

REFILLING THE LAKE: THE
OWENS VALLEY OPTION

by
KAREN L. PIPER

A THESIS

Presented to the Interdisciplinary Studies Program:
Individualized Program
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Master of Arts

June 1996

"Refilling the Lake: The Owens Valley Option," a thesis prepared by Karen L. Piper in partial fulfillment of the requirements for the Master of Arts degree in the Interdisciplinary Studies Program: Individualized Program. This thesis has been approved and accepted by:

 

Robert Collin, Chair of the Examining Committee

6/26/96

Date

Committee in charge: Robert Collin, Chair
Carolyn Cartier
Richard P. Gale



Vice Provost and Dean of the Graduate School

© 1996 Karen Piper

An Abstract of the Thesis of

Karen L. Piper for the degree of Master of Arts
in the Interdisciplinary Studies Program: Individualized Program
to be taken June 1996

Title: REFILLING THE LAKE: THE OWENS VALLEY OPTION

Approved: _____

Robert Collin

Owens Dry Lake in Southern California is the largest source of anthropogenic dust in the nation, containing toxic heavy metals and known carcinogens. The lake was drained in 1913 when the City of Los Angeles diverted the water of the Owens River into the Los Angeles Aqueduct. Los Angeles is now considered legally responsible for the dust problem. This project examines the historical and political reasons for Los Angeles' refusal to supply water to the Owens Valley in order to alleviate the damage. It also reviews attempts to mitigate the dust problem without water, as well as the need for future negotiations in order to return water to Owens Lake. Owens Lake is not only a habit for sensitive

and threatened species, but also a part of the public trust and, as such, must be protected.

CURRICULUM VITA

NAME OF AUTHOR: Karen Lynnea Piper

PLACE OF BIRTH: Seattle, Washington

DATE OF BIRTH: January 20, 1965

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon
Westmont College

DEGREES AWARDED:

Doctor of Philosophy in Comparative Literature, 1996,
University of Oregon
Master of Arts in Environmental Studies, 1996,
University of Oregon
Master of Arts in Comparative Literature, 1991,
University of Oregon
Master of Arts in English, 1990, University of Oregon
Bachelor of Arts in English, 1986, Westmont College

AREAS OF SPECIAL INTEREST:

Post-Colonial Fiction and Geography

PROFESSIONAL EXPERIENCE:

Teaching Assistant, Department of English, University
of Oregon, Eugene, 1989-94

Teaching Assistant, Program of Comparative Literature,
University of Oregon, Eugene, 1994-95

AWARDS AND HONORS:

University of Oregon Doctoral Fellowship, 1995-96
Sierra Nature Writing Award, 1996.

PUBLICATIONS:

Piper, Karen. "Remembering Water." *Sierra*.
July/August 1996.

"The Signifying Corpse: Re-Reading Kristeva on
Marguerite Duras." Cultural Critique 31
(Fall 1995): 159-177.

ACKNOWLEDGEMENTS

I would like to thank all the people at the Great Basin Unified Air Pollution District for their avid dedication to Owens Lake and their help with this project. Brian Lamb, the Deputy County Counsel, helped me with the legal details of this project, which was much appreciated. I want to thank Mary DeDecker, for her years of service in defending Owens Valley and her information about the history of political action, and Terri Petersen at the Inyo County Coroner's Office for volunteering her free time to compile records of Owens Valley for this project. At the University of Oregon, I want to thank Robert Collin for his support and legal expertise on environmental justice issues, as well as Carolyn Cartier for her help in shaping theoretical issues.

DEDICATION

*For the Great Basin UAPCD,
in their search for solutions*

CHAPTER I

INTRODUCTION

The entire valley is a colony. We are colonials. Whenever we want something, we have to go to the DWP [Department of Water and Power] and ask them for it.

--Owens Valley resident,
1981

He held up the clod of clay and watched for my reaction. He spoke little, but his eyes were vigilant. "Tilling is Bill's project," his colleague explained, "He lives on the lake bed." Bill looked flattered, but threw down the clay. I hadn't reacted, hadn't shown the pleasure he felt. I didn't understand. His passion to me made no sense: turning over dirt to keep it from turning into dust. He kicked at the clay until it broke apart. "It's starting to crumble," his partner warned. They had told us it would be like cement.

"I know," he admitted. He looked as if the failure were his own. "We need more water."

We need more water. Those were the most common words I was to hear during the day-long tour of proposed solutions to the problem of dust at Owens Dry Lake. "It would work fine, if we had more water." But water, I was to find, was

more valuable than gold in Owens Valley. It was something "on principle" that the citizens could not have. It was a word that "made people squirm in their seats"--the word that represented what everyone wanted and couldn't help repeating, even if it was a curse to speak it aloud.

"Water" was like the name of God--the word that no one could pronounce but couldn't help trying. It came out in whispers in the back seat, in curses, in frustration, in reverent awe. But if in the Biblical legend, it was God that would strike you down for saying his name, in the Owens Valley, it was L.A. People avoided L.A. like the mob, and if Chinatown could be called a true story, it would be simply because of this. "They ARE the police," the main character cried before she was shot down.

250 miles to the south, the citizens of L.A. turn on their tap, don't realize they are the mob. They water their lawns, brush their teeth, wash their cars--all without realizing that their water comes from the Owens Valley, where the people can't afford to have lawns anymore and where the sky is turning white from a toxic dust. In L.A. people don't say "water" like that.

The experimental tilling plot was the last I was to visit during that day, with only two stragglers remaining to view Bill's work. It had been a long day--4 hours longer than we had been told it would be. Carla's saltgrass plots,

Ted's irrigation flood projects, Bill's tilling. "I didn't know tilling was on the list," people kept saying. "It's new," they would explain, "It's Bill's project. We're going to try it." They were also trying *Salicornia*, an exotic plant designed especially for salty areas in Saudi Arabia. Its tips could be sold as a gourmet food product. People laughed, screwed up their noses, didn't know what to make of that.

"We're going into the gourmet food business," one person commented.

"Will it invade?" another asked.

"We hope not. That's why we're planting it way out here," Carla explained. Another plant had invaded, the salt willow, and no one could get rid of it--it was sucking up water from beneath the lake. Small things made a big difference out there. Mary DeDecker, an 88-year old resident of the Owens Valley, wanted Los Angeles to promise to eradicate the plant as part of the settlement for a legal suit against them. Stories like that were common, out there. People would try anything.

"Do you have a concept?" Bill asked, when I first came to the valley to study the dust problem. I wasn't sure even what he meant, but later was to learn that they were desperate for solutions. A "concept" would mean a way to solve the dust problem, without water, that is. I didn't

have one, and no one could figure out quite why I was there. I grew up here, I explained. It seemed enough to me.

My hometown is Ridgecrest, California, population 30,000, in the Mojave Desert. I grew up in the wrong part of town--at the northern end, where the dust settles. It moves in like a fog and stays. Sometimes it sits in the streets, making the drive to work impossible, sometimes it moves into the houses and coats the furniture. It causes cancer and respiratory failures, but I didn't know that until last year. I am thirty-one, I lived there for fifteen years. My heart is still there now, but the place is dying. The people are dying.

The dust is created by the City of Los Angeles. It's point source is a dry lake bed 55 miles north of Ridgecrest, which was drained in 1913 by the Los Angeles aqueduct. Today this lake bed is the worst source of particulate matter air pollution in the nation, with violations exceeding the federal standard by 26 times. The dust contains arsenic, selenium, and cadmium--heavy metals and known carcinogens. Because of the fine nature of the dust particles (PM-10) they are also known to embed themselves into lung tissue, causing severe lung damage. When I was 15, I was hospitalized for double pneumonia--and have suffered from bouts of chronic asthma and bronchitis ever since. Stories like this are common, where I come from.

People hacking, people feelings their throats burn--we live in a valley full of anecdotal illnesses. No one ever thought of Los Angeles then, no one ever considered that the blankets of dust might be deadly.

