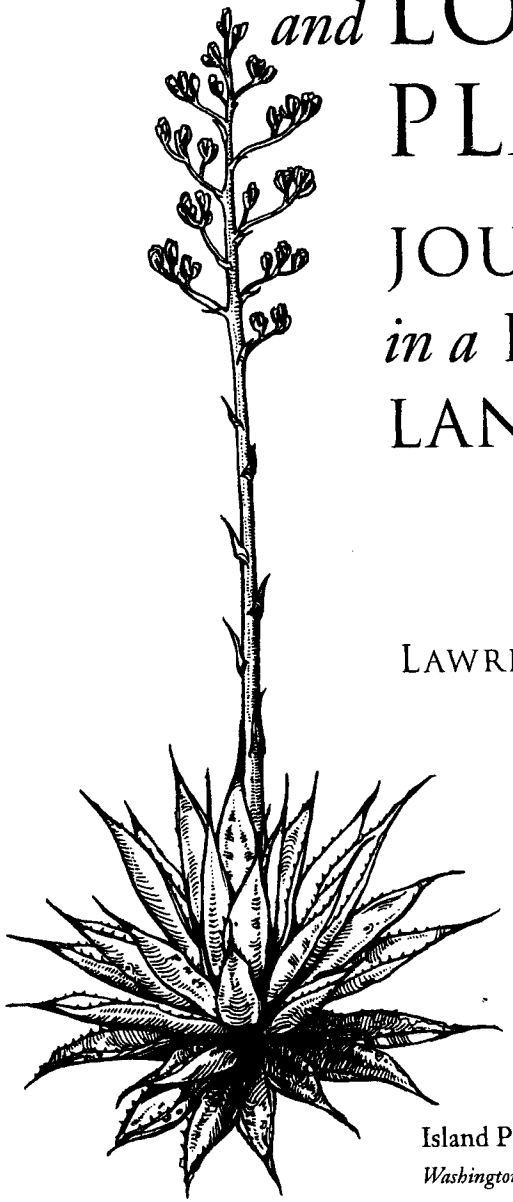
All the WILD *and* LONELY PLACES

JOURNEYS *in a* DESERT LANDSCAPE

LAWRENCE HOGUE



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Chapter 12

SALTON SEA: TAMING THE DESERT

On a warm late-winter day, I visit the Salton Sea National Wildlife Refuge, a narrow sliver of land wedged between the vast lake to the west and agricultural fields to the east. At 225 feet below sea level, the air is muggy, with a faint river-bottom smell to it, not like the desert at all. Viewed from the observation tower a quarter mile from the shoreline, the sea is a vast blue plate thirty-five miles long by seventeen wide—large enough to reveal a slight downward curve toward either end. With neither wind nor boats to disturb its surface, the water is smooth and placid.

To the east, the nearby Chocolate Mountains aren't merely brown but look like the frosting creation of a pastry chef on acid—a hodgepodge of rust reds, oranges, purples, grays, and whites. To the west, the mountains of the Anza-Borrego Desert seem far away. Except for the Santa Rosa Mountains hard by the northwestern corner of the Salton Sea, they look like low hills from this angle. In a trick of light and distance, the sea seems to stretch all the way to the base of those mountains; it almost seems as if I could hop in a boat and sail to Borrego Springs. It's ironic—from almost any vantage in Anza-Borrego, the Imperial Valley's outpost of hardscrabble civilization disappears in the haze. Now, surrounded as I am by those ragtag fields and dilapidated towns, it's Anza-Borrego that seems insignificant.

Closer at hand, birds are the most obvious presence. The abundant water flowing through the fields and the open water of the sea itself make

this the most important stopover and wintering ground on the Pacific flyway. From the tower, I look out over a green field filled with thousands of snow geese and Ross' geese. Occasionally they rise, honking, into the air and then glide as a flock to settle in another spot. A few white egrets ignore their jittery neighbors. A pond nearby holds terns, avocets, and green-winged teals, and on the sea itself, ducks, coots, and cormorants float and dive. A squadron of white pelicans, formal in winter plumage of white with black stripes, sails toward the southern shore, past the towers and steam plumes of a CalEnergy geothermal plant.

