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Morphological Transformation of Boston Park System During 19th Century and Its Reasons

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Abstract

With the perspective of urban morphology, this paper integrates historical maps to illustrate the morphological transformation of Boston Park System during 19th century. Based on such illustrations, cultural and political issues, geological issues and sanitary reform are concluded as main reasons for the transformations, thus to building up the relationship between space construction and its context.

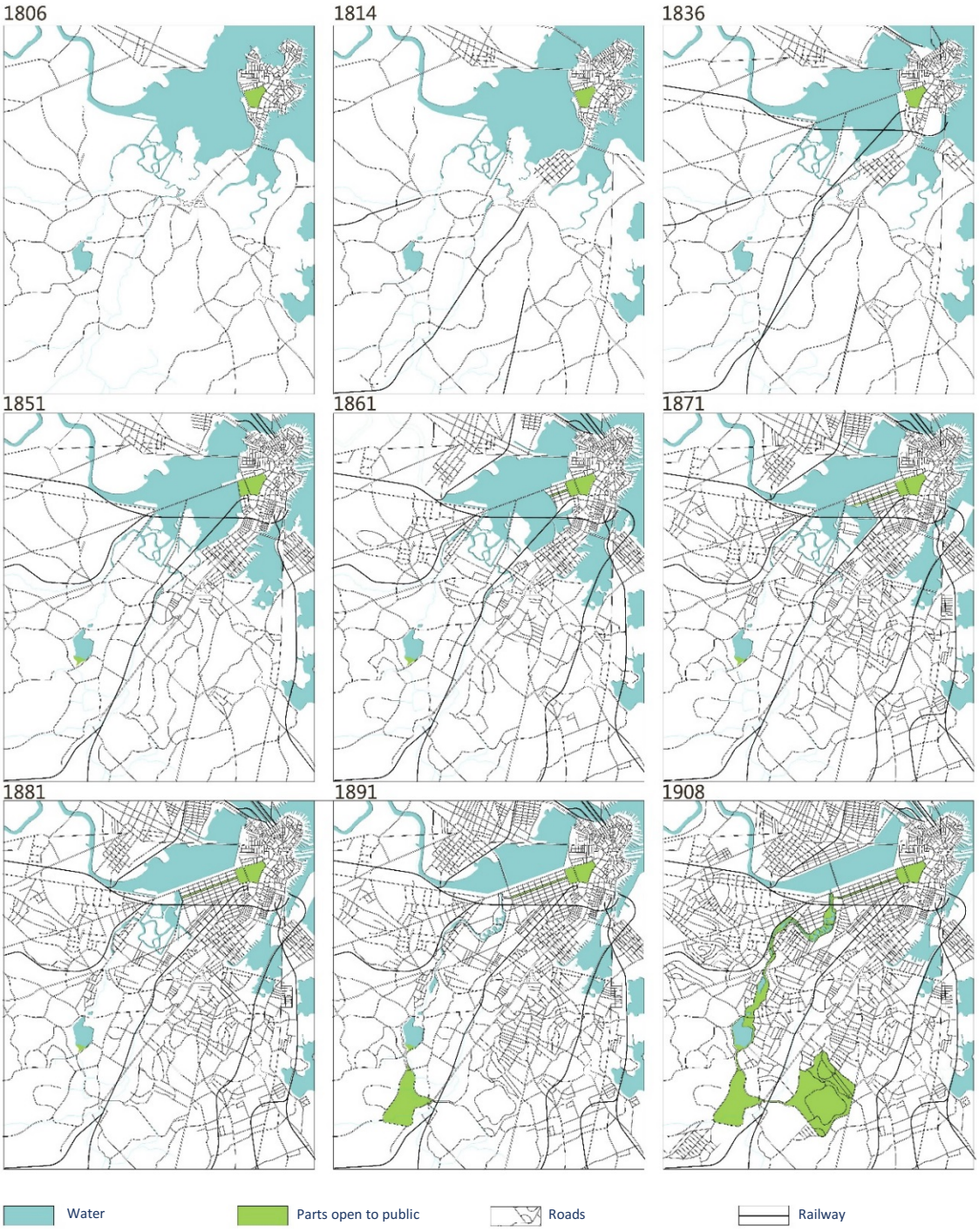
Keyword: *Boston; Park System; Morphology; History; Transformation*

Introduction

The Boston Park System selected in this paper is the most representative and influential one in the history of the development of urban park systems, and it was basically shaped in the 19th century when both American society and urban form of American cities were changing rapidly [1]. Exploring on the combination between that social change and the morphological transformation of Boston Park System constitutes the goal of this research, which also provides an opportunity for urban morphology to examine the spatial evolution of the park system. This is because urban morphology focuses on the tangible results and the processes of the evolution of cities through specific social and cultural issues [2]. The emphasis on "process" is the reason why the study of urban morphology often has a historical character and can be understood as a reflection on static historical writing in the field of built environment [3]. Therefore, if the basic concepts of urban morphology can be applied to study the Boston park system, it may provide insights in methodology for historical study of built environment which with a focus on the context.