Only now do I wonder, only now have I sought to investigate the history of this dust--the reasons that it's there and doesn't seem to go away. The course of this investigation led me into a vast world of water law and government organizations, a world which seemed to have no exit. I met people who cared about the lake bed deeply, who knew its every spring mound and salt grass field, who could tell you where a snowy plover nested two years ago. I met a man who lived in a trailer on the lake bed where, when the dust blew, he couldn't see from one end of it to the other. He worked there, in a town with 100 residents, turning the vast salt fields in an effort to stop the dust from blowing. I met people who squirmed in their seats when you mentioned water.

What follows is the history of that water, of the people who lost it, and of the struggle to get it back. What follows is the conviction that you cannot stop dust without water. I learned this from walking the lake bed, watching the surface crumble beneath my feet. I learned this from stories about Los Angeles, from victims of this struggle. Los Angeles is legally responsible for the dust--

but Los Angeles wants to stop the problem with money, not water, and this, I propose, will become an impossibility. And yet each day that the dust continues, the risk of respiratory failures will rise, as will the victims of cancer. Since I may be one of them, I find myself personally invested in this struggle. I never imagined that a dry lake fifty miles away could play its history out in my body--and that I would have to wait for the results, but I do. And this is why I write this narrative. I am not an activist, nor have I ever been involved in saving anyone's backyard or environment. I simply write out of fear.

There is a curiosity about death in these parts that is hard to explain. Bill Cox picks up the crumbling piece of earth and holds it to nose. He breathes. There is something of a devilishness to his smile when he looks up. The clay is crumbling. His project is to turn the salty surface of the lake bed over with a mechanical tiller, going deep enough to expose the hard clay surface beneath. "If you get big enough pieces of clay, the wind blows right off the surface and doesn't break them down. But they can't be too big. And they have to stay dry." The problem with Bill's project was going to be keeping it dry. Once a rain came through, the clay was broken down into particles that were finer than the dust created by the salt surface. I had to wonder if they weren't creating even a bigger problem.

Once the clay was broken down, the theory was that they would soak it with water until it reformed, then retill it again. They hoped it wouldn't have to be too often. They didn't have enough water.

"What happens if you can't solve the problem without water?" I asked.

"We'll have to find it somewhere."

"Find it" seemed an odd thing to say in a valley where all of the water went straight to Los Angeles. The Owens River, which used to flow into Owens Lake, supplies 80% of L.A.'s water. It wasn't hard to find.

"Can't you divert it from the aqueduct?" I innocently asked.

"People start to squirm in their seats when you talk about diverting," he replied.

It was true, as I was to find, asking the question over and over again during my stay. You could watch the muscles tense, the suspicion in the eyes, the subtle movement in the chair. I never was quite to understand why.

"L.A. wouldn't give us a drop of water, just on principle, even though it's costing them more not to give us water."

This is what I learned in a four-wheel drive, bumping over the surface of the lake bed with a group of people that seemed to know it like astronauts know the surface of the

moon. I was in a car with Ted Schade, the engineer for the Great Basin Unified Air Pollution District, and Brian Lamb, the county counsellor who was new to town. Out of a group of twenty or so concerned citizens who were touring the lake bed that day, Brian and I were the only two that stuck it out until the end. Even then, they seemed to want to show us more, even though it was getting late and we hadn't had lunch.

"We can take a bathroom break at the trailer," they suggested. They seemed to think that would be enough. I wondered about this group of people, who seemed to want to torment us with the geophysics of saltation. I wondered why I wanted to be tormented so, as they perpetually tried to gauge how much we were interested.

"You know, it's amazing that no one writes about this," Ted said on the way back. "No one comes out here and takes an interest, students and such. I mean, it's the worst dust problem in the nation."

This was the one question I was to wonder myself, again and again. Environmentalists were clamoring to save Mono Lake, which only created a tenth of the dust, but seemingly wouldn't touch Owens. "Are there any outside environmentalists working on this?" I asked the county counsellor. "No, I don't think so. I mean they're probably monitoring us...."

And ultimately, that was the strangest thing about life on the lake bed. You felt you were being monitored, but weren't quite sure by whom or for what purpose. L.A. was certainly watching, as the presence of a Department of Water and Power employee on the tour attested. L.A. was everywhere, you knew, as you passed their trucks driving down the road like some sort of secret police. L.A. owned most of the land in the valley. The people of Owens Valley are merely tenants. This is what makes the valley different. It is a strange feudal society, with a history of being run by the mob. It is a place where people will try anything, where valley teenagers bomb the aqueduct at night, which no one talks about during the day. It is a place where water has been defended by men with guns, sent down from the City.

And soon the valley may be eating L.A.'s shit, literally. "We'll have to ship it out from L.A. in trucks," Carla explained. "But it could be the problem to our nitrogen problems. We'll eventually have to fertilize, somehow." And L.A. has negotiated to send out sewage sludge for just that reason. So people can eat *Salicornia*.

I suppose it beats layering the lake bed with gravel, which is another option of Air Pollution District has tried. Or covering it with chemicals to harden the surface. But for Owens Valley residents to end up with L.A.'s human waste

seems a little more than symbolically insulting--and also devastatingly appropriate. L.A. will be taking care of two problems at once, getting water and getting rid of waste. And it seems fitting that they should both occur in the same valley. It seems fitting that Owens Valley should become a dump for L.A.'s waste. They have, after all, been L.A.'s trash can for all these years--the unseen place that provides the water for the toilet, and now the place that they may flush the toilet to. Carla doesn't blink as she says it. To her, it is purely a practical solution. How to solve the dust problem without water.

Vegetation seems the most favored solution to date. Carla has planted several acres of saltgrass on the lake bed, a native species, which appears to be taking well. Saltgrass promises not only to hold down the dust, but also to provide a wind break and minimize the dust in general. However, even with saltgrass there is the problem: water. They will have to be irrigated, even if only minimally, and the question arises as to whether or not there will be enough water.

The reason there is no water is simple: Los Angeles, while legally held responsible for the problem, has reached an agreement with the Great Basin Unified Air Pollution Control District (UAPCD), which is now law. That agreement, Senate Bill 270, states that:

The Great Basin Unified Air Pollution Control District may require the City of Los Angeles to undertake reasonable measures, including studies, to mitigate the air quality impacts of its activities in the production, diversion, storage, or conveyance of water and may require the city to pay, on an annual basis, reason fees, based on an estimate of the actual costs to the district of its activities associated with the development of the mitigation measures and related air quality analysis with respect to those activities in the city.

The result of this document was that, whereas there used to be "only two" employees at the Great Basin UPACD, now there are upwards of twenty. These scientists and engineers have been hired by the Great Basin UPACD to conduct research on the dust mitigation project, and are paid by the City of Los Angeles, which funds the UPACD with upwards of \$4 million per year.

The reason for this arrangement is, on the surface, simple. The Owens Valley has been listed by the EPA as a "serious" offender of the Clean Air Act, with violations currently recorded in excess of 26 times the federal standard.¹ The Owens Dry Lake is considered responsible for 99.9% of this pollution in the valley, making it the

"largest single source of anthropogenic air pollution in the country."²

Knowledge of the health hazard, however, is abysmally low, mainly anecdotal. There are no epidemiological health studies recorded to date, and although there have recently been health alert systems set up by the Great Basin UPACD, some valley members appear reluctant to accept the danger to themselves. During my stay in Owens Valley, as well as my years living in Ridgecrest, I have never seen one dust mask worn. And when I asked a local doctor about the health hazard at an Advisory Board meeting, he merely laughed, "I'm 70 years old, lived here all my life, and I'm still standing. Go over there and breathe that L.A. smog, that's what will make you sick...." When asked about specific trends or occurrences, he observed, "Sure the people in Keeler, are all sick, but they're all poor too...." Keeler is the town hardest hit by dust storms, it's a small town of 100 or so residents, mostly retired or unemployed, "writers and desert rats" one citizen observed. I laughed at the doctor's comments, not knowing exactly what he meant, and walked away, vaguely horrified.

