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**Towards the creation of model mill cities in New England: the
planning contributions of the Boston manufacturing company in
Waltham, Massachusetts**

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Introduction

It has often been noted by urban and industrial historians that many of the practices and elements of the Boston Manufacturing Company (BMC), founded in Waltham, Massachusetts in 1813, became models, guides or templates in the development of later New England mill communities.¹ As such, they frequently place the BMC experience as a transitional experiment between the small mill villages found in Southern New England and the larger mill cities in Northern New England.² These historians, reflecting on the BMC's integrated manufacturing process for making cloth, its financial organization, management system, patented machinery making, employment practices, architecture and site planning, among other aspects, are correct.³ However, there was one other innovative element of the BMC experience which was significantly informing and which has been subject to comparatively little scholarly inquiry. This was the positive role of the BMC in the town planning and town building of the municipality of Waltham. It is the intent of this paper to help to close this gap.

The paper is written through the lens of town and city planning history and more finely, the planning and development of model mill communities in New England. From an historiographic perspective, it is grounded in the 'Institutional Approach to Planning History'. More specifically, it focuses on the institutional paths and movements that coalesced to form the plan and guide the development of BMC as a model community.⁴ Elements of these paths can be recognized in the ideas and actions of the BMC investors. By the term 'model' we mean mill communities that had elements of their planning and development which, by intent or result were embraced by those companies who built such communities employing the practices first found in the BMC experience.⁵ The specific research for this paper primarily is based upon archival corporate, municipal and church records and scholarly works related to the relationship between the BMC and the town of Waltham.

The vision of F.C. Lowell

F.C. Lowell was a highly successful merchant, ship owner and property developer. Following the passing of Thomas Jefferson's trade embargo of 1807 and its negative impacts on international trade, he became interested in textile manufacturing, an economic area in America which, in comparison with England, was dramatically underperforming.

In 1811, he established residency in Edinburgh and began travelling to English and Scottish towns dedicated to textile manufacturing. From England, he commented favourably on the processes and machinery of the Lancashire mills but found little positives concerning the country's cities. In Scotland, he was impressed with both the workings of the mills and the communities. While travelling from Glasgow or Edinburgh, he could not help to note the large dozens of model industrial villages and towns that had emerged in the two decades before his visit. Among them were the model textile villages of Ormiston, Athelstan and Catrine.⁶ These villages had been created in a climate of constant improvement which focused on creating places where textile workers would find good homes, education

¹ Shlakman, "Economic History," 37; Bender, *Urban Vision*, 36; Coolidge, *Mills and Mansions*, 18; Freeman, *Behemoth*, 49.

² Batchelder, *Early Progress of Cotton Manufacturers*, 73.

³ Dalzell, *Enterprising Elite*, 27–36; Gibb, *Saco-Lowell Shops*, 33–39; Gitelman, *Working Men of Waltham*, 1–23; Malone, *Waterpower in Lowell*, 15–17; Candee, "Architecture and Corporate Planning" 17–28.

⁴ Sorensen, "Planning History and Theory," 38–42; Ward, Freestone and Silver, "New Planning History", 238–239.

⁵ Garner, *The Model Company Town*; Crawford, *Working Man's Paradise*.

⁶ Campbell, *Scotland Since 1707*, 101.

opportunities, and a clean natural environment while working in hygienic and safe mills.⁷ It also stimulated extensive infrastructure improvements including roads, bridges, canals, and ports which enabled the formation of mill villages in areas that were isolated and where mill privileges could be obtained.⁸ These 'clean slate' communities provided extensive opportunities to train and acculturate these workers in a moral climate. Thus, adult education and training opportunities had to be created. Fourthly, mill town centres, attractively built and designed, were considered an attraction and places of pride for the workers.⁹ It was during this visit that F.C. Lowell informed his friend and frequent business partner Nathan Appleton of his intentions to build a textile manufactory in the United States.¹⁰ While there is no direct evidence of 'knowledge leading to action,' these elements were all later informative in the planning of the BMC in Waltham.¹¹

