



Glen Canyon Dam, as photographed on March 6, 2023. Lake Powell, which the dam holds, was at less than one-fourth of its capacity in December 2022. *Courtesy of the author.*

WATER IS LIFE, WATER IS POWER: THE CONFLUENCE OF WATER, HISTORY, AND THE PUBLIC IN UTAH

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BY GREGORY E. SMOAK

In Utah of late it seems that water has been both everywhere and nowhere at once. For the past two decades our state and much of the American West has been locked in a “mega-drought,” the region’s worst in 1,200 years. At the same time, unprecedented population growth and the increasingly impossible-to-ignore effects of climate change have pushed the West toward the brink. The crisis on the Colorado River—where in late December 2022, Lake Powell stood at 23 percent of capacity and Lake Mead at around 28 percent—portends both painful cutbacks for water users and years of legal and political battles to come.¹ Meanwhile, declining water levels on Great Salt Lake have exposed hundreds of square miles of playa, creating toxic dust storms that imperil human health, and threatening catastrophic impacts for the migratory birds, brine shrimp, and other species that depend on the lake’s ecosystem. That is the nowhere part.

The everywhere part is the awareness of the water crisis in the media and in the public consciousness. Once a local or regional story, the West’s disappearing water has become headline news on the national and even global stage. The *New York Times*, the *Washington Post*, the *Guardian*, and *CNN* among many others have covered the crisis. HBO’s John Oliver even made water the subject of an episode of his satirical news show *Last Week Tonight*, taking particular glee in skewering Utah and its political leaders.² This is all in addition to sustained coverage by local and regional outlets, including the important work of the Great Salt Lake Collaborative, a consortium of twenty-three media organizations with the shared mission of raising public awareness of the crisis.³ Everywhere, it seems that alarm bells are finally sounding.

Water has also been on my mind a lot over the past several years as I have worked with a dedicated team from Utah Humanities on *Think Water Utah*. My involvement began in 2019, when Megan Van Frank asked me to serve as the state consulting scholar for the Utah tour of the Smithsonian Institution’s Museum on Main Street (MoMS) exhibit *Water Ways*. Utah Humanities regularly brings MoMS exhibits to Utah and I had acted as consulting scholar on a previous tour, so I thought I knew what I was getting myself into. Besides, as an historian of the American West, water

is never far from the center of the story, whether it be mythologized, celebratory tales of hardy pioneers or grimmer accounts of environmental injustice and the struggle to control the precious resource. Indeed, some noted western historians such as Walter Prescott Webb and Donald Worster deemed aridity the region's defining characteristic.⁴ Then Van Frank had the vision to secure the tour of a second Smithsonian exhibit *H2O Today*, transforming *Water Ways* into *Think Water Utah*, which she informally and lovingly dubbed the "water circus."⁵ By the time the big top was struck for the final time in October of 2022, our travelling circus reached every corner of the state. All told, *Think Water Utah* included the publication of my extended essay "Utah Water Ways," companion exhibits and local programming at nine partner venues, a statewide exhibit developed to accompany *H2O Today*, associated exhibits at the Utah Museum of Fine Arts and the Natural History Museum of Utah, online resources for teachers, and multiple episodes of Utah Humanities' *Beehive Archive* podcast.⁶

While it was enough to leave me feeling waterlogged, I believe that *Think Water Utah* and projects like it can play a crucial role in our civic life. As a citizen who cares deeply about Utah and the West, I worry about our future. We live in a time when both the validity of science and the relevance of history are under attack. Neither trend bodes well for dealing effectively with the water crisis. Yet at the same time, as a publicly engaged historian, I remain hopeful that my work, and the work of so many others, facilitates meaningful public discussions as we face consequential decisions both as individuals and as a society. In saying this I do not suggest that history provides an objective roadmap for the future. We have all heard the old saw about those who cannot remember the past being condemned to repeat it. But in fact, historians are notoriously bad at predicting the future. And so, despite living in Utah for over three decades I make no claim to being a prophet. No historian should. What then is the role of an historian at the confluence of water and the public?

If historians cannot predict the future, we can provide desperately needed historical context that in turn contributes to informed public discussion. In public-facing projects like *Think Water Utah*, our central goal is to *provoke* visitors

and readers. I use the term *provoke* advisedly. In doing so I am following Freeman Tilden, the National Park Service's guru of interpretation, who long ago asserted that provocation was the chief aim of public interpretation. Effective interpretation, he wrote, served to "stimulate the reader or hearer toward a desire to widen [their] horizon of interests and knowledge, and to gain an understanding of the greater truths that lie beneath any statements of fact."⁷ To provoke, then, is not to pick a fight. Of course, we knew that for *Think Water Utah* to truly have value, we must ask hard questions and tell difficult stories. By retelling well-known (and lesser known) stories with a critical eye toward their meaning in light of current concerns, our goal was never to disparage heroes or tear down heritage but rather to expand and complicate popular narratives and get our visitors and readers to stop and think more deeply about the past as context.

