

## **industrialization and the growth of cities in nineteenth-century america**

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The growth of great cities and the industrialization of their economies were central themes of the nineteenth-century American experience in the decades after 1840. Long-established commercial centers were becoming industrialized and new manufacturing cities were growing rapidly. This novel correlation of urbanization and industrialization which strikingly characterized the nineteenth century in America pertained as well to every country where high levels of economic development were attained during the last century. Observed first in England, soon thereafter in the United States, and by 1900 in Canada and some of the countries of Western Europe, this observation on the nature of nineteenth-century urban development, originally formalized by astute observers during the last century, has been confirmed and quantitatively documented. Perhaps the best known interpretation of this relationship is that offered in support for a stage theory of economic growth.<sup>1</sup> From this perspective, industrialization has been identified as the process in which the requisite rise in the rates of capital formation and investment accrues, thereby permitting the take-off into self-sustained growth. This widely held account of the role of industrial expansion focuses on the national context and upon the economic sectors within which growth occurred. But industrialization was measurable not only in terms of national economic indexes. It was a cause and a consequence of urbanization. I want to focus on the particular milieu where these events transpired and to suggest several ways in which the principal themes of this story—population growth, industrial productivity and transportation technology—can be interpreted.

Concerning the significance of these themes there is no longer doubt; they are, in the words of G. M. Young, “facts . . . which dominate the system and move its springs.”<sup>2</sup> Each played a distinctive role in the eco-

conomic and social metamorphosis of which the Victorian city was, perhaps, the single most dramatic product. Population concentration was observed first, and provided a necessary if not always sufficient context for the rise of industrial urbanism. As early as 1843 Robert Vaughan was impressed by the potential cumulative impact of the steady increases in urban numbers, and commented that: "Our age is pre-eminently the age of great cities."<sup>3</sup> In America, a prelude to the process can be found in a dramatic rise in the rate of growth of urban population in the 1840's and 1850's. The highest rate of increase of urban population recorded in the United States occurred between 1840 and 1850; the figure for this decade was 99 percent. During this same decade urban population, defined according to the standard which counted only towns where 8,000 or more inhabitants resided, increased at three times the national rate. In 1840, 8 percent of the population was urban, but by 1860 this figure was over 16 percent.<sup>4</sup> The concentration of population into America's cities has been used as a key to interpreting the fundamental changes which were to overtake the city and remake its relations with its hinterlands.

One of the first American scholars to attribute significance to the early population movements into cities was Edward Channing who, writing in 1921, suggested that rural to urban migration ought to be considered along with frontier expansion as a crucial theme in American history, at least by 1840 or 1850.<sup>5</sup> The importance of the city in his view was that the environment discovered there by the new urbanite was altogether different from the world of the agriculturalist; different social influences were at work in the city than in the country. What Channing had noted in its infancy, Arthur Schlesinger, Sr., examined in full flower. In his seminal volume, *The Rise of the City*, he suggested that between 1878 and 1898 the American scene came to be dominated by its growing cities, and that "the needle of national interest" was to turn from the countryside to the city.<sup>6</sup> Furthermore, he argued, this trend was observable not only in densely populated New England and the middle Atlantic states but also in the South and the Far West. By the turn of the century, according to Schlesinger, America was essentially an urban and industrial nation culturally and economically—and it was still twenty years before the majority of the people were classified as urban by the Bureau of Census.

Population provides the first clues to the process, and conveniently summarizes the results. The impact of technology on urban society was more suddenly and unpredictably experienced, revolutionizing urban industry and transportation. Speaking of America in the thirty years prior to 1914, one author suggests that the country experienced "the transition from a society relatively untouched by industrialism to one almost transformed by it."<sup>7</sup> Late nineteenth-century England has been described, in terms equally applicable to the United States, as "a system raised to ever higher levels of wealth on the basis of a continuous renovation of tech-

nology.”<sup>8</sup> Scholars have discussed this transformation at two different levels of detail: the national or regional, and the local. Studies focusing on the relationships connecting cities to regions and city regions to the national scene have explored economic issues almost exclusively. Two schools of thought have arisen to explain the growth of industrial cities and the novel system of ties which bound them together. The first school seeks causes in the changing relations between the various factors of production; the second explores the concept of comparative advantage by following location theory. I’m going to compare and contrast the interpretation of transportation and industrial technology according to these two schools of thought. Investigators concerned primarily with individual cities have explored the relationships between economic and social conditions and have searched for an understanding of the institutional contexts mediating and responding to change. The analysis of the effects of these changing circumstances on the fabric of urban life focused on identifying social consequences of economic change. Virtually all scholars have had to consider class and status in American cities to be related to their industrialization. This is true even of those scholars who want to demonstrate the continuity of old patterns and divisions in well established urban communities which are now undergoing or have once experienced industrialization. They have seen social mobility and migration, moreover, as consequences of industrial urbanism. They have seen as further consequences of industrial urbanism the enlargement of local opportunity and the coincident, if paradoxical, loss of local control.

Location theory, cultivated primarily by geographers and regional economists, deals in depth with the elements that explain why phenomena (primarily economic) concentrate in one area rather than another. Elements of it that are essential to the present article are described as the need arises.