Given the success of New York Central Park, people in Boston in the 1850s and 1860s were stimulated to plan their own parks. However, at that time, only the centrally located Boston Common and Public Garden were open spaces. During 1860-1870s, H.W.S. Cleveland, U.H. Crocker, R.M. Copeland and E.W. Bowditch all proposed corresponding plans for people in Boston. In these schemes, the parks of Boston existed as a series of individual parks, rather than as separate large scale urban parks like New York Central Park. In 1878, Olmsted came to Boston to begin planning the park system in a substantive sense, and by the time Olmsted retired in 1895, the Boston Park System was basically in place.

In order to clarify the morphological transformation of the Boston Park System, this paper integrates 19 historical maps from the period 1806-1908 in the Appendix and clearly maps its morphological transformation (as shown in the figure). For M. Tafuri, “operational criticism” based on design evaluation inevitably imposes contemporary standards on the past, while historical research needs to change the analysis of its form to the analysis of its formation context [4]. Therefore, on the basis of the morphological description, the author does not evaluate the planning and design position with a decontextualized way, but tries to understand how the morphological transformation occurred in a specific context. It should be noted that any “objective” history has the possibility to be reanalyzed in different dimensions. All historical narratives contain interpretive elements that are difficult to eliminate [5] 55-87, and the following analysis is also based on the author's understanding and interpretation.



Formation Process of the Park System

Before 1850

For the Boston Park System, only Boston Common and the Public Garden were open to the public until 1850, and the rest of the park was not formed. 1830 saw the complete prohibition of productive functions such as pasture and woodland on Boston Common, which became purely recreational space. To this end, the former Horse Pond was filled in, Powder House Hill was leveled to fill the waterlogged depression, and more than 200 trees were planted to better serve the recreational function [6]. The land on the west side of the Common became the Public Garden around 1835, and in 1856 the government of Boston gave up its residential plan and adjusted the plan of the Public Garden into a rectangle with a wedge-shaped land granted by the state. After the Civil War, a new Public Garden was built.

Between 1850 to 1880

In the 1850s, Boston began the reclamation of Back Bay. The original Mill Dam was used as a roadbed for Beacon Street, the new roads paralleled or perpendicular to Beacon Street and formed a grid road network, leaving a 200-foot-wide space in the middle for the green axis of Commonwealth Avenue. The reclamation project lasted approximately 30 years from east to west, and the entire receiving basin from the west side of the public garden to Gravel Point was filled in and thus the Commonwealth Avenue emerged. During this period of time, Jamaica Pond gradually became available for public recreation. However, by the 1870s, only the southern part of the reservoir was open to the public [7] 86-89.

After 1880

In 1880, the reclamation of Back Bay was drawing to a close. As the receiving basin was filled in, the full basin on the west side of Gravelly Point also lost its ability to utilize the tides and gradually became a sewage area connected to the nearby sewers, and it was putrid [8] 174-199. To solve this problem, J.P. Davis, an engineer, proposed to use an engineered retaining wall to enclose the Back Bay Fens, but this option was not adopted. In 1880, he and Olmsted jointly developed a new scheme -- a natural shaped water system combined with wetland vegetation[6]55,153, which was finally completed in 1895. The Muddy River was transformed in a similar wetland fashion. The Jamaica Pond was fully open during this period, and Olmsted's scheme made very few changes to the status quo and added a parkway around the reservoir. The area open to the public was also extended to the vicinity of the reservoir[7]87-88. Arnold Arboretum was established in 1872 and designed jointly by Olmsted and C.S. Sargent in 1878-1879, but it was officially opened in 1882. Franklin Park, the central part of the entire park system, was basically completed in 1896. Before construction, the undulating topography, expansive views, and lush woodlands on the site already perfectly reflected the landscape of New England.

