main saloons, galleries, and cabins are carpeted richly and tastefully, and the furniture elegantly upholstered. . . . ”⁴

“ The painting, by George C. Barker & Son, and the decorating by Hayman, of this city, have been a source of enormous outlay, but the result is an equivalent to the cost, for the passenger, on arriving at the Quarter Deck and proceeding to the Grand Saloon, must certainly imagine that he is in the halls of enchantment, only read of in the Arabian Nights’ Entertainments. In each panel on the Quarter Deck is painted a piece of statuary, while every nook and corner is covered with paint of the most delicate hue and finished off with an

1. Morrison, John H., “History of American Steam Navigation” (W. F. Sametz & Co., New York, 1903). p. 319.
2. “Fall River Line Journal,” May 31, 1909. p. 14.

3. Stanton, Samuel Ward. “American Steam Vessels” (Smith and Stanton, New York, 1895). p. 193.
4. Preble, George Henry (Rear-Admiral, U. S. N.), “A Chronological History of the Origin and Development of Steam Navigation” (L. R. Hamersley & Co., Philadelphia, 1883). p. 262 (first edition).

abundance of gilt. The appearance of the main saloon is really charming. Here, there, and everywhere, are flowers and birds, the one, in some cases, just appearing to blossom and the other, apparently, just waiting to spring from a branch, whereon it is perched, so naturally is everything done. In the main saloon, ladies' saloon, and social hall, may be seen very delightful specimens of good taste in the selection of the new velvet carpets, rugs, mats, silk curtains, lace curtains, etc., all of which are of the very costliest kind. The whole of the furniture in the grand saloon and ladies' saloon is covered in plum colored velvet, while that of the social hall is done in velvet and rep, each having a very beautiful effect on the surroundings. . . ."⁵

How much of these passages is to be taken literally is a matter which is best left to the individual reader. They seem, at any rate, to convey a more complete idea of the character of the steamers and their relation to the generation which built them than could a few isolated phrases, taken from their setting and quoted arbitrarily.

The history of these boats can be told more briefly. The company which purchased them when incomplete, finished them, and ran them to Bristol, was formed by James Fisk, Jr., and he remained its President until he was killed in 1872. His relation to the steamers may well be described by another quotation:

" The two boats, 'Providence' and 'Bristol' were fitted up in the most luxuriant style, furnished with elegant carpets, upholstering, bronzes and general fixtures. The dining rooms were conducted on the *a la carte* or European plan and supplied all the accommodations and luxuries of a first-class hotel. To add to the pleasures of the lovely ride up the Sound, a fine band of music accompa-

5. "The Floating Palaces, 'Providence' and 'Bristol'"—an article in the Newport Mercury of April 28, 1877, which is quoted only in part.

nied each steamer and delighted the passengers with sweet strains of choice music through the first four hours of the trip. . . . Everything objectionable . . . disappeared and this became one of the most delightful and wholly enjoyable trips to be had anywhere in the world.

"It was in these steamers that Fisk seemed to take his special pride that summer, as he justly might. Each afternoon, half an hour or so before it was time for the steamer to start, he came upon the pier, in a 'nobby' citizen's suit, disappeared in some of the company's offices and soon emerged again in a full Admiral's uniform of the finest make. In this attire, which was quite becoming to him, he took his place at the gangway, where he must be seen by all who entered. His appearance the first few evenings created a grand sensation. The gay company that were promenading the decks and saloons, admiring the rich furniture, gilding, bronzes, and mirrors, and listening to the music, suddenly turned all their attention upon the man who had achieved so much notoriety, who had furnished the pleasures they were then enjoying, and who dictated orders to the noble steamer and her crew. . . . "Precisely on the moment announced for starting, he gave the command and the elegant steamer put out into the stream with her heavy load of passengers crowding her decks, music playing, flags flying, all her crew in uniform, each man having a badge on his cap showing his office and duty. . . . The Admiral remained on board till the steamer was well out into the bay or hauled round into the East River. Here he was met by a small tug boat that came out to bear him back to the city. As he parted from the steamer that was now his pride, the company crowded around for another glimpse of him and the officers gave their commander a parting salute.

"The custom of going out into the stream with the departing steamer was not continued long. It necessitated a stop and some inconvenience, and

was therefore discontinued as soon as the novelty and glory of the ceremony had worn away. Thereafter Fisk contented himself with giving and receiving the parting salute as the steamer put out from the pier. This formality over, he again disappeared in the offices of the company and soon came out metamorphosed in a surprisingly short time from a full-blown Admiral into a private citizen dressed in the extreme of fashion.

"It was in June of this year (1869) that the great Peace Jubilee took place in Boston. President Grant went on to attend and when he arrived in New York the best accommodations of Fisk's steamers were placed at his disposal and accepted. The Admiral improved this opportunity to have a little familiar conversation with the President. Jay Gould and several others of this *genus* were also passengers that night (on the 'Providence') and sought to make themselves as intimate as might be with the chief magistrate of the nation. The Admiral, in full uniform, even accompanied the President to the Coliseum, the place in which the jubilee was held, and for simple sensation his presence on that occasion quite surpassed that of General Grant. It was this episode that won for him the title of 'Jubilee Jim'."⁶

This account gives a most interesting picture of the "elegant" days of the post-Civil War period, in which the Mammoth Palace Steamers were conspicuous and of which they were a truly characteristic expression.

After the boats were transferred from Bristol to Fall River, Fisk retained his interest in them. After his death, the company was reorganized as the Old Colony Steamboat Company, and from that time it was controlled and later owned, by the Old Colony Railroad. In 1894 the railroad was acquired by the New York, New Haven and Hartford

6. "The Life and Times of Colonel James Fisk, Jr.," quoted in "Steamboat Days," by Fred Erving Dayton (Frederick A. Stokes Company, New York, 1925). pp. 202-204.

Railroad, and its steamers, including those of the Fall River Line, thus became the property of the New Haven road, in whose hands they have remained since that time.

It may be interesting to mention some of the experiences of the "Bristol" and "Providence" during their careers.⁷ In July, 1869, the "Bristol," when westbound, ran into a bark, near Sands Point, and sank her. The sailing vessel was in ballast. Her crew was saved by the steamer. In October of the same year she ran ashore on Bishop's Rock, off Coddington's Point, and remained there a day before she could be gotten off. She was not injured. On June 24, 1872, she ran into the schooner "Fred Warren" of Bangor, when off Easton's Neck and crushed the bow and part of the starboard side of the sailing vessel. On August 10, 1872, she ran into the bark "Bessie Rogers" and sank her. The bark had anchored outside the Torpedo Station, directly in the steamer's course, and the accident, as were most of those already mentioned, was due to dense fog. The "Bristol" cut into the "Rogers" almost as far as the mainmast and demolished fifteen feet of her side. The bark was raised some time later, and was purchased by Mr. E. D. Morgan and for many years was used by him as a boathouse in Brenton's Cove. Some of her timbers are still, or were recently, visible in the water beside the rock on which Mr. Morgan's house, now belonging to Mr. Marion Eppley, stands. To continue the account of minor mishaps, on April 12, 1874, the "Bristol" ran ashore on the south end of the Torpedo Station, or Goat Island, when entering the harbor in a fog, and remained there for three hours. She was pulled off by the revenue cutter "Samuel Dexter". On August 5, 1875 she scraped against rocks when passing through Hell Gate into the East River, but no damage was caused. She was forced out of the channel by several small vessels which had the right of way. In the next year, on the 21st. of October, she struck a schooner off Huntington, L. I., in a dense fog, but the schooner was only slightly injured. On June 14, 1877 she ran ashore again when

7. Most of these incidents are recorded in the "Newport Mercury" and are known to me from a set of clippings which were saved by the late Clarence Stanhope and which came into my possession through the kindness of Miss Clara A. Stanhope.

entering Newport Harbor in the early morning. Because of the dense fog, she ran in too far before turning towards the wharf, and so got aground on the mud flats, where she remained until the rising tide floated her off, some four hours later. Among the Stanhope clippings are none relating to the "Bristol" during the '80's, except those describing the fire. That event must be considered in some detail.

