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Economic and Technological Innovation in Maine before the Twentieth Century:

Complex, Uneven, but Pervasive and Important

by Howard P. Segal

Howard Segal describes Maine's long history of innovation, which began long before it became a state in 1820. Over the nineteenth and early twentieth centuries, woolen mills, shoe factories, paper mills, hydroelectric power and utilities, and other components of America's industrial and commercial revolutions became key parts of most Mainers' daily lives. Segal argues that the blue signs one passes on entering Maine—Maine: The Way Life Should Be—conceal much of Maine's actual past and present, especially its rich and complex history of innovation.

In 1995 the Maine Humanities Council produced a 30-minute video entitled "Modern Times in Maine and America, 1890–1930." The council is Maine's affiliate of the National Endowment for the Humanities (NEH), and the video was made in conjunction with NEH directives for its state affiliates.

Despite its brevity, the video illuminates remarkably well the many ways in which Maine was at once like and unlike the rest of America in these four decades. The topics covered include woolen mills, shoe factories, paper mills, hydroelectric power and utilities, potato farming and the decline of agriculture, fisheries, trains and trolleys, automobiles, urban problems, political and social reforms, the Ku Klux Klan, World War I, and American expansionism.

The story of how Maine evolved in this period is told through narration, period music, still photographs, and rare moving images—and, most interestingly, the memories of three elderly Mainers plus the comments of University of Maine history professor Richard Judd.

The video begins with a discussion of the State of Maine building at the 1893 Chicago World's Fair (celebrating Christopher Columbus's alleged discovery in 1493 of America) and concludes with a list of inventions and social, cultural, and economic developments that came about during these 40 years. Having used the video for countless classes at the University of Maine over the years, I remain quite impressed by the comments of historian Judd about the image of Maine promoted by the tourist industry: that Maine's population and geography consisted overwhelmingly of fishermen and hunters, of small farms and coastal villages, and of rural landscapes and seascapes. Even after the availability of automobiles allowed tourists to see more of Maine than they could by train, those romanticized images were kept alive. Indeed, contemporary tourist promotions are not dissimilar from them. The blue signs upon entering Maine from New Hampshire, New Brunswick, and Quebec—Maine: The Way Life Should Be—play a role in this contemporary promotion of an arguably more satisfying quality of life and of a slower pace of life than would be found in, say, more urbanized and more industrialized New England states like Massachusetts and Rhode Island.

For whatever reasons, the slogan was dropped by Maine Tourism within a few years of its development in the mid-1980s, but by then it had become ingrained in the consciousness of many Mainers and non-Mainers alike (Townsend 2010). If, to be sure, the placement of those border-crossing signs never explicitly connected that phrase with the rural and barely technological images illuminated in the "Modern Times in Maine and America" video, the subtext was still a throwback to those romanticized pre–Industrial Revolution depictions. Moreover, the placement of those signs next to modern highways did not really constitute a contradiction, for twentieth century cars, trucks, campers, and buses passing by them were supposedly bringing tourists (back) to the good old days.

In his first year as governor, Paul LePage added the slogan Open for Business beneath each of those highway border signs. The additions generated controversy about the governor's motives, but largely missing from the rhetorical battles was the deeper meaning of these additions: a belated acknowledgment that Maine was and, in effect, had long been a far more urban and technologically up-to-date state than one might guess from that 1995 video and from the original signs and the merchandise repeating Maine: The Way Life Should Be.

For an appreciation of Maine's actual history of industrial innovation, there is probably no better starting point than the permanent exhibit at the Maine State Museum in Augusta entitled *Made in Maine*. This exhibit opened in 1985 after two years of design and construction. The museum itself had opened in 1971 and remains New England's only public state museum. Under the direction of historian Paul Rivard from 1977 until 1991, the museum created *Made in Maine* to educate the public about Maine's nineteenth-century manufacturing developments. Many Maine schoolchildren visit the Maine State Museum, and *Made in Maine* is oriented as much toward youth as toward older visitors. Not only does the exhibit explode those romantic and simplistic stereotypes of the good old days, but, more deeply, it also constitutes a superb case study of the so-called Invention of Tradition, as illuminated by the book of that title coedited by historians Eric Hobsbawm and Terence Ranger (1983).[1]

Made in Maine consists of displays illuminating four work environments: home, shop, mill and furnace, and factory. These vague, if not outdated, categories derive from Victor Clark's classic *History of Manufactures in the United States* (1929). As Rivard put it in a modest but useful visitor's guide, the exhibit was designed to illustrate "social integration in a complex nineteenth-century story about technology, work, and urban life"(Segal 1994). And complexity is the de facto theme of both the exhibit and Rivard's 2007 book *Made in Maine: From Home and Workshop to Mill and Factory*, which grew out of the exhibit.

