SETTLING THE MAINE WILDERNESS



Moses Greenleaf, Maine's First Mapmaker

LESSON 12 Railroads in the Settlement of Maine

SUBJECT

Exploration of why and how the development of railroads affected population growth in the interior regions of Maine

STUDENTS WILL

Explain how railroads affected life and growth in the interior regions of Maine

VOCABULARY Bangor & Piscataquis Railroad, Katahdin Iron Works

PREPARATION

NOTE

This lesson is designed to build on Lesson 11. If it is used independently, the background and GIS/GPS information should be read from that lesson, as well as Chapter 10 of *Settling the Maine Wilderness*, "Transportation, Slate, and Reality," pp. 49-54.

- 1. Copy "Williamsburg Area Population Totals, 1820-1930" for each student.
- 2. Read the "Background" and handout "Railroads in the Maine North Woods, 1833-1900."
- 3. Review the maps for this lesson: plates 19, 20, 21, 22, 23, 29, 30, 31, and 52 from the *Maine Bicentennial Atlas*. Copy these maps onto transparencies for use on an overhead projector.

- 4. Review the information about railroads on pages 15 and 16 of the *Maine Bicentennial Atlas* and make copies for the students' reference.
 - 5. Locate an overhead and LCD projector (if available).

Background

In the early years of Maine statehood, John Poor of Andover, Maine had a vision of building railroad lines all over the state to help facilitate trade and commerce between inland areas, Canada, and the Atlantic Coast. He worked on his dream for many years and, in 1845, he received a charter for the Atlantic and St. Lawrence Railroad, which would connect Portland to Canada. This new railroad line, completed in 1853 and renamed the Grand Trunk, became the transportation pathway for goods from Canada to the coast during the winter months when the St. Lawrence River was frozen, preventing transportation by ship. Goods that arrived in Portland by rail could be carried all over the world, which made this new railroad line extremely important to the economy of Maine. Poor went on to build other railroad lines, connecting the Grand Trunk to major cities such as Lewiston and Bangor. By 1862, Poor's railroad lines had developed into the Maine Central Railroad, which became the largest railroad in Southern Maine.

Canal systems also facilitated transportation of products from inland Maine to the coast. The Cumberland and Oxford Canal, which connected Sebago and Long Lakes with Portland, opened in 1830 and became Maine's most successful man-made waterway. It operated for about 40 years until the inland railroad lines became the more versatile and cost-effective mode of transportation.

BODY OF LESSON

Activity 1.

View plate 29 showing the railroad lines that were laid between c. 1850 and 1870. Describe the great advantage of the railroads in transporting goods and people as outlined in the background reading. While viewing the 1889 Railroads map (plate 30) discuss how Greenleaf helped found the Bangor and Piscataquis Canal and Railroad Company which was extended from Bangor to the area of the slate quarries and later to the Katahdin Iron Works, and how that railroad supported the slate and iron industries.

Describe the contributions of Moses Greenleaf and John Poor regarding a Canadian-Atlantic railroad. Show the 1790, then 1820, then 1860, then 1900 maps (plates 19, 20, 21 and 22 respectively) to visualize population growth in the interior over time. Overlay transparencies of the 1820 map (plate 20) with the 1870 railroad map (plate 29) and then the 1860 map (plate 21) with the 1870 railroad map (plate 29), and discuss whether the railroads appear to have encouraged inland growth. Discuss the technique of overlaying maps as an application of GIS technology and discuss its potential in analyzing historical topics. (Knowledge, Comprehension)

Activity 2.

Assign students the task of using the basic Adobe Photoshop application to overlay the railroad and population maps as a way of analyzing the specific effect of individual railroad lines on population growth (three railroad maps 1870, 1889, 1924 and 4 population maps: 1790, 1820, 1860, 1900). Instruct the students to make the population maps lighter for easier viewing on the overlay (pull-down menu "ENHANCE" then adjust brightness). Recent population (1970, plate 23) and railroad maps (1975, plate 52) are provided for comparison. The students should also use the information provided on pages 15 and 16 of the *Maine Bicentennial Atlas*, which indicates the year each railroad line began operating. Students can work on this project in groups to produce an overlay that each group analyzes. They can then report their conclusions to the class. (Application, Analysis, Evaluation)

Activity Combining Lessons 11 and 12

Have students compare the railroad maps from the *Bicentennial Atlas* (plates 29, 30, and 31) and the 1820 enlarged map showing roads and rivers in the Williamsburg area (all available online) to census information of the towns around Williamsburg from 1820 until 1930.

Offer the following as a homework assignment. Using a product of their choice, students will explain the population trends seen in the table specifically addressing the role of railroads, roads and waterways in sustaining community growth. (On the 1815 Greenleaf map, Milo is located about where the "3" is in the 7th range and Barnard became the western half of the Williamsburg quadrant.) (Synthesis)

ASSESSMENT

By performance on homework assignment or on a knowledge-based exam using the following prompt:

Write an essay about how railroads affected population growth in the interior regions of Maine during the 19th century using specific examples learned in class.

or...

By rubric (attached) if individual classroom presentations are assigned.

EXTENSIONS

1. Research the use of GPS/GIS in historical analysis and/or have the students do a project using the simple software provided by ESRI (see GIS in Schools reference above). (Application, Analysis)

2. Research the effect of railroads in your community or county and write an essay or do a project about what you learned.

Possible References:

Lincoln Merrill, Jr., From Corner to Depot: A History of East North Yarmouth (North Yarmouth, ME: by the North Yarmouth Historical Society, 2000).

