

# MAKING DESERTS BLOOM

*When Californians need more water, they take it from their neighbors*

**Robert Leonard Reid**

In 1893 Major John Wesley Powell, pioneer explorer of the Colorado River and director of the U.S. Geological Survey, traveled to Los Angeles to address a conference on irrigation. To his dismay, he found a convocation of boosters singing the praises of unrestrained growth and development.

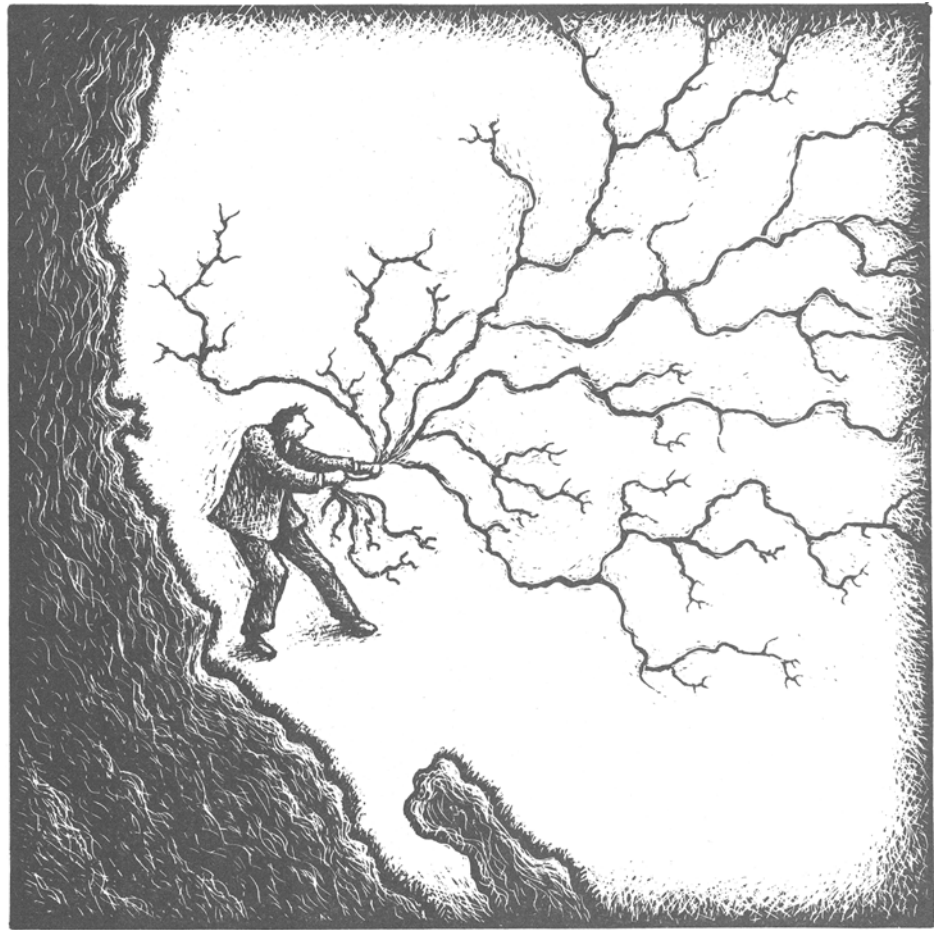
Powell, perhaps the first to recognize the limitations that scarce water imposed on development of the American West, put aside his prepared speech. He warned the delegates that their shortsightedness could only lead to trouble: There was water enough to irrigate only 20 per cent of the West, he argued, and no matter how the water was apportioned, the rest of the land was bound to remain dry.

Powell was soundly booed for his advice. The boosters prevailed and southern California, once almost a desert, has become the home of fourteen million people. The state's broad Central Valley, once as dry and barren as northern Mexico, is the most prolific farmland in the United States.

Today, California leads the nation

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Robert Goldstrom

in the production of tomatoes, lettuce, plums, carrots, and more than forty other commercial crop and livestock commodities. It produces 45 per cent of the twenty-two principal fresh market vegetables grown in the United States, and 35 per cent of all fruits.

Powell's warning has apparently been refuted by these remarkable statistics—but only apparently. Massive importations of water did make California's deserts bloom but in their place created new deserts. The state's water planners must now look farther and farther afield for supplies to meet anticipated future needs.

Under the circumstances, one might expect that the booring would have stopped at last—that a policy mandating careful use of available water would have been implemented in California. But against all reason, the boosters still prevail; California has no hydrologic counterpart to Proposition 13 to guarantee frugal spending of water.

Laissez-faire state and local policies encourage profligate use of water in the regions of the state that need it most.