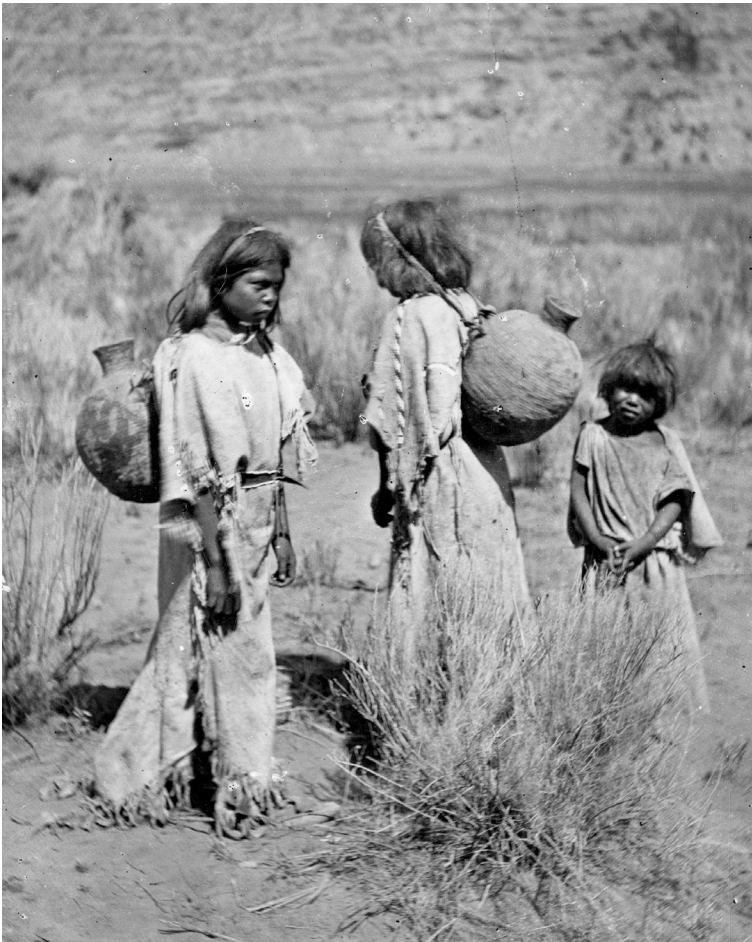
That is also what I want to do here, by addressing several intertwined historical threads that provide particularly relevant context for understanding our present and pondering our future. All are linked by the central notion that water is not only life but also power. Moreover, they also illustrate the fundamental contingency of history. Utah's historic "water ways" were not predestined nor were they simply dictated by the state's harsh environment. Rather, they took shape where the natural world and human cultures met. It was there that people made decisions, rooted in their own cultural traditions and historical experiences, which impacted their own lives and in many cases transformed the lives of others. Our future water ways will be formulated the same way, through adaptation and resistance, conflict and compromise.

There is an oft-repeated adage, popularly though falsely attributed to Mark Twain, that in the West "whiskey is for drinking, water is for fighting."⁸ It is a funny line, but it also reflects a deeper truth: in arid places like the West water is power, and it is often a source of conflict. The general scarcity of water meant that the relatively few places such as the Wasatch Oasis zone, where water was more abundant, became the focus of intensive and permanent Euro-American colonization, setting the stage for the dispossession of Native peoples. Later, the struggle to control water meant the difference between success or failure for those same

colonists, be they farmers, ranchers, miners, and even whole communities.

And if water is intensely political in the West, in Utah it is has also been also central to cultural identity, for it figures prominently in the LDS faith's cherished narrative of hardship, trial, and triumph. Fleeing persecution in the East, the popular narrative goes, Brigham Young led the Mormons into an unforgiving land where through hard work and with a shared sense of purpose they made the desert "blossom like the rose." The whole story is, of course, far more complicated. To tell the more complete story, we must begin with the central premise that different cultures and societies can and have approached the natural world with radically dissimilar values and goals. These differences have shaped lands and waters in distinct ways and very often have engendered conflict. Indeed, making the desert bloom for Euro-American colonists came at the expense of Utah's Indigenous peoples.

The central difference between Native and Euro-American water ways came down to adjustment, to adaptation: more precisely, who or what was expected to adapt or change. Utah's Native peoples generally accepted the natural limitations of their homeland and made optimal use of its resources without attempting to reengineer the world around them. For Numic-speaking peoples—Utes, Shoshones, Goshutes, and Paiutes—mobility was a crucial strategy for survival throughout much of the year, but this was balanced by more sedentary camps during the depths of winter. Each group possessed a home range centered on those winter camps, within which the people had unquestioned rights to resources. Water was, of course, a vital consideration during subsistence rounds and in selecting winter camps. Rivers, creeks, springs, and lakes offered fish, waterfowl, and aquatic plants, as well as drinking water. In the north, river bottoms were favored winter camps that provided shelter along with easy access to water, firewood, and forage for horses. In the



Paiute children carrying water, 1878. Water was a prime consideration for Numic-speaking peoples when they selected locations for subsistence and winter camps. *Utah Historical Society*, box 3, fd. 18, no. 1.

deserts farther south, Paiute people depended upon spring-fed perennial streams and seeps, while in the Utah Valley the Timpanogos Nuche (Utes) lived at one of the most productive fisheries in the Intermountain West.⁹

Although their motivations differed, both Mormon and non-Mormon colonists came to the arid lands of the American West with similar attitudes about human relationships with nature. For these newcomers it was not a matter of adaptation, but a matter of bending nature to fit, to the best of their ability, their desired outcomes. At a fundamental level, their actions found religious sanction in the Judeo-Christian belief that humankind had been given dominion over nature. Thus, they believed that transforming nature was good as well as necessary. In the mid-nineteenth century, for various economic, political, and religious reasons, Euro-Americans sought to transplant and sustain an agrarian way of life they knew in the humid East to the arid West. In doing so they adapted only as far as necessary, while working to modify the natural world and overcome its limitations.

When Euro-Americans first traversed and then colonized the land we today call Utah, water became a flashpoint of conflict. Overland emigrants and their livestock traveled along narrow corridors that followed streams or linked springs and other water sources.