The "Bristol" had been in continuous service through the summer and fall of the year 1888. She left New York on what was to be her last trip on the afternoon of December 29th, and arrived at Newport at about 3 A. M. on Sunday morning, the 30th. It is said that shortly before reaching the harbor she was found to be on fire, but that statement has been contradicted. At any rate, about six o'clock that morning fire was first seen, by people on the wharf, breaking through the upper deck near the engine. All the freight and all but a few of the passengers were ashore, but the fire spread with such rapidity that those then aboard escaped only with difficulty. The Newport firemen responded quickly to the alarm, but within an hour the fire had so increased that it was seen that the steamer could not be saved. Fortunately there was no wind at the time, so the fire was prevented from spreading to the wooden wharf buildings and to the steamers "Pilgrim" and "City of New Bedford" which were tied up nearby. Later in the day a light southwest breeze sprang up, but by that time the fire was confined to the hull of the "Bristol," as the superstructure, except for the paddle-wheel boxes, which were so saturated with salt water that they would not burn, had been entirely destroyed, and thus the danger of the fire spreading was over. The steamer finally sank, whether because the hull burned through, or because of the quantities of water which were poured on, is uncertain. She remained awash nearly a month, but on January 25, 1889, she was raised and towed around into the south dock. She was sold there. How long she remained is uncertain; in March a wrecking schooner was engaged in taking out the machinery, but what finally became of the remains of the hull is not recorded.

Some details from the life history of the "Providence" may be mentioned in passing. On June 7, 1874, she ran into

the schooner "S.D.Hart," from Philadelphia bound for Portsmouth, and injured the latter's hull and rigging. This occurred off Point Judith, in a dense fog. The steamer was not damaged. On September 10, 1875, when near Point Judith westbound, in a heavy southeast storm, a wave caught her as she was listing to port and, being suddenly compressed within the paddle box, it broke through into the Quarter Deck, flooding that part of the vessel. No serious damage resulted, but she was obliged to turn around, to keep the broken wheel box away from the seas, and to return slowly to Newport. On May 7, 1876, when entering Newport harbor from New York, she ran into the bark "Ocean Gem," which had put into the harbor the day before in distress. She increased the leaks which a heavy gale had started previously outside. There was fog at the time and the sailing vessel showed no lights, so the steamer was not held to be responsible. On September 28, 1877, she was run into by a schooner when near Point Judith, with damage resulting to the steamer from her port bow aft for some thirty feet. The schooner's bowsprit penetrated through two staterooms as far as the inner saloon, but no one was injured. The damage was repaired the next day at Newport. On October 19, 1880, when off Watch Hill, eastbound, her port shaft broke. The "Albatross," a small propeller steamer, came alongside and attempted to tow the "Providence," but she was soon relieved by the larger "City of Fitchburg," which brought the "Providence" into Newport. The work of removing the broken shaft and installing a new one in its place took about two weeks. Five years later, on April 21, 1885, she ran into the New York Pilot boat "Pet" No. 9, which was becalmed off the Dumplings. The sailing vessel's rigging was considerably injured. The next year, on November 28, 1886, she ran into a coal barge, which had been anchored in the wrong position in the harbor. The most serious accident occurred in 1887. On June 22nd of that year she ran ashore on the end of the long sand spit which makes out from Hog Island to the southeast. She went on at nearly high tide, with the result that for several weeks she could not be refloated. The hull was considerably strained, making necessary extensive repairs. The "City of Worcester" (1881) of the New London line was chartered to run in her place. In October,

1888, the "Providence" ran into and sank the steam yacht "Adelaide," belonging to Mr. L. H. Livingston. After the burning of the "Bristol" and the advent of the "Puritan" (1889) and "Plymouth" (1890), the "Providence" was retired from regular service. She was used occasionally, however, until the "Priscilla" came out, in 1894, after which she ran very seldom. In December, 1895 or '96 she was called out for a few days' service just after Christmas, when several other steamers happened to be incapacitated at the same time, but that was probably the last time she was in commission. She remained tied up at Briggs Wharf until the fall of 1901, when she was sold and towed away. She was taken to Boston and there dismantled, and after her furnishings and machinery had been removed, she experienced the ultimate fate of most wooden steamboats—she was hauled out on a beach and burned, so that the quantities of brass, copper and other valuable metals which had been used in her construction might be recovered. Thus passed the second and last of the Mammoth Palace Steamers. She survived the XIXth century, of which she was so typical an expression, by only a little over a year.

The principal dimensions of, and other important facts relating to, the "Bristol" and "Providence" are: *Hull*, of wood, constructed by William H. Webb, at New York; length of keel 362 feet, length over all 373 feet, breadth of beam 48 feet 4 inches, breadth over guards 83 feet, depth of hold 16 feet 6 inches, draft of water 10 feet 3 inches, tonnage: 2962 gross, 2064 net; *Engine*, simple beam, surface condensing, constructed by Morgan Iron Works, New York. Diameter of cylinder 110 inches by 12 feet stroke. Average revolutions per minute 19. Indicated horse power 2900; *Paddle Wheels*, radial type, 38 feet 8 inches in diameter; *Boilers*, three, of iron, flue and tubular type, placed in the hold. Each 35 feet long, 13 feet in diameter. Grate surface 510 square feet, heating surface 13,850 square feet (total). Average steam pressure 18 pounds per square inch.

It may appear that undue emphasis has been given to these two steamers. The reason for such an extended discussion is, as has been suggested previously, that the acquisition of the model of the "Bristol" makes desirable at this

time putting in available form a somewhat complete account of the vessel, together with her counterpart, the "Providence," to which those interested in the model may refer. It would be quite possible to describe both earlier and later steamers in similar detail if limitations of space did not prevent.

After the building of the "Bristol" and "Providence," no new steamers were added to the Fall River Line for sixteen years. About 1880, however, it was seen that the existing four steamers were inadequate, particularly during the summer, to carry the passengers who travelled by the Fall River route. The result was that in 1881 a contract was made with John Roach & Son, of Chester, Pennsylvania, to build a new steamer of iron. She was named "Pilgrim." Her engine was made by the Morgan Iron Works, in New York, a long established marine engine building establishment which by this time had come into the possession of Roach. It is important to note that this engine was the largest simple, or single cylinder, beam engine (familarly known as a "walking beam") ever constructed. This boat was made as nearly fireproof as possible, by enclosing the boilers, stacks, engine, kitchen ranges, and their uptakes, and other parts from which fire might spread in iron casings. She was stronger, also, than the wooden boats, due to the rigidity of the iron hull and to the extensive reinforcement and bracing of the wood superstructure with iron beams and rods. Her external appearance, however, was not very dissimilar to that of the "Bristol" and "Providence." Except for the absence of hog frames, made unnecessary because of the iron hull; the fore-and-aft placing of the stacks; and the longer and lower appearance, caused by her seventeen feet greater length, she showed no marked contrast to her predecessors. In reality she represents the transition from the earlier wooden boats to the later steel steamboats, which will be considered more in detail in connection with the "Puritan." The "Pilgrim" floated very low in the water, somewhat to the injury of her appearance. It is said that she was planned to be some twenty feet longer than built, but was reduced to 390 feet, at which length her hull was built, for fear that a longer boat would be unmanageable in the sharp turns in the channel at Hell Gate. This fear was groundless, as has been

shown since in the fact that the "Priscilla," which is fifty feet longer than the "Pilgrim," has gone into and out of New York through Hell Gate for nearly forty years without an accident. At the time the "Pilgrim's" length was reduced, someone neglected to revise the plans for the form of the hull as a whole, with the result that the finished hull had insufficient buoyancy to float at the proper level. The steamer was not necessarily less seaworthy as a result, but she was more subject to pounding from heavy seas during winter storms than were the other boats.

