

Rivers Run Through It Restoring America's Circulatory System

By G. Tracy Mehan III

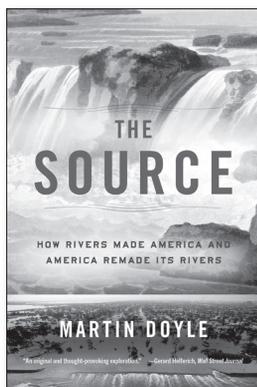
Your reviewer grew up in St. Louis near the confluence of great rivers; imbibed the lore of Lewis & Clark, Father Marquette, and Mark Twain; participated in sandbagging operations during floods; and worked on legal and policy matters on the Missouri and Mississippi.

One of my mother's ancestors set the record for the fastest steamboat run from St. Louis to Fort Benton, Montana, before the Flood Control Act of 1944 and the Pick-Sloan plan basically rendered the Missouri a human artifact, with dams, reservoirs, and exaggerated promises of prosperity. The Army Corps of Engineers and the Bureau of Reclamation, "in defiance of common sense, economics, and even simple hydrology," created "an instance where both agencies managed to win," as described by Marc Reisner in his classic *Cadillac Desert: The American West and Its Disappearing Water*. See my review, "A Classic a Quarter Century Later" (May/June 2011).

In my salad days, I would break the winter doldrums by eagle-watching at the big lock and dam at Clarksville, north of St. Louis. It is designed to control the Mississippi River, T. S. Eliot's "strong brown god-sullen, untamed, intractable." In winter, the Missouri-Illinois stretch of the river has the largest collection of eagles outside of Alaska. When every pond, creek, and small river freezes over, they come to the big dams to feed on the fish coming through the spillways. It was not unusual to see 200 eagles of all ages and sizes congregating for the feast.

Yet, one had to recognize, as Henry Adams did, that we had turned our back on the river, making it a mere watery highway for barge traffic — as catalogued, in grim detail, by Christine Klein and Sandra Zellmer in *Mississippi River Tragedies: A Century of Unnatural Disaster*. See my review, "Dead Beyond Resurrection: Engineering an Enduring Tragedy on the River" (March/April 2015.)

In *The Source: How Rivers Made America and America Remade Its Rivers*, Martin Doyle, a professor at



The Source: How Rivers Made America and America Remade Its Rivers. By Martin Doyle. W. W. Norton & Company. 349 pages. \$26.95.

Duke, quotes Mark Twain, a former river boat captain and skeptic as to what the Army Corps could do to the great river.

As Twain writes in *Life on the Mississippi*, "One who knows the Mississippi will promptly aver — not aloud, but to himself — that ten thousand River Commissions, with the mines of the world at their back, cannot tame that lawless stream, cannot curb it or confine it, cannot say to it, Go here, or Go there, and make it obey; cannot save a shore which it has sentenced; cannot bar its path with an obstruction which it will not tear down, dance over, and laugh at.

But a discreet man will not put these things into spoken words; for the West Point engineers have not their superiors anywhere; they know all that can be known of their abstruse science; and so, since they conceive that they can fetter and handcuff that river and boss him, it is but wisdom of the unscientific man to keep still, lie low, and wait till they do it."

Little did he know. Besides the 26 locks and dams on the upper river and a continuous nine-foot-deep channel between St. Paul and St. Louis, the Corps shortened the Lower Mississippi by 150 miles. Thus, straightening, deepening, and channelizing completely transformed the river from anything like Twain, Lewis, Clark, or Marquette experienced.

Doyle is a scientist and engineer and a well-read one. He is knowledgeable of the constitutional founding, the Federalist Papers, economic and environmental history, ecological and stream restoration, and the development of water and river engineering and management. One could not ask for a better guide to restoring the rivers that once were.

Doyle explains how a young America saw rivers as a key to developing the nation both as an energy source (dams and mills), avenues of commerce, and a key element in forging a union of disparate states.

John Jay in Federalist No. 2 describes, "A succession of navigable waters forms a kind of chain round its [America's] borders, as if to bind it together; while the most noble rivers in the world, running at convenient distances, present them with highways for the easy communication of friendly aids and the mutual transportation and exchange of their various commodities."