### industry and the growth of cities

The rise of industry and redistribution of population in the nineteenth century and early decades of the present period have been explained in two ways. First, the process is described in terms of changing methods of production, parameters of entrepreneurship and efficiencies in the distribution of goods. Competing with this analysis is a second approach stressing general principles of location theory; here the aggregate properties of the market are of primary importance.

The analyses that focus on conditions of production emphasize institutional arrangements which permit the accumulation of capital and the application of labor to the production of wealth. From this perspective, industrialization “proceeds *pari passu* with the evolution of the social body”; the enlargement of the market and the growth of industries are consequences of the operation of the social system.<sup>9</sup> For Adna Weber, the concentration of population during the nineteenth century was a

product of differentiation and integration: of increasing heterogeneity of the individual cities which comprised the nation and growing interdependence of cities and their tributary regions. Weber sought to make sense of the manner of city growth by interpreting the changing scale of economic enterprise and the redistribution of population with reference to these Spencerian evolutionary principles. Demographic factors provided a context and limits within which labor was recruited and mobilized. In the first place he noted the tendency for increasing division of labor to erode the village community; easy transportation permitted the population excess from rural districts to migrate readily to the towns. Nineteenth-century England witnessed the removal of the last impediments to this migration, Weber notes. In the words of one economic historian of Britain, a "mobile population . . . flowed naturally to the 'pressure points' of the economy." These were the growing industrial cities "where demand for labour was greatest and the supply in particular categories of jobs most lacking."<sup>10</sup> But it was not only migration that filled the new demand for labor. J. D. Chambers' careful study of one English industrial city demonstrated that before 1800 natural increase of the population was possible because of a sharp rise in the birth rate.<sup>11</sup> In America there never were the restrictions on migration to which Weber referred concerning Britain. As has been mentioned, rural to urban migration was already significant in America as early as 1840.<sup>12</sup> Abnormally low fertility rates for an American mill town during the mid-nineteenth century have been interpreted as a "differential demographic response to somewhat unique economic conditions" which placed a premium on factory jobs "which were particularly appropriate to the employment of women."<sup>13</sup> Conceivably, other towns where unskilled and semi-skilled employment opportunities attracted many more female than male migrants share in this demographic character.

The growth and redistribution of population coincided with the expansion of urban economic activity. The logic of Adam Smith was followed by Weber who suggested that commerce and mercantilism permitted an important enlargement of economic society which in turn encouraged the diversification of industry. Growing commerce accompanied the specialization of function and the territorial division of labor. The economic system characteristic of nineteenth-century cities was, according to this perspective, made possible by the growth of trade; "its triumph was assured by the invention of power machinery . . . and the development of the modern systems of transportation and communication in the nineteenth century."<sup>14</sup> The capacity of new methods of production to increase output and to provide for a market beyond old local trade boundaries is documented in many studies of towns undergoing industrialization. Industrial innovation and initial historical advantage could not guarantee sustained urban growth in the absence of effective transportation facilities, however, as the case of Congleton makes clear. The

first silk mill opened in this English Midland town in 1762 and by 1815 this prospering industry had transformed the place into a factory city. But growth ultimately relied upon the effectiveness of transportation to secure a market, and Congleton remained relatively remote when bypassed by a canal opened in 1777. A canal finally reached the city in 1831, but by this time it was "thirty years too late to be of great help to Congleton."<sup>15</sup> New mills did not spring to life on its banks, and industrial raw materials and finished products continued to require expensive transshipment. Steam technology was initially resisted because the need for a short overland haul of coal made it an expensive fuel, and because water power was plentiful. By 1834, steam-powered machinery was improving local conditions and by 1848 the railway had reached Congleton; these developments probably saved the place from total stagnation, but they could not radically alter the unfavorable competitive relationships with its better-served economic rivals which had by now gained decisive advantages in their access to markets. The classic nineteenth-century urban success stories occurred in those cases where transport systems developed in step with specialization of production and the utilization of improved technology. These are standard elements of the biographies of all the great industrial metropolises of America.<sup>16</sup> Industries were organized and production processes integrated so as best to take advantage of marketing economies. In the nineteenth century this usually meant most processing and final fabricating took place in the large cities with the best access to widespread consumers. Chicago is merely the most striking example of this phenomenon.<sup>17</sup>

The role of the entrepreneur is often critical in accounting for the timing, location and success of industrialization. Behind every successful city lies at least one enterprising entrepreneur. The different histories of Pullman, Illinois and Harrisville, New Hampshire result at least in part from the strategies followed by their respective captains of industry.<sup>18</sup> The emphasis on the families who control the industry is more clearly explored in monographs on America's smaller industrial towns, perhaps because here individual careers can more easily be related to the town's progress. A principal theme of the best community studies of early twentieth-century America has been the loss of this critical initiative to the town as the remote corporation succeeded the local industrial capitalist as the organizer and controller of this country's productive capacity.<sup>19</sup> Such developments in small cities which had failed in the larger sweepstakes marked the decisive loss of one of the principal ingredients promoting urban growth: local initiative.