His vision called for a mill community to be located in the countryside where there would be sufficient waterpower for mill operations and available land. It was there, as well, that a connection between industrial production and the natural environment could be maintained. In these 'clean slate' areas, owners and workers would come together to start afresh in an atmosphere of constant improvement that was morally strong, spiritual, industrial, and harmonious. The workers would join the community, not because they had a lack of options, but by choice. It had to become urban in character because only at that scale could the costs of building the community be justified. It would grow steadily based upon long-term market growth and the willingness of the investors to finance new opportunities from retained revenues while ensuring the workers earned their fair share. For this reason, the investors had to be well capitalized and control the land. Its purpose was to be an intentional manufacturing community consisting of two groups of people; the industrial workers and those committed to supporting the enterprise. There had to be a degree of solidarity among all classes in a community where good housing, churches, schools, parks, open spaces and shops were well provided. And finally, the physical environment must, in a symbolic sense, represent the values of all parties.¹² It was to be a place where, paraphrasing the words of Leo Marx, the machine was placed in a garden.¹³

F.C. Lowell moved quickly to develop his ideas. By late 1812, while working with master mechanic and builder Paul Moody, he had developed a working model of a water powered loom and began to formulate a plan to finance the company. He knew he had to first demonstrate that the machinery designed and developed by himself and assisted by Moody would work and that the Massachusetts General Court would authorize the large sum of \$400,000 to be raised for the venture. It was granted as part of an act authorizing the creation of the BMC on February 23, 1813.¹⁴ With the loom ready for testing and the approval to create a limited stockholding company, he then approached family members and friends and explained the venture and quickly raised the funds.¹⁵

The purpose of the company was to manufacture inexpensive cloth in a systematic and integrative manner. All operations were to be undertaken on site. The cloth, consisting of 'Heavy Sheeting Number

⁷ Harris and McKean, *Scottish Town*," 22–27.

⁸ Smoot, "Landowner and the Planned Village," 76–84.

⁹ Appleton, *Power Loom*, 7; Krieger, *City on a Hill*, 90–93.

¹⁰ Dalzell, *Enterprising Elite*, 25.

¹¹ Appleton, *Power Loom*, 15; Reys, *Making of Urban America*, 415.

¹² Marx, *Machine in the Garden*.

¹³ BMC Administrative Records, "Directors Meetings."

¹⁴ BMC Administrative Records, "Accounts Ledger A"; BMC, "Director Meetings".

¹⁵ Beckert, *Empire of Cotton*, 147.

Fourteen Yarn,' sold widely across the country.¹⁶ They quickly approved the creation of a machine shop on the site with the intent of designing and building all of the equipment necessary to produce the cloth. Over time, this shop was so successful it sold machines to other companies and became a profit centre in its own right.¹⁷

F.C. Lowell realized that for the BMC to be successful, they had to find a reliable labour force. To accomplish this, F.C. Lowell and his colleagues developed a plan to employ young, single, rural women in the mills. To attract them to the mill, the investors developed a strategy under which the women would be well protected, well housed in a variety of dwelling types, well paid, provided educational opportunities, live in a moralistic and natural pleasing environment, required to attend church services and be expected to only work for a period of up to four years before moving on to other activities. The mill seat was to be situated in an area surrounded by fields and farms that would remind them of their former homes as well as provide access to the natural environment. The BMC had no intention of creating a permanent proletariat. They were free to work, free to quit, free to save, free to spend, free to worship, free to become educated and free to form a sense of community.¹⁸ The 'Yankee Mill Girls' came in droves.¹⁹

Finally, F.C. Lowell and the investors had to find a site to match the requirements outlined in their vision. The Massachusetts General Court, as a condition of its approval for incorporation, required the investors to find a site within fifteen miles of Boston.²⁰ Given the available required amount of water in this area, the choices were limited to the Mystic, Neponset, or Charles Rivers. The investors chose the Charles located in the small town of Waltham.²¹ The specific site was the former location of the Boies Paper Company at the edge of the Charles River. It included seventy-seven acres of land, mill buildings, a dam and water privileges, and easy road access to the Great Road, a major thoroughfare connecting Boston to Waltham and points west.²² The river had the sufficient flow and drop to support a large textile mill during all four seasons of the year. There were no physical, geographic, or topographic obstacles to the development of a mill seat.

