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In *The Chicago River: A Natural and Unnatural History* Libby Hill, a geography and environmental studies scholar at Northeastern Illinois University, and five co-authors tell the story of human impact on the Chicago River, from pre-Columbian times to the present. Anyone remotely familiar with Chicago’s history will know that this is a big task: the river is one of the most altered waterways on the planet.

The first third of the book addresses the river's history prior to the nineteenth century. The authors narrate how glacial retreat gave birth to the river and they describe the plant and animal communities that developed on its banks and within its waters. They explain briefly how Illinois Indians used the watershed's abundance for hunting, gathering, agriculture, fuel, water, and transportation, and they chronicle the arrival of early Europeans, such as the French explorers Father Jacques Marquette and Louis Jolliet.

Section 2 addresses the nineteenth century, a period during which a presumably natural river became unnatural. After removing Indians and overcoming a number of financial hurdles, Chicagoans began construction of the Illinois and Michigan Canal. The canal cut through the barely perceptible sub-continental divide and connected the Chicago River (and hence the Great Lakes) to the Illinois River (and hence the Mississippi River). The canal, along with railroads, led to Chicago's meteoric rise in the mid-nineteenth century. Population increase and manufacturing led, in turn, to waste products, much of which ended up in the river, which, by mid-century, had become an open sewer. The sluggish river, polluted with human feces, animal dung, slaughterhouse remains, and other unmentionables, moved inevitably toward Lake Michigan, the source of the city's drinking water. The result: cholera and typhoid fever.

Famously, the city of broad shoulders reversed the flow of the Chicago River and sent the city’s waste south toward less politically powerful neighbors downstream. Pumps and a deeper cut in the Illinois and Michigan Canal sent the river on its new path, although during floods the river sometimes ended up flowing "backwards" into Lake Michigan. To keep waste moving in the right
direction and to improve navigation, the city, in 1900, completed the Sanitary and Ship Canal, a project of unprecedented scale. The New York Times celebrated the fact that the water in the Chicago River now "Resembles Liquid" (p. 132). Meanwhile, biologists studying the Illinois River reported "grayish and sloppy" waters with "putrescent masses of soft, grayish, or blackish | slimy matter | loosely held together by threads of fungi" moving downstream (p. 135).

The story of the river's reverse is familiar to most U.S. environmental historians; less familiar is the river's twentieth-century history, a subject that the authors address in the last third of their book. Chicagoans were not done with their river. To facilitate navigation, in the early twentieth century, the city straightened sections of its north and south branches. The once meandering river increasingly conformed to the city's rigid grid. Sewage and waste also continued to pose a problem. The city filled in part of the noxious Bubbly Creek, made notorious by author Upton Sinclair, who in The Jungle (1900) described the tributary as a festering, stinking sink of Chicago River water, chemicals, and animal waste. By 1940, a significant section of the stream known for producing two- to three-foot bubbles of carbonic gas and occasionally combusting and burning out of control had been entombed and erased from the landscape.

To further dilute and flush sewage from the Chicago River and send it on its way south, the city built yet another canal, the North Shore Channel. When Illinois tried to divert even more water from the Great Lakes (through the Cal-Sag Channel), the federal government stopped the project, arguing that the Chicago depletions would lower the Great Lakes. Luckily for the city, new technology saved the day. Starting during the 1920s, the city attacked sewage not with dilution but with treatment facilities and bacteria. By mid-century, the American Society of Civil Engineers declared Chicago’s Sewage Disposal System one of seven wonders of American Civil Engineering.

Working with natural systems at the microbial level improved water quality and eliminated the need for massive diversions of Lake Michigan water. But especially after World War II, new petrochemicals used by industry and homeowners found their way into the river. And periodic flooding still overwhelmed the treatment facilities, especially since structures and concrete covered an increasingly large section of the river's watershed. To deal with the problem of sewage during storms, the city is finishing a 58-mile subterranean Chicago River and reservoir system which will accommodate excess water. In the nineteenth century, Chicago dealt with waste and water by raising the city off the ground; in the late twentieth century, the city addressed the same problem by burying the water in an emergency "Deep Tunnel."

Intentional and unintentional change to the Chicago River has been profound, and these changes have dramatically altered water quality, topography, and plant and animal communities. But many have refused to give up the river as a loss. Starting in the early twentieth century, park advocates sought to include and protect stretches of the river within the Cook Country Forest Preserves. Today, a number of organizations, most notably Friends of the Chicago River, are fighting to protect the river's scenery and ecology. The authors end their book by describing current restoration projects at Prairie Wolf Slough, Gompers Park, the Skokie Lagoons, and in the Forest Preserves along the North Branch. The authors end on an ambivalent note: the river is not only powerful and sometimes threatening to human life and property, it is also resilient. While the waterway still faces many threats, its health has improved. Biological diversity is returning. During much of the city's history, Chicagoans turned their back on their river, but starting in the 1960s, the city rediscovered its river, and today many
Chicagoans use it for recreation and consider it a thing of natural beauty. Not bad for a river that existed for years as Chicago's sewer.

Of course, the context for the death and re-birth of American urban rivers such as the Chicago is not simply greater environmental awareness, better environmental science, or more effective technological solutions to the problems of pollution. Deindustrialization has played a tremendous and often unexamined role in making our rivers cleaner. The goods in our Walmarts are manufactured not alongside American rivers, but alongside rivers in China, Mexico, Vietnam, and other industrializing nations. Partly as a consequence of globalization, the Chicago River, now bordered by river walks, cafes, and expensive condos rather than industry, is coming back. Meanwhile, rivers like the Yellow, Yangtze, and Huai continue their decline. Americans may have buried Chicago's Bubbly Creek, but due in part to our orders for manufactured goods, similar waterways are emerging on the other side of the globe.

Some readers of Hill's book may be frustrated. The narrative can be dry, and the different sections could be better integrated. This is not a thesis-driven or particularly analytical book. Still, Hill and the other authors have located interesting primary sources and the book as a whole represents a significant research accomplishment. Environmental historians and historians of Chicago will find many facts and stories about the river that are fascinating and new, but also ripe for further interpretation.

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