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BOOK NOTES

Patricia Nelson Limerick with James L. Hanson, *A Ditch In Time: The City, the West, and Water*, Fulcrum Publishing, Golden, CO (2012); 327 pp; \$19.95; ISBN 978-1-55591-366-3; paperback.

Patricia Limerick is Professor of History and Environmental Studies at the University of Colorado; Faculty Director and Board Chair at the Center of the American West, Vice-President for the Teaching Division of the American Historical Association, and a MacArthur Fellowship recipient. Her previous work includes *The Legacy of Conquest*. With James L. Hanson, research faculty member at the Center of the American West, she is the author of *A Ditch in Time: The City, The Water, and the West*, which documents the history of water resource development in Denver. Utilizing maps and historical photos, *A Ditch in Time* traces the history and complex development of Denver's water system and how it transformed Colorado's Front Range. It tells the story of the Denver Board of Water Commissioners (Denver Water) and its proactive efforts to acquire water for the residents of Denver, as well as its ability to adapt over time and to engage in cooperation with other water providers in the region.

A Ditch in Time began as an agreement between Denver Water and the Center for the American West, with the Center maintaining full intellectual independence throughout the research and writing of the book. In her Introduction, Limerick notes that she is not an apologist for Denver Water, but her work on the book engendered an unexpected appreciation for the work of City leaders who tenaciously sought out and brought water to Denver for the good of the community. Limerick examines the development of her main character, the Denver Water, in the "Era of Improbable Comfort Made Possible by a Taken-For-Granted but Truly Astonishing Infrastructure," as a challenge to the complacent disconnect between consumers and the provider of this essential resource. She notes that consumers demand a ready supply of water and other natural resources, but they typically ignore the means of production and delivery or condemn those means for their effects on the natural environment.

Recognizing topics such as infrastructure, bureaucracy, and legal technicalities may not entice the general reader, Limerick writes the book in an engaging manner by combining detailed scholarship with wry humor. She opens each chapter with a limerick designed to set the tone for the topic contained within. For example, Limerick begins Chapter One: Engineered Eden, with the following limerick:

The Tangled Ties of Growth and Water
The West left settlers aghast;
It was dry; it was rugged; it was vast,
They thought water was the trigger

For making towns bigger,
An idea whose time is now past.

Limerick reports that early explorers Zebulon Pike and Stephen Long described the Front Range of Colorado as the great American desert and believed that the dearth of trees and flowing water made the area unsuitable for settlement. This, they thought, provided a necessary check on westward expansion. Noting the Front Range is now home to over one million people, Limerick describes the explorers as “failed prophets.” Specifically, she argues they failed to foresee the ingenuity and determination of Denver’s early visionaries who turned the arid landscape into a remarkable town of flowers, gardens, and lawns by the 1890s. Denver’s water system began with the Platte Company’s Big Ditch and side street canal diversions from the South Platte River. Within a century, it grew into Denver Water’s complex, four thousand square-mile system of dams, tunnels, and diversions that draw water to Front Range treatment plants from points west across the Continental Divide.

In Chapter One: *Engineered Eden*, Limerick traces Denver’s early development and describes city leaders’ efforts to provide water to its growing population. In the city’s early days, private water companies engaged in fierce competition to supply water to citizens who wished to replicate the landscaping of East Coast cities on the arid Front Range. The Platte Company developed the city’s first big water project, the Big Ditch, by digging canals that diverted water from the South Platte River to Denver neighborhoods. The Big Ditch enabled Denver residents to beautify the city with lawns, gardens, and parks, but the untreated water also brought bacteria, typhoid, and other diseases. These public health issues, as well as the increasing demand for water, prompted the private companies to search for a new supply of abundant, uncontaminated water. That search led west into the foothills and mountains, and eventually to the Denver Union Water Company’s construction of the Cheesman Dam in the Platte Canyon.

In addition to describing Cheesman Dam’s construction in Chapter Two: *Go Take It From the Mountain*, Limerick presents the Dam’s history in the larger context of water development in the West. For example, she challenges the perceived California centrality of western water development with her discussion of the Cheesman Dam, which she describes as a more illustrative model of private accomplishment and innovative design. Faced with far less public opposition and, therefore, less publicity than the Owens Valley aqueduct to Los Angeles and the Hetch Hetchy Valley Dam near San Francisco, the Cheesman Dam went from initial construction to partial destruction, redesign, final construction, and fully functioning operation within six years.

From 1905 to 1912, Cheesman was the highest dam in the country, and it earned a National Historic Civil Engineering Landmark designation for its unique curved design. Limerick writes that the dam’s curved wall and seemingly organic growth from the canyon walls make it not only functional, but an invaluable piece of American land art. In addition, Limerick reveals the speed and determination with which Denver’s water developers approached Cheesman Dam and other like projects, which inspired the book’s title as a play on the aphorism “a stitch in time saves nine.” The aphorism aptly describes Den-

ver Water's approach to water planning throughout its history. The various private water companies in the area took forty years to become the municipal entity known today as Denver Water, but the department's approach to water acquisition never mimicked the drawn out process of municipalization. Instead, Denver Water proactively and aggressively acquired water for the city by acquiring rights from across the Continental Divide.