Walter Macdougall, *Somerset County: The Old Somerset Railroad*, (Camden: Downeast Books, 2000).

The Bangor & Piscataquis Canal and Railroad Company was chartered in 1833 with the goal of building canals linked by railroads from the City of Bangor into Piscataquis County. In 1836, the company built the first section of the route from Bangor to Old Town, becoming the first operating railroad in New England.

In 1864, a new company, the Bangor & Piscataquis Railroad, was chartered to build from Old Town to Moosehead Lake. The company was organized in 1867, and the next year the Maine Legislature gave permission to the City of Bangor and the Town of Dover to loan their credit to help finance the project. The railroad was completed from Bangor to Milo and Dover by 1870, and was then extended to Town of Abbott in 1873.

In 1881, the Bangor & Katahdin Iron Works Railroad was built from Milo, north through the Town of Brownville to the iron works. The same year the Bangor & Piscataquis leased the Katahdin Iron Works line, which carried tourists in and iron out of the township. In 1884, the B&P extended its line from the Town of Blanchard to Greenville. The narrow gauge (2 foot) Monson Railroad opened in 1884 to haul slate to a connection with the standard gauge (4 feet 8 ½ inch) B&P.

In 1885, a railroad supported by the Canadian government began construction of a line from Lake Megantic, Quebec, to Mattawamkeag, Maine, where it could link up with a Maine Central Railroad line running into New Brunswick at the town of Vanceboro, Maine. In 1886, the new railroad was leased to the Canadian Pacific Railroad, which complete the line to Vanceboro. The Canadian railroad ran through the towns of Barnard and Williamsburg, passing very near Moses Greenleaf's home on Greenleaf Hill, before entering Brownsville.

In 1892, the new Bangor & Aroostook Railroad began life by leasing the B&P, as it did the Iron Works road a few years later.

By the turn of the century, Piscataquis County was served by five railroads, which allowed connections with all of Maine, the rest of the United States, Canada, and the rest of the world by steamship from the port of Bangor.

[The material on the page was taken from Edward E. Chase, *Maine Railroads: A History of the Development of the Maine Railroad System* (Portland, ME: by the author, 1926, pp. 2, 69, 82, 95, 96, 125, 126, 127.]

Rubric for Lesson 12

Critieria	Exceeds the Standard	Meets the	Partially Maets the	Dog Not Most the
## *	4	Standard 3	Standard 2	Standard 1
Ideas: important concepts learned in the lesson	Ideas show analysis and comprehensive understanding of all important concepts	Fewer details included Analysis is good, but incomplete.	Few concepts addressed showing little understanding of ideas	Ideas are incorrect or poorly communicated and understood. Little thought or analysis
Organization: logical order of concepts and use of graphics that enhance presentation	Presentation is orderly and flows sequentially in a manner that is easy to follow. Excellent use of graphics.	Presentation is fairly well-organized with fewer graphics	Presentation is not well-organized making concepts difficult to follow. Graphics and word choice do not support or enhance understanding	Presentation is disorganized and does not convey important concepts Graphics are poor or non-existent
Presentation: delivery of information to the class	Student consistently makes eye-contact and explains ideas clearly and thoroughly	Student generally makes eye-contact and presentation is mostly clear and understandable	Little or no eye- contact, information is difficult to understand	No eye-contact and presentation does not convey important concepts

United States Census Population Totals

Town Name	1820	1830	1840	1859	1860	1870	1880	1890	1900	1910	1920	1930
Barnard	[Williams	sburg] 153	181	172	149	139	100	98	101	155	61
Bowerbank		48	165	173	101	83	86	87	66	76	41	43
Brownville		402	568	787	793	860	896	1074	1570	1808	1910	1914
Milo	_	381	756	932	959	938	934	1029	1150	2556	2894	2912
Sebec	431	906	1116	1223	1152	954	876	725	593	594	464	357
Williamsburg	107	227	131*	124	182	176	235	162	11'	7 138	82	67

^{*}Barnard separated from Williamsburg

Source: Francis R. Wihbey, creator and compilier, Maine Census Population Totals. Orono, ME: Fogler Library, 2001-. http://www.library.umaine.edu/census

Chase, Edward E. Maine Railroads: A History of the Development of the Maine Railroad System. Portland, ME: by the author, 1926.

The Bangor & Piscataquis Canal and Railroad Company was chartered in 1833 with the goal of building a line from Bangor into Piscataquis County. In 1836, the company built the first section of the road from Bangor to Old Town, becoming the second operating railroad in New England. [Chase, 2].

