

LOW ON H₂O

Can We Slake the Nation's Thirst for Water?

By G. Tracy Mehan III

Nothing is more useful than water; but it will purchase scarce anything; scarce anything can be had in exchange for it. A diamond, on the contrary, has scarce any value in use; but a very great quantity of other goods may frequently be had in exchange for it.

— ADAM SMITH, *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776)

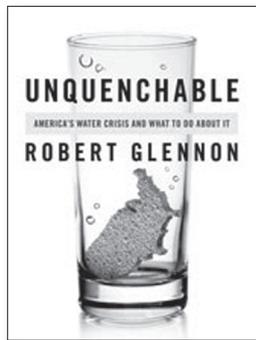
Robert Glennon, the author of *Unquenchable: America's Water Crisis And What To Do About It*, has the heart of an environmentalist and the head of an economist. He also has a very good sense of humor — or maybe the absurd — which is on fine display in his survey of the nation's use and abuse of its vast but imperiled water resources.

Glennon, a professor at the Rogers College of Law, University of Arizona, has given us a book in the tradition of Marc Reisner's classic *Cadillac Desert: The American West and Its Disappearing Water* (1986) and the best of Tom Wolfe's social and cultural writings on the American scene. He brings to bear great knowledge and a sophisticated understanding of the ways Americans defy nature, gravity and sound economics in their quest for unlimited consumption of water whenever and wherever they so desire. He views water comprehensively and appreciates how the many facets of managing the resource relate to one another: quantity and quality, surface and groundwater, land and water, water and energy, economics and ecology.

Through monumental feats of en-

gineering, and a kind of fecklessness as to the depletion of both surface and groundwater sources, Americans have so far avoided the consequences of a national crisis in the making:

A country faces an urgent water crisis, bordering on catastrophe, when levees break, wells go dry, rivers peter out, taps sputter, pipes collapse, dams burst, power plants close, sewage overflows, pollution mushrooms, workers lose jobs, land subsidies, aquatic species go extinct, wetlands dry up, factories are shuttered, fountains shut off, tap water discolors, reservoir levels



Unquenchable: America's Water Crisis and What To Do About It, by Robert Glennon. Island Press. \$27.95

drop, water tables plummet, cropland fallows, salt water intrudes, and drought persists.

You might read the preceding paragraph written by Professor Glennon and dismiss it as the worst kind of purple prose in the service of environmental advocacy — until you read the many well-documented cases in *Unquenchable*, not just in the western and southwestern United States, but also in New England, the Southeast, and the Pacific Northwest. As one manager of a California water district tells the author, “We’ve done too good a job.”

Americans spend \$40 billion each year and consume 270 billion gallons of water each week in order to maintain more than 23 million acres of lawn. “I believe it is our God-given right as Californians to be able to water gardens and lawns,” claimed U.S. Senator Diane Feinstein (D-California) in 2004. Your reviewer once lived in a lovely Michigan subdivision in which his home was the only one without an automatic sprinkler system. In Michigan!

Glennon describes the whole ugly mess, including agricultural and water subsidies to make the desert bloom, the Colorado and Rio Grande rivers running dry before reaching the sea, and the governor of Georgia praying for rain rather than actually managing the challenge of water shortages in the Southeast. Doesn't the good Lord help those who help themselves? His description of Las Vegas is not to be missed, including the path-breaking work of Patricia Mulroy, general manager of the Southern Nevada Water Authority, who has brought rationality and common sense to what was an unsustainable situation.

Fortunately, Las Vegas's reputation for wretched excess no longer extends to water management given its use of tiered water rates, acquisition of agricultural water rights, grass turf buy-back programs, and water recycling, reuse, and other cutting-edge technology deployed on the Strip.

Things have got to change. The era of massive public works projects — dams, canals, reservoirs — is encountering more and more resistance for reasons both environmental and economic. Glennon walks the reader through the saga of the Black Rock Reservoir in eastern Washington, adjacent to the Columbia River. In 2003 Congress authorized the Bureau of Reclamation to initiate a feasibility study for diverting water from the Columbia and pumping it 1,400 feet,

uphill, to supply farmers and allow for reductions in other diversions for the benefit of salmon. The new dam would be larger than Grand Coulee but with only 1 percent of the water. Ultimately, the Black Rock project would cost in excess of \$4 billion and yield only \$4 million per year, a 0.1 percent return on investment.