In addition to an introductory display of artifacts and historical images reflecting manufacturing in Maine, there are reconstructions of a dozen period-room work environments plus several cases filled with Maine-made goods. Visitors use several ramps to get from one display to another. Home is represented by spinning yarn in an 1820 kitchen and by sewing clothes in an 1880 parlor (all dates are circa). Shop is represented by an 1815 gun shop, an 1820 furniture shop, an 1850 shoe shop, an 1870 blacksmith (small machine) shop, and a 1900 fishing rod shop. Mill is represented by an 1830 wool fulling and finishing mill and an 1890 cupola furnace from a stove foundry. Finally, factory is represented by carding and spinning wool in parts of 1850 and 1890 factories, respectively.

Bridging shop, mill, and factory is an 1850 water-powered woodworking operation that rises through all three levels of the exhibit. Using water released from a turbine placed well below the lowest floor level (with the aid of hidden electric motors and pumps), it manufactures barrel staves, shingles, and wheelbarrows. It is an impressive machine that illuminates innovation in Maine for all visitors. As Rivard put it in the visitor's guide, the *Made in Maine* exhibit treats "the history of the vast majority of Mainers who were not lumberjacks, not lighthouse keepers, not the captains of tall ships."

The Blacksmith Shop, Made in Maine *Exhibit. Courtesy of the Maine State Museum.*

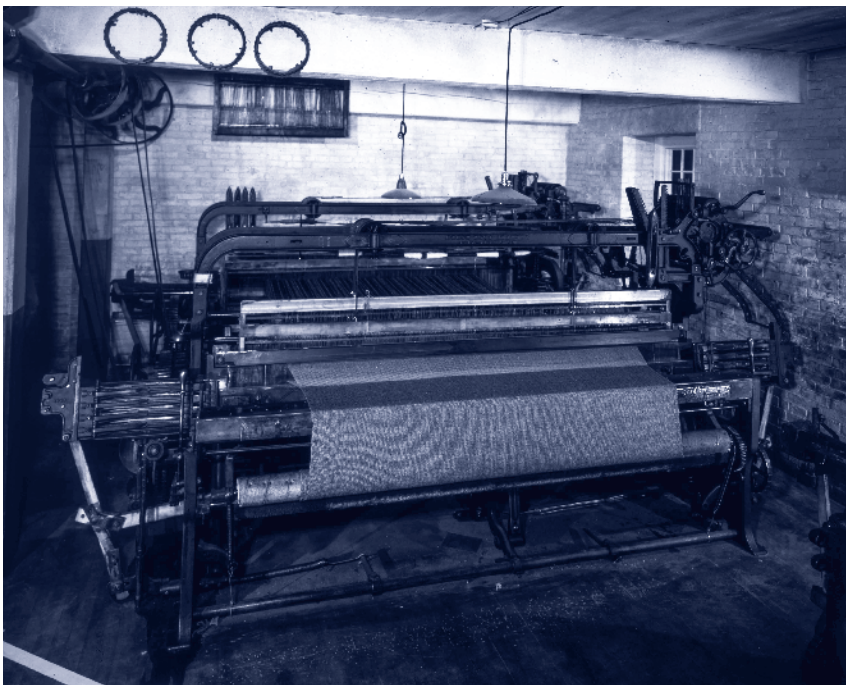
Like the exhibit, the book adopts the four basic categories. Rivard concedes that the four oversimplify the huge number of examples he studied in preparation for both the exhibit and the book. Yet he contends that, to educate visitors and readers alike, the categories remain the most practical way of organizing the many examples. Still, this approach hardly means a lack of appreciation for Maine's hugely diverse economy from at least 1820, when it split off from Massachusetts to become a separate state. For all levels of manufacturing, large and small, coexisted in Maine. Nevertheless, "regardless of how they might have started out, most manufactures ended up as factories" of some kind (Rivard 2007: 9). This was despite the fact that, as with shoemakers, many employees had already worked at home or had done custom jobs on an irregular basis.

A major point in Rivard's book is that sailing, shipbuilding, and related activities *did* create thousands of jobs for decades. So what of the alleged falsity of that stereotype of most male Mainers as seafarers and lobstermen (as well as farmers)? It has a core of truth, but as Maine became more urbanized and more industrialized in the nineteenth century and into the twentieth, seafarers and lobstermen were eventually outnumbered by workers in homes, shops, mills, furnaces, and factories. Moreover, contrary to those stereotypes, sailors and shipbuilders commonly led very hard lives. As Rivard puts it, they "probably shared baked beans more often than lobster bisque" (2007: 13).

Thanks to Maine's abundant waterpower, mills in the nineteenth century became the state's leading industrial concern (Rivard 2007). The growing number and size of mills changed Mainers' own sense of a changing landscape and a changing economy. One didn't have to work in a mill to take notice.