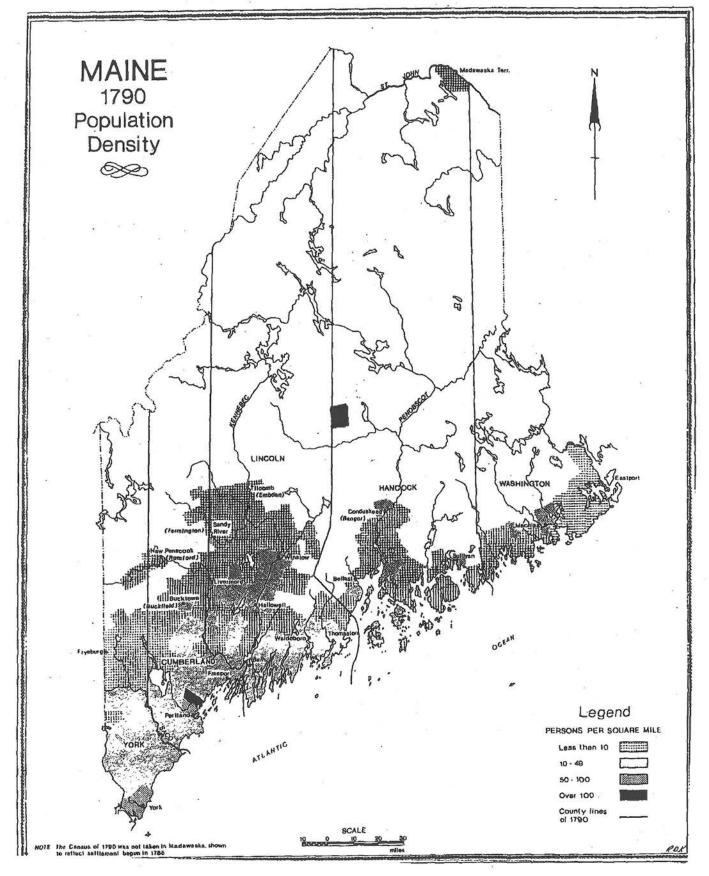
In 1864, a new company, the Bangor & Piscataquis Railroad, was chartered to build from Old Town to Moosehead Lake. The company was organized in 1867, and next year the Maine legislature approved the city of Bangor and the town of Dover loaning their credit to help finance the road. [Chase 69] It was completed from to Milo and Dover by 1870, and then extended to Abbott in 1873. [Chase 82]

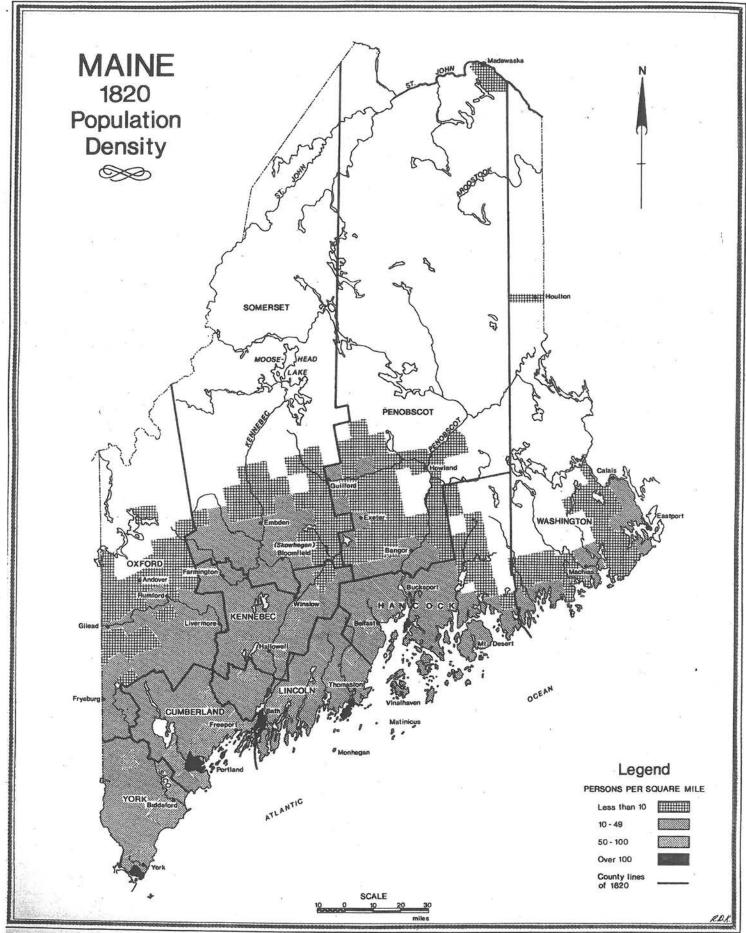
In 1881, the Bangor & Katahdin Iron Works Railroad was built from Milo north through Brownville to the iron works. [Chase 125] The same year the Bangor & Piscataquis leased the Bangor & Katahdin Iron Works line, which carried tourists in and iron out of the township. In 1884, the Bangor & Piscataquis extended its line from Blanchard to Greenville [Chase 125] The narrow gauge Monson Railroad opened 1884 and hauled slate to a connection with the Bangor & Piscataquis. [Chase 126]