I decide to drive all the way around the sea today, to see where the waters flowing off the Peninsular Crest end up after crossing the desert. I leave the refuge and head north on Highway 111. Life here has a hard-bitten look. Most of the roads need repair, and the main streets of Calipatria and Niland are lined with shuttered cafés and bait shops, abandoned houses and trailers, and other houses that should be abandoned but aren't. Vacant lots are filled with irrigation piping, tractor parts, broken-down trucks, and more mundane household trash. In Niland, someone has turned a narrow strip between two rows of trees into a dump. Tons of winter vegetables and livestock feed flow out of the Imperial Valley, and with the produce must go most of the wealth. Everything seems temporary; the town looks more like a mining boom town than an agricultural community that has been here nearly a hundred years. *Valley Grower* magazine displays lavish farmhouses sitting in the middle of their fields, but none of those are apparent on my trip today. At the same time, the magazine's editorials warn about "threats" such as minimum wage hikes and eight-hour days for farmworkers, the people who live in many of those dilapidated houses.

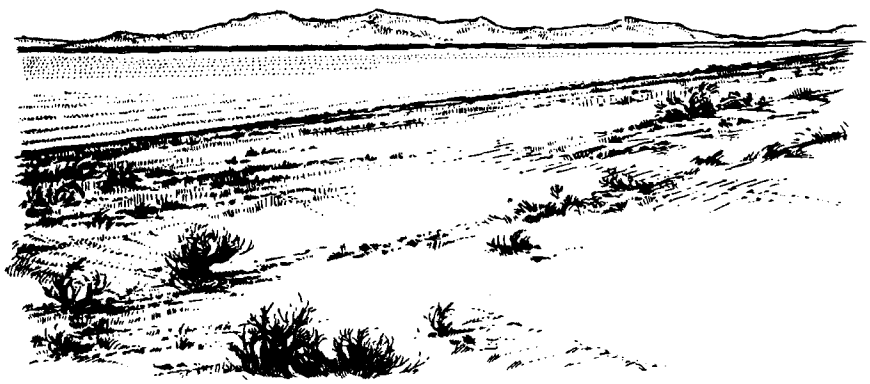
Past Niland, the highway crosses a barren stretch of dried mud. This is the ancient playa of Lake Cahuilla, apparently unaltered by irrigation or plowing, the first undeveloped area I've seen since hitting sea level at El Centro. I get out of the car and walk across the barren mudflat toward the sea. I try to imagine how writer and art critic John C. Van Dyke saw it in 1898, before the Salton Sea was created, when the entire basin looked something like this. Standing at the bottom of the dry lake, Van Dyke had a vision of what the place would become. The combination of heat and the smooth white surface created "the one place in all the world where the

water-mirage appears to perfection." It was best to put your eye close to the ground to get the full effect, he wrote. "Now the water seems to creep up to you. You could throw a stone into it. The shore where the waves lap is just before you."

I try the experiment. As my eye approaches ground level, water does seem to rise out of the white expanse sloping toward the sea. And today, the illusory water of the mirage merges perfectly with the waters of the Salton Sea, both reflecting the same blue sky. I can't tell where the mirage ends and the real sea begins.

Finally, I walk all the way to the edge of the sea at Mecca Beach, a few miles farther north. There are shade trees here, and grass, and wooden tables out on the sand-and-shell beach—a nice place for a picnic. It's a weekday, though, and the park is nearly empty. It's now midday, and the sea has taken on a richer blue hue. But as I approach the shoreline, I can see below the blue surface a deeper darkness of mud-brown algae.

A salty stench assails my nostrils, the briny smell of water that is 25 percent saltier than the ocean mingled with the odor of dead fish. Now I notice carcasses floating belly-up in the water or resting on the shore, probably of tilapia, though I'm not sure. Birds have pecked the dead fishes' eyes out, and the hollow sockets gape up at the desert sun. A little farther up the beach, a line of seagulls squawks over hundreds of dead fish. At my feet, I see a few gray feathers and a limp webbed foot protruding from a lump of sand.