One other detail of construction deserves mention. The "Pilgrim" was one of the first of American steamboats to have both a double hull and transverse bulkheads. A double hull means two sets of plating, inner and outer, attached to both sides of the frames. If the vessel grounds and the outer plating is broken, water can enter only into the small space between the outer and inner "shells." Transverse bulkheads divide the interior of the hull laterally into a number of compartments, each entirely sealed off from the others. If the vessel should be so badly injured as to have both inner and outer plating fractured, the water still could fill but a limited portion of the hull. These devices had been tried in wooden vessels, but, except for the collision bulkhead, placed in the bow a short distance back from the end of the boat, they had not been very successful. They were first introduced on a large scale by Brunel in the "Great Eastern," which was built on the Thames, just below London, between 1854 and 1859. In the early '60's they came into general use in British built ocean going vessels, but it was another decade before they appeared in America. John Roach, builder of the "Pilgrim," used both systems in the early American built iron ocean going steamers, but the first Sound steamer so constructed was the "Pilgrim."

The "Pilgrim" was the first Fall River Line steamer to be lighted by electricity. The "City of Worcester," of the New London Line, built two years earlier, was the first boat on the Sound to be provided with incandescent electric lights. In 1877 the "Massachusetts" of the Providence Line was provided with arc lights in the principal rooms, but these were replaced in five or six years by incandescent lights. This latter was the first use of electricity in any form

for illumination on a Sound steamer. Earlier steamers had had large gas chandeliers in the saloons, supplied from tanks which could be charged during each day with sufficient gas for an overnight trip. The first Sound steamer so equipped was the "Atlantic" of the New London Line, built, and also lost, in 1846. None but the principal saloons of these steamers were supplied by gas; in staterooms and elsewhere oil lamps continued to be used. Electricity was installed in some of the older steamers, which were still in use, about 1885, and of course supplanted not only the gas but also the oil lamps. As soon as electricity was practicable, it was put into use on steamboats, because of its safety and convenience. Gas pipes frequently worked loose or broke, from the strains set up in a steamer when in a seaway, and thus were a potential source of fire. Lamps were more dangerous, for a sudden shock was sufficient to upset them and start a fire. There are on record several instances where a steamer, which had been run into, began to sink and burn at once, because of upset lamps, one of which is the case of the steamer "Narragansett," of the Stonington Line, which was run into by her sister ship, the "Stonington," near Cornfield lightship, on the night of June 11, 1880. For these reasons electricity came into general use on steamboats much earlier than it did on land.

The "Iron Monarch of Long Island Sound," as the "Pilgrim" was termed, ran for many years on the Fall River Line. Her running mate was the "Bristol" or "Providence" at first, later the "Puritan;" later still, after the "Priscilla" was built, she ran often with the "Plymouth." In the early years of this century she ran for a time to Providence. She was retired from regular service after the new "Providence" was built, in 1905, but continued to be used occasionally until about 1912, when she was laid up at Providence. She remained there until 1916, when she was sold to the Scott Wrecking Company and towed to New London by the steamer "Maine." Her superstructure and engines were removed, but the hull remained at anchor in New London harbor until 1920 when it was broken up.

The career of the "Pilgrim" was not marred by any serious accident, although she is said to have stuck on the ways when the first attempt to launch her was made, which is gen-

erally taken as a sign of ill luck. She was finally got overboard on July 22, 1882. Her first trip was made on April 20, 1883. Soon after going into commission she ran ashore on the rocks off Blackwell's Island, in the East River, but her double bottom saved her from serious injury. She experienced the usual minor accidents, such as breaking shafts, temporary derangements of the engine, and the like, but in 1902 a more serious mishap occurred when the walking beam broke and damaged the engine seriously. She was repaired, however, and returned to service. In the matter of coal consumption she was always at a disadvantage in comparison to the other steamers. This was partly compensated for when new boilers were installed in 1902, but she always burned more coal, in proportion to her size and engine power, than did the other boats. In spite of this she made enough money for the company to pay for her cost in the first fifteen years or so of her running.

At this point it is necessary to speak of the life and work of George Peirce, who, more than anyone else, was responsible for the development of the typical Fall River Line steamer of recent years.

George Peirce⁸ was born at East Hallowell, Maine, on May 22, 1829. He was the third son of Elbridge Gerry and Sarah Gorham Peirce. His early life was spent in building wooden sailing ships at Hallowell. He was interested in ship design from the beginning, and introduced modifications in the lines of the ships he built which added to their speed and improved their sailing qualities without impairing their seaworthiness—a compromise which has by no means always been successfully reached. He was interested also in the early attempts at building iron ships, which were ridiculed by his then associates. Shortly before the Civil War he was building sailing ships at Portsmouth, New Hampshire, and a little later he engaged in railroad building in the South. The Civil War interrupted this work and caused him to lose what he had invested in it. During the war he constructed wooden steam vessels for the Government, at first at the

⁸ These facts are derived from an unpublished biography of Mr. Peirce, by his grandson, George Peirce II.

Portsmouth (Kittery) Navy Yard and later at East Boston. At this time he formed a partnership with a certain McMichael, with whom, just after the war, he completed the large wooden propeller ocean going steamers "Erie" and "Ontario," which had been begun at Newburyport by another builder who was unable to finish them. Before 1870, Mr. Peirce severed his connection with McMichael and formed a new firm, Peirce, Montgomery and Howard, in association with Jabez K. Montgomery and Atwood Howard, with shipyards at Chelsea. This firm built a number of vessels in the next few years, most of which were designed by Mr. Peirce. Among them were his first steamers—the "Nahant" (later "Genl. Lincoln"), "Nantasket", and "Gov. Andrew", all built for service in Boston harbor. In 1878 the Old Colony Steamboat Company offered Mr. Peirce the position of master mechanic at its repair shops at Newport, which position, after some hesitation, he accepted. He moved to Newport in October 1878, and continued to live here until his death, on November 26, 1902. The firm with which he had been connected became Montgomery and Howard, and continued to build wooden vessels until about 1900, some of which are still in existence. Mr. Peirce became Supervisor of Steamers in 1879, less than a year after he had come to Newport, and from that time on he continued to direct the repair shops and to design the new vessels for the company. His influence in the development of the Long Island Sound type of side-wheel steamboat will be traced in connection with particular vessels.

In 1883, the same year in which the "Pilgrim" was finished, the "City of Fall River" was put in commission. She was the first Sound steamer for which Mr. Peirce was entirely responsible. The "Pilgrim" had been largely but not exclusively his work; the "City of Fall River" and the steamers which came after her were designed by him alone. In some respects she was used as an experiment. Her contemporary, the "Pilgrim," being a more important and expensive vessel, followed precedent; the "City of Fall River," on the other hand, was a break with tradition in two respects: she had a compound (or two cylinder), instead of a simple, beam engine, and she had feathering wheels. Neither had ever been used before in a Long Island Sound steamer. The

compounding of the engine, which means that the steam was used, first at high pressure, in a small cylinder and then exhausted, at a lower pressure, to a second larger cylinder, in which it is used again, resulted in considerable reduction in coal consumption. The feathering wheels, in which the buckets or paddles are mounted independently of the wheel arms and are kept in the most favorable position for entering and leaving the water, enabled the power of the engine to be applied more effectively to moving the boat forward and also reduced considerably the jarring and shaking which the older paddle wheels induced throughout the vessel. Both innovations were a distinct success. Yet Mr. Peirce showed commendable discretion in trying them first in a vessel of secondary importance where, if they had not been successful, it would not have been a serious matter.