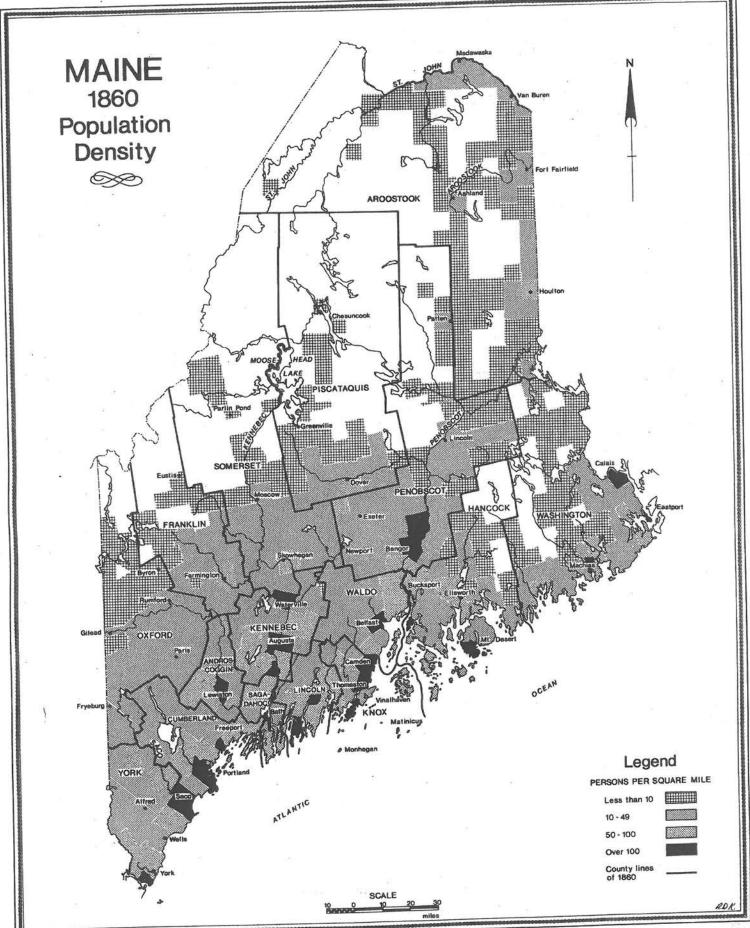
In 1885, a Canadian railroad supported by the Canadian government began construction of a line from Lake Megantic, Quebec, to Mattawamkeag, Maine, where it could link up with a Maine Central Railroad line running into New Brunswick at Vanceboro, Maine. In 1886, the company was leased to the Canadian Pacific Railroad, another Canadian railroad, which finished the line to Vanceboro. [Chase 96] The Canadian line ran through Barnard and Williamsburg, passing very near Moses Greenleaf's house on Greenleaf Hill, before entering Brownville.

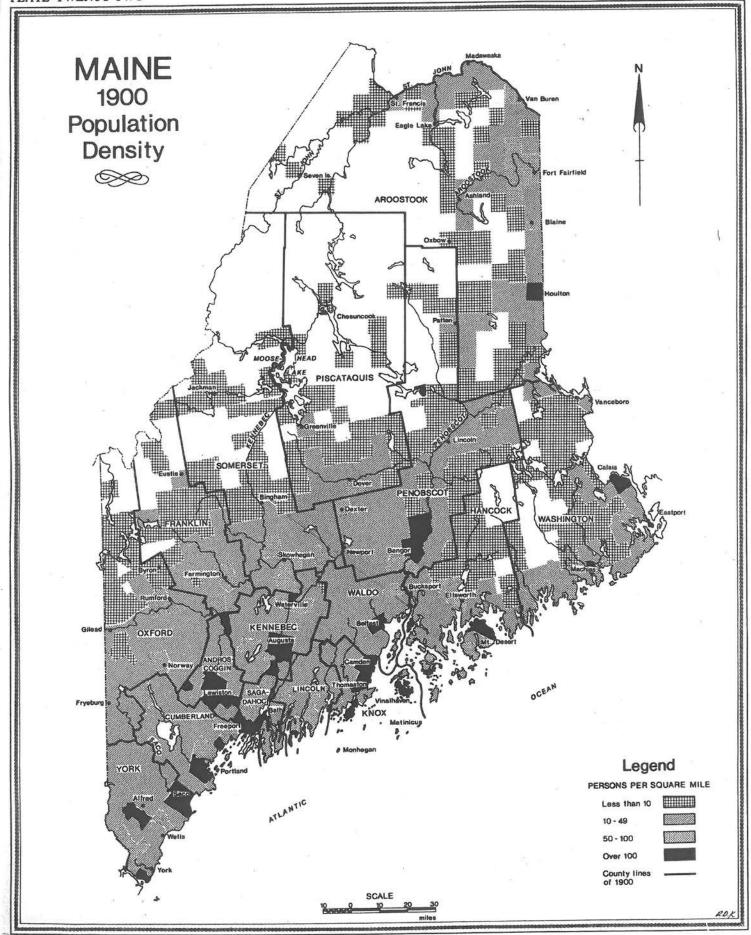
In 1892, the new Bangor & Aroostook Railroad began life by leasing the Bangor & Piscataquis and the Bangor & Katahdin Iron Works line, then built north to Houlton, and was gradually extended throughout the county. [Chase 95] In 1899, the Bangor & Aroostook purchased the Bangor & Piscataquis, as it did the Bangor & Katahdin Iron Works line a few years later. [Chase 127]

