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## John Borchert's "American Metropolitan Evolution"

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JOHN BORCHERT'S  
"AMERICAN METROPOLITAN EVOLUTION"

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John Borchert's 1967 classic "American Metropolitan Evolution" is the article that had the greatest influence on my conceptualization of urban geography. The article appeared during my first year as a graduate student and immediately became a kind of "text" in a very popular two-quarter sequence on "The Geography of American Cities" at the University of Minnesota. It presented a cogent organizational structure for the relative growth and decline of cities in the United States related to three technological/transportation innovations: the application of the steam engine to water and land transportation; the installation of steel rails, which, along with the widespread use of electric power, permitted more powerful railroad traffic; and the introduction of the internal-combustion engine to transportation and the shift to a service economy. Urban growth was thus divided into four epochs: the "Sail-Wagon Epoch," 1790-1830; the "Iron Horse Epoch," 1830-1870; the "Steel Rail Epoch," 1870-1920; and the "Auto-Air-Amenity Epoch," 1920-. As each succeeding innovation took hold, new conditions for growth or decline emerged, the results of which could be observed in the relative increase or decrease in metropolitan population size.

Borchert recognized that the periods neither were homogeneous nor had sharp boundaries. In fact, a "Canal Epoch" (1820-1840) affected some cities -- notably in upstate New York -- during the early "Iron Horse Epoch," and the "Electric Interurban Railway Epoch" (1900-1930) affected some during the "Steel Rail Epoch" and the early "Auto-Air-Amenity Epoch." These examples complicate any simple classification. Furthermore, many short-term effects at individual locations were constantly superimposed on the overall pattern, causing even more variability.

Among the very interesting data summaries were Borchert's map and chart of the percentage of 1960 population accumulated in the various historical epochs (1967, 326, 329). For example, by the end of the "Sail-Wagon Epoch" -- 1830 -- the population of New York City was only 3 percent of what it had become by 1960. The New York metropolitan area grew by an additional 11 percent of the 1960 population in the "Iron Horse Epoch," by 44 percent in the "Steel Rail Epoch," and 42 percent in the "Auto-Air-Amenity Epoch." Albany-Schenectady-Troy has a very different profile: in each of the four epochs the metropolitan area accumulated an additional 25 percent of the total 1960 population. This profile is in sharp contrast with that of both Miami-Fort Lauderdale and Las Vegas: Each of these metropolitan areas had accumulated only 4 percent of its 1960 population before the auto-air-amenity period began in 1920. Because the different epochs are also characterized by buildings of various densities and architectural types, the street layouts, urban densities, and building ages and styles are very much a function of the epoch in which the greatest population growth occurred.

"American Metropolitan Evolution" appeared at a time when geography itself was struggling

over whether it was to evolve as “nomothetic” -- a “spatial science” that sought general laws to describe objective phenomena -- or as “idiographic” -- place specific or contingent and subjective (Lukermann 1964, 1965; Bunge 1966; Harvey 1969). In those days many geographers considered the *Geographical Review* to lean more toward historical/cultural/contingent geography than did journals such as *Geographical Analysis*, founded in 1969 as an outlet for more abstract, quantitative analyses.

What John Borchert accomplished in his article was a model for the integration of the two approaches: a highly empirically based analysis with fundamental process principles that have stood the test of time. He analyzed the relative growth and decline of individual cities as related, at least partly, to changes in technology, particularly transportation technology. He also suggested the applicability of this force to the internal evolution of the metropolitan area. He clearly eschewed a causal analysis, stating that “there is, of course, no implication that the technological changes have been independent variables or basic causes of growth” but that, instead, they were located within a “framework of values and institutions that were stimulated by economic growth and helped to further differentiate the nation geographically” (p. 303). The article had no intention of “predicting” the growth and decline of individual cities. Instead, its purpose was to draw broad outlines of the way in which both the relative population growth and the relative growth in the built city were related to the combination of access to a hinterland, available transportation resources, and dominant cultural values. Although these caveats concerning the universality of a single causal factor or the intent to predict individual urban growth rates were clearly stated, they did not, of course, prevent oversimplified interpretations and criticisms of his work.

One of the immediate responses to Borchert's article was to place the study in the context of the philosophical debate going on within geography. Reginald Golledge and Douglas Amedeo, for example, thought that the study contained “the germs of developmental laws relating to urban evolution” (1968, 771). Fifteen years later, Mark Gottdiener wrote that Borchert's article was among the “conventional” studies that embodied “a form of technological reductionism and a monocausal analysis for what in reality is a complex development process” (1983, 241).

Most of the authors who have cited “American Metropolitan Evolution,: however, use Borchert's analysis as a base point for further work. John Adams's classic 1970 article on the residential structure of Midwestern cities elaborated on the impacts of prevailing transportation technology on the density of residential development. Several other works have used Borchert's classification of epochs of city-system development as a point of departure for other analyses, often deeming Borchert's article as seminal or fundamental to current empirical research (Conzen 1977; Eysberg 1989; Ross 1993; Elliott 1997; Bartley 2006; Ceh and Gatrell 2006; Morcotullio and Schulz 2006).

The article's enduring influence is attested by the 100 citations listed by Google Scholar and the 85 citations listed by the ISI Web of Knowledge, as well as by the fact that it was cited as among

the important contributions by geographers in explicating the complex process of the development of the urban system in the review sponsored by the National Research Council's Committee on Rediscovering Geography (NRC 1997, 76). Furthermore, its continuing influence on large numbers of undergraduate students is attested by the fact that several contemporary textbooks for general human geography, urban geography, or American studies include a section on the development of the American city system that refers to, or is based on, "American Metropolitan Evolution" (for example, Hartshorn 1992; Brunn, Williams, and Zeigler 2003; Earle 2003; Kaplan, Wheeler, and Holloway 2008; Rubenstein 2008); and the article is mentioned explicitly in a sample course syllabus for the College Board's advanced placement course in human geography (Gray and Sherwin 2007). Even the "reference book" for many undergraduates, Wikipedia, has a separate entry on "Borchert's Epochs" (Wikipedia 2009).

"American Metropolitan Evolution" made a fundamental contribution to our thinking about the way the city system in the United States developed and changed, and it is a testament to the impact and lasting significance of articles in the *Geographical Review*. As the auto-air-amenity epoch draws to a close, whenever that takes place, it is hoped that the *Geographical Review* will be a venue for analyses of the next set of forces that influence relative urban growth and decline.

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