The result was overgrazing, the depletion of game and firewood, and fouled waters. The Shoshone peoples of the Great Basin living closest to the trails felt the most immediate impacts. In many cases Euro-Americans coopted the most important water sources, often violently excluding the Native peoples who had relied upon them for many generations.¹⁰

The arrival of the pioneer company of the Church of Jesus Christ of Latter-day Saints in 1847 set off changes of a much greater magnitude. Unlike other overland emigrants, the Mormons intended to stay. The Wasatch Oasis presented their only real opportunity to build a communitarian agrarian society between the Rocky Mountains and California. Despite church policies intended to prevent violence, the relentless expansion of Mormon settlements came at the expense of Native lands and waters. In the early 1850s violent conflicts erupted over the rich and well-watered

lands of the Utah Valley. It was the beginning of two decades of intermittent fighting that led to the forced removal of Ute people from the Wasatch Oasis and central Utah.¹¹ Meanwhile, to the north LDS settlers expanded into the Cache Valley homeland of the Shoshones. Tensions there eventually culminated in the Bear River Massacre of January 1863, the largest mass murder of Native peoples ever in the American West. While not directly engaged in the killing as they had been in Utah Valley, Mormon colonists benefitted from the carnage and cast the slaughter as the inevitable result of the Shoshones' failure to accept civilization.¹²

While they were wresting control over Native waters, Mormons engaged in another power struggle over water, this one with other Euro-Americans. This fight, however, would not play out on killing fields, but in the arena of law. Laws reflect a society's values as well as its power structures. Brigham Young's primary goal in leading the exodus to Utah was to build an autonomous, self-sufficient society with minimal outside influence or dependence upon outsiders. Control of water was an essential part of those plans, and through most of the territorial period Utah's laws worked to preserve local, that is Mormon, control.

This legal struggle took place while environmental realities and the imperatives of a capitalist economy were converging to transform water law across the arid West. Water law in the United States began with the British common law concept of riparian rights. Simply put, if one owned land along a river or stream, they held a right to reasonably use its waters, provided they did not diminish the resource for others. The doctrine was well suited to the humid East where, like the British Isles, ample rainfall meant farmers did not divert water to their fields. In the West, however, a very different standard took root: "prior appropriation."¹³

Emerging first in the gold fields of California, the prior appropriation doctrine rests upon two principles: "first in time, first in right," and "beneficial use." Water rights are not tied to land ownership, but rather depend on filing an official claim with the appropriate official (usually the state engineer) to establish a "priority date." Those with earlier priority dates possess senior

and superior use rights to others with claims on the same stream or source. The location of the right holder's property or the place of diversion does not matter. First in time, first in right!

But the doctrine also rests on a requirement for action; this is where "beneficial use" comes into play. Under prior appropriation water is still considered a community resource, not exactly private property. It is the right to use a specified amount of water that is possessed, not the water itself. Rights holders, whether they be individuals, corporations, or municipalities, must "prove up" their claim by putting the water to some beneficial use, which might include household, municipal, or industrial consumption, stock watering, working a mining claim, or irrigating crops. Failure to prove up meant loss of the water right. Hence beneficial use is often more bluntly stated as "use it or lose it." While the laudable goal of the beneficial use provision was to prevent speculation and ensure that a community resource served

the community, it has also led rights holders, in fear of losing their rights, to use every drop of their allocation, regardless of actual conditions or needs. Consumption rather than conservation becomes the imperative.

For LDS settlers, however, religious ideals led to specific settlement patterns and served to delay the implementation of prior appropriation. At a time when other Euro-Americans embraced capitalism and individual homesteads, the Saints sought to recreate the communitarian values of the compact settlement of early New England towns. Water law was equally communitarian. Land could be privately owned, but water could not. As communities and cooperative irrigation works sprang up along the Wasatch front, local church leaders administered water rights, not according to priority dates but according to the perceived needs and worthiness of the individual. As the federal presence in Utah increased, the church moved to decentralize control of water, lest



Workers dredge a canal in Salt Lake City in order to deepen the waterway in 1913. *Utah Historical Society, city engineers no. 01594.*

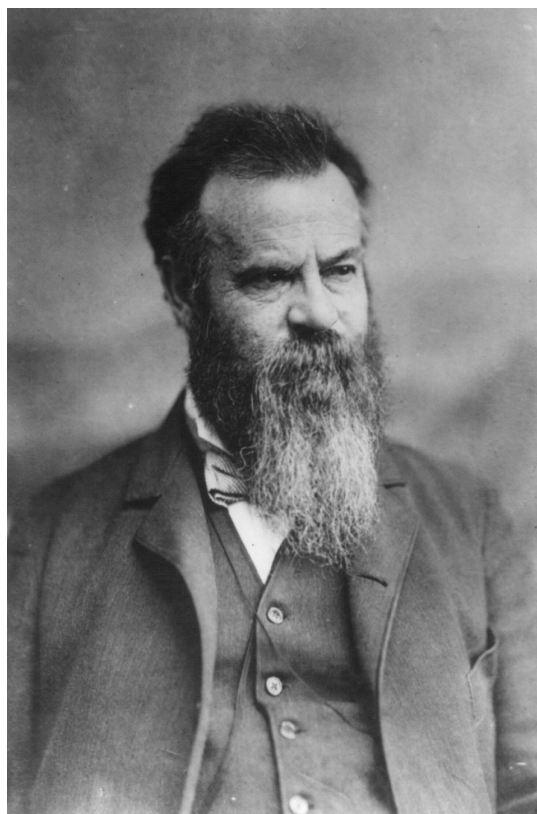
federally appointed officials intervene in the process. Water and timber resources came under the purview of county courts in 1852, while the 1865 law that provided for the organization of self-governing irrigation districts included provisions to prevent outside investment and influence. Yet over time, the appeal of individual capitalism grew in formerly communitarian and inward-looking Utah. In 1880 the territorial legislature repealed earlier laws and charged county water commissioners with recording water rights and determining superior and inferior rights based on seniority. By 1903, when Utah enacted its first full water code, prior appropriation was the law of the land.¹⁴