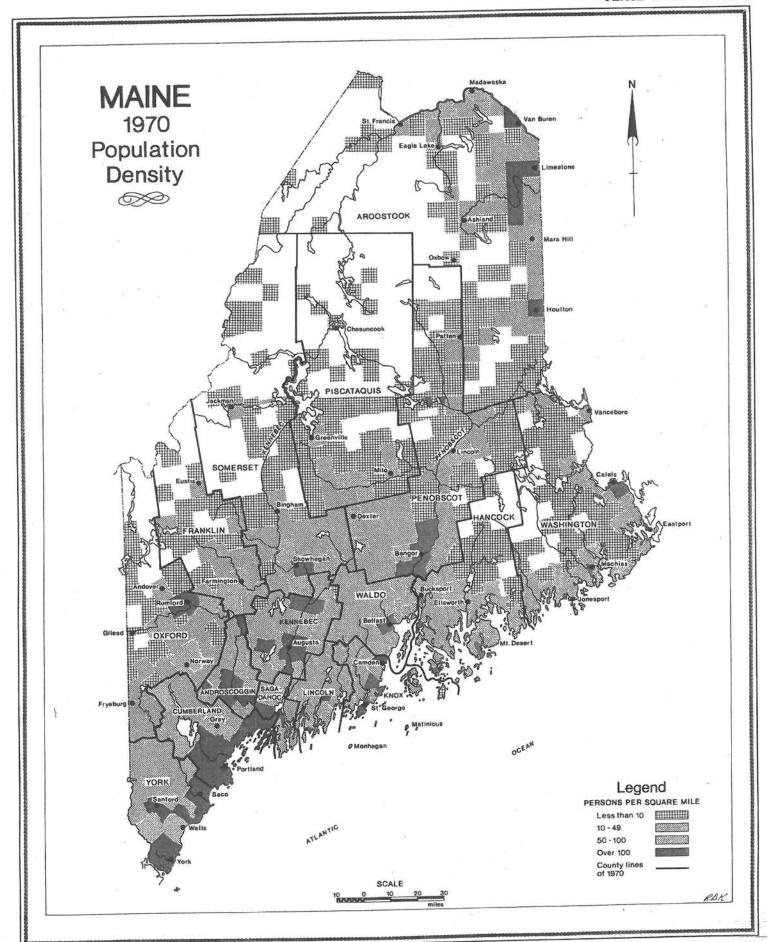
By the turn of the century, Piscataquis County was served by five railroads, which allowed connections with all of Maine, the rest of the United States, Canada, and the rest of the world by sea from Bangor.