The "City of Fall River" was built at Chelsea, Massachusetts, by Mr. Peirce's former partners, Montgomery and Howard. Her hull was of wood: 262 feet long, 2533 gross tons. She was launched on October 12, 1882. At that time only the hull was complete. It was towed around to Newport, and at the repair shop docks the boat was finished. The engine and boilers were made by the W. and A. Fletcher Company, of Hoboken, New Jersey, and were shipped to Newport by barge. After they had been installed, the superstructure was constructed by Newport carpenters, employed by the company. The finished steamer made her first trip on February 14, 1883.

The W. and A. Fletcher Company, it should be stated, made for this boat the first engine they built for a large Sound steamer. Since the late 1850's they had been supplying Hudson River and New York harbor steamboats with engines and boilers, but from this time onwards for some twenty years they made also several of the engines for the Fall River Line boats.

The "City of Fall River" was in service until about 1915, when she was laid up at Fall River. About 1910 she, in common with the similar but slightly later freight steamers "City of Brockton" and "City of Taunton," had been painted black up to the second deck, and at the same time her topmasts were taken off. These changes altered her appearance considerably, but were distinctly not improvements. She re-

mained at Fall River until 1924 or '25 when she was sold to the Scott Wrecking Company, towed to New London, and there dismantled.

In 1886 the "City of Brockton," similar to but slightly larger than the "City of Fall River," was built, also at Chelsea by Montgomery and Howard. She was launched July 1, 1886, towed to Newport and finished here, and made her first trip on October 14, 1886. She was 271 feet long, 2771 gross tons, and had feathering paddle wheels and a Fletcher compound beam engine, as did the "Fall River." In 1892 the third of these wooden hull freight steamers, the "City of Taunton," was built. She was launched at Chelsea on May 28, 1892, and made her first trip under steam, from Newport, on September 15, 1892. Her length was 283 feet, and her gross tonnage 2881. She had but a single smoke stack, placed well forward, in contrast to her predecessors, each of which had two smaller stacks, placed one forward and one aft of the engine. Her paddle wheels were constructed entirely of steel, in contrast to those of the "Fall River" and "Brockton," which were of steel except for the buckets or paddles which were of wood. Otherwise she was similar to the earlier steamers. All three originally had Redfield boilers. Those of the "City of Fall River" were not changed; those of the "Brockton" and "Taunton" were removed at Newport in 1912 and replaced by the boilers just taken from the "Connecticut" of the Providence Line, which steamer has previously been mentioned. These boilers remained in use for sixteen years longer. In the summer of 1928 the "City of Brockton" and "City of Taunton" were dismantled at Newport, at the very dock at which they had been completed, forty-two and thirty-six years earlier, respectively. The engines and boilers were broken up for scrap iron. The hulls were sold and taken away. The "Brockton" was burned near Boston in July, 1929 the "Taunton" was hauled out on the beach opposite Fall River and has been used since 1929 as a source of firewood by people living nearby. Only a part of the hull now remains.

The next steamer designed by Mr. Peirce was the "Puritan." Except for the "Priscilla," she was the largest steamboat built under his direction, and is perhaps his masterpiece. She was the first Fall River Line boat, as well as

the first built for Sound service, to have a steel hull. It was constructed at Chester, Pennsylvania, by the Delaware River Iron Shipbuilding and Engine Works (formerly John Roach and Son). Her length was 420 feet, and her gross tonnage 4593. The W. and A. Fletcher Company constructed her engine, boilers, and paddle wheels, and were as well the general contractors for the entire vessel. The engine was a compound beam engine. It was the largest beam engine of any kind ever constructed. She had eight Redfield boilers, similar to those installed in the "City of Fall River" and, originally, in the "City of Brockton" and "City of Taunton." Her paddle wheels were feathering; were 35 feet in diameter, and weighed 100 tons each. When running at full speed the engine made 22 revolutions per minute, developed 7500 horsepower, and gave the steamer a speed of slightly more than 20 miles an hour. She was launched on July 25, 1888, and went into service on June 17, 1889.

In this steamer the style of George Peirce, if it can be called such, was fully expressed. The "Pilgrim," as has been mentioned, was in some respects, in terms of design, a transition from the older to the newer order. In the "Puritan" the new style is complete. She remains essentially a *steamboat*—not a *steamship*, which implies an ocean going vessel. The peculiar conditions, partly sheltered inland waters and partly open ocean, which existed along the route of the Fall River Line steamers, remained as heretofore, and influenced the design as they did in the early days. The new steamer, then, was not an inland water boat, neither was she an ocean steamship, but she incorporated elements of both in her design. Mr. Peirce was too discerning an architect to tamper with the fundamental nature of the style. He modified the older manner sufficiently to express the steel hull, the feathering wheels, the increased length (and its corollary, increased height), but his new vessel remained quite as much a *steamboat* as her predecessors had been. He could never have fallen into the trap, which has caught so many unwary ship designers of recent times, of mixing styles. It is not unusual, unfortunately, to see in steam vessels of recent origin elements which are wholly foreign to their type. For example, contemporary steam yachts frequently suggest the miniature ocean liner; shallow draft river or harbor steam-

ers have pipe rails and stanchions and hard wood decks, suggestive of ocean going vessels, and raking smoke stacks and masts, suggestive of yachts. All this betrays a fundamental intellectual confusion on the part of the designer. Mr. Peirce had too much respect for each sort of vessel to try to dilute its type by the admixture of extraneous elements, and too much common sense, ever to indulge in such practices. Doubtless he would have been the first to deny that he was in any sense an artist, yet his steamers show indubitably that he possessed instinctively the point of view which has underlain the work of the great artists of every age. He began with a thorough knowledge, both theoretical and practical, of what had been accomplished before in his line. From that foundation he worked out his designs, retaining all that was valuable in the work of the past and incorporating with it those ideas of recent origin whose value had been proved. He was, thus, neither a copyist of the work of his predecessors nor a blind "progressive," oblivious to all that tradition and experience had to teach. It is not only in the type as a whole, or in specific detail, that Mr. Peirce's work stands out with distinction. He had that intangible yet essential sense of design—balancing mass against mass, introducing elements where the vertical or horizontal lines were in need of accent and using such elements most skilfully to achieve the desired effect—which has hardly been seen in naval architecture since his day. A careful study of his steamers, directly or from photographs, reveals that everything has been thought out with the greatest care. The size and position of every deck house, of every mast or pole, of every stack, is not accidental; it is the result of detailed preliminary study. His vessels, in fact, bear somewhat the same relation to those of later date as do the buildings designed by the great architects of former times to the typical quantity-produced houses or office buildings of today. The earlier works in both cases, exhibit an understanding of fundamental architectural problems and a successful solution of them; the latter show a proclivity towards functionalism, to the exclusion of other general considerations, with decorative details thrown in haphazardly at the end for good measure. It is more than doubtful if "progress" is worth while if this is what it involves.