Salton Sea

This is the other face of the Salton Sea. A thriving spawning ground for transplanted fish and a haven for millions of migrating birds, it is, for many of them, a death trap. The numbers of fish and birds that live here are astounding—as are the numbers that die here. In 1992, 150,000 eared grebes breathed their last here, and the cause is still a mystery. Another 20,000 birds died in 1994 of undetermined causes, followed by 14,000 in 1996, a number that included 1,400 endangered brown pelicans. That time, the culprit was avian botulism. In 1998, 6,000 cormorants died, possibly of an illness known as Newcastle disease, and 17,600 birds of all species had died by the end of July that year. The causes of these diseases are uncertain, though the avian botulism was traced to the dead or dying tilapia that many of the birds eat. The most stunning figure came in August 1999, when more than 7 million fish died in one day. Conditions will only get worse as the sea's water becomes more saline through evaporation, as more water is redirected to urban uses on the coast, and as pollution pours in from both sides of the border.

Opinions abound about what, if anything, should be done about these problems. The Salton Sea Authority was created in 1993 to study the situation and develop a recovery plan. Congressman Sonny Bono championed a Salton Sea cleanup bill, and since his death in a skiing accident, the sea has been an environmental cause célèbre among Republicans. Meanwhile, environmental groups that had virtually ignored the sea—because they perceived it as neither natural nor very scenic—finally jumped on the bandwagon as flocks of birds began dying. In January 2000, the Department of the Interior published a draft Environmental Impact Report that presented a handful of immediate, medium-term, and long-term actions to restore the sea, mainly by reducing salinity.

Somewhere in this simulacrum of nature, in this story of boosterism gone wrong, lie clues to the way to see this whole desert. It's an example of how inextricably we're bound to and with the natural world, but it also shows how confused is our thinking about nature. Denver's abandoned Rocky Mountain Arsenal has been called "the nation's most ironic nature park" because years of being closed to the public made the twenty-seven-square-mile chemical weapons facility a great home for wildlife. But it's the Salton Sea, part natural and part human-made, part wildlife refuge and part death trap, that should really claim that title.

Most of the forty-niners and other immigrants who passed through the desert west of the Colorado River in the nineteenth century thought of it as a desolate waste. They failed to recognize that much of it was home for the Indians there, and they didn't see it as a potential home for themselves. It was simply a wilderness to be crossed as quickly as possible on their journey to better lands. A few, however, recognized other possibilities. Toward the end of the century, some saw a wilderness that could be tamed and irrigated, while others, such as Van Dyke, saw a wilderness that needed to be preserved.

The first newcomer to promote the possibility of "reclaiming" the desert was Dr. Oliver Wozencraft, a forty-niner who got lost in the Colorado Desert's sand dunes. With two of his companions dying of thirst, he rode ahead, found water, and brought it back. Strangely, the experience convinced him that this was just the place for a farm: "It was then and there that I first conceived the idea of the reclamation of the desert," he said later. The valley did have fertile alluvial soil—if only water could be brought to it. A dry channel known as the Alamo River, Wozencraft argued, could be just the conduit to bring water from the Colorado.

The former forty-niner spent his life's savings in a futile attempt to convince Congress to back his plan. Too many doubted the fertility of the desert sands, and railroad surveyor William P. Blake in 1853 noted another problem: the elevation difference of 407 feet between the Colorado River and the floor of the Salton Basin made any water diversion project risky. Water seeks its lowest level, and any attempt to bring just a little of the Colorado's water to the desert would thus risk encouraging the entire river to shift its course, as it had many times in the past.

This, however, was the Age of Progress. Such little things as laws of nature couldn't be allowed to stand in the way. William E. Smythe's *Conquest of Arid America*, published in 1899, expressed the common view that this was an unmitigated wilderness but one that could be tamed: "It is popularly regarded as an empire of hopeless sterility, the silence of which will never be broken by the voices of men. . . . And yet it only awaits the touch of water and of labor to awaken it into opulent life . . . it will finally be reclaimed and sustain *tens of thousands* of prosperous people."