Professor Glennon sees the way out of our current predicament. He believes the path forward demands new technologies, such as high-performance membranes and drip irrigation, and new ways of managing water, including water markets and pricing mechanisms. He aims to resolve Adam Smith's paradox of diamonds and water in which water is essential for life but worthless in economic terms, but diamonds are for mere adornment and deemed priceless.

In a chapter on the computer industry, a very water-intensive business, Glennon notes that it takes 130,000 gallons of water to produce one ton of alfalfa, but Intel uses only 10 gallons to produce a Core 2 Duo microprocessor which sells for around \$400. A ton of alfalfa is worth, at most, \$110. "In other words, each acre-foot [325,829 gallons] used to grow alfalfa generates at most \$264," says Glennon. "That same acre-foot used to manufacture Core 2 Duo chips generates \$13 million."

Despite the priority water rights farmers hold under western states' Prior Appropriation Doctrine ("first in time, first in right"), and the massive subsidies from the federal government to provide them with water, the value of water for municipal and industrial uses dwarfs the value of the same water to farmers.

A lot of farmers are going to make serious money selling or leasing their water rights to cities, industries or conservation groups. Typical of most western states, California growers consume 80 percent of the state's wa-

ter yet contribute only 2 percent of the gross state product.

Glennon sees an era of reallocation dawning. Between 1987 and 2005, there were 3,232 sales and leases of water rights in the 12 western states, an amazing 31 million acre-feet of water or more than twice the annual flow of the Colorado River! Most of these water transfers are between farmers, but the largest amount of water is transferred from farmers to cities.

Moreover, the western states now authorize fish-and-game agencies and private, not-for-profit water trusts to lease water rights in dry weather to enhance fisheries and other ecological values while working with farmers to improve the efficiency of irrigation.

Glennon is no Social Darwinist. He believes in regulated markets to

guard against unintended consequences of water transfers to the environment and innocent third parties in local communities. However, he is eloquent in defending water marketing against its critics, taking on the issues of sprawl, disparity of bargaining position between development and environmental interests, and the equity of paying farmers what may seem like windfall profits.

"Given a choice between making farmers and ranchers rich from the sale of their water rights and enabling them to continue to use huge quantities of water to grow, say, cotton, I think the choice is easy," argues Glennon. He also supports conditioning new development on the purchase and retiring of existing water rights, which will at least result in smarter or more restrained growth. And environmental groups, such as Trout Unlimited and the Montana Water Trust, and federal and state governments are competing in water markets with success, emulating the land trust movement.

"From an environmental perspective, water marketing lessens the pressure to build new dams, divert

additional surface water, and drill more wells," says Glennon. He also believes that substituting the political allocation of water with a market approach will avoid government failure (my term, not his) in subsidizing projects and behaviors which have proven to be devastating to the environment and sustainable water management.

Finally, Glennon believes there are non-economic arguments for nurturing water markets. When was the last time you heard a law professor, a self-professed environmentalist at that, assert the following?: "Markets can also promote democracy and liberty. Property in the hands of citizens rather than the state diffuses political power, holds government in check, and expands the range of individual autonomy."

Professor Glennon lists 16 reforms recommended throughout his book, such as stimulating alternative waste disposal technologies and cre-

ating infrastructure with dual pipes to supply potable and reclaimed water. By my count, more than a third of his suggestions can be described as "market-based" or at least incentive-based.

Unquenchable is a significant event in the literature of water management. It yokes together a compelling sense of stewardship with an acceptance of the truths of human nature as described by the discipline of economics. Incentives matter, as the free-market environmentalists say.

The book is a significant event in the literature of water management



G. Tracy Mehan III is Principal with The Cadmus Group, Inc., an environmental consulting firm. He is also an Adjunct Professor at George Mason University School of Law. He may be contacted at gmehan@cadmus-group.com