The care with which Mr. Peirce's designs were worked out becomes evident when the "Puritan," or for that matter any of his steamboats, is carefully analyzed. In the "Puritan," particularly, certain characteristics were established which have appeared not only in her immediate successors but also in inland steamers in other parts of the country. One of these was placing the stacks, in a pair, well forward, thus accenting the suggestion of forward movement. To balance this strong vertical accent forward, a long cabin was added to the dome deck amidships. The result is what might be called an active balance in a design which is perhaps inherently assymetrical. It is distinctly more subtle than the normal arrangement on an ocean going vessel, where the stacks are placed amidships, equidistant from bow and stern, thus creating a passive balance which is necessarily symmetrical but is far less interesting, because of its inertness in terms of design. As for the masts, they are reduced from five or four to two, and are located where they relate most effectively to the stacks, deck houses, pilot house, and other elements of the design. The steamboat type of mast, a mainmast with a topmast or flagpole attached to and overlapping it, is retained, in contrast to the single pole mast which has become standard on ocean going vessels and yachts. It is important also to notice that Mr. Peirce used no rake whatsoever in his masts, considering it to be foreign to the *steamboat*. The position, size, and form of the pilot house is well adjusted to the vessel as a whole. The flagpoles are well located in relation to the masts and stacks, and their height is carefully determined. It should be stated that Mr. Peirce realized the advantage which was gained by keeping at one level the tops of the stacks, the tops of the masts proper, and the top of the stern flagpole, and he always, in his larger boats, so provided these details. These four points at a level, high up in the abstract mass of the entire design, balance the whole surprisingly well. They reaffirm the predominantly horizontal lines of the superstructure proper, but state them essentially as a straight line, with drooping ends, in contrast to the straight lines, with rising ends, which characterize the hull and decks below, and thus tie in together the entire scheme. It is much to be regretted that in the "Priscilla," the finest

surviving example of Mr. Peirce's work, this interrelationship has been destroyed because of the ruthless cutting down of the stacks which was so inadvisedly done a few years ago.

The "Puritan" remained in regular use until the "Commonwealth" was finished, in 1908, but soon afterwards was laid up and was used only occasionally, from time to time, as an extra boat was needed. She was at Newport for a while, and later was taken to New London, where she remained until sold, in 1916, to the Scott Wrecking Company, and by them dismantled. Her hull, with that of the "Pilgrim," remained at anchor in New London harbor for a few years. At one time it was proposed to reconstruct them into some sort of cargo carrying vessels, but the project was given up and the two hulls were finally broken up in 1920.

Just why the "Puritan" was given up has never satisfactorily been explained. Various reasons have been mentioned, but none of them seems conclusive. For example, it is said that she needed new boilers. That has been true of other vessels. But they have been reboilered. Then it was said that her engine was not secure. The "walking" beam had developed cracks, and two heavy patches had been fastened to it to prevent their becoming worse. But there have been cases where the "walking" beam showed similar defects, and usually the situation was remedied by removing and recasting the beam. Her hull, it is said, needed considerable renewing of plating, particularly on the inside. Why the hull of this boat, which was similar to that of her successors, should have required more attention, is difficult to understand. One practical difficulty is said to have been the amount of room, fore and aft, which was occupied by the engine. On the main deck it involved delay in loading and unloading freight, on the upper decks it cut out space which could have been devoted to staterooms. None of these reasons, or all of them together, seems sufficient to explain the retirement, and later sale and destruction, of one of the finest of the Fall River Line steamers and certainly one of the most beautiful.

One further matter in connection with the "Puritan" demands consideration. This is her interior fittings. The earlier steamers had been furnished in the customary black walnut of the middle and later XIXth century, generally

known as the Victorian style. The "palatial" interiors of the World Renowned steamers, which have been described through quotations, were achieved in this manner. But in 1888 it was thought that something better could be done. A certain architect of Boston, Frank Hill Smith, was commissioned to design the interior decoration of the "Puritan," including not only architectural work, but also furniture, carpets, hangings, electric fixtures, and the like. The result was an interior distinctly in contrast to that of the earlier steamers. The architect chose the North Italian style of the late XVth century, and adapted it to his needs with some skill. The original is a style in which delicate detail, in the classical manner, is superimposed on a structure which remains fundamentally Gothic. For that reason this style could well be modified to follow the multitudinous curving lines of a steamboat interior, without doing violence to its own character. A more monumental style would not have been so successful, and as well it could not have been moulded into a form which supplied a continuous decoration, with profuse detail on a small scale, over large surfaces of eccentric shape. The result was distinctly successful. It established a standard which was followed, more or less closely, by succeeding vessels until the advent of the "Commonwealth." The last named vessel was not, in effect, so much a change from the idea underlying this form of interior decoration as an expansion of it. The interior of the "Puritan" is an interesting monument in the history of interior decoration, for it anticipates slightly the manner which was to come into acceptance in the '90's. It deserves being better known by students of architecture, particularly by those who are interested in the development of interior design.

The year after the "Puritan" was finished another steamboat, the "Plymouth," was put in service. She was built also at Chester, by the Delaware River Iron Shipbuilding and Engine Works. Her steel hull, 366 feet long and of 3770 gross tons, was launched on April 3, 1890. She was completed and was put in service on November 6, 1890. The W. and A. Fletcher Company built her engines, boilers, and paddle wheels, and were as well the general contractors.

The "Plymouth" differs externally from the "Puritan"

in being much shorter, in proportion to her height, and in having but a single large smoke stack. Her deck space for freight was extended aft of the paddle wheels, pushing the quarter deck or passenger entrance hall much farther aft than it had been in the earlier boats. This arrangement results in an altered appearance of the main deck, as the solid wood sides extend farther aft than they had previously. Internally, the principal difference was the reduced dimensions of the principal rooms, due to the contracted length of the vessel.

The "Plymouth" has an inclined engine, and in that respect she was a pioneer in terms of the Fall River Line. After the "Puritan" was finished, it was generally agreed that the "walking" beam type of engine could not feasibly be made any larger. There was discussion whether it would be better to discard paddle wheels altogether and use propellers or whether paddle wheels should be retained and a different form of engine used to drive them. Fortunately the latter decision was reached. The exact form of engine to be employed was uncertain at the time. In the very year that the "Puritan" was finished, the Providence line brought out the "Connecticut," with an inclined oscillating engine. That was their attempt to meet the problem. The oscillating engine was distinctly unsuccessful, however, so the Fall River Line determined to find something else. The result was a four cylinder triple expansion engine. The principle involved was to eliminate the "walking" beam altogether by dividing up the engine power among a number of smaller cylinders, placed horizontally below the main deck, and to connect these cylinders to the wheel shafts through two pairs of cranks rather than the single pair of the beam engine. By doing so as much power as was wanted could be obtained, and no unusually large single part of the engine was required. This new form of engine was tested in a smaller boat, so that if it should have proved unsuccessful, the loss would not be so great as it would have been in a boat of the first importance. It turned out to be distinctly successful, however. It has been used, with one change, in all the subsequent steamers built for the line. The change referred to is the substitution of a double inclined compound engine in which there are two high and two low pressure cylinders,

for the inclined triple expansion four cylinder engine of the "Plymouth," in which there are one high pressure, one intermediate pressure, and two low pressure cylinders. It has been explained previously that, in the case of the compound beam engine, steam is used twice—first in the high, then in the low pressure cylinder. In the triple expansion engine the idea is carried one step farther. The steam is used three times. In the case of the "Plymouth," steam is used first in a 50" cylinder; it then is exhausted to a 75" cylinder (intermediate); and it then is divided and fed equally to two 81½" cylinders (low pressure), after which it is taken to the condenser, changed back to water, and then returned to the boiler to be made again into steam, to repeat the process. For some reason this three stage engine, which came into regular use with propeller engines, did not seem to show sufficient advantage over the two stage or compound engine to warrant its adoption in later Fall River Line steamers. They have used, instead, the double inclined compound engine, which has two high pressure cylinders, taking steam equally from the boilers, and exhausting it to two low pressure cylinders. The intermediate cylinder is eliminated. In its compound form this engine was used for the "Priscilla," "Providence," and "Commonwealth," and having been described here, it need not be mentioned again in connection with those steamers.

