

UC Berkeley

Publications

Title

Monumental Hydraulics: Diego Rivera's Lerma Waterworks and the Water Temples of San Francisco- *in Boom California (2016)*

Permalink

<https://escholarship.org/uc/item/14b1x3b4>

Journal

Boom California, 6(3)

Authors

Tiffany, Rafael
Moffat, Susan

Publication Date

2016-10-01

DOI

10.1525/boom.2016.6.3.40.

Peer reviewed



RAFAEL TIFFANY AND SUSAN MOFFAT

Monumental Hydraulics

Diego Rivera's Lerma Waterworks and the water temples of San Francisco

The water pouring readily out of our private faucets is a modern production that belies the enormous scale of public infrastructure needed to sustain it. Aqueducts, reservoirs, and pumps have been central to the narrative of modern California as a hydraulic civilization: a society driven by the determination to do whatever it takes to maintain, defend, and expand access to water. Americans built soaring artistic monuments to hydraulic control in the West, creating three-dimensional representations of this will to power that bundle together ancient and modern myth, art, and engineering.

In California, these shrines to infrastructure closely follow precedents from western antiquity. In the southeast San Francisco Bay Area, for example, upstream along Alameda Creek from the city of Fremont sits the water temple at Sunol, dedicated in 1910 by William Bourne and other members of the San Francisco elite associated with the private Spring Valley Water Company. The temple sits at the convergence of multiple water sources in the Alameda Creek watershed, where the streams were once blended and pumped forty miles across the Bay to San Francisco. Architect Willis Polk modeled the temple after the Temple of Vesta in Tivoli, outside Rome, another monument to a vital aqueduct irrigating an imperial city. The sixty-foot-high Sunol temple has a circular footprint, cast-concrete Corinthian columns, and frolicking sea creatures, and it replaced a wooden shed that was deemed insufficient recognition for what the Spring Valley Water Company quarterly *San Francisco Water* at the time called “the dignity of water.”¹ Under the terra cotta roof, visitors could look down to the vault through which waters roared into a subterranean pipeline.

BOOM: The Journal of California, Vol. 6, Number 3, pps 40–49, ISSN 2153-8018, electronic ISSN 2153-764X. © 2016 by The Regents of the University of California. All rights reserved. Please direct all requests for permission to photocopy or reproduce article content through the University of California Press's Reprints and Permissions web page, <http://www.ucpress.edu/journals.php?p=reprints>. DOI: 10.1525/boom.2016.6.3.40.



Front of temple looking at one of the faces of Tlaloc, Mexican god of rain and harvest.



Downloaded from http://online.ucpress.edu/boom/article-pdf/16/3/40/282164/boom_2016_6_3-40.pdf by guest on 03 November 2022

Later, when San Francisco needed yet more water to turn its windswept dunes into parks and urban neighborhoods, it dammed the Tuolumne River in the Sierra Nevada's Hetch Hetchy Valley, drowning a valley as spectacular as Yosemite's. Starting in 1934, it brought the Sierra snowmelt through 160 miles of aqueducts to a reservoir south of the city and celebrated this marvel of engineering—publicly owned, this time—with the construction of a monument that

took its inspiration from the one at Sunol, as well as more ancient antecedents. About two billion gallons of water a year rushed through the Beaux Arts Pulgas Water Temple, where visitors could view the flow from a platform inside the colonnade.

As in California, in Mexico governments commissioned structures to celebrate human hydraulic achievements. But while American engineers and artists looked to Rome for



Second face of Tlaloc, Mexican god of rain and harvest.

inspiration, Mexican artists turned to indigenous sources to celebrate their own infrastructural triumphs over water scarcity. In Mexico City, the Lerma Waterworks, also known as the *Cárcamo de Dolores*, commemorates a major aqueduct that feeds the modern city. In the Valley of Mexico, as in the western United States, European settlers forced their water management regimes into local landscapes, feeling thwarted by what they perceived as inhospitable

environments. Both San Francisco Bay and the Valley of Mexico were rich in wetlands but their intermittent rainfall patterns frustrated foreign settlers. San Francisco occupied a foggy location on the tip of a seasonally arid Pacific coastal peninsula lacking a major river, while Mexico City was built on islands in the middle of a high-altitude lake with no outlet, with only a short wet season in summer. These conditions compelled European settlers to largely ignore



Mural of a man immersed in water among sea creatures.

indigenous water management traditions in favor of feats of the latest engineering.