In reality, the dust hazard caused by Owens Lake is far worse than L.A.'s smog. On a day of only faint dust, the material deposited in the trachaeobronchial region and the lungs is 18.00 micrograms (per cubic meter of air inhaled)

versus 3.40 from a day of heavy smog in L.A. On a day of severe dust, the level is up to 89.00.³ So while seemingly a pristine environment compared to L.A., the reality is that L.A. is by far the healthier place to live--excusing freeway shootings and muggings, of course. Surrounded by three wilderness areas, two national parks, and a national forest, Owens Valley makes the meaning of "wilderness" hard to define. The sensitive Bristlecone Pines in the nearby White Mountains have been found to be coated with alkali dust after a storm, and several wilderness areas, such as the Dome Lands Wilderness and John Muir Wilderness, have had their visibility adversely affected by lake dust. These Class I zones are legally required to be protected from visibility degradation. As well, the China Lake Naval Weapons Center to the South has had as many as a dozen closures per year due to visibility problems, resulting in millions of dollars of economic loss.⁴

I grew up on that base, saw the dust come in, watched the base close. To me it was as exciting as the rare "snow days" we had off from school, and I watched it with the ignorant amazement of a child. What is sad to me now, however, is that often that innocent amazement continues for adults, who do not receive adequate information about the hazard of the dust--or do not want to believe it. My mother

does not want to admit she brought me up in a town that might give me cancer. My mother thinks it's her fault.

I tend to take the obvious approach to this issue. I think it's L.A.'s fault, not my mother's. The Great Basin UPACD thought so, too. About ten years ago, they demanded that Los Angeles must file permits to continue to pump water because they had sole responsibility for the dust problem in the Valley. "I would have like to have seen them then," Bill Cox proudly stated, "They must have hit the ceiling." This daring move by the Great Basin UPACD led to a series of negotiations with the Department of Water and Power (DWP) that ultimately resulted in SB 270--and the UPACD's funding. However, the main problem with SB 270 is the line that follows: "The mitigation measures shall not affect the right of the city to produce, divert, store, or convey water." And later, this is repeated with even stronger language, "The district shall have no authority with respect to the water production, diversion, storage, and conveyance activities of the city." This is why there are scientists, lots of them, with plenty of ideas and no water.

The water that they do have, between 33,000-56,000 acre feet, comes from beneath the lake bed itself. This is the only water to date that is conceivably available for mitigation purposes. It is a brackish water, unsuitable for drinking or irrigation, but could be used to wet or irrigate

the surface of the lake. However, the danger of so doing is further damaging the lake's wetlands as well as its spring mounds, potentially contributing to the dust problem. If the spring mounds are destroyed, the saltgrasses that grow on them will be sacrificed to grow irrigated saltgrasses. And in the surrounding areas, there are endangered species such as the Owens pupfish and the peregrine falcon, as well as candidate species such as the Western snowy plover, the Mohave ground squirrel, and the Inyo County star-tulip. The Great Basin UAPCD will have to prepare an Environmental Impact Statement (EIS) in order to determine the possible detrimental affects to this environment.

The Great Basin UAPCD faces a daunting challenge ahead. "We don't have enough water," Ted Schade stated, "We're going to have to use gravel." Gravel, another possible dust control measure, however, has been declared a violation of the public trust by the California State Lands Commission, the owners of the lake bed. "A number of measures have been eliminated by the lake owners, the California State Lands Commission, as being unacceptable because they do not take into account the public trust resources of the lake," the Owens Valley Planning Area PM-10 Best Available Control Measures State Implementation Plan states. I was handed this document as soon as I walked through the door of the Great Basin UAPCD, a document they affectionately call the

BACMSIP--try to pronounce that. "The State Lands Commission," it continues, "have found three measures to be unacceptable: gravel blankets, chemical stabilizers, and waste material coverings." However, I was also handed a supplementary document, the notice of the draft EIR, which included gravel in the plan. When I asked the county counsellor of this discrepancy, he appeared to be unaware of it. He did, however, notify me that the pumping of the water alone was illegal, due to a statute of the Lahonton Irrigation District that no water of less than drinking-water quality could be pumped onto the lake bed. As to the reason for this rule? "It's a mystery to us," he replied, "There's a great deal of speculation that it's simply a mistake. But they're going to have to get Lahonton to overturn that rule if any of this is going to fly."

Illegal pumping of groundwater, violations of the public trust, threats to endangered species: it is a wonder that the Great Basin UAPCD should be mixed up in all of this. And yet, it is for one simple reason, the reason that perpetually repeated itself like an irritant in everyone's ear. They didn't have the water. And without water, something else has to go, whether it be endangered species or the public trust.

"What of the snowy plovers that are coming in now with the water that's being pumped?" I asked the county counsellor.

"If they bring in any endangered species, create a habitat for them, well they could have a mess on their hands if they then want to destroy that habitat."

Already I was told of hundred of birds stopping to rest at the few acre-feet of water that were being experimentally pumped to stop the dust. And I saw the brine flies that were springing back to life, food for the millions of birds that used to reside here. "It's a sight to see," one employee commented. I imagined it would be a sight to see the lake full, too.

But no one really talks about that. Although I was told that many citizens wanted to see the lake full, that it was a "controversial" topic, I never heard it mentioned once, except in joking. "And now 'the ever popular' fill the lake option," Duane Ono had presented at the day-long Advisory Board meeting. He held up a sketch of the filled-in lake... but simply went on, "There's not much we can say there. It's a pretty obvious solution." And then he took the sketch down and went on to the next option. I had trouble feeling convinced that it was such a "popular" option. Carla had earlier commented, "Well we'd all be out of work if that happened." And indeed, that simple block of

water seemed to fly in the face of the elaborate inventiveness of some of the scientists' solutions. They were paid to be inventive. When I asked a local lawyer how anyone could think of stopping the dust without water, he replied, "You're not an engineer." It was true, I wasn't. That much was obvious.

After a day of endless proposals, from infrared satellite mapping through a computer loop to windmills on the lake bed, I left feeling a sense of the confusion that the Great Basin UAPCD must have been feeling for years. They wanted feedback, they wanted to meet the public's need, they wanted to do the best job possible. I had never met a group of people who knew the lake bed so intimately and cared about it so much. And yet, the nation wasn't taking an interest. The feedback they were receiving was haphazard and contradictory. They were doing the best they could.

I was to ask many people, many times, about the "fill the lake" option. Why was it in the books if no one was taking it seriously? The director informed me that the California State Lands Commission required that it be studied as an option because of the public trust, but that everyone knew it was an impossibility. So the studies performed on that option were "cursory" and "not as in-depth" as, for instance, the *Salicornia* or the irrigation. "We'd have to hire more lawyers than scientists if we were

going to go down that road," I was informed. And they had scientists, that much was clear. "But it could happen," he continued, "if nothing else works."

I am waiting, you could say, for the "if nothing else works" of Owens Dry Lake. Even though, on the way back in the four-wheel drive with the attorney and the engineer, they both chimed in when I asked about refilling the lake, "It won't happen. At least not in our lifetimes." What amazes me, then, is that the option could even be on the books, like some mythical paradise that no one believes in but is there just for show. I do not live in Owens Valley--my home is in the valley over, 55 miles away, but hardest hit by the dust. There are 50,000 of us there, compared to the 18,000 of Owens Valley. This is my only connection to a struggle with over a century-long history for the people of Owens Valley. Encountering the dust, I was to be led to a lake that had a history as complicated and contentious and riddled with lies as one could expect from such a disaster area. I met the people, I attended the meetings, I took the tours--I understand the surface now, but maybe only barely that. A century of anger over water has led to nuances in community life that I could only begin to appreciate. Every person has an opinion, but some have learned not to speak them. It is difficult to say what is happening in Owens Valley, difficult maybe for even the people there.