In one other respect the "Plymouth" differed from her predecessors and contemporaries. She was supplied with Scotch boilers. The "Puritan" and the three sidewheel freight boats, had had Redfield boilers. These proved to be not altogether satisfactory, partly because the steam pressure which they were allowed to carry was limited. Scotch boilers were adopted for the "Plymouth" more or less from necessity, for her triple expansion engine demanded a higher pressure for effective working than did the compound engines. The "Plymouth" carried 175 pounds of steam, which was an unusually high pressure in those days, in contrast to the 120 pounds, which was the maximum permitted to the Redfield boilers of the "Puritan." Scotch boilers, as their name implies, were developed in the shipbuilding yards of Scotland, mainly at Glasgow, and were in use in British built steamers as early as the 1850's. At first they were used

for low or very moderate pressures, but when, soon after 1870, the compound engine began to supercede the simple or low pressure engine, at least in ocean going vessels, it was found that Scotch boilers could stand the increased pressures, ranging from 70 up to 85 or 90 pounds, better than could the other forms of marine boiler then in use. As a result they rapidly gained in favor. They were used by John Roach in a number of ocean going and coasting steamships built by him in the late '70's, but their first appearance on a steamboat is thought to have been on the "Massachusetts" of the Providence line, in 1877. In this case, because the boat had a simple beam engine, their advantage over other forms of boiler was not great. They did not appear again on a Sound boat until 1889, in the "Connecticut." The "Plymouth," in the next year, was supplied with them because her engine demanded high pressure. They were used in all subsequent boats built for the line. It is interesting to remark here that, within the past ten years, the Scotch boilers of the Fall River Line boats, and those of the other steamboats owned by the New Haven Railroad, have been removed, and in their places new water-tube boilers have been installed. The idea of the water-tube boiler is very old, and it has been applied in many forms, but only in comparatively recent times has it been developed in a form which will work under high pressure steam as well as the Scotch boiler and with greater fuel economy. Partly because the boilers needed replacement, but also partly because the new water-tube boilers would give equal power from smaller coal consumption, the old Scotch boilers were taken out and replaced with boilers of the newer type. The "Plymouth" was the first of the four large side wheelers to have her boilers changed. This was done in the fall of 1921. She had previously had one change in boilers, for in 1905 her original eight Scotch boilers had been replaced with eight new ones of a similar kind. It was this second set which was replaced by the six water-tube boilers. She has thus had three different sets of boilers—a most unusual thing for a steamboat of her type.

The "Plymouth" has had a number of accidents in the course of her forty odd years existence. The most serious was her almost complete destruction by fire, when laid up

at Newport, on the night of March 27, 1906. The superstructure was entirely burned off. Her engines, which had been stripped down for overhauling, were seriously injured. The boilers, which as has just been stated, were new the year before, and her hull and paddle wheels were all that escaped. When it was seen that there was no chance of saving the superstructure, the firemen were told to save surrounding property and not to put water on the burning steamboat. The result was that the hull was not seriously damaged, as it might have been if streams of water had fallen on it when the metal was heated. Within a month or so of the time of the fire, what remained of the boat was towed to New York, and there a new superstructure was built. It is this "Plymouth," half forty-three, half twenty-seven years old, that exists today. Yet, as she was rebuilt with almost no change from her original plans, she remains essentially a work of George Peirce.

Of the less drastic experiences of her career, her running ashore on a rock off the south-east side of Rose Island—subsequently, and for some time, known as "Plymouth" rock—in June, 1894, was perhaps the most serious. She went on the rock in a dense fog, at high tide, with the result that she could not be gotten off for several weeks. Her bottom plating, under the engines, had been badly broken, and the engine itself had been thrown out of position, and so the repairs had to be extensive and were also expensive. Some years later, on March 20, 1903, she had a collision with the "City of Taunton" in a fog. The bow of the "Taunton" was crushed as far back as the collision bulkhead, but that held and so prevented her from sinking. The hull of the "Plymouth" was not much damaged, but a whole row of state-rooms, with the deck outside them, on the saloon deck forward, starboard side, were broken down and some of the occupants were injured. Since the fire she has not suffered any serious mishap, but there have been several minor accidents such as grounding, breaking of shafts, and the like.

The original interior of this boat, like that of the "Puritan," was designed by Frank Hill Smith, and the scheme of decoration was similar, although, as the boat was smaller, it was carried out somewhat less elaborately. The

reconstructed interior was finished less carefully, and in a somewhat cheaper manner, with the result that the "Plymouth" has, perhaps, the least interesting interior of the four steamers of the line now in operation.

The next steamer to be built was the "Priscilla." She was the largest boat designed by Mr. Peirce and, unless the "Puritan" be excepted, the most beautiful. Her lines follow closely those of the "Puritan," particularly in the upper decks and the arrangement of stacks and masts. There is one respect in which she can be said definitely to be less successful than the "Puritan." It is the height of freeboard, or amount of hull showing above water, and the relation of it in various stages of her length to the superstructure above. Her bow is very high—higher than that of any other of the Fall River Line boats. On the other hand, she is very low amidships. The result is a sharper curve from the bow aft, with a somewhat less successful flow of lines from the paddle wheels to the stern. In spite of this her general appearance is impressive and her design as a whole is most certainly a distinguished one. Internally her scheme of decoration is close to that of the "Puritan," except that the detail is more profuse. The same architect was in charge. It was the third of the Fall River boats whose interior he designed. The principal innovation, internally, was the position and decoration of the dining room. In the earlier boats the dining room had always been placed in the hold, with the entrance to it aft of the quarter deck. This was true of steamboats generally. On the Hudson River, some time before the Civil War, the dining room had been located on the main deck, running from the quarter deck to the stern. This idea proved successful in practice, so, in 1877, it was followed out in the building of the "Massachusetts" of the Providence line. The "Rhode Island" (second) in 1882 had her dining room similarly located, as did the "Connecticut" in 1889. Mr. Peirce saw, pondered, and then acted. The "Priscilla" had her dining room placed on the main deck aft of the quarter deck. For some reason the idea was not followed in the two boats subsequently constructed for the line, and this is all the more surprising because the main deck position is very much the most convenient for passengers. The "Priscilla's" dining room was

decorated in mahogany, more or less in oriental style—a curious departure from the standard observed elsewhere on the boat, and one of the first instances where more than one architectural style was used in the interior of a steamer.

The "Priscilla" was built at Chester, as had been her two immediate predecessors, and, as with them, the W. and A. Fletcher Company were the general contractors and also the builders of the engines and boilers. She was launched on August 10, 1893, and made her first trip on June 25, 1894. Her length is 440 feet, and her gross tonnage is 5292. Her engine, a modification of that of the "Plymouth," as has been explained, is of the double inclined compound type, indicating 8500 horsepower. She has a speed of 22 miles an hour. Originally she had ten Scotch boilers, but in 1923 these were removed at Newport and eight water-tube boilers installed in their place. She is allowed 150 pounds of steam but runs usually under a slightly lower pressure.

The only serious accident which happened to the "Priscilla" took place on July 9, 1902, when she was run into, in a fog, off Brenton's Reef lightship, by the naval steamer "Powhatan." The steamer's port side about forty feet from the bow, was broken down and one of the compartments flooded. She settled rather deeply at the head, but the bulkheads held and she was able to get back into Newport under her own power. A temporary bulkhead of wood was fitted to the broken hole in her side, the flooded compartment was pumped out, and she went to New York for repairs. In this, one of the few major accidents which has happened to a Fall River Line steamer, one member of the crew was killed. It was a severe test of the strength of the steamer's construction, but she proved to be well built, and moreover gave a convincing demonstration of the effectiveness of water tight compartments, not only in an ocean going vessel where their value had been proved, but also in a shallow draft coasting and inland steamer.