The story of the industrialization of the craft industry is also the process by which technology is harnessed to production, a feat which frequently involved the destruction of "restraints that the institutions and the temper of the Middle Ages" had placed upon the organization of enterprise and labor.<sup>20</sup> Measures which overcame obstacles to the free

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exchange of labor and reduced the privilege of skill permitted the victory of capital. The defeat of long-established craft systems with the advent of the factory is a recurring theme. The timing and particularities of the change in production methods and organization were different for each craft, but the results were the same. The textile industry was one of the first to feel the impact of new machinery; in the cotton industry new technology initially forced the concentration of production at sites where water power was plentiful. This often meant building factories away from populated places. After 1785, however, when steam power had been harnessed to a cotton mill, the factory became as mobile as its new energy source. The industry promptly moved to the towns, and especially to those places such as Liverpool and Manchester, where communication was easy and cheap and where buying and selling was concentrated. Technology applicable to the mechanization of cotton manufacture, the enlargement of demand, and the reorganization of supply fueled an enormous growth of production in this industry.<sup>21</sup>

The story of pottery is quite different. The introduction by Josiah Spode of bone paste into the constituents of china made cheap porcelain available and concentrated the industry around five Staffordshire towns. The industrial revolution did not mean mechanical power in this industry, but instead had to do with mass, cheap production utilizing well-organized human energy.<sup>22</sup> Strands of arguments such as these determine many of the details of the history of industrial towns both in Britain and America in the nineteenth century.

In sharp contrast with this approach is the explanation<sup>23</sup> that resorts to the logic of location theory to explain the advantages of larger cities—concentration of production and cheaper per-unit cost—which were so central to the concentration of manufacturing in the last century. Charles Cooley was among the first to argue strenuously for such a perspective when he proposed that transportation advantage was of paramount importance in explaining the location of cities; that “a break in transportation is the indispensable condition of the formation of a commercial city.”<sup>23</sup> The question in this case is not how the institutionalization of economic life created trade and manufacturing but rather how specialization economies and reduction of the cost of transport were translated into advantage for one given urban place over another. Smolensky and Ratajczak have argued this general proposition from a Löschian perspective, attempting to persuade us that a city will emerge from a smaller existing settlement serving a local agricultural hinterland if specialization takes place which permits the enlargement of the local hinterland. Growth will be generated, they suggest, by the consequent attractiveness of this site as a locus of production for market-oriented industries.<sup>24</sup> Continuing growth is then guaranteed so long as cost advantages of transportation to market are not conferred on a competing site. Smolensky and Ratajczak propose to use these principles to explain the growth of even



such a city as San Diego; they think that the unique endowment of the site and the city's unusual specialization are less important than attracting market-oriented trade and protecting it by keeping transportation cost low.<sup>25</sup>

From this perspective the functional complexity of the urban labor force is a consequence of other factors and is not considered to be a cause of growth. This proposition has been generalized and explored in a regional context under the label of the principle of circular and cumulative causation. Applied to the growth of cities during periods of "industrial revolution," this proposition emphasizes the importance of transportation in creating cost advantages in a given location.<sup>26</sup> Labor accumulates at places possessing some functional specialization, compounding this initial advantage and influencing subsequent plant location decisions. Advantages of agglomeration then permit the growth of inordinately large concentrations of manufacturing where relative transport and marketing conditions are especially favorable. Much of the literature devoted to nineteenth-century regional urban and economic growth shares this perspective. City growth as a problem in relative location has absorbed much attention. Mechanisms of change are considered to relate to aggregate properties such as the geographic pattern of transport cost and accessibility to market. The behavior of individual cities is assessed in comparison with the relative standings of all others under the assumption that they all exist in a perfectly competitive relationship to each other.<sup>27</sup>

Evidence supporting this relativistic stance has been found in several places. In nineteenth-century contexts, the question is why urban growth should have continued so rapidly in the largest urban places at a time when systems of cities were emerging on national landscapes as a direct response to regional growth and the improvement of transportation. For already by 1899 Adna Weber argued persuasively that

. . . the centralization of manufacturing industry has reached its limit. A reaction toward decentralization began when manufacturers located their mills in the suburbs of large cities. . . . In recent years the decentralizing movement has taken a still more favorable turn, largely as a result of continued improvements in transportation methods and a more enlightened policy on the part of railway managers. . . .<sup>28</sup>

Weber was referring to the fact that freight rates had already been equalized over large areas so that distances, other than transcontinental, were losing their importance. For this reason the particular advantages enjoyed formerly by specific sites were being diminished. These economic considerations have been answered with data on the localization of inventions and the continuing high cost of communication in the pre-electronic era.<sup>29</sup>

A more general response to this question of why there should have been continuing high rates of growth in the largest industrial cities, de-

spite their loss of competitive advantage as a result of declining costs of transportation and the spatial equalization of access to markets, can be formulated by analyzing the relationships between the rates at which various cities grew and the timing of technological revolutions in transportation. If cities are ranked according to their population, the distribution of city sizes can be compared for each decade during the nineteenth century and the relative ranking of each place at various times can be recorded.

Two important findings have emerged from such analysis. First, there is a marked variation among the cities in their growth over the century. Not only is there wide variation in their growth rates, but the rank-size distribution of all cities could have arisen by chance. This is to say, given an initial array of cities by size categories, the actual distribution of city sizes in the United States at each decade during the nineteenth century could have been generated by a probability model used to assign population increments to each place at each of a series of time intervals.<sup>30</sup>

The possibility that the rank-size distribution of cities could have been produced by the operation on an initial series of city sizes by random growth inputs, to say the least, strains the particularistic explanations of growth which urban biographers usually provide.