As much as half of the water made available to Central Valley farmers from the state's system of reservoirs and aqueducts is sold to them at bargain rates—as low as one-sixth the price charged to other contracting agencies. To such corporate landholders as Tenneco (53,000 acres), Chevron (50,000 acres), and Getty Oil (41,000 acres), this subsidy results in savings of hundreds of thousands of dollars a year.

To further discourage conservation, the state imposes no controls on groundwater use. Last year, when the state legislature threatened to impose such controls, corporate farmers screamed "Government intervention!" and saw to it that the proposals were defeated. Farmers are free to suck underground reservoirs dry—and they are doing just that.

Each year, agriculture lowers the state's water table by an amount sufficient to supply Los Angeles residents with water for five years. With no incentive to conserve, farmers expand onto ever more marginal lands. They channel 82 per cent of their irrigation water through open ditches, an irrigation method that is vastly cheaper than sprinklers or drip irrigation—and far more wasteful of water; fields fed by ditches require five times as much water as fields watered by sprinkler and 100 times as much water as drip-irrigated fields.

Nor are effective constraints placed on urban consumers. Many California cities do not meter water; customers pay a flat rate no matter how much water they use. Southern Californians continue to indulge in the regional custom of hosing down their driveways on Saturday afternoon.

During 1976 and 1977, when California suffered its worst drought of the century, most urban areas in the northern half of the state cut their water consumption by 25 to 30 per cent—53 per cent in Marin County. Figures from the southern desert from the same period reveal consumers unwilling to face the reality of the drought and of their almost total dependence on imported water: Los Angeles cut back 13 per cent, Riverside 12 per cent, San Diego 7 per cent. Many cities achieved even smaller reductions.

If California water policies appear contradictory, even suicidal, there is a simple explanation. In the grand tradition of the western robber baron, the state's water planners operate on the assumption that however intractable their problems may become, they can always tap someone else's water supply. Each time the well appears about to run dry, the state legislature embraces a grandiose and monstrously expensive *deus ex machina*—a dam, a canal, a shiny new pipeline to send out toward the horizon. The result is a bizarre network of aqueducts transporting water from sources hundreds of miles away to the thirsty Central Valley and south.

The energy consumed by the system is enormous. Pumping a year's supply of water across the state, 2,000 feet up over the Tehachapi Mountains and down into the arid south, requires the

net energy of a barrel of oil for each one of the millions of residents who will use the water.

On the drawing boards to meet future needs are some truly extraordinary pipe dreams: an aqueduct to Idaho that would divert the Snake River to Los Angeles; a gigantic funnel in the Pacific near Portland to capture the emerging Columbia River; a high dam on the Yukon to reverse the flow of arctic rivers and send them rushing south to California. That there is a last river somewhere, a final dam—or indeed a cheaper and more sensible solution to their problems—has apparently not yet occurred to the state's visionaries.

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## There is no end of schemes . . . divert the Snake, dam the Yukon

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Disciples of the long-distance pipeline overlook one critically important fact: Any massive water-delivery system that solves problems at one end of the pipe must necessarily create them at the other. Complex social and ecological systems that have evolved along with their water supplies must inevitably suffer degradation if substantial portions of those water supplies are cut off.

Thus, while Los Angeles blooms in lush bougainvillea, the once-fertile Owens Valley on the losing end of the 200-mile Los Angeles Aqueduct has become the desert that Los Angeles once was. Reaching farther north, Los Angeles diverts water from the tributary streams of Mono Lake, which until a few years ago was the nesting ground for one-fourth of the California gull population. A dramatic drop in the level of the lake has exposed 10,000 acres of lake-bottom sediment soaked with alkali chemicals; an air pollution

crisis now endangers plants, animals, and humans in the vicinity. A land bridge to the lake's principal breeding island has emerged as the water level has dropped, giving coyotes and other predators access to the island. The National Audubon Society reports a 77 per cent decline in the number of California gulls nesting at the lake.

The Peripheral Canal is the latest magic fix proposed for California's troubled water system. If it is constructed, the canal will divert up to four-fifths of the total Sacramento River flow to southern California. Normally the Sacramento passes through a marshy region of islands and levees called the Sacramento Delta before emptying into San Francisco Bay and the Pacific. No one knows exactly what effects a dramatic reduction in the river's volume will have, but serious environmental damage is widely forecast. Denied the flushing action of the river, San Francisco Bay may become bogged down in pollutants. Upriver, increased salinity will threaten fish and waterfowl populations and Delta agricultural lands.

Equally in jeopardy will be the quality of life of the Delta's quarter-million residents. Currently the Delta offers superb boating and fishing opportunities along 700 miles of meandering waterways; robbed of the greater part of its water, the new Delta will bear little resemblance to the old.

The California legislature has already approved construction of the new canal. The cost will be staggering. Estimates vary widely, but everyone agrees that the price tag on the canal and attendant reservoirs will be several billion dollars. The irony lies in the fact that the same amount of water that the canal will deliver to California's arid southland could be obtained through a far less costly program of waste water reclamation and minimal conservation.