While the early LDS attempts to hold the outside world at bay through the control of water were ultimately unsuccessful, they provided partial inspiration for an alternative vision of western development proposed by Major John Wesley Powell. Despite the pitfalls inherent to doing “great man” history, Powell remains a useful figure for communicating with and provoking public audiences.¹⁵ This is because he holds a powerful place in the public imagination, particularly in Utah and among segments of the environmental and outdoor recreation communities. In most popular understandings Powell was the bold explorer who, despite losing an arm in the Civil War, led two expeditions through the wildest and most remote river canyons in the West. Today, some view him as something akin to the founding father of river running, and more importantly, many more project modern concerns for the natural world and wilderness upon him. But Powell was neither a modern environmentalist nor a champion of free-flowing rivers. And so, there is value in considering who he was and was not, as well as his alternative vision for western development. That Powell’s plan never came to fruition does not diminish its importance for thinking about water in the American West and for helping public audiences think about the contingent nature of history.

Powell was not a reckless adventurer but an ambitious nineteenth-century man of science. Largely self-taught and broadly interested in the natural and social sciences, he reflected an earlier era of scientific endeavor. He held no college degree, and refused to specialize, following his broad curiosity into seemingly

unrelated fields. His expeditions garnered him fame and launched a long career in federal service during which he collected, documented, and studied the natural history and human cultures of the United States. Remarkably, for thirteen years he directed both the United States Geological Survey (USGS) and the Bureau of American Ethnology. While geology and anthropology might seem incongruous, his interests were part of the same cloth of national expansion. For Powell, a rational understanding of the land and its peoples was a necessary first step for the successful colonization of the arid West.

Powell clearly saw the link between water and power in the West. It was central to his goal of sustaining a vision of agrarian democracy that was rooted in the thinking of Thomas Jefferson and other members of the founding generation. For Jefferson, economic dependence brought subservience and, conversely, economic



John Wesley Powell in 1890. Powell served as director of the United States Geological Survey from 1881 to 1894, and he realized the complexities of using water for irrigation in the western United States. *Courtesy Library of Congress.*

independence begat political independence. The surest way to sustain the republic, he believed, was to ensure a broad land-owning middle class made up of petty capitalist yeoman farmers. In the decades before the Civil War this vision, ironically proposed by a wealthy enslaver, became the unifying ethos of northerners who believed the expansion of the “slave power” posed the greatest threat to “free labor” and free men. While being raised in an abolitionist household, Powell also imbibed this broader strain of anti-slavery thought. And thus, he went to war both to end the enslavement of human beings and to sustain that utopian vision of American economic democracy.¹⁶

The Civil War saw both the high-water mark of the Free Labor ideology as well as government interventions engineered to achieve that vision. With southerners absent, Congress passed landmark legislation intended to remake the nation in the idealized image of the freeholding North. These laws included the Pacific Railway Act, the Morrill Act, and the law that more than any other embodied the Jeffersonian ideal of the agrarian middle class, the Homestead Act. This law allowed an individual to claim 160-acre tracts from the public domain. If that person remained on the land for five years and made improvements, they gained fee simple title to their homestead: in other words, their very own stake in American economic democracy.

As the nation moved west, Powell worried that the ideals enshrined in the Homestead Act would falter, not because of oppressive social and economic institutions, but because of the natural environment. In most places west of the hundredth meridian less than twenty inches of rain fell in any given year, preventing the kind of non-irrigated agriculture possible farther east. A 160-acre homestead that might provide a respectable living in the humid Midwest made little sense in the arid West, where smaller, intensively irrigated farms or much larger tracts devoted to grazing were more logical adaptations to the environment. How could American agrarian democracy, raised up in damp Eastern soils, be transplanted to the parched lands of the American West? This was the question that provoked Powell’s most important work. And in answering it he proposed a radically different way of dividing the waters

and colonizing the land, which had it been adopted would have transformed the political and physical face of the American West.

During his expeditions Powell spent considerable time in Utah Territory, and although Latter-day Saints were driven by a different agrarian vision, their experience irrigating the arid West became one of the principal examples that Powell drew upon while thinking through his plans. Powell did not share the same concerns with isolation and autonomy that motivated early LDS colonists, but he did want to restrain corporate interests and prevent the concentration of power and wealth. Thus, local control over that most precious resource—water—was also essential to his plan. That is why Mormon laws and communitarian development provided important examples.

Powell began presenting his plan for the American West, which Wallace Stegner deemed a “blueprint for a dryland democracy,” with his 1878 *Report on the Lands of the Arid Region of the United States*. He hammered out the details over the next dozen years in subsequent reports, Congressional testimony, and finally a series of essays published in *Century* magazine.¹⁷ Unlike contemporary visions of unlimited growth, Powell’s blueprint reflected an understanding of the environmental limitations posed by aridity in the American West. He estimated that only 3 percent of the West could be successfully irrigated (today, there are about 1.2 million acres under irrigation in Utah, or roughly 2 percent of the state’s land area). Still, this would mean bringing one hundred million acres under irrigation to provide homesteads for over a million American families. It would be a monumental task, demanding careful planning and enormous amounts of money and labor. It would also require the application of technology to utilize every drop of the region’s scant water. That the West’s rivers should, indeed must, be tamed was not a question. “Conquered rivers are better servants than wild clouds,” Powell wrote. Like his contemporaries, he believed that resources should be fully developed, “so that no water runs to the sea.” The free-flowing rivers that we so treasure today were a waste. Progressive Era conservationists like Theodore Roosevelt and Gifford Pinchot would take the same view.