Analysis of the Morphological Transformation

Influences from Culture and Elite Politics

Before the 19th century, leisure and labor coexisted in the Boston Common. And by the 19th century, the vision of the affluent elite was that they should live near the woods like the European aristocracy. So when the government sold the land on the east side of the Common in 1795, they quickly moved south to the vicinity of the Common. Before the 1820s, the elite repeatedly protested against the productive functions of quarrying, grazing, and milking in the common because of the noise and animal excrement. Previously,

however, the administrative system in Boston was a “town meeting” system, and their proposals could not defeat the massive working class. The unsustainability of the “town meeting” system after the War of Independence led Boston to adopt a representative system after 1822, which made it easier for the elites to achieve control over the city's affairs and to finally realize their gentrification imagination, expelling the productive functions from the Common [6]64-74. The transformation of the Common to a leisure function after 1830 mentioned earlier occurred in such a social context.

In addition, the formation of Commonwealth Avenue and the morphological transformation of Back Bay are clearly linked to the values of elites in Boston. There are two most obvious morphological features of the planned scheme for the Back Bay area: firstly, a grid of road networks paralleled or perpendicular to the former Mill Dam; and secondly, the 240-foot-wide Commonwealth Avenue as a central green axis. There are at least three reasons for this morphological character. Firstly, the square grid layout facilitates the management of the former downtown by the elites. Secondly, the spatial form of Commonwealth Avenue as such and the surrounding Second Empire style buildings represented the ambition of elites in Boston. Thirdly, in order to create a better elitist living environment, Commonwealth Avenue was even extended from 200 to 240 feet [9] 73, [10] 114-115, [11] 15. In fact, in 1852, the government report related to the reclamation clearly stated that the reclamation project was to provide new living space for the elite class as a source of taxation.

Influences from Geography and Geological Conditions

When the main part of the Boston Park System is superimposed on the geological map of Boston, it can be seen that the smaller parts of it, such as the Muddy River, Back Bay Marsh, Commonwealth Avenue, Public Garden, and Boston Common, are roughly located on the soft bedrock of the Charles River Valley. Jamaica Pond, Arnold Arboretum, and Franklin Park are located on the hard bedrock of relatively high terrain, and these three parts are exactly the three largest parts of the whole main part.

This is not really a coincidence. In the 1860s and 1870s, people in Boston did not build a large central park as New York did because of the constraints of both topographic conditions and elite aesthetics. Millions of years of glacial accumulation caused the soft bedrock in the Boston area to sink, and debris and gravel from the ice deposits rolled down on it with the glaciers, creating rugged topographic conditions in the city [12]1-3. For the elites of the time, parks had to be open, sparse and picturesque. This perception made people in Boston believe that they could not build a central park like New York in the rugged city. Coupled with the fact that there was not much open space available in the city, Cleveland and Copeland both believed that Boston should build a park system rather than large scale parks. 1874 also saw official recognition of the limitations imposed by the city's topography. In this way, the slightly larger scale parks were established on the outskirts of the countryside in hard sedimentary rocky areas that were open and sparse, ideal sites for the elite's idea of a "park". Appleton, a geographer, has reminded researchers of the landscape architectural history that the picturesque aesthetic from England was embedded in a specific geological structure [13]. Olmsted once confessed that he was influenced by the British pioneers of picturesque landscape gardens, and that the aesthetic potential contained in the hard sedimentary rocky areas outside Boston inspired his picturesque practice. It enabled the geological conditions to influence cultural practices, resulting in the elite picturesque aesthetics and spatial forms in the Arnold Arboretum and Franklin Park in the suburbs.

Influences from Environment and Sanitary Issues

In the 19th century, American cities suffered from serious urban sanitation problems. 1850 saw the completion of the landmark Shattuck Report [14], led by Boston politician Lemuel Shattuck [14]59-64 Sanitary

reform became an important part of American urban policy in the next half century, especially after the Progressive Movement at the end of the century. This sanitation reform drove a change in the philosophy of urban planning in the United States at that time, with adequate parks, trees and good drainage systems being considered as important ways to enhance public health in cities [15].