In Chapter Three: Water Development: "The Plot Thickens," Limerick tells the story of Glenn Saunders, a Denver Water lawyer who singularly embodied this unbridled approach to water acquisition. Building upon her introduction of Saunders, in Chapter Four: Dealing in Diversions, Limerick describes how Saunders and Denver Water did not react to shortages in the system, but rather prevented them in the first place, by expanding the department's reach westward—developing the four thousand square-miles of diversions, dams, tunnels, and treatment plants now in place. The chapter chronicles the first major diversion from the Western Slope, the Moffat Tunnel, which draws from the Fraser River, and the first major storage of Western Slope water in the Gross Reservoir.

In Chapter Five: A Horrifying Jigsaw Puzzle, Limerick traces the complex and controversial negotiations that led to the Blue River Decrees, the Dillon Reservoir, and the Roberts Tunnel, a twenty-three mile long engineering marvel. Limerick places these projects in the context of post-World War II growth and expansion with Denver Water at the height of its power. Suburban expansion soon challenged that power, however, as local governments denied Denver Water's proposals to annex suburbs and bring them into its service area.

The nascent environmental movement of the 1960s and 1970s led to more intense power struggles. In Chapter Six: No Country for Old Habits, Limerick describes Denver Water's battle to construct the Strontia Springs Dam and Foothills Water Treatment Plant. Denver Water faced opposition from environmental activists and, to its chagrin, other governmental agencies. Denver Water brought suit in federal court against the Bureau of Land Management and its restrictive permitting conditions, and faced litigation from other environmental organizations, alleging Denver Water's violation of the newly passed National Environmental Policy and Federal Land Policy and Management Acts.

The stakes were high. Environmental groups feared a loss in court would threaten the new environmental legislation's effectiveness, as well as their own participation in federal agency decision-making. In addition, Denver Water threatened federal agency authority by upping the ante and declaring emergency water restrictions should those agencies block its dam construction. This move resulted in immense public pressure to resolve the issue quickly and outside of the ponderous federal court process. Denver Water's confrontational tactics worked, in part by taking the issue out of federal court and into mediation, but the department soon learned the new environmental legislation and governmental agency requirements, as well as the burgeoning environmental organizations, were here to stay. The US Environmental Protection Agency and the Army Corps of Engineers ultimately granted Denver Water the necessary permits to build the Strontia Springs Dam and Foothills Water Treatment Plant, but demanded environmental concessions in return. Denver

Water agreed to implement a new water conservation program, to mitigate the environmental impacts of the project, and to perform a system-wide environmental impact statement upon initiation of any major future project.

In 1990, Denver Water and a coalition of suburban water agencies faced further conflict and eventual defeat when EPA denied approval of its proposed Two Forks Dam. This defeat presaged a new era for Denver Water; the old approach of aggressive water acquisition at any cost gave way to a new approach of collaborative and conservation-based management. In Chapter Seven: Chipping Away at Tradition, Limerick examines how Chips Barry, Denver Water's manager from 1991 to 2010, oversaw this remarkable institutional change. Limerick notes Denver Water's new management policies belied the old entrenched notion of intractable bureaucracies. Instead, Denver Water faced environmental realities such as climate change and drought by expeditiously instituting water conservation campaigns and techniques to manage demand.

Expanding upon Denver Water's ability to adapt despite low public expectations, Limerick concludes the book by highlighting additional mistaken assumptions and comparing them with proposed better assumptions. Through changes in leadership, environmental conditions, public controversy, and economic challenges, Denver Water has held true to its mission to provide an adequate supply of water to the people of Denver. Limerick tells Denver Water's story from its inception to its current incarnation in a detailed and highly engaging manner. *A Ditch in Time* provides an in-depth and accessible history of Denver Water and its key role in Western water development and the transformation of Colorado's Front Range.

Sarah J. McGrath

Peter McBride & Jonathan Waterman, *The Colorado River: Flowing Through Conflict*, Westcliffe Publishers, Colorado (2012); 160 pp; \$27.95; ISBN 978-1-56579-646-1; soft cover.

A photographer and author teamed up to capture their geographical, environmental, and historical journey along the Colorado River in the photo-essay book, *The Colorado River: Flowing Through Conflict*. Peter McBride, a photographer from Colorado, visually documented his aerial expedition along 1,450 miles of the Colorado River, from its headwaters all the way to its delta. Jonathan Waterman's accompanying text, informed by his experiences as a wilderness guide, recounts his personal travels paddling the Colorado River and also details the River's history. The authors' intention was to capture the environmental issues facing the River in a photographic record, showing both the beautiful and sometimes-erie nature of the Colorado River Basin. The aerial perspective, McBride explained, "shows where we as humans have been, how we connect to the earth, and how nature relates to itself."

McBride begins by recounting his childhood memories growing up on a Snowmass, Colorado farm near the headwaters of the Colorado River. The introduction to the book, aptly entitled "The River," provides a statistical overview of Colorado River, highlighting the more than one hundred dams ob-