By the end of the century, two men had taken up Wozencraft's vision.

Charles Rockwood and George Chaffey established an umbrella corporation known as the California Development Company. They began by giving the place an expansive new name: the Imperial Valley. In their promotional literature, they denied that the valley was a desert at all, painting it as a fertile green plain. They dug a canal from the Colorado River south to the Alamo River, just as Wozencraft had suggested, which would then carry the water into the valley.

From the beginning of its operation in 1901, the canal required continual dredging because of the massive amounts of silt deposited in it. Still, the company delivered enough water to the valley to encourage rapid growth in agriculture. By 1904, more than 8,000 people had settled in the valley, farming 75,000 acres in wheat, corn, barley, and hay. This growth in turn placed more demands on the water system. Shortages had already hit the valley, and farmers were fighting over access to water.

Summer flooding in 1904 dumped so much silt into the canals that Rockwood realized he wouldn't be able to dredge them in time for the winter grain crop. Under pressure, he opened another intake in the banks of the Colorado, this one without a headgate to regulate channel flow. A scientist named Daniel MacDougal, who saw the cut shortly after it was made, later wrote, "Locks, control or headworks there were none . . . what pressure of necessity or overbold haste could lead to such unguarded opening of the cage of a sleeping tiger[?]" To be fair, MacDougal was writing with hindsight in 1908. Rockwood defended himself by pointing out that the cut was meant to be closed before the annual summer floods, a technique that had been used successfully in previous years. The chances of a winter flood were small, Rockwood believed, because in all of recorded history the river had flooded in winter only three times and never twice during the same winter. However, there was one small problem in his thinking: the recorded history of the Colorado River went back only twenty-seven years.

In the winter of 1904–1905, the Colorado River flooded five times. Despite the efforts of Rockwood and the California Development Company, much of the overflow passed through the new intake, increasing its dimensions to a width of 600 feet and a depth of 20 to 24 feet. Eventually, the entire flow of the river poured through the break. As Blake had predicted, the Colorado had returned to one of its historical courses. It

flooded the newly planted agricultural lands of the Imperial Valley, the tracks of the Southern Pacific Railroad, and the nearby towns of Mexicali and Calexico. It began recreating Lake Cahuilla, filling the basin at a rate of two inches per day, expanding it to an area ten miles wide and forty miles long. The town of Mecca in the Coachella Valley was flooded, as were lands of the Torres Martinez Indian Reservation (for which the tribe has only recently been repaid).

Although it had a large vision, the California Development Company was a small-time outfit. It didn't have the capital or the engineering know-how to deal with the force of the entire Colorado River. Five separate attempts to close the breach failed. The company brought in big money and engineering skill in the form of E. H. Harriman and his Southern Pacific Railroad; in return, Harriman gained control of the company. Even then, two more attempts were required to repair the breach and force the Colorado River back toward the Gulf of California. At one point, 4,200 railroad carloads of fill were dumped into the break over a twenty-one-day period. Finally, in February 1907, the hole was closed and the water stopped flowing uncontrolled into the basin.

Experts thought the newly formed Salton Sea would dry up, possibly as early as 1920, but inflows from agricultural runoff kept the sea partially filled. It retreated from a surface-level high of 195 feet below sea level (or about 80 feet in depth) to a low point of −250 feet in 1925 and then filled back to −234 feet in 1960. Today, it is up to −227 feet, or about 50 feet at its deepest. The sea is certainly here to stay as long as farmers practice flood irrigation, creating an inflow of more than a million acre-feet annually. It sits in the middle of the desert looking strangely out of place, a shimmering blue mirror reflecting whatever visions of nature we cast in its direction.