Doyle is well informed on the growth of canal companies, debt financing, and the impacts of the Erie

Canal, to take the most prominent example, on economic development. He does a good job of describing the development of constitutional law on interstate commerce and navigability and the growth of the Corps over time. For instance, he tracks the debate within the agency over the relative balance of federal-state responsibility for levees, attributing the over-reliance on levees, nationally, on a preference for local control in the 19th century.

He provides an interesting description of the intricacies of federalism, sovereignty and property rights in the context of western water rights and federal infrastructure investments. In the author's view, the desire for massive federal infrastructure investments necessitated the subordination, voluntarily, of state sovereignty in an interstate compact on the Colorado River.

Doyle rightly praises the work of Gerry Galloway, a reformer in the Corps who did pioneering work on the moral hazards of flood control infrastructure and the false sense of security such measures create. This message is beginning to sink in at the Corps, if not in Congress, which holds the purse strings. This shift in thinking is on display in an important collection of case studies and essays inspired by Dutch practice, *Making Space for the River: Governance Experiences With Multifunctional River Flood Management in the U.S. and Europe*. See my review of this volume, "The Dutch Are Much: Governance and Making Space for the River" (September/October 2013).

In opening up the West, the desire for massive federal infrastructure investments necessitated the subordination of state prerogatives in an interstate compact on the Colorado River. Federalism-as-local-control

was eclipsed by the New Deal, which privileged jobs over economic or environmental sustainability. Doyle does not address Marc Reisner's critique of these infrastructure projects. He seems to approve of the Tennessee Valley Authority except for the snail darter case, which highlighted the economic stupidity of the dam in question even beyond the environmental impact.

"Being able to blithely drink water from just about any faucet in the United States without concern is one of the greatest achievements of American Society," writes Doyle. This powerful, true statement opens

We are beginning to recognize once again that rivers are America's lifeblood

his chapter "Running Water," which tells the amazing story of Chicago, its struggle for safe drinking water, and the engineering, institutional, and financial innovations that secured the resource, the latter two becoming models for the nation. The engineering is incredible, culminating in the reversal of the flow of the city's rivers away from Lake Michigan to eliminate fatal outbreaks of disease. Moreover, the use of municipal bonds and special districts were pioneered in the Windy City and other systems.

Of interest to those working in the water and wastewater sectors will be the author's account of the conflict between these two sides of the house over "self purifying" rivers and exclusive reliance on drinking water treatment plants, rather than controlling pollution at the source, a debate resolved by the burning rivers that led to passage of the Clean Water Act in 1972. One school believed that the action of bacteria allowed rivers to self-purify in the course of their flow and, combined with water filtration and chlorination, was sufficient to protect public health.

"As a result of these attitudes based on new scientific and technological discoveries, the most promi-

nent water engineers of the era were justifying the practice of cities dumping their waste directly into streams and rivers untreated — as long as water was treated when used for supply, as quickly became the standard by necessity," writes Doyle. This view was "anathema to physicians." Thus, the debate between so-called sanitarians, or sanitary engineers, on one side and physicians and public health officials on the other. It came down to whether or not cities should bear additional cost for wastewater treatment as they do today rather than letting the engineers "establish their view of rivers as grand sewers of convenience for society."

Martin Doyle concludes *The Source* with two hopeful chapters. "Channelization" features Luna Leopold, son of the author of *A Sand County Almanac*, and Gordon "Reds" Wolman of Johns Hopkins University, whose father was Abel Wolman, founder of the discipline of sanitation and wastewater engineering. The two scions did landmark work on geomorphology, paving the way for a national movement of river restoration.

The final chapter, on "The Restoration Economy," illustrates the opportunities to restore the physical, chemical, and biological integrity of rivers and streams and provide environmental amenities for which people, wealthy ones anyway, are willing to pay. These strike the right concluding notes for *The Source*, an excellent book indeed. The question is, Can we implement these restorative activities sufficiently and at scale to return more value and function to America's 250,000 rivers over 3 million miles?

We look forward to hearing more from Martin Doyle on these matters.

G. Tracy Mehan III is executive director for government affairs at the American Water Works Association and adjunct professor at Antonin Scalia Law School, George Mason University. He may be contacted at tmehan@awwa.org.