Between 1813 and 1820 the BMC investors, with profits soaring, implemented a policy of constant improvement starting with the construction of two mill buildings and a canal and quickly adding some housing units and an office building. The amount of innovation that occurred on the site was quite extraordinary. The modification of English machinery led to the granting of patents, the machine shop was the first large scale manufacturer of capital goods in America, the buildings were the largest manufacturing structures in the nation, and their horizontal placement along the river reduced infrastructure costs and lowered the possibility of other firms interfering with river flow. The BMC was a success well beyond the expectations of its investors.²³

The BMC strategy on town relations in Waltham

Following F.C. Lowell's death in 1817, Patrick Tracey Jackson as mill agent and Paul Moody as superintendent, both of whom lived in Waltham, became the key representatives of the investors

¹⁶ Unger, "A Place of Work".

¹⁷ Rothenberg, "Invention of American Capitalism," 99–100.

¹⁸ Ware, *Early New England Cotton Manufacture*, 201.

¹⁹ BMC, "Directors' Records".

²⁰ Hamilton, "Early Industry," 108, 113.

²¹ Middlesex County Court, "Deeds", 200, 429 and 207, 3.

²² BMC, "Directors' Records," 2; Gibb, *Saco-Lowell Shops*, 738.

²³ Sanderson, *Waltham as a Precinct*, 57.

concerning company-town affairs.²⁴ Jackson and Moody worked quite hard to create strong working relations with the Select Board and succeeded. They also worked carefully to ensure there would be minimal need to bring company issues before the often disruptive town meeting. Illustrative of the BMC's strategy, Jackson and Moody made two highly influential moves involving schools and the First Church. In 1817, Jackson became a member of the school committee which not only oversaw pedagogical issues but determined the locations of schools. In Waltham, these districts played a strong role in defining Waltham's villages and promoting a sense of sub-town community and place. Not surprisingly, Jackson was assigned responsibility for the Factory School District. While in that position, he realized, as the BMC grew, it would require a new school. To this end, he proposed a new facility to be built near the BMC site. Both the construction of the school and teacher compensation would be paid by the BMC. Moreover, it would be available to children not affiliated with the company. The town government accepted the idea. It was a masterful stroke: Through this approval, the town further reinforced its approval of the Factory District as a defined industrial area, and it gained a new school without having to pay for it. The BMC, in turn, reinforced its connectivity to the Bleachery and began purchasing residential properties, improving streets, creating park land and building a church between the two sites. By so doing, it was beginning to take on a well-defined physical form of a mill village with one school, called the Upper School, close to the original BMC site and the Lower Level School near the Bleachery.²⁵

Perhaps the most significant strategic move took place after Jackson and Moody transformed their attention to Lowell. In 1842 the Boston and Fitchburg Railroad Company was granted the right to build a railroad line between the two communities and through Waltham. Several options were proposed for the route, most of which would run through the northern rural farm neighbourhoods in the north. This caused considerable worry among the farmers.²⁶ It also caused concern with the BMC investors who would have benefitted little if the route by-passed its mills and the emerging factory district. The town leaders had very little political power to exert at the state level. The BMC, on the other hand, did have political influence and was able to convince the General Court to authorize a location through the district complete with a depot and spur lines to both the BMC and Bleachery sites. The results were all positive: agricultural land was protected, the vitality of the centre was boosted and the BMC gained access to a less expensive means of moving its twelve hundred tons of cloth per year.²⁷ With the emergence of the BMC along its edge, the character of the Great Road changed dramatically. Hundreds of workers moved along its edges, tradesmen servicing the mills set up operations, and shops serving the personal needs of the workers were all attracted to it. The BMC itself established a store in the area. The BMC became the de facto managers and planners of the Factory District. It did so in a spirit of corporation with the town. For example, it built and improved roads, created a library that later became the Rumsford Institute and served as Waltham's town hall, created a bank, built a church and planted trees throughout the district. It also constructed another school and an adult continuing education programme and funded a fire station which was staffed by company employees. Finally, directly in the town centre and quite close to the train depot, the BMC in 1830, perhaps in recognition that Waltham was one of a very few Puritan settlements without a proper town common, donated a large parcel for this purpose. Waltham now had a town centre. Finally, the BMC, after building a new dam in and inundating its upriver lowlands adjacent to the Charles River, realized it had created an attractive natural area for swimming and boating. In sum, the BMC adroitly created an industrial village which

²⁴ Petersen, *Waltham Rediscovered*, 178.