Such a cutback would easily be achieved if farmers would make a beginning toward adopting less-wasteful irrigation methods and scientific management of irrigation schedules, and if urban dwellers would place bricks in the water tanks of their toilets—and flush less.

Canal opponents have gathered enough signatures to place a repeal ini-

tiative on a forthcoming ballot, probably in November 1981. Defeating the canal, however, won't be an easy task. The votes are in southern California, which is being subjected to heavy procanal publicity from real estate, agriculture, and other development interests. Confident of the outcome,

prodigal agriculture is brazenly discussing plans to put 200,000 acres of new lands into production before the year 2000.

The Peripheral Canal proposal illustrates how little Californians have learned in the past century. Half-baked technological fixes do not solve water

problems; they merely move them from one spot to another. The limits to development of the dry West are even clearer now than they were in Major John Wesley Powell's day. At some point, those limits will force an end to waste and stall the economy that refused to change its wanton ways. ■

## Robbing Peter to pay Paul

Although the reference dates back to the Renaissance, when a British king sold off the lands surrounding one cathedral to finance the building of another, the principle of robbing Peter to pay Paul is alive and well in U.S. water policy. Nothing else explains why consumers in the East and upper Middle West, where rainfall is comparatively plentiful, generally pay more for their water than do consumers in the arid and semi-arid region that stretches from western Texas to the California coast. And perhaps nothing so confounds the law of supply and demand.

Consider, for example, that water costs New Haven and Philadelphia residents, respectively, \$18.90 and \$13.93 a month per 1,000 cubic feet, whereas the equivalent cost in El Paso is \$3.99 and, in Denver and Sacramento, a flat fee—and a modest one—buys people in most parts of those cities as much water as they choose to consume.

Moreover, if you happen to live in Phoenix, the more water you use the cheaper that use becomes as the monthly \$7 charge for the first 2,000 cubic feet drops to \$2.10 per 2,000 cubic feet after that. (All these are 1976 figures, the latest available.)

What is true for municipalities also applies to agriculture, the more so because irrigation accounts for about 80 per cent of the nation's wa-

ter use. And again the East and upper Middle West largely foot the bill for a profligate West. This year, for instance, the Federal Government will have spent more on irrigation projects in Arizona alone than in the fourteen states from Minnesota to Maine combined.

Coupled with state statutes in the West, Federal water policy is, in fact, both the link between the Sunbelt's wasteful urban and rural water habits and a major cause of the entire robbing-the-eastern-Peter-to-pay-the-western-Paul phenomenon. And there are at least two reasons why it is even more insidious than it at first appears.

One reason is that, despite the popular impression that western irrigation is almost solely for fruits and vegetables for the nation's tables, this is not the case. More than a little of the water is applied to such crops as cotton, sorghum, alfalfa, barley, and feed corn, and more of these are raised than can be sold or eaten on the premises by a rancher's or farmer's stock. As the Government pays growers for the surplus, the taxpayer is hit twice: once for the cost of the water and again for so-called agricultural set-asides and price supports.

The other and related reason is explained by a report issued in March by the General Accounting Office, a support arm of Congress. After closely scrutinizing six Federally financed water projects, selected as typical, the report found that "since no interest is charged [to the farmers and ranchers who use the water] . . . these payments [for irrigation] actually cover less than 10 per cent of the Federal Government's actual cost." Moreover, as local and state governments in the West also tap into these water projects on behalf of cities, towns,

and suburbs, they too are getting, if not a free ride, one that is heavily subsidized.

Small wonder, then, that farmers and ranchers in the West are given to irrigating some land too marginal to produce good yields. Or that householders and others there think nothing, in the midst of drought, of keeping golf courses and flower gardens green throughout the year. And small wonder, either, that the Sunbelt has taken little advantage of recently developed water-sparing technologies. When push doesn't come to shove, there is almost no incentive to conserve.

This was understandable in 1902 when Congress passed the Reclamation Act which, with its successors, has fueled western development ever since. Without these laws, settlement of the region would likely have never come about.

Eighty years later, however, the frontier has long since disappeared. The result is that tens of billions of Federal dollars have been invested in dams and canals and that—while the rest of the country continues to pay disproportionately for this extravagance—the West is clamoring for more projects, to the tune of still more billions, because it is wantonly "mining" water from underground sources faster than it can be replaced.

More money is not the answer to this problem. An end to the pork-barrel extortion of Peter by Paul is. Western water is a commodity needlessly scarce because it is vastly underpriced.

—JUDITH RANDAL

*(Judith Randal writes a syndicated Washington column on health and science issues for Princeton Features. Copyright ©1981 by Judith Randal.)*