THE SAGA OF AMERICAN INFRASTRUCTURE

Until fairly recently, few historians paid serious attention to such seemingly humble matters as sewerage, solid waste, and stormwater management. Today a growing body of public-works history sheds valuable light not only on our contemporary infrastructure problems but on some of the basic forces that have shaped American life.

Much of this new scholarship followed the publication of **History of Public Works in the United States, 1776–1976** (Am. Pub. Works Assoc., 1976), by Ellis Armstrong, Michael C. Robinson, and Suellen Hoy—a comprehensive overview that is still the field's defining text—and the formation in 1975 of the Public Works Historical Society, which provided scholarly focus. Another essential work is **Technology and the Rise of the Networked City in Europe and America** (Temple, 1988), whose editors, Joel A. Tarr and Gabriel Dupuy, argue that infrastructure not only facilitates but guides life in the industrial "networked city."

Those who despair over the institutional "gridlock" that hampers the building of infrastructure today will find some comfort in Christine Meisner Rosen's **Limits of Power: Great Fires and the Process of City Growth in America** (Cambridge, 1986). Building infrastructure has always been "a slow, difficult upward struggle," the Berkeley historian concludes. Even in the wake of catastrophic fires in Chicago (1871), Boston (1872), and Baltimore (1904), American cities made only limited progress. The Baltimore blaze, for example, "gutted 86 city blocks containing 1,526 buildings, burning out more than 2,400 businesses." The reformers who controlled the city government saw the fire as a "golden opportunity" to fix longstanding problems: traffic-snarled streets, inadequate water and sewer systems, hazardous electric wires overhead, and the decay of the Inner Harbor. But as the various costs of the city's ambitious redevelopment plan became clear, support fragmented. Businessmen, property owners, workers, and others who would be hurt by street widening, for example, turned against the idea. In the end, Rosen writes, the city was able to accomplish a great deal but some major problems, such as the decline of the waterfront district, continued to fester.

Taking a longer view in **The Urban Millennium: The City-Building Process from the Early Middle Ages to the Present** (Southern Illinois, 1985), Michigan State University historian Josef W. Konvitz argues that infrastructure before the 1880s was shaped chiefly by economic considerations and produced "environments ill-prepared to adjust to many of the changes accompanying urban development." Since then, decisions in the modern industrial city have been controlled largely by bureaucratic organizations, special authorities, and regulatory bodies; but thanks to uncoordinated planning, results have been little better than those before the 1880s.

The birth of modern city planning is usually traced to the First National Conference on City Planning and the Problems of Congestion in 1909. But Stanley K. Schultz, a historian at the University of Wisconsin, Madison, argues in **Constructing Urban Culture: American Cities and City Planning, 1800–1920** (Temple, 1989), that its roots lie in the 19th century, when Americans haltingly began to think of themselves as an urban people and civil engineers and others began to ponder ways of coping with growing urban ills. Planning streets, sewers, and the like was not merely a matter of efficiency and economy to these reformers, Schultz stresses. As a New York City alderman put it, "A proper city plan has a powerful influence upon the mental and moral development of the people." After the Baltimore fire of 1904, for example, an engineer arguing for construction of a new sewage system pointed to Paris, "the center of all that is best in art, literature, science, and architecture," claiming that "in the evolution of this ideal attainment, its sewers took at least a leading part."

The engineer may have exaggerated the benefits of a good sewage system, but there is no question that new forms of infrastructure can have a transforming effect. **The Electric**

City: Energy and the Growth of the Chicago Area, 1880–1930 (Chicago), by Harold L. Platt of Loyola University, tells the story of one such transformation. The human drama of construction on a massive scale is captured in Joseph E. Stevens's **Hoover Dam: An American Adventure** (Okla., 1988), a lyrical account of the five-year, around-the-clock labor by some 5,000 men working under grueling conditions that produced this futuristic edifice on the Colorado River during the 1930s.

The rise of the suburb also owes much, for better or worse, to developments in infrastructure. In rapidly growing Chicago, new suburbs during most of the 19th century sought to be annexed by the city in order to gain city water service, sewer lines, and other amenities, observes Ann Durkin Keating, a historian at North Central College, in **Building Chicago: Suburban Developers and the Creation of a Divided Metropolis** (Ohio State, 1988). But toward the end of the century, when suburban land developers began offering "urban conveniences," as the promoters of Riverside, Illinois, promised, along with "the special charms... of rural conditions of life," there was a shift toward suburban autonomy from the older city.

The interstate highway system likewise contributed to the rise of suburbs, and it has been scrutinized by a number of scholars. Bruce E. Seely's **Building the American Highway System: Engineers and Policy Makers** (Temple, 1987), shows how an alliance of state and federal highway engineers was able to foster a belief in "apolitical expertise" that allowed them to shape, if not control, highway policy. **Interstate: Express Highway Politics, 1939–1989** (Tennessee, 1990), by Mark Rose examines the origins of the interstate system. Yet historian Paul Barrett of the Illinois Institute of Technology argues in **The Automobile and Urban Transit: The Formation of Public Policy in Chicago, 1900–1930** (Temple, 1983) that, in Chicago at least, the mass-transit systems that were the lifeblood of the big city were doomed in part by local decisions made without much thought long before the interstates were built. In Chicago, it was assumed by the 1920s that the privately owned streetcar system should pay for itself but that planning for the auto was "a duty of local government."

Other scholars have begun to turn their attention to the connection between public works and the environment. **Garbage in the Cities: Refuse, Reform and the Environment, 1880–1980** (Wadsworth, 1988), by Martin V. Melosi of the Univerity of Houston, for example, places the problem of solid-waste disposal at the center of early environmentalism. The industrialization of the ecology of the Great West is the subject of William Cronon's **Nature's Metropolis: Chicago and the Great West** (Norton, 1992). Cronon, a Yale historian, argues that the penetration of the natural landscape by the railroads that fanned out from Chicago beginning in the 1850s literally remade the face of nature. Chicago, he writes, became "the link that bound the different worlds of east and west into a single system." Rail links to Chicago encouraged farmers to plow under the prairies to grow wheat and corn for sale in Chicago and eastern markets. They likewise spurred the growth of the cattle industry in Texas and of logging in the north. Chicago and its infrastructure, Cronon writes, were responsible for nothing less than the creation of a "second nature" in the American West.

In these and other works, scholars have made a great deal of progress toward understanding the lessons of the past. History suggests that those who plan and build public works should shift their thinking from a crisis-to-crisis approach to a longer-term view. The studies also underscore the importance of creating flexible plans that can be adjusted to changing circumstances. Casual assumptions must be questioned. And there is a need for greater sensitivity to local economic, political, and cultural conditions. But the most urgent need is to deliver the knowledge we now have to the people who are planning and building tomorrow's infrastructure.

—Howard Rosen

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