In some ways Powell might be considered a forerunner of those twentieth-century conservationists. Like them, he believed that first and foremost resources must be developed for human use. Anticipating their emphasis on scientific management, he called for Americans to take science seriously. Rational planning and careful stewardship might be employed to make western development possible, he argued, but only within the limits imposed by nature. Taken together, Powell's work amounted to a vast regional plan that presupposed the kind of environmental and social engineering attempted during the New Deal. But there were also important differences between Powell and later generations of conservationists. He did not share the progressives' vision of sustained federal management by experts. Yes, the government should provide infrastructure and technical assistance, but the ultimate control of the resource must be left up to actual residents, preventing the concentration of economic and political power and sustaining the cherished vision of agrarian democracy.¹⁸

The intersection between the natural world and democratic ideals was at the heart of Powell's alternative blueprint for the West. Most importantly it would entail redrawing the arid West's political boundaries to align with its natural watersheds. Existing state, county, and township boundaries were often drawn along the straight lines of the imaginary survey grid, artificially dividing watersheds and making conflicts over water rights inevitable. Instead, under Powell's plan, nature's division of the waters would dictate human social and political geography as well as determine water rights. In the American West, that meant a handful of big, squarish states would effectively be replaced with two hundred or more watershed units, which Powell called "natural districts."¹⁹

Within these districts Powell would have set aside prior appropriation in favor of a hybrid doctrine of water allocation. Water rights would be attached to land ownership, but unlike riparian doctrine, the quality and location of the land would be central considerations.

First-class or "headwaters districts," stretching from the mountains to fertile valleys immediately below, would keep all the water that might be used. To preserve a democratic society of

freeholders and keep out monopoly interests, ownership of irrigable lands in the watershed districts would be limited to single eighty-acre tracts, and all reservoir and canal sites would be kept as district property. Below the headwaters lay the second-class or "river-trunk" districts. Here the residents could build reservoirs on tributary streams to collect local waters as well as the main stem to capture the waters that might flow down from above; but, in recognition of the land's more limited potential, their water rights would always be inferior to those of upstream water users, no matter their priority date. Third-class or "lost-stream districts" would only possess rights to the meager water that might be trapped within their boundaries and would have only a widely scattered and "scanty population."²⁰

Ever the rational scientist, Powell's first step in reordering settlement and water rights along these lines would be a comprehensive irrigation survey of the arid region. With the initial support of powerful western politicians like Nevada's Senator William Stewart, who hoped the project would facilitate rapid and unfettered development, Congress funded the irrigation survey in 1888 and Powell got to work. But most westerners did not want to hear Powell's message of natural limits and democratic control. Stewart and other western boosters quickly saw that Powell's survey would not advance their plans for the region. After only two years Congress cut the survey's funding, effectively dashing Powell's vision.²¹

The ascendance of a very different technocratic-capitalist vision for the West was on full display in Los Angeles in October 1893, when Powell delivered what turned out to be his last major address on water and western development. He was there as the honored guest of the Second National Irrigation Congress. The gathering was the brainchild of William Ellsworth Smythe, who published *Irrigation Age* in his adopted hometown of Salt Lake City, where he had hosted the first irrigation congress two years earlier. The attendees were largely a mix of boosters, developers, and government officials. Powell delivered his keynote on Friday the thirteenth. Perhaps it was an omen. He began by avowing his commitment not to the railroads or other great enterprises, but to a "system that will develop the greatest number

of cottage homes for the people. I am more interested in the home and the cradle than I am in the bank counter."²² Whether they truly agreed with such populist sentiments, the developers and boosters in the room applauded along with the men who shared Powell's vision.

As he continued his address, however, the mood in the room turned from warm reverence for the Civil War hero and audacious explorer to outright hostility. The grumbling started when Powell called out the folly of ignoring natural limitations:

Now, what I wish to make clear to you is this—there is not Water enough . . . to irrigate all the lands; that when all the rivers are used when all the creeks in the ravines, when all the brooks, when all the springs are used, when all the reservoirs along the streams are used, when all the canyon waters are taken up, when all the artesian waters are taken up, when all the wells are sunk or dug that can be dug in all this arid region; there is still not sufficient water to irrigate all this arid region. . . . Do I make that clear? There is but a small portion of the irrigable land which can be irrigated when all the water—every drop of water—is utilized.²³

He then issued a prescient warning: "as years go by, the interests in these water rights will swiftly increase; . . . I tell you, gentlemen, you are piling up a heritage of conflict and litigation over water rights, for there is not sufficient water to supply these lands."²⁴

At that point it became difficult for Powell to continue. Some men booed while others assailed him with questions and counter evidence. Frederick Newell—Powell's subordinate at the USGS, who nearly a decade later became the first director of the United States Reclamation Service—wired the home office that "the whole crowd jumped on him for some general statements. The Mexican delegate said he liked that—it was the only bullfight he had yet seen in this country."²⁵ A year after being heckled from the stage, Powell resigned as the director of the USGS.

The delegates to the irrigation congress embraced a vision of unlimited expansion and

prosperity, and for them it was an article of faith that humankind could engineer solutions to overcome any natural obstacle. They would stand no talk of limitations. While technology has improved our lives in countless ways, allowing an arid place like Utah to sustain a population in the millions, it is hubris to believe that technology alone can fix every problem. Very often solutions bring unintended consequences, sometimes perpetuating the very problems they were supposed to solve. This brings me to dominant place of urban water demands in Utah and the American West.