Mary DeDecker, the 88-year old resident who has been involved with the struggle since the beginning, complained, "People keep forgetting. These new people come in, or something gets stirred up again, and we have to learn the issues all over again. It isn't easy." There are different levels of knowledge in the Valley, different feelings of engagement. Some were a little bit humbled by it all, many would defer to someone who had lived there longer or knew a different field than themselves. Some wanted to forget it all, others were arrogantly ignorant and opinionated. I don't presume to get it right in this essay, but I can present what I saw. And if the water isn't coming back, I guess we have a lifetime to figure out why. But when I presented this piece of information to the Mono Lake Committee, the woman responded, "That's what they said about Mono Lake." So it's hard to say. Maybe if there were more lawyers than scientists, it would make a difference.

What follows is a history of the struggle that led to the current crisis, a summation of the implications of this case on water law and planning, and suggestions for proposed solutions. I began with Bill Cox tilling the lake bed--what I would like to examine now is what it took for him to reach that historical moment, and what it could mean for us today, in terms of the public trust. But ultimately, it is the dedication of someone so intimately and humbly connected to

lake bed--not knowing what it will do but still trying to work with it--that will make the difference in the case of Owens Dry Lake. Hopefully that work will be rewarded with more water.

CHAPTER II

A HISTORY OF WATER

The Owens Lake Interagency Visitor's Center is partially funded by the Los Angeles Department of Water and Power, which has strategically positioned a \$2 history of the aqueduct near the front door. Sharing the Vision, it's called, making me think of some religious tract. The "vision" is simple. It is a vision of the aqueduct as a gleaming savior to the dry city of Los Angeles. It is the aqueduct as engineering feat. It is the simple necessity of having water. The irony of L.A.'s "vision" is that it stands over the remnants of the lake it destroyed, trying to explain its presence to visitors. The book reads, "This prehistoric lake was essentially dry by 1912 when the Department of Water and Power diverted its water."⁵ The pamphlet goes so far as to call the lake a "useless salt lake," which L.A. was miraculously able to make use of. Also, the pamphlet claims that the "natural" flow of Owens River--interestingly enough, to the L.A. area--was "recently" blocked by volcanic activity in the area. Los Angeles, therefore, is merely reclaiming its "natural" rights.⁶

After reading this plethora of information, I asked the Forest Service person behind the counter when the lake dried up. She replied, "In 1913, when the L.A. aqueduct was built." Bizarre juxtapositions like this are common in Owens Valley, wars over truth spring up as often as wars over water. What is amazing is that the discrepancies are so blatant, that the Forest Service and DWP can live side by side, telling different stories. And yet even the DWP cannot seem to keep their story straight. While the tourist booklet put out by the DWP claims that the lake was "essentially dry" before the aqueduct was built, DWP employee David Babb writes elsewhere, "Wet years during the construction of the Los Angeles Aqueduct brought an increase in the flows of the Owens River, and the level of the Owens Lake rose over 12 ft between 1905 and 1913" (266). So which is it? "Essentially dry" or "12 ft" higher than usual?

The truth is that anyone in the Valley can tell you the history of the lake levels, even if the paperwork speaks differently. When I asked Ted Schade what the lake level was historically, he replied, "What do you mean by historically? Do you mean 10 million years ago when it covered the whole valley, or pre-aqueduct when it made that mark in the hills over there, or during the irrigation years when people mined the salt near the edges?" The truth is that in 1874 the steamship the Bessie Brady marked the

maximum depth of the lake at 51 feet. The aqueduct was built in 1913, with full flow reached in 1926. The lake was dry by 1929.

Owens Lake is in the east-central part of California, 35 miles west of Death Valley, 55 miles north of the China Lake Naval Weapons Center and Ridgecrest, 9 miles south of Lone Pine. The lake bed lies at the base of the Sierra Nevadas, which rise over 10,000 above it. It has been described by local Ted Schade as once "more beautiful than Mono Lake, with reflections of the Sierras playing on its surface." It was once a haven for thousands of migrating birds, including the threatened snowy plover and the California gull, which fed off the brine lies that lived around its shores. As well, its grasses supported an ecosystem that included the bighorn sheep, Mohave ground squirrel, and kit fox. The Paiute Indians that lived in the valley were sustained mainly from the brine flies of the lake, as well as agricultural pursuits in the valley itself.

In 1913, the waters from Owens River that flow into the lake were diverted to the Los Angeles aqueduct, which travelled 233 miles over the San Bernadino mountains into Los Angeles. It was, at the time, considered a national engineering feat and thousands gathered around to celebrate the opening of its flood gates. It was also this appropriation of water that led to the "Water Wars" of the

1920s in Owens Valley, when the L.A. aqueduct was bombed over twenty times, and a siege was laid upon its headgate by over 700 residents of the Owens Valley. The outrage surrounding this take-over of water was created by a supposed land fraud perpetrated upon the residents of Owens Valley by the Bureau of Reclamation, in collusion with the Los Angeles Department of Water and Power. Suddenly deprived completely of their water rights, and thus their livelihood as farmers, the residents of Owens Valley were forced into the position of domestic terrorists and rebels.

Initially, Owens Valley was targeted for water development in the form of federally-funded irrigation. The Bureau of Reclamation came into existence in 1902 in order to promote development in Western lands through federal funding. Residents welcomed both this money and the scientists and government agents that came along with it, analyzing the best structure for an irrigation system. However, what began as a rural development project, ended with the funnelling of funds and water in the growing city of Los Angeles. This shift in legitimacy of needs reflected a growing trend in the government at the time to justify large-scale development over homesteading needs. The American West had reached a point where development was finally beginning to take off without government subsidies,

and after decades of trying to settle the West, the U.S. government responded favorably.

The growing city of Los Angeles was also prospecting for water at the time that Owens Valley was being targeted for federal funding, and one of the agents working for the Bureau of Reclamation also happened to be hired by the then-forming Los Angeles Department of Water and Power. What he saw in Owens Valley was not the means to a sustainable local culture, but the means to an immense water supply to Los Angeles.⁷ What commenced has since been called the largest land fraud scheme to hit the West. Residents, selling their land ostensibly to the Bureau of Reclamation found it unwittingly falling into the hands of the Los Angeles Department of Water and Power. The intricacy of this fraud is too immense to go into here, but it involved underhanded real estate investments in areas that were known by a select few to be slotted to receive Owens Valley water.⁸

When the facts all came out in the open in the late 1800s, residents of Owens Valley were outraged, the federal government was embarrassed, and Los Angeles was already profiting from land sales based upon speculation. The issue finally went all the way to President of the United States, to determine who should now have rights to the water. Should the Bureau of Reclamation continue with its irrigation project to the Valley, or should Los Angeles be

allowed to implement its aqueduct project? President Theodore Roosevelt's momentous decision was openly based upon the philosophy "the greatest good for the greatest number of people": the water went to Los Angeles.⁹ On June 25, 1906, President Roosevelt stated, "It is a hundred or a thousand fold more important to state that this water is more valuable to the people as a whole if used by the city than if used by the people of the Owens Valley."

With the water went the agency of the citizens of Owens Valley, who thus responded with acts of domestic terrorism, until even this reaction seemed unfeasible. The last bombing of the aqueduct occurred in 1976, by a disgruntled valley teenager--now the attitude in the area seems to be one of resignation.¹⁰ Owens Valley residents were not always so disenfranchised with their prospects. As a rich farming population of 5,000 in the late 1800s, Owens Valley residents fought the DWP long and hard until 1929. The interesting thing about this fight is that violence increased along with hopelessness, culminating in the years of the Water Wars. Then, in 1929, the leader of the fight against L.A. was caught in a land fraud scheme of his own and was hauled off to San Quentin. Basically, he had been using bank money to purchase land so that the DWP couldn't get it. This fraudulent use of public money, and his

resulting failure and public disclosure led to the bankruptcy and demoralization of many Inyo County residents.