Another example of the complexity of innovation in Maine brought to light by Rivard's book is the branding of products, which gradually became a critical marketing tool—but only when there were enough different manufacturers to matter, when tools and machines were powerful and efficient enough to produce goods that ordinary consumers could afford to buy. The most successful brands in the mid-nineteenth century at the national level were Isaac Singer's sewing machines and Cyrus McCormick's harvesters and other agricultural machines. In their respective marketing campaigns against their rivals, Singer and McCormick and their salesmen boldly claimed that their products were superior in quality and in durability—if not outright cheaper—than their competitors' products. Both men likewise (and falsely) claimed to have pioneered interchangeable parts in their respective industries. If, on the one hand, branding in Maine was initially infrequent because most Maine manufacturers were not "bold enough to be individualistic," on the other hand, a few others exploited "prominent names or countries of origin" (Rivard 2007: 15). They put on tags that falsely claimed that their goods were from England or France or elsewhere in Europe—thereby charging more than for acknowledged home-made products. Still, legitimate branding in Maine was increasingly common in the nineteenth century, including carding and sewing machines, spinning wheels, looms, plows, and sleighs.

A further example of the complexity of innovation is the role of work sites inside homes and factories. Rivard reminds us that through the late nineteenth century, the home was as frequently the focus of work as an escape from it. The image of the home in more urbanized areas as a literal sanctuary from the



Loom, Knox Mill, Camden, Maine, Made in Maine *Exhibit. Courtesy of the Maine State Museum.*

competitive, crowded, crime-ridden outside world—the very world that rising industrialists and financiers were creating—did not take root as much in less urbanized Maine. Some family members worked at home, but others worked outside of it. Often extended families worked at the home of someone else in the family, while unrelated hired hands did so at either the same or another home.

Textile production was the principal work in the home and was frequently called *domestic manufacture*. Moreover, homemade products did not quickly disappear when factories opened. Home-based labor-intensive piecework continued despite the common absence of specialized talents and tools. True, what tools there were in the home were usually, as Rivard puts it, "tolerated intrusions," but the transition from home-made to factory-made textiles was slow and, once again, complex. Inside the home "the world of machinery was redefined continuously to form an ever-changing jigsaw of supporting parts"(Rivard 2007: 16–27).

Rivard notes that home-based spinning and weaving may have survived for so long because they were designated as women's work, and these women generally stayed home to attend to their numerous other domestic chores. The sewing machine was by far the most significant home machine. By 1860, nine years after Singer had patented the first practical one, home-based sewing machines were being manufactured in such large numbers in Maine that they nearly equaled all textile machines being produced in and for factories (Rivard 2007: 49). Although the sewing machine certainly increased productivity, it did not lessen the labor required.

Moreover, Rivard rightly distinguishes between the often boring drudgery done in poorer families with the creative work enjoyed by more affluent women—and often wrongly confused with commercial sewing: needlework, quilting, and rug hooking. Ironically, "no sooner had spinning and weaving ceased to be common needs of communities" than the work itself "became a romantic memory of simpler times" (Rivard 2007: 38, 50). The drudgery was forgotten, papered over by false nostalgia for a romanticized past that never existed. Once again, Rivard corrects an historical misinterpretation that has been passed on to students and the general public.

Going further, Rivard qualifies the common assumption that sewing machines in particular transformed the operation of physically decentralized "local workshops into centralized factories" and "artisans into machine operatives." When Mainers made bonnets, hats, clothes, and shoes, their workshops nevertheless retained the look and feel of traditional work sites (Rivard 2007: 77, 79).

Mills and furnaces played a limited role in the production of consumer goods. Again, Rivard rejects the conventional wisdom. Mills and furnaces did not interfere with artisan trades or compete with domestic goods. Gristmills, for example, made cornmeal, not bread, and sawmills never competed with cabinetmakers, despite transforming the work of hand sawyers. The mill and the furnace "assist[ed] but did not 'supplant' consumer goods manufacturers" (Rivard 2007: 83).

Innovation also contributed to the persistence of domestic textile production. Rivard found a Westbrook

Factory in Jonesport, Maine, where sardines, clams, lobsters, and other fishery products were canned. Maine was a pioneer in the commercial canning industry, particularly seafood, blueberries, and corn. In the 1850s, Portland natives Isaac and Nathan Winslow patented a canning process for corn and for a time Maine was one of the country's leading producers of canned corn. MS 1134, William Underwood Photographs of Cannery, 1890s to 1922; University of Maine Special Collections.

shopkeeper, for instance, who "cut paper patterns and sent them out to be pasted into bags in households" (Rivard 2007: 17). Once again, the process was uneven and is not reducible to easy generalizations.