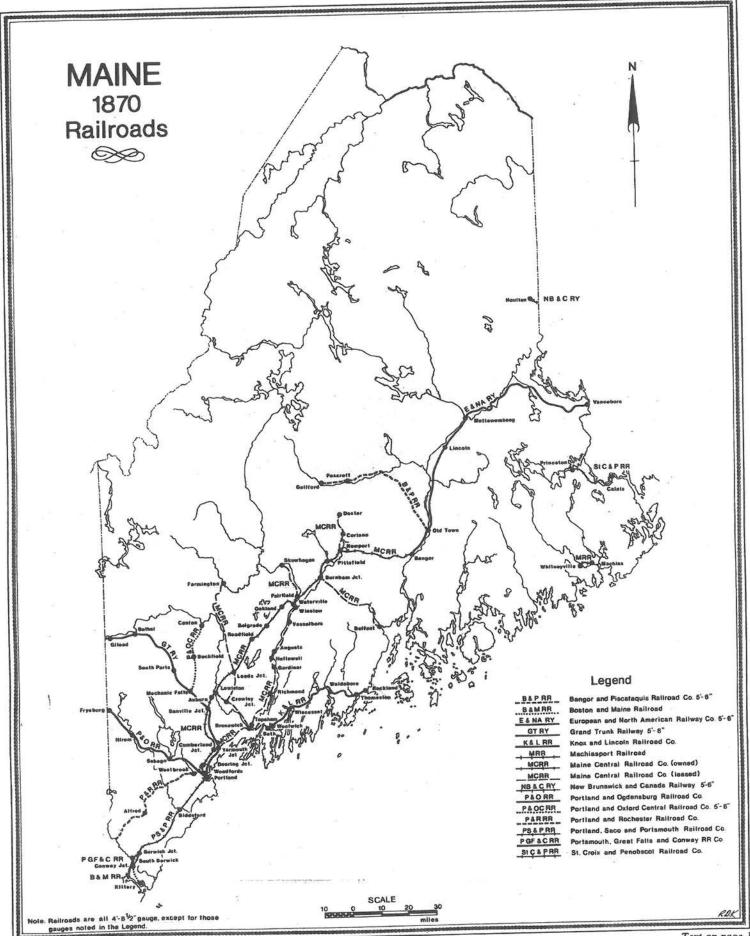


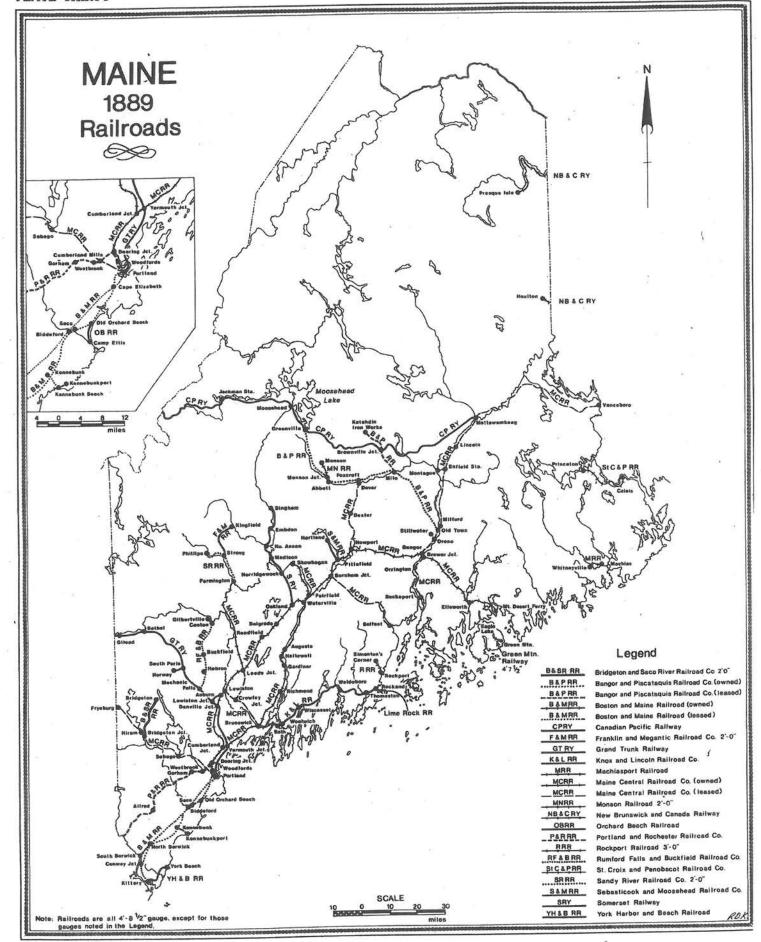


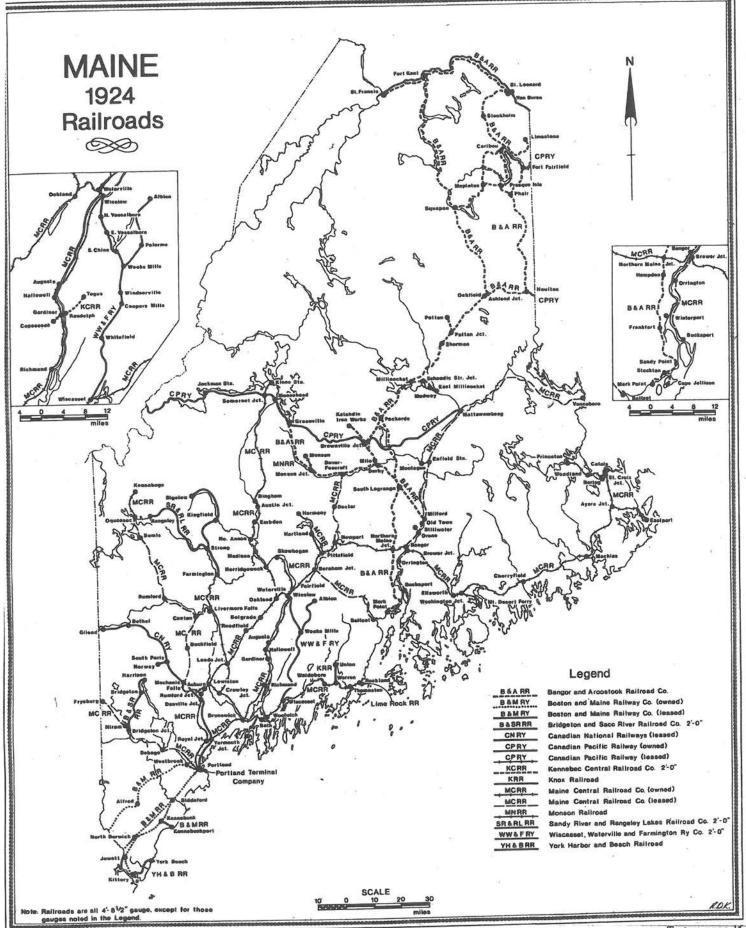












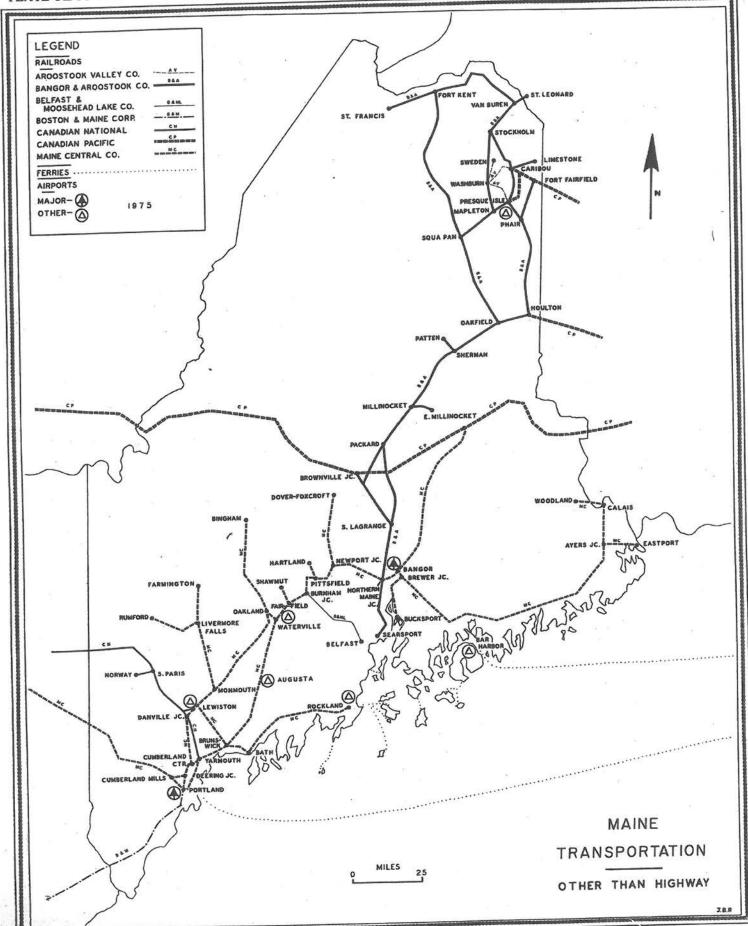


PLATE TWENTY-EIGHT Lighthouses

Research by : Richard D. Kelly, Jr. Cartography by: Richard D. Kelly, Jr.

Plate Twenty-Eight presents a generalized historic view of Lighthouses along the Maine coast featuring dates of actual construction (not authorization). Major reconstructions (alterations to the height of the light, etc.) are indicated by dates in brackets following dates for original construction.