The story of Owens Valley is documented in Marc Reisner's Cadillac Desert, William Kahrl's Water and Power, and others. 1929 could be called the year when the Valley crashed. The lake dried up with the hopes of the people, and since then the atmosphere in the Valley is different. The air is different, the people are different. This history cannot be erased, even if L.A. now attempts to do so in its books. And yet, the struggle is far from over, even if the City would like to think so.

With a population of 18,000, Owens Valley pales in comparison to the 3.4 million of Los Angeles. At the time of the aqueduct conception, however, the difference in population was much smaller, with Owens Valley supporting 5,000 and Los Angeles under 100,000. Historically, Owens Valley was a lush region filled with meadows, bighorn sheep, a vast migrant bird population, brine shrimp, and so on." The Paiute Indians inhabited this region comfortably for approximately 10,000 years, and the lake itself is deemed by geologists to have sustained itself for approximately a million years. Owens Lake was 112 square miles around and approximately 30 feet deep. In the early 1800s pioneers began to settle in Owens Valley, digging ditches from the

Owens River to irrigate their crops, as the Paiutes before them had done.¹²

Recently, there has been renewed interest in Owens Valley, not by locals, but by lawyers and outside environmentalists. The issue is the restoration of the valley, a contentious question that has begun to spark the interest of the media. Inspired by recent victories surrounding Mono Lake, a part of the Owens Lake drainage system, environmentalists are renewing their battle against Los Angeles. As the San Francisco Chronicle recently noted in an article by Charles Petit, "Such victories, largely by outside lawyers and recently arrived environmentalists, have surprised the region's old-timers. Few thought anybody could beat Los Angeles." The region's "old-timers" however, did not come to this conclusion haphazardly. After years of warfare against Los Angeles, the fortress seemed impenetrable. Collusion with the media, including the Los Angeles Times had for years produced a sort of media black-out on the facts surrounding Owens Valley.

When Los Angeles decided that the lake water wasn't enough in the early 1970s, outside environmentalists pricked their ears and moved into town. It was at this point that L.A. decided to built a second aqueduct, tapping into even more Owens Valley water. Inyo County responded with a lawsuit in 1972, drafted by an outside attorney, contending

that groundwater pumping would cause environmental damage in the valley. Los Angeles was required to complete an Environmental Impact Review (EIR) under the terms of the California Environmental Quality Act, enacted in 1970. The EIR that was initially submitted was rejected by the courts for insufficient data. Los Angeles claims that pumping groundwater should not affect the ecosystem because there are shallow and a deep wells in the water system of Owens Valley. The shallow system is fed by river water and rain, while the deep system is fed directly by snowpack runoff high in the mountains. L.A.'s EIR claims that the shallow wells are not impacted by pumping from the deep wells, thus stabilizing the water table. However, when the county hired scientists to study these results, they found many inconsistencies. Mainly, the water table has been shown to drop since 1973 from 9.5 feet to 15 feet. The study determined that tule marshes would be lost at 10 feet, and streamside woodlands would begin to die at 5-8 feet. At over 15 feet, alkali scrubland would begin to die also. These findings essentially predict that the area will be completely desertified in the next 10 to 20 years if the water table is allowed to drop an inch further. The problem is that this damage cannot be proven because the change is so slow as to be practically invisible. Again, L.A. conducted a satellite imaging study, which showed no

vegetation changes between 1970 (the year the second aqueduct was completed) and 1973 in Owens Valley. However, the county study revealed that the Los Angeles satellite images were set at a resolution level that would shade out the small changes that were occurring.¹³

The battle between Los Angeles and Inyo continues today, although Valley residents are careful to point out that the dust issue and groundwater issue are separate problems. As county counsellor Brian Lamb pointed out regarding the dust issue, "We want to stay out of that mess." Litigation over groundwater has been going on now for over 20 years and still is not solved. The fifth EIR to date is currently under review by Inyo County. However, as botanist Mary DeDecker pointed out, "It's a sham. There's a willow in there that doesn't even exist out here." However, because the issue has been so lengthy, Inyo County is currently seeking a compromise over this last EIR. Los Angeles has offered additional compensations if it is approved, and it looks as though the County will accept it. Essentially, Los Angeles has offered to provide a "wildlife enhancement" project in exchange for more aqueduct water.¹⁴ A token amount of water has since been returned to Owens River; however, it is not enough to reach the lake bed.

Recently, Owens Valley residents spoke up again when the DWP decided to start installing water meters in the

valley, charging residents L.A. prices for local water. In reaction, the Valley voted in a referendum by 3 to 1 margin to start its own groundwater management program. However, this referendum resulting in a lawsuit by the DWP questioning the legality of the vote.¹⁵ With cases mounting against both L.A. and Inyo County, a temporary agreement was finally reached to form the Inyo/Los Angeles Standing Committee, which hired the USGS to conduct groundwater and vegetation studies in the area. This agreement led to setting aside litigation and reducing groundwater pumping while the agreement was in effect. As well, the City has been made responsible for several enhancement/mitigation projects, while a long-term groundwater management plan is prepared. By 1988, this agreement had been extended and is still in effect.¹⁶

The injunction on groundwater pumping, however, has not solved the problem. The injunction led to a major controversy between district and state on who would be responsible for supplying L.A. water. The State decided to hold a reserve supply for Los Angeles in the event of a cut-off from Owens Valley, inspiring anger from drought-laden Northern Californians. If L.A. loses its Owens Valley reserves, it will ultimately have to switch over to brackish Colorado River water, which requires an upgraded level of treatment. If all water were to come from the Colorado

River, a desalinization plant would ultimately be necessary. Another option, however, is water reclamation, which Los Angeles has implemented to a minimal degree but also claims is too expensive.¹⁷ As it stands, Los Angeles has had to put out minimal resources and little or no water to deal with this problem.

In the case Owens Valley, this problem is evidenced in the environmentalist tendency to ignore community concerns and attempt to protect the environment. Some environmentalists have even admitted that their concerns run contrary to community development in Owens Valley. A professor in environmental planning, G. Mathias Kondolf, recently commented, "Los Angeles saved this region. The net result has been about as good as you could possibly hope for. If Los Angeles had not taken this water, this place would look like Bakersfield." Bakersfield, commonly-known as the "armpit" of California, is across the mountains in Central Valley.

For environmentalists to position themselves on the side of Los Angeles should not be surprising. Rather, it demonstrates, that just as Los Angeles deferred development in Owens Valley, now the environmentalists are taking over this task. Owens Valley residents, historically, were an agricultural community. And some say that development in Owens Valley, if L.A. had not stopped it, would have

occurred along much the same lines as in Central Valley, which is today becoming a dust bowl. Instead, the largely forgotten small towns now support themselves on the tourism industry alone. For outside environmentalists, this fact has not been seen as a problem at all. The area's regional forests receive more recreational visitors than the Grand Canyon, Yellowstone, and Glacier national parks put together.¹⁸ And the people that visit these forests are, in the majority, non-locals from Los Angeles and San Francisco.¹⁹

One of these forests, the Inyo National Forest, was established precisely to keep the people of Owens Valley from obtaining water permits for irrigation. Inyo Forest Service worker Emilie Martin wrote, "The Inyo National Forest was first established to prevent obstructionist water filings along the Owens River.... so that the City of Los Angeles could acquire those lands for an aqueduct to carry water to Los Angeles from the Owens Valley" (285). On May 25, 1907, President Theodore Roosevelt established the Inyo National Forest, preempting the possibility of public filing for water or homesteading rights. This reserve was broadened to include over a million acres in 1908. The setting aside of land for a still-unauthorized water transfer to Los Angeles caused an uproar among the Valley residents and a hostility toward Forest Service workers,

which has, according to Martin, been "fading away only gradually."