Second, an examination of the growth of individual cities reveals some systematic relationships between transportation mode, access to market and city size. A few cities consistently rank highly throughout the period, some new cities rise to high ranks and some formerly large places fail to maintain relative standings.<sup>31</sup> Some evidence has been presented suggesting that urban success and failure, measured by this standard, correlates with the ability of cities to preserve or attain favorable access to markets at times of revolutions in transportation.<sup>32</sup> Decisive advantage in location is redefined when changing modes of transportation remake the map of cost-distance contours. Those cities which have preserved their standing have retained their favorable position with each remaking of the map of economic accessibility. New cities which have risen to high standing have done so by capitalizing on possibilities of capturing new and of reallocating existing markets at times when significant transportation innovations occur. Chicago provides an ideal case of this type; a whole new network of rail communications radiated from the city providing it with unparalleled access to a growing hinterland served by steam and iron. Those large cities that subsequently failed to compete lost because they were shut out of distant markets and made inaccessible to regional trading areas as changing transportation technology remade the economic map. The variability of city growth, correlated with industrialization, bears less relation to adjustments of transport rates and accessibility during the age of the railway than to redefined opportunities realized when transportation technology changes dramatically. This modern explanation of the localization of scale and the concentration of

industry bears striking resemblance to Cooley's earlier theory if one substitutes a more economically refined conception for his topographic definition of locational advantage.

#### industrialization and the fabric of urban society

The Industrial Revolution was . . . a blind force. . . . It could be promoted by a large number of people pursuing their own objectives without thought . . . of what the effects of their activities on the community in which they lived or on the people through whom they worked might be.<sup>33</sup>

This recent view of the growth of industries in cities conveys a long-standing doubt that the industrial regimen was compatible with principled urban life. Industrialization has been viewed as the agent of city ruination, the unwelcomed product of private greed and the uncouth challenger of the continued efficacy of family life and religious belief. In contrast with this still popular idea of industry as a destructive and unwelcome force unleashed in the land is another which sees the new economic system as an agent of fundamental social change.

Perhaps only two generalizations are certain to be acceptable regarding the dynamics of change. First, the transformation of the city was rooted in an economic experience. As S. G. Checkland has suggested, the economic model of change is basic to an understanding of the social and geographic models.<sup>34</sup> Second, technological change comprised a series of specific steps which occurred in a particular social context which mediated the influence of invention in the city. "Technological innovation was only one of the factors involved in what was primarily a sociological change in the intricate relationships of town and trade."<sup>35</sup> The pace of economic progress regulated the change occurring within the city, but it is now clear that neither population growth by itself nor factories planted in isolated areas were sufficient to create an urban-industrial milieu.<sup>36</sup> Philadelphia, prior to the advent of factory industrialization, grew rapidly without important changes in the structure of employment and the scale of production. On the other hand, the industrial suburb of Pullman, Illinois, resembled more closely the early factory village than the industrial city so long as control of its population remained securely in the hands of an individual entrepreneur.<sup>37</sup> The social consequences of the profound economic transformation of the city undergoing industrialization are not simply the result of new production methods at larger and larger scales, but are also related to a shift in the ranks of the most economically active population. As Oscar Handlin puts it, "the generative impulses were not contained within the older urban society of merchants, artisans, and functionaries."<sup>38</sup>

The social product of these developments can be discussed with reference to three dimensions of change. First, there grew up a new system of class distinctions based upon novel conceptions of privilege and changed

parameters of economic influence; second, an unprecedented territorial segregation of the population, developed along lines of class, characterized urban social landscapes by the end of the century; and third, the expansion of local opportunity coincided roughly with the loss of local control over the means of production.

Concepts of class were obviously changed when the principal distinctions within urban society were no longer based on birth but on ownership of the means of production as contrasted with laboring for wages. Well before 1900 in cities in America and other industrialized countries commentators recognized the significance of ownership. The most important social divide was that which separated individuals who managed opportunities and those whose labor was contracted for. Control was conceived by contemporaries to derive from the ownership of land and the overlordship of labor. Land was that speculative commodity onto which growing cities expanded.<sup>39</sup> For Henry George it was not the exploitation of land for residential construction which brought the greatest returns but rather the concentration of labor in ever increasing numbers in the tall new factories which multiplied the potential returns to real property ownership.<sup>40</sup> Charles Booth, among others, was impressed by the opportunities for wealth and the responsibilities incumbent upon the growing ranks of the captains of industry.<sup>41</sup> The class consciousness of the nineteenth-century city can readily be related to the rising importance of the new industrial "orders" but was first discussed in the context of poverty which early was a very conspicuous component of the urban landscapes. Engel's observations of 1844 on the plight of the poor in Manchester focused attention on the issue for the rest of the century on both sides of the Atlantic.<sup>42</sup>