WATER in the desert, even agricultural runoff, is magic. The new sea soon became a recreation mecca thanks to the combined efforts of the California Department of Fish and Game (DFG) and local boosters. The DFG tried stocking the sea with different types of fish from the Gulf of California as early as the 1930s, but it wasn't until the 1950s that the department hit on corvina, a relative of the white sea bass that reproduced successfully in the sea's increasingly saline waters. A sportfishing industry developed around

the corvina, taking 500,000 fish per year in the mid-1960s. Along with the fishing came recreational boating, boat racing, water skiing, and bird hunting. More than a million people visited the lake each year. Resorts, yacht clubs, golf courses, restaurants, and nightclubs opened in an attempt to rival the popularity of Palm Springs. Celebrities such as Frank Sinatra and Dean Martin came down for the boat races, and later, the Beach Boys and the Pointer Sisters performed there. Sonny Bono's fondness for the sea stemmed from his learning to water ski on it.

The boom years from the 1950s to the 1970s were so heady that Mildred De Stanley, part Salton Sea historian and part promoter, seemed only to smile at concerns about the sea's rising salinity. In 1966, she predicted that the Salton Sea's fish production could be increased twentyfold, despite a study in the same year that warned, "The salt may begin to harm the fish as soon as 1970, and probably will destroy the fishery entirely by 1985." "Residents were not too upset" by the study, De Stanley reported, viewing salinity as just "another challenge by nature" that they would overcome, as they had others in the past.

In hindsight, such complacency seems absurd. Even though the report was off in its dates, many of its predictions were proving accurate by the 1990s. Continued inflows of naturally salty Colorado River water had caused the sea to become ever more saline. As the director of the Salton Sea Authority put it, agricultural runoff deposits enough salt in the sea each day to fill a mile-long freight train. That salt is left behind when the water evaporates, leaving the lake saltier while maintaining a relatively stable elevation.

But salt is not the sea's only problem. Fertilizers entering the sea from surrounding farms caused massive algal blooms and correspondingly massive fish kills. Although fish die-offs had been happening for years, these fish also carried botulism and other diseases, triggering the massive bird die-offs of the 1990s. High salinity, high nutrient levels, and high temperatures seem to have combined to multiply the sea's problems, and scientists are still trying to sort them all out.

Such are the Salton Sea's most significant biological problems, but none of them is responsible, by itself, for halting the boom in tourism and recreation. The first blow to these industries came in the late 1970s when two years of heavy rainfall raised the sea's level, flooding many shorefront

homes and resorts and closing the North Shore Beach and Yacht Club. Then, in the late 1980s, selenium was discovered in the fish, prompting warnings to limit consumption. Anglers began avoiding the sea, and once-busy bait shops closed their doors. When the birds began dying, this added to what has been dubbed the Salton Sea's "image problem." Newspapers and politicians called it a dead sea, and many believed them. Annual visitors to the Salton Sea State Recreation Area fell from 1 million in the early 1980s to approximately 100,000 in 1996.

In the late 1990s, however, the sea's prospects seemed to be improving. Anglers returned to the sea in increasing numbers (250,000 in 1998), either limiting their consumption of the fish or ignoring the health warnings entirely. One news article depicted a group fishing happily, waist-deep in the lake and surrounded by dead tilapia. Later studies have shown little selenium in the sea's water and fish. A 1999 study brought further good news, finding no pesticides, herbicides, or metals in the water. Then came the one-day die-off of more than 7 million fish. The lake may not be dead, but as a scientist studying the lake told a reporter, it's "an ecosystem in rapidly failing health."

The sea has been serving too many purposes. Promoters thought of it as a resort area. Sportsmen thought of it as a recreation area and hunting ground. Birders thought of it as a wildlife refuge. But farmers, the ones responsible for the sea's continued presence, had always thought of it as an agricultural sump. In 1966, the Imperial Irrigation District's M. J. Dowd pointed to the crucial role the Salton Sea played as a collecting basin for salts flushed out of Imperial Valley fields. At that time, the district and farmers were installing drain tiles and pipes to aid in maintaining a "favorable salt balance" in the fields—but obviously not in the Salton Sea. In 1993, a local farmer, John Benson, told a reporter: "The purpose of the sea is to receive agricultural drainage. That's what it's there for." Under so many conflicting demands, the Salton Sea is nearing ecological collapse; it seems likely that at least one of these demands will have to give way.