A Forest Service assistant in 1906 claimed that the National Forest was being "...set aside to protect the Owens River watershed, to protect the water supply of the City of Los Angeles and to better administer the nearby Sierra Reserve" (Martin 288). The problem with this new National Forest was not only that it was what Bishop resident W.A. Chalfant called the "treeless forest," but also that this "forest" included two towns, Lone Pine and Independence, within its boundaries. The *Inyo Register* reported in 1911, "Roosevelt and Pinchot, to help Newell and Lippincott along in their Los Angeles Allegiance, overrode the spirit and letter of the Forestry Laws, in blanketing fertile Owens Valley with obnoxious reserve" (March 9, 1911). At the time the forest was set aside, the Valley was still in controversy over who had a right to its waters.

The Forest Service, at that time, was viewed as being in collusion with the City of Los Angeles, as the Reclamation Department had been before them. D. Robinson wrote in 1933:

As the creation of the National Forest prevented further settlement in Owens Valley, bitter complaints were made from the Owens Valley Residents, involving both the City of Los Angeles and the U.S. Forest Service. Even yet, a good portion of our 'Old Timers' can see no good in

Gifford Pinchot. To say the least, it was quite a fuss. (20)

Although the Owens River land was eventually removed from the Inyo National Forest in response to these complaints, by that time Los Angeles had already acquired water rights as well as permission to build the aqueduct.

It is no wonder, then, that the role of environmental law and public land may be suspect with Valley residents. Twice-wounded by the Reclamation Act and the establishment of the Forest Service, the citizens of Owens Valley tend to view outsiders with suspicion. Goals of environmentalists in the area, as well, may be viewed as counter-productive to the residents of Owens Valley. Maintaining the area as a tourist retreat places Owens Valley residents in the position of service workers. In the case of Owens Valley, equity issues are often ignored. In fact, the environmental community has paid far less attention to the populated Owens Valley than to its unpopulated neighbor, Mono Lake.

Mono Lake, 120 miles to the north of Owens Lake, is connected to the same drainage system, as well as the L.A. aqueduct. The lake has received public attention due to the dropping of lake levels because of diversions into the L.A. aqueduct. Environmentalists, initially graduate students from the University of California at Davis, worked to form the grassroots Mono Lake Committee, which successfully

fought the Los Angeles DWP to have water returned to the lake. In the case of Mono Lake, with even smaller populations living nearby (approximately 100 people), the case against Los Angeles was solely environmental in scope. The issue was couched in terms of preservation of the natural environment. Los Angeles is now ordered to return water not only to the lake, but to refill streams surrounding the lake and to begin restoration projects amounting to over \$7 million.²⁰ Even the sections of the Owens River to the south will be restored, a more costly venture. With all these victories touted among environmentalists, the people of Owens Valley and Indian Wells Valley to the south have been backgrounded. Owens Valley is facing a different crisis: one of physical health and well-being.

Ironically, Mono Lake had its waters ultimately returned on basis of the Clean Air Act. Mono Lake creates a similar dust problem when lake levels drop, although the problems at Mono Lake are miniscule in comparison to Owens Lake. And the populations affected in Owens are much greater. In the case of Mono Lake, the Clean Air Act was merely considered a means to an end by environmentalists, which was saving local bird and shrimp populations. But Mono Lake has defeated L.A. and Owens Lake cannot. At Mono Lake, lake levels have now been federally set at a level

that is considered safe for ecosystem protection--Los Angeles must comply and maintain water at this level.

If the goal of both environmentalists and Los Angeles is to keep the area pristine, of course for different reasons, it is no wonder that compromises between the two are being made. Owens Valley, on the other hand, wants development. And development is the threat that both institutions have been fighting for decades.

The fact that environmentalists have focused first on Mono Lake and secondarily on the Owens River and riparian community, but never on Owens Lake itself, suggests that environmental integrity is being prioritized over human health and well-being. It also highlights the troublesome fact that Los Angeles and the environmental community may have all too much in common in inhibiting development in the Owens Valley. While the Owens pupfish has recently been listed under the Endangered Species Act and rare red alders are currently being studied, the population of Owens Valley has been virtually ignored.²¹ For environmentalists, as well as market economists, the formulas have no room for figuring in the quality of life of human population. Scientists may carefully measure the projected longitude of a certain species in the area, but the sustainability of the human environment has no such measurements. And while animal species are threatened by the loss of a riparian

environment, human life is threatened by an even more ominous development: dust.

The history of Owens Valley must be taken into account in examining the dust issues surrounding the Valley today. These dust storms, due to their intensity, should be considered a national issue. Unfortunately, publicity surrounding the dust problem has been abysmally low. It is no wonder that the residents may feel, at times, forced into silence. Initially, there were media blackouts surrounding the development of the L.A. aqueduct. The *Los Angeles Times* was known to be in collusion with the DWP in aiding the development of this project.²² But while this fact may seem like antiquated dealings of the mob, which have nothing to do with the current problem, consider the following example. In 1983, screenwriter Phillip Penningroth sold the story to ABC, who planned to make it into a T.V. movie. Instantly, ABC was slammed with threats by the DWP about using their name or even the name of Owens Valley. The DWP claimed that making the film on DWP land might incite copycat bombings in the area. "Chinatown" on the other hand, used DWP land--but the film's writer claimed, "We just told them we were doing a detective story set many years ago, so they had no idea what was going on" (London 3). But although "Chinatown" fictionalized some of the corruption of the DWP during the

water wars, it did not directly address the problem of Owens Valley. The writer commented:

Unfortunately when you've maimed somebody as badly as the DWP has maimed the Owens Valley, there's the tendency to prove you were right in the first place by keeping it up. It sounds to me like the people of the Owens Valley are getting kicked in the head because they've been kicked in the head. (London 3)

When the T.V. movie ultimately aired, it was a watered-down movie called "Paiute Valley," filmed St. George, Utah, with no resemblance to the California issue. Owens Valley residents were once-again incited, but predictably not surprised. Even ABC film producer Robert Berger, after intensive dealings with the DWP about filming on their land, ultimately concluded, "It would be foolhardy to rub those people the wrong way if you could avoid it" (London 4). And he deleted all references to the DWP in his film. DWP's response was simple, "We have a 350-mile aqueduct that serves 3 million people, and we get very parochial about it at times" (London 5).

The residents scoffed at the idea that the movie would inspire copycat bombings, claiming that the aqueduct had been bombed so many times that "local residents hardly needed fresh provocation" (London 4). And yet, the Valley residents, though frustrated, are far from empowered. Ninety-three year old Mary Gorman recently stated, "We've

never been able to get publicity. Everyone's always been afraid to express themselves because they are worried about their (land) leases" (London 6). And rancher Jon Smith noted, "Most of what they're doing now has nothing to do with getting water to Los Angeles. From here on in it's all psychological damage to keep us down and make people forget what the valley used to look like" (London 6). With Los Angeles owning all of the water rights and the majority of the land in Owens Valley, the psychology and also the language of the Valley residents is necessarily impacted.

And yet to the DWP, the situation from the start has always been black and white, as the Board of Water Commissioners First Annual Report stated in 1902: "We are confronted with a condition and not a theory. The city owns its water, and our experience should convince us of... the farsighted wisdom of our Spanish and Mexican predecessors in holding on to the rights in the waters of Los Angeles with a grip of iron" (Sharing 2). Indeed, L.A.'s grip on Owens Valley over the years has been proven. The question now is what will they do with the dust they have created during the history of this long squeeze.

CHAPTER III

OWENS LAKE TODAY

There is an anecdotal story in Owens Valley that the public only took notice of the dust problem when it reached the borders of Los Angeles. In 1987, dust coated cars in San Bernadino, 180 miles to the South at the border of L.A.²³ And at that point in time, curiosity began to be raised as to where this dust was coming from. This is the same dust, however, that the people of Owens Valley had been living with for 80 years. But awareness nationwide was beginning to be raised as to the health hazard of dust, and Owens Valley was once again put on the map.