But the class distinctions which made city social landscapes replete with meaning were not only based on the primordial division between the rich and the poor. The social stratification of the population reflected in detail the new calibrations of occupation and entrepreneurship which arose from the redefined matrix of opportunity inside and outside the factory.<sup>43</sup> New middle and professional classes were perhaps more important in their social contribution than the greatest of the industrialists, for they were numerically preponderant and culturally predominant. Their organizations and attitudes have been significant in setting the tone of national as well as urban life in the final decades of the century, according to both urban and social historians.<sup>44</sup> It was this large and expanding group of people whose support for social causes was critical for their success, and it was from this milieu that the urban reformers who subsequently would attempt to ameliorate life in the immigrant wards—an intervention which sought to stamp on these nether regions the cultural imprint of middle class values—would emerge.<sup>45</sup> The middle classes invested the city with the physical symbols of their cultural values, and these buildings and institutions are the most important sign of their

ascendancy. The social capital which these classes displayed in the city reflected their fondness for the accomplishment of building a middle-class city as well as their trepidation lest they lose it by default.<sup>46</sup> This attachment by one group to many of the most impressive institutions of the era was true not only in the largest metropolitan areas but also in the smaller factory cities where their imprint was indelible. Middletown, U.S.A. was just beginning to shed this tradition in the mid-twenties when the Lynds first wrote about the city.<sup>47</sup> More recently this class dimension of nineteenth-century industrial cities has been defined as the pervasive search for private wealth in which the middle and upper ranks of society were successfully engaged. One author has declared that this theme provides a principal avenue for investigating the American city and that "privatism" is perhaps the single most important tradition honored in the American city.<sup>48</sup> A concept of "privatism" is, of course, central to an appreciation of the private wealth collected within the cities, but it must be recognized as a positive force leading to the public achievements and programs which also characterized the Victorian city in America and elsewhere: privatism was expressed in public benevolence as well as in the individual management of money.

The emphasis put on the private search for wealth tends to obscure the fundamental fact that those engaged in this activity were a varied group, that wealth in industrial cities did not primarily involve the management of inherited resources. Social mobility was a central fact of life in the nineteenth-century city. Indeed, it has been suggested that the phrase "middle class" emerged as a proud declaration of recently acquired status within the industrial cities.<sup>49</sup> From this perspective the more notable attribute of the language of class is its fluidity; it was a device to promote identity within an expanding group which shared many interests, and was not an implied insult to those who had not achieved the designation. Speaking of the influence of technological changes, especially those involved in industrialization, on the development of class structure, G. D. H. Cole suggests that "the essence of the class systems . . . has been, not indeed that they were closed . . . but that the boundaries of each class were . . . sharply defined." The trend, he asserts, has not been polarization principally but rather "the increasing differentiation within, and blurring of the lines between, classes. . . ."<sup>50</sup> This view of the malleability over time of class definition and composition is essentially in harmony with a recent emphasis on social mobility within the city. The achievement of middle class status was not limited to ethnic groups or defined along religious lines. The lists are even fuller if one includes those who tried but failed to rise to this form of respectability.<sup>51</sup>

There is more to be said about the wage earners of the city than that they were engaged in a perpetual struggle to rise above current stations, however. Most significant, perhaps, for this large majority of the urban population was the redefinition of labor and of opportunity which accom-

panied the mechanization of production and the routinization of labor. The privilege of skill not only ceased to be inheritable from generation to generation, it was not guaranteed for even a single lifetime. A considerable controversy has arisen as to whether labor's welfare was threatened by this change.<sup>52</sup> This is a controversy that will not be resolved statistically, for it involves an individual's ability to respond to two developments: the redefinition of occupations, and the increasingly footloose nature of opportunities. The "blocked mobility" hypothesis has been propounded by those who have examined small cities which were caught in larger currents of change.<sup>53</sup> The question can only be addressed properly at a scale greater than the individual community. The wage-earning population has been credited with little of the dynamism which has been attributed to the middle classes. Working classes have usually been regarded as products rather than producers of the revised urban culture. In America there is still no clearly enunciated distinction between concepts of class based upon occupation and those related to ethnicity for the period of massive urban immigration from overseas. The melting pot hypothesis suggests implicitly that immigrants were only ethnics until they had achieved some Americanization and middle-class standing. Recent studies have added more to the confusion by examining the lives of only those born into the blue collar classes.<sup>54</sup> Escape is not the only theme to be explored in establishing the dimensions of urban working class culture.

The concept of class took on spatial definition as well as social meaning. The separation of the new classes into distinct regions of the city represents the second descriptive element distinguishing the new industrial from the old commercial city. Space was assigned to the highest bidders, and these chose to pay for amenities such as accessibility to the center of the city where their business was conducted and bucolic charm in the residential environments where their families were deposited for safe keeping.<sup>55</sup> Segregation was achieved not only by the wealthy but gradually by those of other social ranks who increasingly came to afford this expression of their preferences. Whereas the small degree of segregation which had existed in the old commercial city was the involuntary isolation of small groups of the poorest inhabitants, the new was voluntarily achieved and proudly displayed by almost all the population. Principles of occupation, ethnicity and family structure were provided with territorial meaning.<sup>56</sup> Segregation was the joint product of transportation technology and taste. The increasing scale of the growing city made escape from the commercial core of the city impossible without effective public or private transportation. Public transportation provided economical and fast service to all parts of growing cities, and assured access to the suburbs for the professional and middle classes.<sup>57</sup> Transportation also freed the workers from the necessity of living within walking distance of the factory or shop. When workingmen's fares were offered by transit companies the factory operative was freed from the necessity of

selecting his residence in proximity to his place of work. The sorting and shifting of this population has proceeded to this day, producing a rich array of voluntarily segregated neighborhoods. The streetcar epitomized the growing city of the past century, and it is an appropriate symbol not only because it was the product of new technology but because it helped to accomplish the basic reorganization of population into territories possessing social homogeneity and fixed status.