Sources of Information for Plate Twenty-Eight:

Department of Commerce. Lighthouse Service. Light List: Atlantic and Gulf Coasts of the United States. Washington, D.C. (various dates) U.S. Light-House Board. Annual Reports. Washington, D.C. (various dates)

National Archives Project. Works Progress Administration. Inventory of Federal Archives in the States. Series X, The Department of Commerce, No. 18, Maine. Rockland, Maine, 1938.

Sterling, Robert Thayer. Lighthouses of the Maine Coast and the Men Who Keep Them. Brattleboro, Vermont, 1935.

Maine Historic Preservation Commission. Maine Historic Resources Inventory. Augusta, Maine 1974.

U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Ocean Survey. Coast and Geodetic Survey. Chart #303 (1971), #304 (1970), #305 (1971), #306 (1970), #307 (1971), #308 (1971), #310 (1972), #311 (1972), #313 (1971), #314 (1971), #315 (1971), #322 (1972), #801 (1973), #1205 (1968).

PLATE TWENTY-NINE Railroads, 1870

Research by: Richard F. Dole Cartography by: Richard D. Kelly, Jr.

The years 1871, 1889, and 1924 were selected for the Railroad Plates in this Atlas because these were the years which showed the greatest increase in overall track mileage in the State. The figures in the Table immediately below are taken from the Annual Reports of the State of Maine Public Utilities Commission. These figures do not always square with the figures given in the Annual Reports of the Individual Railroad Companies (available at the Maine State Archives). Apparently it depended upon who was compiling the P.U.C. report. However, the official P.U.C. figures given below have not been altered.

Mileage of Steam Railroads in Maine, Reported by the State of Maine Public Utilities Commission 1836-1973

Year	Miles	Year	Miles
1836	12.00	1874	846.43
1842	19.88	1875	865.71
1843	72.39	1876	881.33
1847	75.39	1879	911.23
1848	132.16	1880	1023.32
1849	211.49	1881	1036.15
1850	232.59	1882	1051.64
1851	280.61	1883	1063.27
1852	319.74	1884	1132.27
1853	330.74	1885	1132.27
1854	333.74	1886	1141.43
1855	352.84	1887	1164.52
1856	370.75	1888	1164.07
1857	390.82	1889	1322.45
1859	411.29	1890	1360.26
	441.99	1891	1382.92
	444.49	1892	1385.00
1867			1399.14
1868	516.45		
1869	601.65	1894	1515.99
1870	650.20	1895	1626.75
1871	772.63	2222	1720.41
1873	814.63	1897	1722.92

Year	Miles	Year	Miles
1898	1748.95	1932	2311.53
1899	1871.85	1933	2164.58
1900	1905.00	1934	2120.71
1901	1918.98	1935	2078.00
1902	1933.35	1936	2039.91
1903	2004.81	1937	1949.21
1904	2018.60	1938	1932.08
1905	2022.63	1939	1914.94
1906	2093.49	1940	1914.80
1907	2144.77	1941	1912.33
1908	2173.91	1942	1894.85
1909	2174.95	1943	1882.90
1910	2259.60	1944	1854.86
1911	2288.36	1945	1854.90
1912	2284.38	1946	1854.43
1913	2301.03	1947	1854.65
1914	2300.37	1948	1846.93
1915	2301.05	1950	1881.42
1916	2289.04	1951	1881.41
1917	2299.27	1952	1832.34
1918	2286.81	1953	1831.83
1919	2312.68	1954	2012.81
1920	2313.87	1955	2012.57
1921	2315.15	1956	1928.87
1922	2290.01	1958	1913.57
1923	2290.67	1959	1906.53
1924	2379.39	1960	2027.64
1925	2371.87	1961	1782.73
1926	2354.18	1963	1792.25
1927	2327.84	1965	1766.43
1928	2330.98	1967	1756.30
1929	2320.38	1969	1756.29
1930	2316.62	1971	1798.58
1931	2319.81	1973	1766.02

Contents: Plate Twenty-Nine

- (1) Bangor & Piscataquis Railroad Co. in service, 1871.
- Boston & Maine Railroad-chartered, 1843.
- European & North American Railway-in service, 1871.
- Grand Trunk Railway-chartered, 1851. Leased Atlantic & St. (4) Lawrence Railroad Co. - in service, 1853.
- Knox & Lincoln Railroad Co. in service, 1871.
- Machiasport Railroad—in service, 1843.

 Maine Central Railroad Co.—chartered, 1856.
- New Brunswick & Canada Railway-in service, 1862.
- Portland & Ogdensburg Railroad Co. in service, 1867.
- Portland & Oxford Central Railroad Co. in service, 1857.
- Portland & Rochester Railroad Co. chartered, 1864. (11)Portland, Saco & Portsmouth Railroad Co.-in service, 1842. (12)
- Leased to Eastern Railroad of Massachusetts. Portsmouth, Great Falls & Conway Railroad Co. - chartered, 1866. Leased to Eastern Railroad of New Hampshire.
- St. Croix & Penobscot Railroad Co. in service, 1870.

Sources of Information for Plate Twenty-Nine:

Railroad lines taken from a map of the Maine Central Railroad dated 1871, with East & West Connections by Thomas Holt, Chief Engineer.

State of Maine Railroad Commissioners Report for the Year 1871, and Annual Reports of individual Railroad Companies listed above, found in the Maine State Archives.

Maine Central Railroad. A Story of Success and Independence. Portland, 1976.