In 1992, Owens Valley was listed by the EPA as a serious offender of the national Clean Air Act, and was given until 2001 to comply with Air Quality standards. The Great Basin Unified Air Pollution District is responsible, under federal law, for developing mitigation measures for the dust hazard. These measures must then be approved by the California Air Resources Board and the Environmental Protection Agency. As well, the California State Lands Commission owns the lake bed as part of the public trust, and so approval must be gained from them. However, the party responsible for the dust hazard is the City of Los Angeles. Los Angeles is considered the "sole source" of the

Angeles. Los Angeles is considered the "sole source" of the pollution in the Owens Valley, and for this reason, the Great Basin UAPCD in 1982 denied Los Angeles' request for a permit to construct a geothermal plant in the Coso Range near Owens Lake. Due to current violations, the Great Basin UAPCD reasoned, the City would be denied further permits until air quality standards were obtained. District Local Rule 200 directly linked the Los Angeles DWP to air quality violation, calling the water-gathering operations a "facility" that must comply with all permits and regulations of a factory or other emitter.

Protests by the DWP led to a negotiated settlement in SB 270, which specifies that the DWP must reasonably fund mitigation measures and studies to implement compliance with the National Ambient Air Quality Standards. In return, the DWP can forgo the permit requirements as well as protect their rights to store and divert water. The Great Basin APCD is now funded in its research by the DWP in excess of \$4.5 million a year. This budget has increased the staff from 2 members to over 15 and implementation measures are estimated to cost between \$50 and \$200 million. The Great Basin APCD has been given until February 7, 1997 to develop a State Implementation Plan, which must then be found to comply with CEQA and NEPA regulations. Implementation is expected to begin in 1997, with regular monitoring and re-

evaluation every 3 years. What follows is an brief overview of the various methods proposed by the Great Basin UAPCD.

Because the lake bed is considered a public trust, certain methods have been deemed unacceptable by the California State Lands Commission. These methods, which were initially reviewed by the Great Basin Unified APCD included chemical soil stabilizers, gravel, and layering the lake bed with used tires or other refuse.

These proposals were ultimately rejected for aesthetic reasons--and because the lake bed has been instrumental in shooting scenes from such films as Star Trek V.²⁴ Because of its tufa formations, the lake bed provides an eerie setting that somewhat resembles how one would picture the surface of the moon. Another solution, that was actually tested on the lake bed, was setting up a sprinkler system. The findings, however, determined that it would actually require less water to refill the whole lake because of the evaporation problems involved with a sprinkler system.

The decision to establish minimal flooding was based mainly upon the goal of minimal expenditure to state and local agencies, in order to control dust problems that had "repeatedly closed down range operations at the Naval Weapons Center" in nearby China Lake.²⁵ The main costs, in this sense, were seen to be the fiscal dollars lost from the

government by NWC closures. As well, costs to Los Angeles were meant to be avoided.

Currently, three measures have been determined to be the Best Available Control Measures (BACM). The BACM SIP was prepared in 1994 by the Great Basin APCD. These measures include flood irrigation, vegetation, and sand fences/riparian corridors. A brief review of these three measures follows:

1. Flood irrigation. Irrigation studies on the lake bed have proven to be 95% effective. Water pumped from beneath the lake bed has been tested on 700 acres, and have been shown to effectively control the dust. The flooding of the lake bed has also caused vegetation establishment. With fresh water pumped onto the lake bed, a band of cattails sprung up near the fresh water source. As well, brine flies came to life in the area, attracting an abundant bird population. However, this method of dust mitigation is dependent upon the availability of water, which is currently being determined.

2. Vegetation. Experimental salt grass plots have been established upon the lake bed and are showing success. As well, an experimental *salicornia* plot is due to be established this spring. While salt grass is locally found near spring wells on the lake bed, *salicornia* is an experimental crop developed for salty areas in Saudi Arabia.

It has been shown to be successfully marketed as a gourmet food, and can exist in extremely salty conditions. There are two main problem with establishing salt grass: maintaining salinity levels and providing sufficient fresh water.

3. Sand fences. Sand fences have been shown to capture migrating dust, break the wind, and form sand dunes. The main benefit of sand fences is that it eliminates the need for water. As well, electric power for distributing water becomes unnecessary. Basically, this option would turn a portion of the lake bed into sand dunes. However, the risks involving the establishment of sand dunes are large. The BACMSIP states, "An improperly placed or constructed sand dune may not only be ineffective at reducing dust emissions, it may also prevent other successful measures from being properly implemented" (60). Since the winds over Owens Lake are known to be unpredictable, this may interfere with the placement of dunes. As well, it has been demonstrated that the sand fences may not provide adequate capture of migrating particles to reduce the dust to air quality standards.²⁶

While these ar the main projects being studied by the Great Basin Unified APCD, there are also contracts being studied for outside research and projects. These were presented on February 29, 1996, at the Owens Lake Advisory

Board meeting, with over 70 participants. There were a total of nine proposals presented. Projects ranged from hypertemporal remote sensing to determine the surface processes of the lake to constructing berms and windmills. All of these proposals, along with the Great Basin's BACMs will be considered for the final State Implementation Plan, which must be submitted by February 7, 1997.

Six alternatives, in terms of water resources, are currently being considered by the Great Basin Unified APCD. They are: 0 Acre-Feet of Water Per Year, 33,000 Acre-Feet of Water Per Year, Controlled Flood Irrigation and Vegetation, 56,000 Acre-Feet of Water Per Year, Refill the Lake, and "No Project." I was informed that 33,000 to 56,000 are the most likely projects to be considered to date. This amount of water has been determined to be the evaporation level of the lake per year, thereby avoiding any groundwater overdraft. The Desert Research Institute, which is doing the hydrological modelling of the lake, is also analyzing how long it would take to refill the lake, if there were no aqueduct diversions. Current estimates are 10-20 years. Because the dust problem must be mitigation by the year 2001, this option is considered problematic simply as a time issue. However, an option that is not being considered is the possibility of using irrigation canals and saltgrass until the lake is filled. As biologist David

Herbst pointed out, "The saltgrass would not only stabilize the surface but would provide nutrients for animals, if the lake is eventually refilled."

Another problem with the "fill the lake" option is mining. Although the California State Lands Commission currently owns the lake bed as a public trust, a large portion of it has been leased out for mining purposes. As well, there is currently an injunction on filling the lake because of mining projects on the lake bed. If not for this injunction, L.A. would allow flushing and overflows to enter the lake bed. Brian Lamb, however, stated that this injunction "could probably be overturned" and that the county was looking into it.

In the meantime, however, Vulcan Chemical Company also made an announcement in 1992 that it would join with Cominco American to begin mining Owens Lake soda ash. This project the Owens Lake Soda Ash Company (OLSAC) has currently been postponed due to the expenditures caused by a lengthy permit process. However, there has been talk of OLSAC selling out--they have already invested nearly \$2 million in and EIR and EIS alone. If this goes through, it would seem that their presence will only further preclude the possibility of refilling the lake--as well as contributing to the pollution in the Valley. The permit process was initially blocked by the D.O.D. because of the possibility of contributing to the

visibility problems on the base. The California Air Pollution Control Board had recently ruled that the Center had the "generic right" to clean air because the test and evaluation work performed by the base were "essential to the nation."²⁷ The study performed by NWC, however, determined that the pollution caused by Vulcan would not be able to cross the Coso Range, thereby leaving Owens Valley. Therefore any pollution created by Vulcan will remain in Owens Valley, further damaging the air quality for local residents. Also, it was determined that the processing of soda ash may actually help with the dust problem, due to the fact that removing ash would lower the lake bed level, naturally allowing the water table to cover the lake. Although OLSAC has recently pulled out, mining may still play a large role in the future of Owens Lake. As well, the OLSAC EIR appears to be essential in providing information for the EIR that the Great Basin Unified APCD will have to provide.²⁸

With water being unavailable, the role of science and engineering is being examined as if in its place. However, one of the un-addressed issues of the reliance upon science may be the contribution to community non-involvement or even resignation. It would seem that the local community is deferring, in this case, to the knowledge of "experts" in the field. The irony, in this case, is that while

scientists from UC Davis and even Berkeley are examining the problem, the results of their studies to an outsider at times appear quite primitive and arbitrary. Sand fences, chemicals, used tires--it is quite amazing the verity that the local community will give these ideas when they are couched in the language of scientific discourse.