The enlargement of local opportunity was widely recognized by contemporaries to be a benefit of nineteenth-century industrialization.<sup>58</sup> More recent scholarship has emphasized the fact that this often meant the loss of local control over local industrial enterprise.<sup>59</sup> The influence of the "outside," as it has been called, was felt in several ways. Industrial management was recruited from beyond the boundaries of the town or family, investment decisions ceased to rest in the community and job security was threatened by management as well as by technology. But labor was becoming mobile, and even in Yankee City the immigrant was statistically significant in the period when old traditions were supposedly holding firm.<sup>60</sup> Recent research is confirming the importance of measuring opportunity for local residents not only in terms of local employment. A substantial literature now suggests that there was tremendous locational instability displayed even by those who could ill afford the costs of migration.<sup>61</sup> The paths to success were numerous and by no means did everybody trying succeed. It does appear to be important, however, to recognize that the "blocked mobility" hypothesis cannot possibly be demonstrated with documentation from individual town studies: this was not the context within which the search for opportunity was conducted. This conclusion seems to be supported by research on foreign immigrants as well as on native-born city workers.<sup>62</sup> The correlation of migration rates to cities with the expansion of the economy and demand for labor, disturbing and difficult to interpret in itself, adds some further support to the contention that expanding opportunities for urban working people cannot be estimated only by examining individual communities.<sup>63</sup>

### conclusion

Nineteenth-century urban and industrial growth can be thought of as a statistical correlation and a social and economic process. Industrialization is a concept which summarizes a basic change which overtook the city's economic character and revolutionized the urban social and spatial structure. To understand the nature of industrialization, the process must be traced far beyond the gates of the large factory which was the preeminent physical mark of its hold upon the city. Its impact can be discerned in the intensified competition for the larger markets required if specialization and mass production are to realize their economic potential. Competition meant improving access to markets, and the struggle of firms and towns to secure transport advantage over rivals reveals the critical im-

portance of communications. Any explanation of the pattern of location of industrial cities must account for relative transport advantage. Likewise, any consideration of the process by which economic activities industrialize and become urban must recognize the importance of technological innovation, entrepreneurship and the institutional setting which confer advantage unequally across the landscape. The economic parameters of trade and growth and technological renovation are far from independent of the social makeup of the community. Migration and demographic structure can scarcely be ignored if one is to explain the success of industrial urbanization. Likewise, the changing concepts of class are more than indirect reflections of the process, for the social context of industrialism influences the meaning of the concept. The social standing of the captains of industry and of the middle professional and managerial ranks is scarcely less directly related to the development of the urban industrial city than the availability of markets for the assembly line products. Nineteenth-century America witnessed myriad small initiatives, successes and failures; the progress of industrialization cannot be understood without accounting for the nature and sources of entrepreneurship and experimentation. A fluid class system was both a cause and consequence of this activity.

It is incorrect to suppose that the presence of large factories somehow set an evolutionary course for American urban growth. Factories, large or small, by their mere presence do not effect fundamental social change. In some countries they were established in the countryside and isolated completely from organized urban life. Even where they migrated to the cities, such as in America, the concentration of mechanized productive power does not provide a predictive model of urban social and economic change. If, in the long term, certain economies of scale and improved access to large markets were achieved by large industries in large cities, it is still necessary to establish the means whereby such arrangements were created. The relationships between industrialization and urbanization will scarcely be understood by invoking some vague concept of final results; it is in the process of growth that the principal questions lie. The fabulous records of success and failures, of changing locational reference points and of spatial reallocation of investment testify to the inadequacy of any elementary model of simple cause and direct effect.

Likewise, social contexts in and of themselves were not determining criteria of city growth. Any examination of the radically differing rates of growth of cities will make this point clear; the most rapidly expanding places were not prospering because they possessed a unique social environment. Understanding of the nature of nineteenth-century industrial urbanism will come from a synthetic view which focuses on the joint effects of economic and societal change and development, at the local and regional or national scale. Theorems presented as competing explanations aid in the essential task of defining the nature of the problem, they



do not preclude a synthetic view. The industrial American city can best be appreciated by understanding the joint operation of several processes at various scales as they interact to produce a remarkable cultural artifact which was perhaps the most significant achievement of the age.