²⁵ Ripley, "Letter to Bradford," 100.

²⁶ Jaffe, *Kings Best Highway*, 120–121.

²⁷ Gregory, *Nathan Appleton*, 158.

contributed to Waltham's quality of life. It accomplished this through both self-interested philanthropy and carrying out the visionary elements of F.C. Lowell. One historian commented that the company agent almost served as Waltham's town manager.²⁸ At least in terms of building the Factory Village District and establishing a town centre while protecting the remainder of the town.

Conclusions

In summation, it is clear that the BMC combined lessons from the Rhode Island System and Scottish experiences, the wisdom and visions of F.C. Lowell and the management skills of Patrick Tracey Jackson and Paul Moody to create an innovative set of town planning and town building policies and projects.

In terms of site planning, the BMC adapted the Scottish 'clean slate' approach in planning its sites in Waltham, demolishing its existing buildings and constructing modern facilities. It also built its enterprise in a sparsely settled rural agricultural community. The BMC adopted the linear site planning concepts found both in the Scottish and Rhode Island Systems. The original BMC factories and the Bleachery were the anchors while the Charles River and the Railroad combined to serve as the spine. The mill structures were placed linearly along the Charles River as a means of preventing other companies from interfering with the supply of water required for production purposes. The BMC's mill buildings were engineering marvels. Its Mill Building Number Two ultimately became the template for many of the mill structures built across Northern New England. As well, it served as the model for determining how water rights were distributed. The BMC also pursued an infill strategy as it grew rather than expanding outward. It placed its production facilities, housing units, schools, church and fire station all in the same district. Perhaps most importantly, its activities intermingled with residents, businesses and activities that were not affiliated with the company. While establishing its own identity in the Factory District, the BMC still practiced a concept of integration within the town of Waltham. Its education, cultural, recreational and religious activities were most often open to the public. Its street improvements and 'green activities' benefitted both the mill workers and the townspeople. Its efforts to place the railroad in the town centre clearly benefitted the company and, as well, the town. Concomitantly, its placement of a church, and its gift of a town common were major stimulus in creating the town centre. The BMC housed its workers in throughout the Factory District. By so doing the workers mixed with non-mill workers and assisted the development of Factory Village as a vibrant place of commerce, education, spirituality and education. While quite different from later boarding houses built in mill communities, there were elements of the BMC housing practices that were informative for future mill developments.

From a socio economic perspective, the BMC, by paying its workers in cash, provided a significant stimulus to the local economy. It was a key factor in expanding commercial activity along the Great Road in the vicinity of its mills. It adopted a policy of hiring young, highly motivated women who were educated and familiar with textile weaving and spinning. As well, by implementing a process in which they were to be employed for a period of four years, it insured that there would be limited employee burnout, a sense of vitality in the workforce and there would be no emerging proletariat. And finally, the BMC adopted the Scottish concept of constant improvement in terms of the education of its workers. This could be found in its willingness to fund an infant school, primary schools, adult education, form a library and create the nation's first lyceum.

A closing note

Beyond the contributions of the BMC to the future planning activities of mill development, there were two other elements that emerged from the BMC experience which seem to have informed later town

²⁸ Garner, *Model Company Town*, 7, 12; Creese, *Search for Environment*, 1.

planning practice in general. First, its town planning experience, along with those of other later mill towns up to the 1840s, echoed the 'Town-Country Magnet' concept developed by the founders of the Garden City Movement at the beginning of the twentieth century. Quite as it sounds, the concept called for a connectedness between farm and factory and nature and industry. It still resonates today. Secondly, if one examines the layout of the Waltham's Factory Village, one can note that it had many similarities with the Neighbourhood Unit Plan that emerged as an important planning concept in early twentieth century American planning. Parts of this concept are fundamental to planning practice today.

The BMC survived through economic booms, panics and busts until 1930 when it closed its doors. From that time forward its buildings have been used by many different companies. Today they serve as multi-use facilities including senior citizen housing and the Charles River Museum of Industry and Innovation. The site is now a National Historic Landmark.²⁹

²⁹ Morgan, *Buildings of Massachusetts*, 474–475.

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