Opinions about the Salton Sea are as varied as the birds that visit it. Ken Sturm, biologist for the Salton Sea National Wildlife Refuge, refuses to eat fish from the sea, whereas longtime resident Norm Niver eats as much as he wants, claiming that a stalk of celery contains as much selenium as

the typical Salton Sea corvina. To one Imperial Valley biology teacher and Sierra Club member, the sea is completely unnatural because it has no outlet; he supported the option of building a canal from the sea to the Gulf of California. An op-ed writer for the *San Diego Union-Tribune* called the sea "a Frankenstein created by the blundering of man." A letter writer to the same paper argued that we should exercise benign neglect and let the sea follow its "natural course"—becoming increasingly saline until it turns into a virtual dead sea. And a geology professor called it "an environmental abscess on the southeastern California landscape," holding that the best solution is to let the sea dry up and revert to desert.

Taking the opposite view, Stuart H. Hurlbert of the Center for Inland Waters called this a solution "that only creosote bushes could view with equanimity." In his view, the sea is "the site of a tremendously positive symbiosis between agriculture, wildlife, human recreation, and, in the early days, commercial fisheries." Steve Horvitz, superintendent of the Salton Sea State Recreation Area, told a symposium audience: "I've found an Eden—here at the Salton Sea. Eden exists at California's largest lake in the vistas as one stands upon its shores and gazes at snow capped mountains. In the brilliant sunsets that reflect gold in the feathers of majestic pelicans, in the guttural cry of the snowy egret as the sun lowers into the horizon. Eden exists in the spirit of those people that use, enjoy and depend upon the Salton Sea for their state of mind; their state of soul."

Strangely enough, each of these opinions—portraying the sea as either natural or unnatural, an environmental abscess or a bit of Eden—has some truth. The sea is neither natural nor unnatural but a mix of both, a funhouse mirror that reflects and distorts all our ideas about nature. At this point, just about anything we do with the sea would be "natural." We could divert the flow of the Colorado River directly into the basin and bring back the Lake Cahuilla of A.D. 900–1400 at forty-two feet above sea level, flooding the towns and farms of the Imperial and Coachella Valleys in the process. This would also give the sea a "natural" outlet into the Gulf of California, maintaining its salinity at something less than that of ocean water. We could let things go the way they are until the sea becomes so salty that nothing will live in it but shrimp and brine flies, as must have happened when Lake Cahuilla was drying up around 1400. Or we could stop irrigating the Imperial Valley, let all that water run down the Colorado to renew the wetlands at its delta, and let the Salton Sea become the barren playa that existed there from 1400 to 1900.

All these conditions existed "naturally," so it's just a question of which period we want to preserve. Calling one period natural and the others unnatural makes no sense. Yet none of these alternatives would be wholly natural because we are inextricably involved with controlling where the water flows. Short of tearing down the dams on the Colorado and letting the river run where it will, asking what is natural for the Salton Sea cannot help us decide how to treat it.

Such conundrums are present all across the desert and all across the continent. The palm groves in the Anza-Borrego Desert and the mesquite groves near the Salton Sea depended to an extent on human care for their survival. Are they any less natural for that? Farther north, around Monterey Bay, ecologists have noticed that the threatened monarch butterfly seems to prefer the non-native eucalyptus tree over the native Monterey pine. Should they try to eradicate the eucalyptus and replant the pines, as the California Native Plant Society would have them do, or should they leave the eucalyptus for the butterflies? And forests in a variety of landscapes, from the Cathedral Pines in Connecticut to the North Woods of Minnesota to the Douglas fir forests of the Rocky Mountains, have changed significantly over the past 300 years, mostly because of the absence of fire, sometimes combined with logging. Which is the "natural" course: preserving those forests in their present condition or returning them to their historical state?

In all these situations, asking what is natural doesn't get us very far because this question is, at its heart, insoluble. Instead, we should think about what attracts us to "natural" areas in the first place. More often than not, the answer will have to do with the life that flourishes there. Here at the Salton Sea, it has to do with the astonishing numbers of birds that visit from fall to spring, with thousands upon thousands of wings lifting off the water at once, rising into the air to soar for a while, and then settling back on the water in a thousand V-wakes. In Anza-Borrego, it has to do with the variety of cacti, succulents, shrubs, trees, and grasses and the wildlife that feeds on them, all adding up to the "feeling of the desert." The fact that humans have had a hand in supporting this life makes it no less attractive.