Powell envisioned western water development nurturing an agrarian society, but in the twentieth and twenty-first centuries cities exerted their power in the struggle to control the region's most precious resource. This should not come as a surprise because the West has always been urban, and today it remains the most urban region of the United States. Nationwide, about 81 percent of Americans live in places defined as urban; in the West, it is over 90 percent.²⁶ And while about 80 percent of the water used in Utah each year still goes to agriculture (most of that to a single crop, alfalfa), urban growth accounts for the greatest increase in demand and has spurred technologically complex and very costly proposals to meet current demands and projected growth.²⁷

On that fateful October day in 1893 when Powell addressed the irrigation congress, one of the men who stood in protest was William J. Mulholland, then superintendent of the privately held Los Angeles City Water Company and later the head of the Los Angeles Department of Water and Power (LADWP). In rebutting Powell, he shouted, "In Owens Valley during the month of July five hundred thousand inches of Water run to waste and not one inch of which was used for irrigation."²⁸ Perhaps that was true, but Mulholland was not interested in irrigation. He was focused on the current and, more accurately, future needs of the rapidly growing metropolis he called home. His comment suggests that his sights were already set on the waters of the Owens River as a solution to Los Angeles's looming water crisis.

When the irrigation congress met there, Los Angeles was a city in the midst of explosive growth. Between 1880 and 1890 its population

increased 350 percent. By the turn of the twentieth century, one hundred thousand residents called the city home, and two decades later Los Angeles surpassed San Francisco as the largest city in California and the American West.²⁹ Yet despite its rapid growth and great commercial promise, the city's water system still reflected its roots as a Spanish/Mexican farming community. The city's main water source was the Los Angeles River, a small trickle of a stream that periodically became a raging torrent. The city was running up against natural limits, and without more water its boosters feared that its growth might falter. The boosters' dilemma precipitated the most infamous water grab in American history: a struggle that pitted the metropolis against rural farmers and the democratic ideals of reclamation against the political power of the urban West, all while illustrating the potential environmental costs of our decisions.³⁰

The Owens River drains the drier eastern slope of the Sierra Nevada, and it made irrigated agriculture viable in the high desert. Like other rivers in the Great Basin, the waters of the Owens never reached the sea but rather flowed into an eponymously named terminal lake. It is a closed, or endorheic, system, as is Utah's Great Salt Lake.³¹ About a decade after the Mormon pioneers colonized the Salt Lake and Utah Valleys, other Euro-Americans displaced Indigenous Mono-Paiute people and began farming in the Owens Valley. Because of the area's natural advantages, which were not unlike those of the Wasatch Oasis, it became the site of the Reclamation Service's first planned project in California. Mulholland and Fred Eaton had other plans.

Eaton, a native Los Angeleno who once served as city engineer and was elected mayor in 1898, first conceived of the Owens Valley aqueduct. Mulholland, his protégé, was initially skeptical but came to believe that it was the only way to sustain the city's growth. Together the men began to acquire water rights in the Owens Valley. In a stunning conflict of interest, Joseph B. Lippincott, the Reclamation Service official in charge of the Owens Valley project, abetted the plan. Back in Los Angeles, Eaton and Mulholland magnified the threat of water shortages to rally voters behind bond issues to purchase more water rights and fund the aqueduct's construction. In fact, the water was not yet necessary and would essentially be stored

in the aquifer beneath the soon-to-be-annexed San Fernando Valley until it was needed.

The pieces were coming together by 1906, but because the aqueduct would cross public lands, it could not be built without federal approval. In July, California Senator Frank Flint pleaded Los Angeles's case before President Theodore Roosevelt. Also present was Gifford Pinchot, the president's old friend and confidant, who as director of the United States Forest Service was a principal architect of early federal conservation policy. Pinchot's utilitarian view of conservation was best summed up in his own words: "the greatest good, for the greatest number, for the longest time."³² Roosevelt quickly decided that there was "infinitely greater interest to be served by putting the water in Los Angeles."³³ The president sent a message to Congress, breaking a stalemate over competing legislation that might have saved the valley farmers. Without reliable water the Owens Valley Project became untenable, and the following year the Reclamation Service pulled the plug. Lippincott soon resigned from the service to become Mulholland's deputy at the Los Angeles Department of Water and Power.

Mulholland oversaw nearly every detail of the aqueduct's construction between 1908 and 1913. When complete, it carried water 233 miles across the Mohave Desert, utilizing over fifty miles of tunnels and twenty-three siphons to overcome ridges and canyons without the need for electrical pumps. It was indeed a technological marvel. But it did not impress the residents of the Owens Valley, nor did it slake Los Angeles's thirst. Despite Mulholland's promise to divert only the water necessary, drought conditions in the 1920s led him to the conclusion that he must divert it all in order to preserve the city's water right. No water meant no future for the valley's farmers and small towns, and they fought back. Between 1924 and 1927 valley vigilantes dynamited the aqueduct on several occasions, forcing the LADWP to patrol the line with armed deputies.³⁴

The conflict eventually ended, but Los Angeles's relentless growth and its quest for more water did not. The aqueduct was extended to the Mono Lake basin, which became depleted and threatened the lake. But even that was not enough. In the 1930s an even longer aqueduct



The desiccated remains of Owens Lake in 2019. Water diversions in the first half of the twentieth century left Owens Lake a mostly dry playa. *Wikimedia Commons.*

was constructed to pump water from the Colorado River to over a dozen cities in southern California. And today the massive California Aqueduct system transports water over six hundred miles from Lake Oroville on the Feather River in Northern California to Los Angeles. In Los Angeles and throughout the American West development has begat more development; increased supply has always brought increased demand.