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### footnotes

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3. Robert Vaughan, *The Age of Great Cities* (London, 1843), 1.
4. The statistics on American urban growth are taken from Adna Ferrin Weber, *The Growth of Cities in the Nineteenth Century* (Reprint edition; Ithaca, N.Y., 1963), 22.
5. Edward Channing, *A History of the United States*, Vol. V: *The Period of Transition, 1815-1848* (New York, 1921), 70-91.
6. Arthur Meier Schlesinger, *The Rise of the City* (Paperback edition; Chicago, 1971), 1.
7. Samuel P. Hays, *The Response to Industrialism, 1885-1914* (Chicago, 1957), 1.
8. S. G. Checkland, *The Rise of Industrial Society in England, 1815-1885* (London, 1964), 387.
9. Weber, *The Growth of Cities*, 183.
10. Peter Mathias, *The First Industrial Nation* (New York, 1966), 197.
11. The reference is to the paper by J. D. Chambers, published as chapter V in L. S. Pressnell, ed., *Studies on the Industrial Revolution* (London, 1960), 97-124.
12. Channing, *A History of the United States*.
13. Frank L. Mott, "Portrait of an American Mill Town: Demographic Response in Mid-nineteenth Century Warren, Rhode Island," *Population Studies*, XXVI, (1972), 157.
14. Weber, *The Growth of Cities*, 187.
15. This assessment is made by David Iredale in his discussion of Congleton industry in W. B. Stephens, ed., *History of Congleton* (Manchester, U.K., 1970), 133.
16. A bibliography of the more important biographies of American industrial cities is provided in Charles N. Glaab's chapter in Philip M. Hauser and Leo F. Schnore, eds., *The Study of Urbanization* (New York: 1965), 53-80.
17. A classic examination of Chicago's competition for markets is contained in Wyatt Winton Belcher, *The Economic Rivalry Between St. Louis and Chicago, 1850-1880* (New York, 1947). Statistics of the results and a comparative analysis can be found in Allen R. Pred, *The Spatial Dynamics of U.S. Urban-Industrial Growth, 1880-1914* (Cambridge, Mass., 1966), 46-78.
18. Stanley Buder, *Pullman* (New York, 1967), and John Borden Armstrong, *Factory Under the Elms* (Cambridge, Mass., 1969).
19. The studies of Robert and Helen Lynd have made this point very clear. Robert S. Lynd and Helen Merrell Lynd, *Middletown* (New York, 1929), and *Middletown in Transition* (New York, 1937).
20. J. L. Hammond, and Barbara Hammond, *The Rise of Modern Industry* (New York, 1926), 109.
21. Mathias, *The First Industrial Nation*, 126-33.
22. Hammond and Hammond, *The Rise of Modern Industry*.
23. Charles H. Cooley. *The Theory of Transportation* (Baltimore, 1894), 98.
24. Eugene Smolensky, and Donald Ratajczak, "The Conception of Cities," *Explorations in Entrepreneurial History*, II (1965), 90-131.
25. For the general development of the logic applied by Smolensky and Ratajczak see August Losch, *The Economics of Location* (New Haven, 1954; 1952 trans.).
26. Allan Pred, *The External Relations of Cities during Industrial Revolution* (Chicago, 1962).
27. C. H. Madden, "On Some Indicators of Stability in the Growth of Cities in the United States," *Economic Development and Cultural Change*, IV (1956), 236-52.
28. Weber, *The Growth of Cities*, 202-203.
29. Representative of the discussion on the localization of invention and industrialization are the essays by Robert Higgs in Kenneth T. Jackson and Stanley K. Schultz, eds., *Cities in American History* (New York, 1972), 16-22; and Allen R. Pred, "Large City Interdependence and the Preelectronic Diffusion of Innovations in the U.S.," *Geographical Analysis*, III (1971), 165-81.
30. Perhaps the best discussion of this large literature can be found in Rutledge Vining, "A Description of Certain Spatial Aspects of an Economic System," *Economic Development and Cultural Change*, III (1954-55), 147-95.