The "Priscilla" was the last of Mr. Peirce's boats which he not only designed but of which he also superintended the construction. She was also the last to be built at Chester and to have engines by the Fletcher Company.

There was no further construction of new steamers until 1903, when the "Providence" and the freight steamer "Bos-

ton" were begun at Quincy, Massachusetts, from Mr. Peirce's designs. Mr. Peirce had died on November 26, 1902, just after the contracts for these vessels had been assigned to the Fore River Iron Works at Quincy. The "Boston" was a twin screw freight boat, intended to have as great speed as the passenger steamers but to carry freight only. She was successful as to speed, but it was found that, as the passenger steamers carried some freight, there was not sufficient demand to justify running a separate steamer in express freight service. She could carry but little more freight than the single screw freight boats "Mohawk," "Mohegan," "Pequonnock," and "New Haven," which the New Haven railroad had acquired from other Sound lines, and, in gaining a few miles per hour over their speed, she burned more than twice as much fuel. As a result she has been used very little during the past ten years, having been laid up at Newport, Providence, Fall River, and more recently New York. At one time it was proposed to rebuild her as a passenger steamer, but that was never carried out.

The "Providence," the posthumous work of George Peirce, was begun in 1903, launched on July 16, 1904, and put in service in June, 1905. The entire vessel, including engines and superstructure was built at Quincy. She has a steel hull, 397 feet long and of 4365 gross tons. Her double inclined compound engine has an indicated horsepower of 5500 which, at 23 revolutions per minute, gives her a speed of more than 20 miles an hour. Originally she had six Scotch boilers, but these were replaced by six water-tube boilers at Newport in 1926. After the death of Mr. Peirce, her construction was supervised by Mr. J. Howland Gardner, who succeeded Mr. Peirce as Supervisor of Steamers at the Newport Shops, and also by Mr. Stevenson Taylor, of New York.

The interior of the "Providence" is generally similar to those of her predecessors, except that the style on which the decoration is based is the late XVIIIth. century Louis XVI. The difference is more one of externals than of essence, for many details are identical, or nearly so, with corresponding details on the other steamers.

The arrangement of the decks is somewhat peculiar in that more space is given over to freight than on any of the larger boats. The general layout is similar to that of the

"Plymouth", including the placing of the dining room in the after hold. The only marked difference is the continuous line of staterooms extending nearly the entire length of the upper deck. The earlier steamers had had only a limited number of rooms on the dome deck, above the main salon. In the "Providence" the rooms are extended forward almost to the pilot house, enclosing both the stacks and the foremast, and aft to the end of the dome deck. On the "Commonwealth" the idea is developed further, in that case laterally, so that an entire additional deck is present. With the "Providence" there is still a state of transition, for her design remains predominately that of a three-deck boat with a superposed line of rooms.

Externally the "Providence" resembles in general the "Puritan" and "Priscilla", but many of the subtleties which distinguish those steamers are not present in this later boat. Perhaps the reason lies in the fact that Mr. Peirce was not present to direct the details of the work. Her lines are rigidly straight, for the verticals and horizontals meet at exact right angles instead of at slight divergences from geometrical exactness. Her bow is low, her midship section high, with the result that for a long stretch of her length her lines are practically flat. It is the opposite of the lines of the "Priscilla", but departs farther from the successful norm, which the "Puritan" seems to exemplify, than does the last mentioned boat. One other apparent defect is the overthickness of her masts, which is so marked that it appears almost as clumsiness. The number and arrangement of the stays to said masts, also, is far less well ordered than was the case in the earlier boats. The "Providence" is distinctly a Fall River Line boat, and she shows the influence of Mr. Peirce, but she is a less distinguished example of naval architecture than are or have been her immediate predecessors.

The most recent, and largest, of the Fall River Line steamers is the "Commonwealth". She is an interesting study both for her individual characteristics and also for her points of stylistic contact with her predecessors. The style of George Peirce is the background of her design, but she is by no means a copy by other hands of Mr. Peirce's work. Her affinity with such boats as the "Priscilla" and "Puritan" can be seen in her general lines, which, in degree of curvature, stand

somewhere between the lines of those two vessels, but are in fact different from both. Her increased length, of course, alters all the proportions, and in itself would assure her individuality. The obvious difference, of course, from the other steamers is her absence of masts. The masts provide vertical accents, and the stays, joining the verticals and horizontals at varying angles, serve to add variety and vitality to the whole. Without masts the boat might well appear dull, unbalanced, incomplete. It is a tribute to her designers that none of these terms applies. They have worked out her design from the beginning with the qualification that masts were not to be present. To compensate for that, they have introduced various modifications in the traditional arrangement of the deckhouse. For example, the pilot house is placed higher than it was on the earlier boats. The strong accent there serves to increase the effect of height. Another important factor is the moving of the stacks considerably farther forward. That serves to prevent what might be a distressing interval, between the pilot house and the solid black vertical mass of the stacks. In addition it serves to create what might be called an occult balance between the short length of deckhouse between pilot house and stack, and the long stretch of deckhouse, without accent, stretching from the stacks aft to the end of the dome deck. The balance is distinctly successful yet only a little study of photographs is enough to show that had the stacks been placed farther aft the balance of the whole mass would have fallen to pieces. This is evidence of careful study on the part of the designers. Structurally the boat represents an entirely new type. The dome deck, properly speaking, is suppressed. That is to say, the line of windows which lights the inner saloon, is removed. The result, together with the complete development of the upper deck, is a four deck type of vessel, in place of the three deck with added rooms, which had hitherto obtained. The functional explanation of this development is, of course, the existence of the dining room on this topmost deck. It is difficult to say with whom the idea of so locating the dining room originated. The position has both advantages and disadvantages. It does give an unobstructed outlook from the windows, but from a practical point of view it is inconveniently

far from many of the staterooms on the boat and is perilously remote from the gangway when, at the Fall River end of the route, one may be taking breakfast just before the time for the train to leave. Structurally placing the dining room at the top of the steamer involved a number of problems. The kitchens, for example, with the heavy weight of the ranges, plumbing fixtures, and the like, had also to be at the top of the boat. This meant raising the center of mass considerably—not enough to imperil the stability of the boat but enough to make added precautions for her seaworthiness necessary. This concentrated weight was supported upon steel beams, which, perforce, ran up through the rooms beneath. These beams suggested to the decorators turning the principal room into a sort of columned hall, which they did with considerable success. This brings us to the matter of interior decoration.

The entire interior fittings of this vessel were designed and carried out by the Pottier and Stymus Company of New York. They conceived the idea of dividing the interior into a number of separate, yet intercommunicating, rooms, each of which was to be treated independently of the others. The result of this plan is that no less than seven historic architectural styles are represented in various parts of the vessel. The main saloon is decorated in the Venetian Gothic style, more or less true to its prototype. The corridors are carried out in a simplified version of Louis XVI. There is an Empire room, an Adam room, a Louis XV room, and the cafe suggests, perhaps vaguely, Italian or Spanish work of the late XVI century. The quarter deck is done in what is called "Modern English." The main dining room is a more sumptuous version of the Louis XVI style. The result is a somewhat pleasing, somewhat amusing juxtaposition of styles, not all very close to their prototypes, yet not doing violence to them in spirit. It illustrates very concisely a period in American thought when eclecticism, in all matters pertaining to interior furnishings, was practically in full acceptance; when, in other words, it was considered highly fitting and proper, in decorating new buildings (or steam vessels), to derive designs unblushingly from one or another of the historic styles of architecture. The fact that quite another philosophy of art has now come into favor

does not at all affect the quality of the work of twenty-five years ago which, as the art of any period, should be judged in terms of itself and of the point of view of its creators. One may venture to remark, however, that these separate rooms defeat one of the most impressive effects of the older steamboat interiors—the sense of spaciousness, of continuity, and of fitness. The break from one style to another interrupts the free flow of the lines of the architectural embellishment which, in the earlier steamers, follow so well the gradual but insistent curves of the steamboat's form. Then, too, it is inevitable that some styles should adapt themselves to the strange conditions aboard ship more easily than others. Some of the rooms seem easily successful; in others the forms seem uncomfortable, suggesting that they were not given free expression in their natural manner. It would seem wiser, if one is to adopt an historic style at all, to choose some one style which is basically flexible and then to apply it to the entire vessel, or at least to all that is structurally closely interrelated. It is evident that that has been done successfully in the past, but it is by no means so certain that the stylistic indulgence, which the designers of the "Commonwealth's" interior permitted themselves, has produced a result equally successful.