While the purposeful desiccation of the Owens Valley played out far from Utah, we should not ignore its historical lessons, the most telling for Utahns today being the fate of Owens Lake.³⁵ By 1970, Los Angeles completed a second Owens Valley pipeline and began pumping even more surface and ground water out of the valley. The result was environmental devastation. Once a refuge for migratory birds, Owens Lake became a dry playa. Winds whipped up toxic dust storms that plague the valley's small communities. More recently, legal actions have resulted in mandates to restore water flows into Owens Lake, but it remains mostly dry and so the dust, laced with cadmium and arsenic, continues to fly. The parallels between Owens Lake and our own Great Salt Lake are hard to ignore. In a recent article on the imperiled Great Salt Lake, the *New York Times* did not miss them.³⁶ There are of course important differences too. For example, the toxic dust storms generated from Owens Lake impact relatively few people in small, high-desert communities like Lone Pine, Keeler, and Ridgecrest, while a shrinking Great Salt Lake potentially threatens the health and wellbeing of two-and-half-million people living

along the Wasatch Front.³⁷ This is a frightening proposition to be sure, but it might also offer a glimmer of hope. Los Angeles's development came at the expense of tiny communities hundreds of miles away. Along the Wasatch Front, we are doing this to ourselves, and perhaps that might hold the key to change. There is power in numbers and if Utahns have the will to take a hard look at themselves, they might find a sustainable way forward.

But there are no simple answers or easy solutions. Recently, public discussions of water reform in Utah have increasingly turned toward agriculture, and more specifically toward the crop that consumes nearly 70 percent of the water diverted in the state each year, alfalfa.³⁸ Many Utahns ask if it makes sense to allocate so much of our most precious resource to a crop that represents .2 percent of the state's gross domestic product. It is a valid question, and transferring water from agricultural use to other purposes seems like an obvious solution to Utah's water woes. But unless we also account for the state's explosive urban growth, it could prove to be no solution at all. Over the last decade (2010–2020) Utah was the fastest-growing state in the nation, and indications are that rapid population growth will continue for decades to come.³⁹ While we cannot stop urban growth (it is likely that most Utahns would not want to even if it were possible), we can manage it more effectively. We can prioritize conservation and efficiency over developing the kind of technologically complex and immensely expensive water projects that historically have encouraged greater growth and thus even greater

demand. Real solutions will require moving beyond technological fixes and will entail shifts in our cultural values and expectations. And they will demand sacrifices from every sector of our society.

I cannot predict how it all will turn out, but I do believe that historical context will be essential in navigating our future water ways. *Think Water Utah* was intended to provoke open and meaningful discussions of our past and our future and, I hope, inform public decision-making. The goal was to get our visitors and readers to seriously consider their relationships to water and to each other. That is also what I have tried to do here. In considering the ways in which Native peoples and Euro-American colonists engaged land and water in vastly different ways, or the alternative vision of western development proposed by John Wesley Powell, or how population growth and urban development pose real challenges in the modern West, we might come to more just and sustainable decisions about our water future. For me that is the role of a historian at the confluence of water and the public.