Since European settlement, water provision throughout Mexico City has been uneven and unreliable, in spite of the city's lacustrine hydrological identity and regular floods. Having suppressed the traditional water management practices of the valley's inhabitants, the Spanish substituted them with an approach intent on expelling water from the bottom of the basin that they decided to settle. The lake was gradually drained following major efforts beginning in the seventeenth century, and the Aztecs' network of waterways evaporated. In both Mexico and California, as in ancient Rome, local resources were considered insufficient to develop cities; water would be acquired externally, stored, distributed, and then flushed away.

Mexico's largest water infrastructure project of the twentieth century sought to modernize its capital city in this way, focusing on the goal of increasing the drinking water supply for its residents. The urban population explosion throughout the 1930s alarmed city planners, who decided that wells alone would be insufficient to meet growing demand. The decision to tap into external watersheds was also driven by the aim of reducing the sinking of the city caused by the extraction of groundwater. The Lerma System, constructed between 1942 and 1951,

conveyed water from sixty kilometers west. The water spends almost a third of the trip underground, gurgling through a tunnel bored through the Sierra de las Cruces mountains, before spilling into the city in the great Chapultepec Park. The Lerma Waterworks is, therefore, a ceremonial entry point, a municipal mouth receiving distant water at a culturally vibrant location in the city.

In 1950, Diego Rivera, then nearing the end of his artistic career, accepted a state commission to design the site in collaboration with the architect Ricardo Rivas. Locating the site at the endpoint of the aqueduct system within the park was itself highly significant for its indigenous value and hydro-geographic role. The Chapultepec district played an important role in ancient Aztec (and pre-Aztec) beliefs and practices as the sacred *altepetl*, or water hill, its springs supplying the city of Tenochtitlan from an aqueduct running across the former Lake Texcoco. Taking inspiration from the site's real and symbolic abundance of water, Rivera and Rivas's intervention deploys a syncretic use of indigenous representation and craft for this modern infrastructure project.

To appreciate this, it's best to view the monument from the elevated western approach, which follows the path of the subterranean water. A small stone temple faces the plaza, its ochre cantera stone forming a portico of eight columns and



Mural of engineers and planners, and symbols for chemical processes for disinfection of water.

crowned by a shallow dome. The building fronts a trapezoidal reflecting pool, covered in mosaic and dominated by a 100-foot-wide sculpture rising from the water in bas relief, more legible by air than from the ground. This is Rivera's rendition of Tlaloc, Mexica god of rain and harvest. The god is depicted in active stride, sowing corn kernels from one hand and wielding mature cobs in the other; Tlaloc is the medium of growth and life itself. He is two-faced, with one goggle-eyed, jaguar-toothed visage looking skyward, and the other face earthbound, its gaping tunnel mouth facing the temple. On the soles of Tlaloc's sandals, a series of mosaics adapt Mexica iconography to depict the construction of the aqueduct through the mountains. The story is broadly conveyed and monumentalizes modern Mexico's technological control over natural resources.

Inside the temple, Rivera covered the walls and floor of the subchamber with the mural *Agua, Origen de la Vida en la Tierra*. In it, ancient organisms drift through the primordial soup represented in the floor mural: protozoa, amoebae, and diatoms are succeeded by others in a crescendo of complexity that begin on the ground and flow up to the vertical plane of the walls, culminating in two human ur-forms, male and female, facing one another from across the chamber. The other two walls depict the entrance and egress of the water: the source on the west wall is represented by the

disembodied hands of Tlaloc, above a tunnel that until recent years conveyed the water from the aqueduct, flanked by paintings of laborers. The east wall depicts the engineers and planners, and the symbols for the chemical processes required for disinfection hang over the gates that previously directed running water into nearby tanks and the purification infrastructure.