31. Fred Lukermann, "Empirical Expressions of Nodality and Hierarchy in a Circulation Manifold," *The East Lakes Geographer*, II (August, 1966), 17-44; and John R. Borchert, "American Metropolitan Evolution," *The Geographical Review* LVII (1967), 301-32.
32. Borchert, "Metropolitan Evolution."
33. G. Kitson Clark, *The Making of Victorian England* (New York, 1969), 108.
34. S. G. Checkland, "The British Industrial City as History: The Glasgow Case," *Urban Studies*, I (1964), 34-54.
35. John Prest, *The Industrial Revolution in Coventry* (London, 1960), 139.
36. For two discussions of population growth without economic reorganization in Philadelphia see the paper by Stuart Blumin in Stephan Thernstrom and Richard Sennett, eds., *Nineteenth-Century Cities* (New Haven, 1969), 165-208; and Sam Bass Warner, Jr., *The Private City* (Philadelphia, 1968), 49-157.
37. Buder, *Pullman*; and Sidney Pollard, "The Factory Village in the Industrial Revolution," *English Historical Review*, LXXIX, (1964), 513-31.
38. This comment is contained in Handlin's paper in Oscar Handlin and John Burchard, editors, *The Historian and the City* (Cambridge, Mass., 1963), 3.
39. A fine discussion of the speculative development around Boston is contained in Sam B. Warner, Jr., *Streetcar Suburbs* (Cambridge, Mass., 1962). A similar study of South London is that of H. J. Dyos, *Victorian Suburb* (Leicester, U.K., 1961).
40. Henry George, *Progress and Poverty* (New York, 1883).
41. Charles Booth, *Life and Labour of the People in London* (3rd ed., 17 vols.; London, 1902-1903).
42. A recent available translation of Engels writings on Manchester in 1844 is *Karl Marx and Frederick Engels on Britain* (2nd ed.; Moscow, 1962). One of the classic studies of urban poverty remains that of B. Seebohm Rowntree, *Poverty: A Study of Town Life* (London, 1901). In America the writings of Settlement House workers and "muckrakers" reveal the continuing condition of poverty. One vivid account is provided by Jacob A. Riis, *How the Other Half Lives* (New York, 1890).
43. The best single treatment on social mobility and industrialization is that of Stephan Thernstrom, *Poverty and Progress* (Cambridge, Mass., 1964). Other essays are found in Thernstrom and Sennett, *Nineteenth-Century Cities*. An early classic essay on this theme is that of Leon S. Marshall, in Caroline F. Ware, editor, *The Cultural Approach to History* (New York, 1940), 140-61. This theme is a standard one in the histories of towns and cities undergoing industrialization. Two examples from the American literature are: Vera Shlakman, *Economic History of A Factory Town* (Northampton, Mass., 1934); and Constance McLaughlin Green, *Holyoke, Massachusetts* (New Haven, 1939). Lloyd Warner considered this problem in detail. W. Lloyd Warner, et al., *Social Class in America* (Chicago, 1949).
44. This is a central point in the work of Arthur Meier Schlesinger, *The Rise of the City*. A forceful interpretation of the cultural significance of the new urban classes in the national arena is provided by Robert H. Wiebe, *The Search for Order* (New York, 1967).
45. The Settlement House produced an important literature revealing middle-class perspectives on poverty in late nineteenth-century American cities. From Boston comes perhaps the richest writing. Robert A. Woods, editor, *The City Wilderness* (Boston, 1898); Woods, *Americans in Process* (Boston, 1902); and Robert A. Woods, and Albert J. Kennedy, *The Zone of Emergence* (Abridged and edited; Cambridge, Mass., 1962).
46. This theme is explored by Asa Briggs, *Victorian Cities* (London, 1963).
47. See footnote 19.
48. See footnote 36.
49. This theme is developed in the paper by Asa Briggs in Asa Briggs, and John Saville, editors, *Essays in Labour History* (London, 1967), 43-73.
50. G. D. H. Cole, *Studies in Class Structure* (London, 1955), 36-37 and 41.
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53. This thesis has been developed in the work of the Lynds on Middletown and also by Lloyd Warner and his associates. For example, see W. Lloyd Warner, and Paul S. Lunt, *The Social Life of a Modern Community* (New Haven, 1941); and Warner, and J. O. Low, *The Social System of the Modern Factory* (New Haven, 1947).
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displayed in Thernstrom and Sennet, *Nineteenth-Century Cities and Knights, Plain People* among others.

55. The literature on suburbanization is by now enormous. Segregation and suburbanization is discussed in Peter G. Goheen, *Victorian Toronto, 1850-1900* (Chicago, 1970); James E. Vance, Jr., "Housing the Worker: The Employment-Linkage as a Force in Urban Structure," *Economic Geography*, XLII (1966), 294-325; and Vance, "Housing the Worker: Determinative and Contingent Ties in Nineteenth-Century Birmingham," *Economic Geography*, XLIII (1967), 95-127; David Ward, *Cities and Immigrants* (New York, 1971).

56. Peter G. Goheen, *Victorian Toronto*. The turn of the century writings of Charles Booth contain notable references to these principles of residential sifting. In America the Settlement House literature contains some clues to this process as well. A clear statement of segregation by economic class, or "nation" as he called them, is contained in Edward Bellamy's late nineteenth-century classic. Edward Bellamy, *Looking Backward* (Cambridge, Mass., 1967).

57. Transportation is discussed in a good number of monographs on the late nineteenth-century city. Sam B. Warner's *Streetcar Suburbs* gives a full statement for an American city. Zane L. Miller, in his book, *Boss Cox's Cincinnati* (New York, 1968) has a good deal to say about transit lines and politics, two very closely related subjects. The ubiquity of the streetcar in American cities is documented in Arthur J. Krim, "The Innovation and Diffusion of the Street Railway in North America," (Unpublished master's dissertation, University of Chicago, 1967).

58. This theme has been extensively discussed in the writings of Charles Booth, *Life and Labor*.

59. These themes are developed in the writings of Robert and Helen Lynd and of W. Lloyd Warner.

60. W. Lloyd Warner developed the idea that traditions in Yankee City survived industrialization. The importance of the immigrant in the same town is stressed by Stephan Thernstrom, in *Poverty and Progress*.

61. The studies of social mobility frequently point this out. See, for example, Peter Knights, *Plain People*.

62. This point is made in the following three quite dissimilar studies. Sidney Goldstein, *Patterns of Mobility, 1910-1950* (Philadelphia, 1958); Gerd Korman, *Industrialization, Immigrants and Americanizers* (Madison, Wisconsin, 1967); and John Modell, "The Peopling of a Working-Class Ward: Reading, Pennsylvania, 1850," *Journal of Social History*, V (1971-72), 71-95.

63. Brinley Thomas, *Migration and Economic Growth* (Cambridge, U.K., 1954).