Notes

- Lake Powell at Glen Canyon Dam, AZ, *USGS*, accessed December 28, 2022, waterdata.usgs.gov/monitoring-location/09379900/#parameterCode=62614&period=P7D. “Full Pool” for Lake Powell is 3,700 feet above sea level. On December 28, 2022, the lake level was 3,524.2.
- For examples of national and global coverage, see *New York Times*, June 7, July 21, September 5, 2022, January 27, 2023; *Washington Post*, July 27, 2021, May 14, December 17, 2022, January 6, 2023; *Guardian*, July 6, September 26, 2022, January 10, 2023.
- “Latest News,” *Great Salt Lake Collaborative*, accessed March 1, 2023, greatsaltlakenews.org.
- Walter Prescott Webb, *The Great Plains* (New York: Grosset and Dunlap, 1931); Donald Worster, “New West, True West: Interpreting the Region’s History,” *Western Historical Quarterly* 18 (April 1987): 141–56.
- The *Think Water Utah* team also included Megan Weiss, Nate Housley, Mikee Ferran, and Lisa Barr, as well as the great people at the nine local host venues.
- Think Water Utah* content is available at *Utah Humanities*, accessed March 1, 2023, utahhumanities.org/index.php/think-water-utah.html.
- Freeman Tilden, *Interpreting Our Heritage* (repr., Chapel Hill: University of North Carolina Press, 2007), 59. First published in 1957, Tilden’s volume remains an essential sourcebook for interpretation in the National Park Service.
- “Whiskey Is for Drinking; Water Is for Fighting Over,” *Quote Investigator*, accessed March 1, 2023, quoteinvestigator.com/2013/06/03/whiskey-water/. The oldest proven use of the phrase dates only to the early 1980s.
- For Numic subsistence cycles and water see Darren Parry, *The Bear River Massacre: A Shoshone History* (Salt Lake City: By Common Consent Press, 2019); Gregory E. Smoak, “The Newe (the People) and the Utah Superintendency,” in *Shoshonean Peoples and the Overland Trails: Frontiers of the Utah Superintendency of Indian Affairs, 1849–1869*, ed. Richard Saunders (Logan: Utah State University Press, 2007), 33–56; Martha Knack, *Boundaries Between: The Southern Paiutes, 1775–1995* (Lincoln: University of Nebraska Press, 2001); and Jared Farmer, *On Zion’s Mount: Mormons, Indians, and the American Landscape* (Cambridge: Harvard University Press, 2008).
- John D. Unruh, *The Plains Across: The Overland Emigrants and the Trans-Mississippi West, 1840–1860* (Urbana: University of Illinois Press, 1979); Ned Blackhawk, *Violence over the Land: Indians and Empires in the Early American West* (Cambridge: Harvard University Press, 2006).
- Will Bagley, ed., *The Whites Want Everything: Indian-Mormon Relations, 1847–1877* (Norman: Arthur H. Clark Company, 2019).
- Parry, *The Bear River Massacre*. Peter Maughan wrote to Brigham Young on February 4, 1863, “I feel my skirts clear of their blood. They rejected the way of life and salvation which have been pointed out to them.” Quoted in Brigham D. Madsen, *The Shoshoni Frontier and the Bear River Massacre* (Salt Lake City: University of Utah Press, 1985), 194.
- For a summary of water law in the West, see Donald J. Pisani, *Water, Land, and Law in the West: The Limits of Public Policy, 1850–1920* (Lawrence: University Press of Kansas, 1996).
- Thomas G. Alexander, *Utah: The Right Place* (Salt Lake City: Gibbs Smith, 1996), 222–25; John Bennion, “Water Law on the Eve of Statehood: Israel Bennion and a Conflict in Vernon, 1893–1896,” *Utah Historical Quarterly* 82, no. 3 (2014): 289–305.
- Powell’s place in the public imagination was secured with the publication of Wallace Stegner’s *Beyond the Hundredth Meridian: John Wesley Powell and the Second Opening of the West* (Boston: Houghton Mifflin in 1954. For the best comprehensive biography of Powell, see Donald Worster, *A River Running West: The Life of John Wesley Powell* (New York: Oxford University Press, 2001); for an assessment of Powell’s legacy from historical, legal, and policy perspectives, see Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon, 1985); and Jason Robison, Daniel McCool, and Thomas Minckley, eds., *Vision and Place: John Wesley Powell and Reimagining the Colorado River Basin* (Berkeley: University of California Press, 2020).
- Worster, *River Running West*, 32–34, 59.
- John Wesley Powell et al., *Report on the Lands of the Arid Region of the United States* (Washington, DC: Government Printing Office, 1878); *Report of the Special Committee on the Irrigation and Reclamation of Arid Lands*, 51st Cong., 1st sess., Senate Report 928, 1890; John Wesley Powell, “The Irrigable Lands of the Arid Region,” *Century* 39 (1890), 767–75; John Wesley Powell, “Institutions for the Arid Region,” *Century* 40 (1890), 767–75; Stegner, *Beyond the Hundredth Meridian*, 202–42.
- Powell, “Institutions for the Arid Lands”; Worster, *Rivers of Empire*, 138–39.
- Worster, *Rivers of Empire*, 138.

20. Worster, *Rivers of Empire*, 138–39.
21. Worster, *River Running West*, 506.
22. *Official Report of the International Irrigation Congress held at Los Angeles, California* (Los Angeles: Los Angeles Chamber of Commerce, October 1893), 108.
23. *Official Report of the International Irrigation Congress*, 109.
24. *Official Report of the International Irrigation Congress*, 111–12.
25. Quoted in Worster, *River Running West*, 530.
26. “Nation’s Urban and Rural Populations Shift Following 2020 Census,” *United States Census Bureau*, December 29, 2022, Press Release Number CB22-CN.25, accessed March 1, 2023, [census.gov/newsroom/press-releases/2022/urban-rural-populations.html](https://www.census.gov/newsroom/press-releases/2022/urban-rural-populations.html).
27. According to the USDA National Agricultural Statistics Service, irrigated acreage in Utah has remained stable at between 1.1 and 1.2 million acres since the Great Depression.
28. *Official Report of the International Irrigation Congress*, 110.
29. United States Census 1880, 1890, 1900, 1920.
30. For the Owens Valley and the California Water Wars, see William L. Kahrl, “The Politics of California Water: Owens Valley and the Los Angeles Aqueduct, 1900–1927 (Part 1),” *California Historical Quarterly* 55 (Spring 1976): 2–25; William L. Kahrl, *Water and Power: The Conflict Over Los Angeles’ Water Supply in the Owens Valley* (Berkeley: University of California Press, 1982); Marc Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (New York: Random House, 1986); Catherine Mulholland, *William Mulholland and the Rise of Los Angeles* (Berkeley: University of California Press, 2002).
31. In hydrologic terms, these are endorheic basins.
32. Gifford Pinchot, *The Fight for Conservation* (New York: Doubleday, Page, 1910), 48. The phrase first appeared in a letter from Secretary of Agriculture James Wilson to Pinchot, but historians generally agree that Pinchot actually wrote the letter to himself as a mission statement for his position as head of the Forest Service.
33. Quoted in Kahrl, “The Politics of Water in California (Part 1),” 14.
34. William H. Kahrl, “Part II: The Politics of California Water: Owens Valley and the Los Angeles Aqueduct, 1900–1927,” *Hastings Environmental Law Journal* 6 (Spring 2000): 255–69.
35. Nor should we ignore the catastrophe of the Aral Sea, although different goals motivated that environmental disaster.
36. *New York Times*, June 7, 2022.
37. For the long-term impacts on the Owens Valley, see Karen Piper, *Left in the Dust: How Race and Politics Created a Human and Environmental Tragedy in L.A.* (New York: St. Martin’s Press, 2006).
38. *Salt Lake Tribune*, November 24, 2022.
39. “Census 2020: Utah Fastest Growing State in U.S.,” *Kem C. Gardner Policy Institute*, April 26, 2021, accessed March 1, 2023, gardner.utah.edu/census-2020-utah-fastest-growing-state-in-u-s/.