Scientists use the word *biodiversity* to refer to this variety of life, in

terms of both the numbers of a given species, such as the millions upon millions of bison that once roamed North America, and the variety of species in any given area, from the smallest desert pond to the entire planet. Biodiversity is what Europeans marveled at in their first encounter with the Americas—the incredible abundance of open plains, temperate and tropical forests, even deserts. At one time, both Indians and European newcomers thought this abundance was inexhaustible. But we quickly reached the limits of that abundance, in 400 years wiping out dozens of species and pushing many more to the brink of extinction. Today, as we are increasingly becoming aware, despite numerous efforts at preservation, we are entering a sixth "great extinction," a period during which the diversity of life on earth will be drastically reduced. This extinction, unlike the previous five, has one root cause: the proliferation of humans on the planet.

Against this backdrop, we need to stop asking what is natural and start asking what will support diversity in a particular habitat, ecosystem, or region. The Salton Sea is still a haven of biodiversity, despite the fact that it is not purely natural and despite the impression many of us have that it is not a particularly pleasant place to visit. The birds don't care about our theories of nature or our sense of aesthetics. They care about such things as undisturbed nesting sites. The shorebirds care about getting their fill of fish, which the Salton Sea still provides in plenty. If this diversity of bird life is to continue, we must act to halt the decline of conditions in the sea, especially regarding the health of the fish. Exactly how to do that will always be a matter of contention. Scientists will argue about which is more urgent, stabilizing the sea's salinity or controlling the inflow of fertilizers.

Ultimately, however, the answer will depend on what we value. The decision of how best to maintain biodiversity is never made in a vacuum; human needs will always be considered and will often come first. (The recovery plan proposed in January 2000, for instance, was strangely silent on the issue of the heavy nutrient loads flowing into the sea.) But even here, the choice is not between birds and the economy. "Saving the Salton Sea" will also mean revitalizing the sportfishing industry and safeguarding the health of the thousands of anglers (some of them descendants of the original fisherfolk of Lake Cahuilla) who have returned to the sea in recent years. One economic study put a value of $360 million per year on

a restored Salton Sea. But if scientists are correct in thinking that fertilizers are the most critical cause of bird and fish die-offs, then the choice may be between a thriving fishery and an agricultural economy providing plentiful produce. With decisions such as these facing us, being able to simply "let nature take its course" would be comforting. But we haven't been able to do that for a long time, if ever.

In the late nineteenth and early twentieth centuries, humans seemed to be getting the best of the "contest between man and nature," as it was often called. But in the Colorado Desert, nature dealt some blows of its own. The Colorado River defied those who underestimated its power. And in the Anza-Borrego region, the mountains of the Peninsular Crest presented a formidable barrier to transportation. While Los Angeles and San Francisco boomed, San Diego remained a sleepy coastal village rather than the center of national and international trade it aspired to be. By 1919, when the San Diego and Arizona Railroad finally linked San Diego directly to the East, it was too late for the city to catch up. Even then, the mountains seemed to begrudge the slender black thread of the railroad clinging to their flanks. The descent through Carrizo Gorge earned the line the nickname "the Impossible Railroad." The title would prove apt. On September 10, 1976, after the railroad had endured sixty years of slides, washouts, and tunnel fires, Hurricane Kathleen delivered the biggest blow, destroying three trestles and washing out tracks in more than fifty places. A feeble attempt was made to reopen the route, but it was finally abandoned in 1983, after another tunnel fire and cave-in. The mountains had won. San Diego's boosters still dream of reopening the line one day, even expanding it to accommodate double-deck freight cars, but that day seems as far off as ever. For now, the trestles and tunnels in Carrizo Gorge are objects of curiosity to desert hikers.

But not everyone saw these forces of nature as something to be tamed or defeated. Writer and art critic John Van Dyke visited the desert and found a treasure more valuable than gold or agricultural wealth. Others would follow in his footsteps.