Yet another example of this complexity is the case of farmers, increasingly few of whom could maintain self-sufficiency without working in shops, mills, and, yes, factories. So much for the romanticized full-time farmer. Lest one fall into the trap of picturing these farmer-artisans as enjoying the best of both worlds—as happy practitioners of Yankee ingenuity—Rivard notes that most of them helped to produce distinctly unromantic "shingles, clapboards, and barrel staves" (2007: 20). Moreover, rural though they may have been, even during the eighteenth and nineteenth centuries they were quite informed about the outside world.

After all of these deviations along the path from home, workshop, and mill, we finally come to the factory. Here, too, however, matters are never "perfectly clear," as President Richard Nixon loved to say about unrelated political matters. The very definition of *factory* changed. In the eighteenth and early nineteenth centuries, *manufactory* was the term used to categorize "an enterprise making goods by hand." By the mid-nineteenth century, by contrast, factory was increasingly used instead and now meant the opposite: an enterprise in which machinery prevailed (Rivard 2007: 115).

Analogously, the original *computers* were men and women who used blueprints, slide rules, and, sometimes, early calculators. Only in World War II, with the development of non-human computers, did the definition change (Grier 2005).

Many manufactories retained the original names of mills and shops assigned them before they grew into the large-scale, centralized, and specialized enterprises that we associate with genuine factories. But where textile factories depended upon abundant waterpower, shoe manufacturing depended more on inexpensive labor. And although both linen and wool preceded cotton manufacture in Maine, only the last gave rise to factory production. Here Saco/Biddeford took the lead. Originally a town of fishermen and lumbermen, in the 1820s and 1830s it became Maine's first manufacturing city. Brick factories, offices, and boardinghouses transformed the landscape. Yet cotton production was "regimented, standardized, and mechanical before it was actually mechanized" (Rivard 2007: 116)—still another instance of complex developments in the story of innovation in Maine.

Moving logs with steam powered vehicles over snow covered, frozen ground in Lincoln, Maine. The Lombard steam hauler, patented in 1901, was invented by Waterville, Maine, blacksmith and logging-equipment builder Alvin Orlando Lombard. It was the first successful commercial application of a continuous track for vehicle propulsion, a concept later used for military tanks, agricultural tractors, and construction equipment. MS 1732, Dwight B. Demeritt collection; University of Maine Special Collections.

Rural Lewiston eventually superseded Saco/Biddeford, with cotton factories that ranked among New England's biggest and most modern. By contrast, Maine's woolen mills remained small and home-based. Modest-sized Dexter and

Sanford were the state's sole woolen cities—contrary to the general pattern elsewhere in America of ever larger and more centralized growth. Still, Maine's woolen industry was not inconsequential in terms of both quantity and quality (Rivard 2007).

It is evident that, on the one hand, Maine—long before it became a state in 1820—was innovating economically and technologically in various ways and, on the other hand, was innovating in complex ways that are not reducible to the conventional historical wisdom. As noted at the outset, from at least the late eighteenth century on, Maine was not simply an oasis of farms and villages populated overwhelmingly by farmers, lumberjacks, and lobstermen. This example of the invention of tradition was promoted to tourists for decades after the Civil War, when passenger railroads had been operating in parts of Maine for a quarter century, and beginning in the early twentieth century when automobiles first came to the state, and it is promoted even today.

Early in his book Rivard provides a particularly telling example of the persistent and widespread ignorance about the way life really was for most Mainers before the twentieth century. Few contemporary visitors to lovely mid-coast Camden—with its beautiful harbor, picturesque boats, appealing restaurants and gift shops, and renovated white clapboard homes—notice, much less inquire about, the nearby Knox Woolen Mills, the last of which closed in 1988. True, Camden was a shipbuilding town before it became a textile town, but the mills—for decades the town's largest employer—were heavily responsible for Camden's growth. If, as Rivard laments, "analysis of Maine's nineteenth-century industrial manufactures can be hopelessly complicated,"(2007: 139) *Made in Maine*, like the Maine State Museum exhibit that generated it, goes a long way toward addressing that lamentation.

Dear lawmakers, policy analysts, academics, business persons, and tourists today: please don't ignore Maine's rich economic and technological past as you try to chart its future.

ENDNOTES

1. The following paragraphs about "Made in Maine" derive from Howard P. Segal. 1994. "On Technological Museums: A Professor's Perspective." Future Imperfect: The Mixed Blessings of Technology in America, ed. Howard P. Segal. University of Massachusetts Press, Amherst. The visitor's guide is long out of print.

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Howard P. Segal is Adelaide and Alan Bird Professor of History at the University of Maine, where he has taught since 1986. His books include *Technological Utopianism in American Culture*, *Future Imperfect: The Mixed Blessings of Technology in America*, *Technology and Utopia*, *Recasting the Machine Age: Henry Ford's Village Industries*, *Utopias: A Brief History from Ancient Writings to Virtual Communities*, and with Alan Marcus, *Technology in America: A Brief History*.