Structurally, the "Commonwealth" is not so dissimilar to the other vessels of the Line as she is in the matters of external appearance and interior decoration. She was built at Philadelphia by William Cramp and Sons Ship and Engine Building Company. She is 456 feet in length and of 5410 gross tons. The engines and boilers were built by the Quintard Iron Works, of New York. This firm was also the general contractor for the entire vessel. The engine is double inclined compound, developing 10,000 horse power and giving the steamer a maximum speed of 23 miles an hour. Her original ten Scotch boilers were replaced in 1929 by eight water-tube boilers.

This steamer was intended primarily for summer service, but she has been used, from time to time as needed, at all seasons of the year. Her career has been generally uneventful, except for the usual mishaps which occur in the case of nearly every steamboat—breaking of shafts, temporary engine disabilities, and so on.

She was not, as were the earlier steamboats, essentially the work of a single mind. Many contributed to her design, but to Mr. J. Howland Gardner and to Mr. Warren T. Berry, in particular, belongs the credit for producing so successful and outstanding a steam vessel.

It is interesting to speculate what might have happened during the next few years if matters had continued as they then were going. A few years after the "Commonwealth" was built, the Government, under the Sherman Anti-Trust Act, ordered the sale of various trolley lines and other transportation agencies in which the New Haven railroad, in the attempt to acquire control of all transportation in Southern New England, had been investing heavily; these properties, at forced sale, realized only a small part of what the railroad had paid for them, and the direct result was the practical bankruptcy of the New Haven road. In such a state of things there was, of course, no money available for building steamboats. A few years later the War came on, and, while that lasted, there was no need for new boats for such special services as the Fall River Line. Since the War the situation of all railroads, and steamboat companies as well, whether independent of railroads or not, has been difficult, due to the very rapid increase in the number of automobiles in use and, even more, to the growth of bus lines and trucking services—all of which cut deeply into business that used to belong exclusively to the railroads and steamboats. The result has been not only on Long Island Sound but also on inland water ways generally, a great decrease in the number of new vessels built. So far as the Fall River Line is concerned this situation may be considered a blessing in disguise, for it has resulted in the retention of distinguished and beautiful steam vessels which might otherwise have been replaced by, perhaps more efficient, but certainly less interesting, semi-steamships. It is something to be grateful for to be able to travel on a steamboat such as the "Priscilla," and let us hope that that may be our privilege for some years yet to come.

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In this paper only one part of the subject matter implied by the title has been discussed. That part is the history of

steamboats and steamboat lines running from towns on the bay to New York. In one sense that is the more important part of the subject, as it involves the largest and most interesting steamboats which have run in this part of the country, not only on the bay alone but on Long Island Sound as well. Since these steamers had their termini at one or another town on the shores of the bay, the people living in this part of the country came to know them well personally as something more than mere vehicles for getting from place to place. Hence, in connection with the railroads, these Narragansett Bay-Long Island Sound steamboats played an important part in the social history of Southern New England throughout the XIXth century. But at the same time it should not be forgotten that a very important group of the Narragansett Bay steamboats was comprised of steamers which ran only from port to port on the bay itself. From early in the last century there were steamboats connecting Providence with Fall River, Providence with Newport, and Fall River with Newport, not to mention many other local lines. These things have largely been driven out of existence, first by the trolleys, later by automobiles, yet their history was a long and very interesting one. Certainly there are many who remember the old "Perry," and such steamers as the "City of Newport," "Bay Queen," "Canonicus," "Eolus" (of the Wickford Line), and their contemporaries. It is, however, impossible to do more than mention them at this time, in spite of their great local interest.

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This paper makes no pretense to being an original contribution to historical investigation. The attempt has been to bring out material available only in more or less obscure sources, such as out of print pamphlets, to relate it to the whole, and to make it as comprehensible as possible through organization. Except in relation to contemporary steamboats, in which it seemed impossible to repress altogether personal opinion, the writer has endeavored to convey the facts without individual interpretation. Whatever mistakes have been made are unintentional, and will gladly be corrected if those who discover the errors will be kind enough to point them out.

The writer wishes to express his obligation to such authorities as the late Francis B. C. Bradlee of Marblehead, Mass., and to Elwin M. Eldredge, of Brooklyn, N. Y., for information readily given over a long period of years.

Anyone wishing to investigate in more detail the subject matter of this paper is advised to consult the two excellent papers written by Mr. Phillip D. Borden of Fall River and presented by him before the Fall River Historical Society. The first of these relates to steamboats on the bay and was read on November 18, 1925. The second, which describes in detail the early years of the Fall River Line and which has been drawn on freely in this paper, was read on May 23, 1928. Both are available in the files of the Fall River newspapers.

Other works which may be useful are listed below:

- Stanton, Samuel Ward. "American Steam Vessels," New York, 1895
- Morrison, John H. "History of American Steam Navigation," New York, 1903
- Bradlee, Francis B. C. "Some Account of Steam Navigation in New England," Salem, 1920
- Dow, Charles H. "History of Steam Navigation between New York and Providence," New York, 1877
- Whittemore, Henry. "The Past and the Present of Steam Navigation on Long Island Sound," New York, 1893
(in part a reprint of Dow's "History")
- Preble, Rear Admiral George Henry. "A Chronological History of the Origin and Development of Steam Navigation," Philadelphia, 1883 (first edition)
- Dickinson, H. W. "Robert Fulton, Engineer and Artist," London, 1913
- Sutcliffe, A. C. "Robert Fulton and the Clermont," New York, 1909
- Lovell, L. N. "American Sound and River Steamboats," a paper published in the marine number of Cassier's Magazine, London, 1897
- Dayton, Fred Erving. "Steamboat Days," New York, 1925
- Gardner, J. Howland and Berry, Warren T. "The Steamer Commonwealth," a paper read before the Society of Naval Architects and Marine Engineers, New York, November, 1908

Pamphlets describing individual vessels of the Fall River Line, issued by the Company when the vessels were put in service, particularly: "Puritan," 1889; "Priscilla," 1894; "Providence," 1905; and "Commonwealth," 1908

"Fall River Line Journal" of May 31, 1909; January 20, 1913; March 27, 1916; March 25, 1918; May, 1919; and of other dates.

Some of the material of this paper is not published in any of the above mentioned works; it is to be found only in the files of the newspapers, of which the Newport Mercury and the Newport Daily News are particularly helpful. Still other material comes directly from officials of the company and from officers and men who have run the steamers for many years. Among the latter must be mentioned particularly Mr. Florence F. Sullivan, for over fifty years connected with boiler making and boiler installation at the Newport shops, and the late Mr. John V. Sheldon, chief engineer of the "Commonwealth".