While the architecture of San Francisco's water temples used classical iconography to celebrate both the commercial and aspirationally democratic context of its liquid resource, Rivera's work in Chapultepec Park used locally rooted images to pronounce and mythologize the state's manifest water destiny as it was centralized in Mexico City. Images of the indigenous past flow out of the water god's outstretched hands into the modernity of the Mexican Miracle era of the 1960s, when the country invested heavily in its infrastructure. But the monument fell into disrepair in the last decades of the twentieth century, and its degradation mirrored that of the water infrastructure it memorialized. The flow has been rerouted beneath the site, invisible again, rather than running through it, because the water and the humid environment it created were damaging the murals.² Beginning in the 1970s, the Lerma system was augmented by the Cutzamala system, a network that was extended repeatedly to meet growing demands. But the new distribution





Mural of a woman immersed in water among sea creatures.



Tlaloc's disembodied hands symbolizing the giving of water, and Tlaloc's face outside.

infrastructure was stretched thin and inadequately maintained, and runs dry before it reaches the poor urban periphery of sprawling Mexico City.

While the visible portion of Rivera's temple to the dream of a modern water system for the city has undergone renovation in recent years, the hidden aging pipes and earthquake-damaged conduits throughout the city leak an

estimated 30 percent of their precious medium. Peripheral neighborhoods have intermittent water service, if it reaches them at all. Almost everyone in the city relies on bottled water. The Lerma Waterworks lays bare the contrast between the mid-century promise of comfortable, clean water infrastructure for all and the failing hydro-political systems of today. Its images of an evenly distributed modernity are

newly potent, reaching out from a faded moment of the past to the contemporary city, where the government's neglect of infrastructure hits everyone, but especially the poor.

In California, too, the water no longer flows through the Pulgas Water Temple. Function has trumped symbolism. Following a change in the water treatment system in the early 2000s, the water is purified at a treatment plant over at Sunol, near the water temple on the other side of the Bay. There, the Sierra water is treated with a chlorine-ammonia combination to kill off bacteria, and it is sterile water that flows across the Bay in a pipe to Pulgas. But the disinfectant chemical is deadly to fish and has to be removed before it goes into the Crystal Springs water reservoir.³ So while the water in Mexico City had to be removed from the temple because it was too erosive, in Northern California it had to be banished because it was too clean.

And while the people of Mexico City clamor to increase the supply of clean water to their metropolis, a citizens' movement in San Francisco is agitating to redesign the flow of water from the Sierras to the city. These environmental advocates want to demolish the dam at Hetch Hetchy, saying the city shouldn't be using a scenic wilderness as a storage tub for its drinking water. They see profligate urban water consumption as a shame, not a triumph, and celebrate the cathedral-like granite walls of the submerged valley rather than any human-made temple to engineering.

As the political debates rage on, the water temples of each city stand by, monuments to moments in history, reflecting a time when water infrastructure was seen worthy of artistic veneration, and when artists drew on the iconography of the past to argue that drawing water from the mountains to fuel a growing city was the prerequisite for civilization, not an act of plunder. **B**

Notes

Photographs of Diego Rivera's Lerma Waterworks by Rafael Tiffany.

- ¹ Rina Cathleen Faletti, "Undercurrents of Urban Modernism: Water, Architecture and Landscape in California and the American West," dissertation presented to the University of Texas at Austin, 2015, p. 210. See also Gray Brechin, *Imperial San Francisco*, Chapter 2, "Water Mains and Bloodlines," University of California Press, 1999.
- ² Rivera painted the murals with a polystyrene compound meant to resist constant inundation, but erosion of the paint was visible within years of the monument's completion. Experts at the *Instituto Nacional de Bellas Artes* have since restored them.
- ³ When the water gets pumped out of the reservoir, it gets disinfected again before heading into homes. This elaborate system is needed because some of the water goes straight to taps while some gets stored in the reservoir first.