PLATE THIRTY Railroads, 1889

Research by: Richard F. Dole Cartography by: Richard D. Kelly, Jr.

The years 1871, 1889, and 1924 were selected for the Railroad Plates in this Atlas because they represent years which showed the greatest increase in railroad mileage in the State. (See Mileage of Steam Railroads in Maine, 1836-1973, above.) Plate Thirty represents the situation as of December

- (1) Bridgton and Saco River Railroad Co. - in service, 1898.
- Bangor and Piscataquis Railroad Co. -in service, 1871
- Boston and Maine Railroad-chartered, 1843. Canadian Pacific Railway-in service, 1889.
- Franklin and Megantic Railrod Co. in service, 1884.
- (6) Grand Trunk Railway-chartered, 1851.
- (7) Knox and Lincoln Railroad Co, - in service, 1871.
- (8) Machiasport Railroad-in service, 1843.
- Maine Central Railroad Co. chartered, 1856. (10)Monson Railroad-in service, 1883.
- New Brunswick and Canada Railway-In service, 1862. (11)
- Orchard Beach Railroad-in service, 1880. Summer only. (12)
- Portland and Rochester Railroad Co. chartered, 1864. (13)
- (14)Rockport Railroad-in service, 1886.
- Rumford Falls and Buckfield Railroad Co. in service, 1878. (15)
- St. Croix and Penobscot Railroad Co. in service, 1870. (16)
- (17)Sandy River Railroad Co. - in service, 1879.
- Sebasticook and Moosehead Railroad Co.-in service, 1887. (18)
- Somerset Railway-in service, 1890. (19)
- (20)York Harbor and Beach Railroad-in service, 1887. Summer only.

Sources of Information for Plate Thirty:

Railroad lines taken from the Maine State Railroad Commissioner's map, dated 1890, drawn by the Office of the Chief Engineer of the Maine Central Railroad Company. Also, map of Maine in 1890 edition of Poor's Manual of Railroads for the Year 1889.

Poor's Manual of Railroads for the Year 1898. New York, 1890.

Individual Railroad Co. reports submitted to the Maine State Railroad

Commissioners, located in the Maine State Archives. Maine Central Railroad. A Story of Success and Independence. Portland,

PLATE THIRTY-ONE Railroads, 1924

Research by: Richard F. Dole Cartography by: Richard D. Kelly, Jr.

The year 1924 marks the point at which railroad mileage in the State of Maine was at its height. From 1924 to the present day, railroad mileage has declined. (See Mileage of Steam Railroads in Maine, 1836-1973, in the text for Plate Twenty-Nine.) Plate Thirty-One represents the situation as of December 31, 1924.

Contents

- (1) Bangor and Aroostook Railroad Co. -chartered, 1891. Full service, 1915.
- Boston and Maine Railway Co. chartered, 1843.
- Bridgton and Saco River Railroad Co. in service, 1898. (Controlled by Maine Central, but operated separately.)
- Canadian National Railways chartered, 1919.
- Canadian Pacific Railway-in service, 1889.
- Kennebec Central Railroad Co. in service, 1890. Knox Railroad-chartered, 1919.
- Maine Central Railroad Co.-chartered, 1856.
- Monson Railroad-in service, 1883.
- Sandy River and Rangeley Lakes Railroad Co.-chartered, 1908.

- (11) Wiscasset, Waterville and Farmington Railway Co. in service, 1895.
- York Harbor and Beach Railroad-in operation, 1887. Summer only. (Operated by the Boston & Maine Railway Co.)

Sources of Information for Plate Thirty-One:

Maps in Poor's Manual of Railroads for 1924, New York, 1925, and in Maine Central Railroad Annual Report for 1924.

Individual Railroad Company annual reports on file at the Maine State Archives for the year 1924.

Bangor and Aroostook Railroad. The Bangor and Aroostook, 1891-1966. published by the company, 1966.

Maine Central Railroad. A Story of Success and Independence. Portland,

PLATE THIRTY-TWO Agricultural Areas

Research by: Richard D. Kelly, Jr. Cartography by: Richard D. Kelly, Jr.

Plate Thirty-Two presents a very generalized view of the major agricultural areas and products of Maine. No attempt was made to show density of production, which would call for more research, particularly to trace it through time, and it would have to be done on a single product basis.

It should be borne in mind that all agricultural areas of the State produce vegetables and fruit for local consumption and for shipment out-of-state.

Sources of Information for Plate Thirty-Two:

Micka, Edward S. and Vance E. Dearborn. Maine Dairy Farming, Location and Municipal Taxation of Cattle, 1970. Miscellaneous Report

137. Orono, Maine, August, 1971.

Maine Department of Agriculture. Map of Farming Areas in Maine. Augusta, n.d. (1970's)

Maine Department of Economic Development. The Maine Handbook: A Statistical Abstract, 1968. Augusta, 1968.

PLATE THIRTY-THREE Maine Lumbering, 1872

Research by: David C. Smith Cartography by: Richard D. Kelly, Jr.

Lumbering has been a central industry in Maine since before the Revolution. Although the industry moved west along with the frontier, and often with Maine men, tools, and ideas, the height of the industry did not occur until just after the Civil War. Plate Thirty-Three illustrates the greatest extent of the industry. There were in 1872, 535 sawmills and 416 other woodworking plants. Every county, and nearly every town was represented. In fact, most Maine families relied on the forest in some way for their income. The majority of wood cut was spruce by 1872, although a large amount of pine and hardwood is also represented. There is no pulp wood represented here as the wood pulp process had just been invented