In the 1870s, the shrinking size of the receiving basin made the water that poured into the Muddy River increasingly saline and rancid. Even so, the first proposed loan by the Boston Park Commission for the construction of the Back Bay Park purchase in 1877 was not approved by the council. Representatives from the northeastern part, the former downtown area of Back Bay did not support the construction of a park for recreational purposes only in a location far from their own constituency. Later, when the Back Bay Park area was considered as part of the overall city drainage system, the city council approved the loan [16]. The way in which the land purchase was financed is perhaps more structural than Olmsted's personal insight as a designer, explaining why he placed drainage and sanitation issues at the core of his design logic in designing Back Bay Park, and why he transformed the original spatial form into a natural gently slope and saline wetland marsh capable of purifying water. The Back Bay is not the only part of the Boston Park System that relates to improving urban health. According to the Boston Daily Advertiser, in the citywide vote for the Parks Act of 1875, almost all of the wards that were over 70% in favor were along the Charles River or in the original downtown, and these wards were characterized by poor sanitation, high residential density, and crowded space. Even so, the larger portions of the Boston Park System were not laid out in these locations, due to topography, built space, or other factors.

Conclusions

In the following section, a summary of this paper is presented in three ways.

Firstly, this paper shows the spatial evolution of the Boston Park System during the 19th century, and it is possible to see the connection between the transformation of green space and urban space. Moreover, it is important to recognize the context of Boston's cultural politics, geology, and health reform that shaped the spatial context of this relationship. Although these interpretive elements are fragmentary and interpretive, this is an important way for historical research to construct meaning in order to face the present.

Secondly, the analysis of the impact of either cultural politics, geography and geology or health reforms aims to show that planning and design are symbolic representations based on structural and established spatial meanings. The vision of the planning designer gains its importance in the symbolic representation, without playing a dominant role in the construction of spatial meaning.

Thirdly, a perspective of morphological transformation requires viewing urban space as a social construction. This helps to change the idealism of the planning designer, which originated from the Hegelian idealist philosophy of history and has influenced the professional's epistemology and approach to practice through the medium of historical discourse in the field of built environment. Rather than establishing a direct, operational relationship between the two, historical research is beneficial for practice, reminding planners to explore spatial contexts rather than remaining in formalistic discourses deprived of internal meaning.

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APPENDIX 1

Year	Name of Maps	Publisher	Sources of Maps
1806	Boston with its environs（1806）	C.P. Wayne	Norman B. Leventhal Map Center Collection
	A new plan of Boston : drawn from the best authorities with the latest improvements, additionas and corrections（1806）	Norman William	Norman B. Leventhal Map Center Collection
1814	A set of plans showing the Back Bay 1814-1881（1814）	Fuller and Whitney	Internet Archive
	Map of Boston and its vicinity from actual survey（1819）	John G. Hales	Norman B. Leventhal Map Center Collection
1836	A set of plans showing the Back Bay 1814-1881 （1836）	Fuller and Whitney	Internet Archive
	Map of Boston and its vicinity from actual surveys（1833）	John G. Hales	Norman B. Leventhal Map Center Collection
1851	A set of plans showing the Back Bay 1814-1881（1851）	Fuller and Whitney	Internet Archive
	Map of the City and vicinity of Boston, Massachusetts from original surveys（1852）	J.B. Shields	David Rumsey Map Collection
	Map of the city of Boston and immediate neighborhood : from original surveys（1852）	H. McIntyre	Norman B. Leventhal Map Center Collection
1861	A set of plans showing the Back Bay 1814-1881（1861）	Fuller and Whitney	Internet Archive
	New map of Boston, comprising the whole city with the new boundaries of the wards（1863）	W. Forbes & Co.	Norman B. Leventhal Map Center Collection
	Plan of Boston and its vicinity, showing the drainage area of Stony Brook which empties into the full basin of the Back Bay（1863）	Wightman, H. M. & Back Bay (Boston (Mass.). Commissioners.	Norman B. Leventhal Map Center Collection
1871	A set of plans showing the Back Bay 1814-1881（1871）	Fuller and Whitney	Internet Archive
	Map of Boston from the Latest Surveys（1873）	Sampson, Davenport & Co.J. Mayer & Co.	Digital Commons at Salem State University
1881	A set of plans showing the Back Bay 1814-1881（1881）	Fuller and Whitney	Internet Archive
	Map of Boston for 1881（1881）	Sampson, Davenport & Co.,	Library of Congress, US
	Map of Boston for 1883（1883）	Sampson, Davenport & Co.	Library of Congress, US
1891	Map of the city of Boston and vicinity（1891）	Bromley, George Washington.	Norman B. Leventhal Map Center Collection
1908	Map of Boston（1908）	Walker Lith & Pub. Co.	Norman B. Leventhal Map Center Collection