The role of local knowledge versus scientific knowledge, as well as the extent of community participation in creating solutions, needs to be examined in the case of Owens Dry Lake. There was a strange moment during the day-long meeting of the Owens Lake Advisory Board Committee meeting, in which we were watching a computer-generated example of hypertime remote sensing equipment as run through a computer feedback loop. Through satellite photos scanned onto a computer and manipulated in terms of coloring, the loop could demonstrate changes in vegetation over a certain period of time. The audience seemed awed, the computer programmers proud. In terms of graphic presentation, this was definitely the highlight of the day. But then a local asked, "But what are the results of your study? I don't understand what this is telling us." And the face of the presenter visibly dropped. You could tell that he thought it was obvious what it was telling us. It was telling us that we had the power to do these things, make these images, make the computer do this for us--and

that, well gosh, wasn't it neat? Instead, he replied, "Well we haven't quite analyzed the data yet."

This example to me demonstrated to me the types of knowledge that were being allowed to take over the public's conception of the lake. And the distance that was being created to the public by this very act. The lake was disappearing into some "hypertemporal" realm of knowledge where the results were held in someone else's hands, were being figured out. It was enough for the public to watch in awe. "Histories of science may be powerfully told as histories of technology," Dona Haraway wrote (195). In the case of the lake bed, it is easy to see how technology has gained more and more control. From the "engineering feat" of the first aqueduct to the "hypertemporal" sensing of the new technologies, the lake has been thoroughly mapped out, controlled, and monitored. The lake has become a site for scientific and governmental experimentation since its discovery. The first experiment was the Reclamation Project, the next was the Aqueduct, and now it is the methods of mitigation for dust. And each of these experiments, for all their good intentions, have failed. The Reclamation Project literally fell apart--destroying the Valley's faith, the Aqueduct caused the dust--destroying the Valley's health, and the now solutions to the dust are causing other problems.

Some may say that it has been a process of learning, acquiring knowledge about hydrologic process, which now must be added to knowledge about wind vectors. Some may say that ultimately, when all this knowledge has been tallied up, we will find the solution. But I would ask, has anything been learned, really? Has any knowledge been created? Do we need to create environmental disasters in order to create "laboratories" for our research? Questions like this bring us to the larger question of where knowledge is located: at the local or the universal level. Can knowledge be separated from a territory? Dona Haraway writes, "Local knowledges have to be in tension with the productive structurings that force unequal translations and exchanges--material and semiotic--within the webs of knowledge and power" (194). Within Owens Valley, there is a history of unequal exchange "the greater good for the greater number" that has impacted the semiotics of the valley itself. Power has been drained out of the Valley like so much water, and with that power has gone knowledge. The "experts" are elsewhere, in the City, paid by L.A. The power structures set in motion in the Valley have been divorced from the production of knowledge.

It is in this sense that the Assistant Director of the Great Basin Unified APCD can scoff at "having to hire more attorneys than scientists"--science, he implies, is

legitimate. Hiring attorneys would be absurd. Politics are ignored as "objective" knowledge is sought. And yet, is that knowledge objective? Dona Haraway would say no. Her article, "Situated Knowledges" is what she calls "an argument for situated and embodied knowledges and against forms of unlocatable, and so irresponsible, knowledge claims" (191). So what is a "situated knowledge"? A situated knowledge would be Mary DeDecker's claim that certain willows don't exist in the Valley. This knowledge, based upon her years of experience and observation, should be given more credence than L.A.'s EIR to the contrary. And yet, that parcel of truth is going to be sacrificed, creating an alternate environmental history, because Los Angeles has more power than Owens Valley. This is what Haraway calls "irresponsible" knowledge.

Irresponsible knowledge is knowledge divorced from the local community, knowledge that becomes "objective," thus disavowing the power structures that surround it. And this type of knowledge reinforces that very power. In the case of Owens Lake, however, the lake itself perpetually undermines the very codes of the scientists attempting to define it. For instance, the wind comes from every direction, shifting unexpectedly. Twists like this have made experimentation fail again and again, revealing that the voice of science is barbaric when confronted with the

sophistication of nature. Nature cannot be controlled so easily, as was first proven by the dust storms generated by the aqueduct.

Recent failures in the face of nature have been more subtle but also more frequent. If we look at a list of attempts by the Great Basin Unified APCD, we can see how failure is embedded in the very nature of the scientific method. Experiment with a hypothesis until it is disproven, then try another one. This seems to have been the approach to solving the dust problem. And yet, every experiment that is attempted alters the lake bed in some irretrievable fashion. For instance, first the Great Basin UAPCD attempted to layer the lake bed with a chemical stabilizer. This project failed, but left residues on the surface. Next, they attempted to install a sprinkler system, but found out that evaporation was losing more water than they had available. Then they constructed sand fences, which created uncontrollable dunes due to the unpredictability of the winds in the area. Finally, they attempted irrigation, which brought in communities of migrating birds that they then had to destroy because they realized there were problems with the irrigation site.

"Acknowledging the agency of the world in knowledge makes room for some unsettling possibilities, including a sense of the world's independent sense of humor," Haraway

writes, "Such a sense of humor is not comfortable for [those] committed to the world as a resource" (199). The fact that the natural world cannot be easily controlled has been evidenced time and again by the lake's small rebellions against those that would toy with its natural processes. Haraway wrote, "We are not in charge of the world. We just live here and try to strike up... conversations" (199). The history of dealing with Owens Lake, on the contrary, has been the history of attempted control. From the Water and Power syndicates in Los Angeles who gave no concern to Owens Valley's future to the scientists who seeks solutions to its dust problems now, there seems to be a prevailing myth that you can correct the problems of Owens Valley without correcting the power structures that created them in the first place. The fact that director Duane Ono could scoff at the idea of "hiring more attorneys than scientists" seems to confirm this imbalance.

The seemingly-objective status of the language controlling the lake bed covers over the histories of corruption that have manufactured the problems of the Valley. If, in contrast, the lake could be refilled, the history of scientific experimentation with the lake bed would be covered over, erasing the history of scientific discourse that has controlled it for so long. As well, the power structures would be redressed and brought into proper

balance. Refilling the lake, in this sense, has to do with more than simply correcting the dust problem. It has to do with redefining California's balance of power and re-empowering the people of Owens Valley.

Otherwise, we may be left with the attitude of one Keeler resident, who, having resigned herself to the projects of science, was quoted as saying that all there was for her to do was "donate her body to science."²⁹ The self-abnegation, in this instance, before the power of science is frightening. Instead, the people of Owens Valley need to be re-empowered, to gain a sense of self-determination while living, rather than having the powers of knowledge feed off their corpses.

CHAPTER IV

A MOVING TARGET

"Boundaries are drawn by mapping practices; 'objects' do not pre-exist as such. Objects are boundary projects. But boundaries shift from within; boundaries are very tricky. What boundaries provisionally contain remains generative, productive of meanings," Haraway writes (201). In the case of Owens Lake, the project of siting boundaries has proven to be a tricky one. Although initially dried, the lake generated dust, requiring new boundaries on its surface. The lake can no longer be seen as a whole entity; the dimensions of its surface have been mapped out in detail, first for areas of high saltation and dust movement, and now for environmental ingredients. There have been maps upon maps made of Owens Dry Lake, noting project locations, wind vectors, and dune locations. Currently, studies for the EIR are being performed, mapping out wetlands, endangered species, and ground water movement.

And yet, Owens Lake keeps moving, the surface changes by the day, projects have to be relocated, and animals migrate to wherever the water is flowing. Acres of cattails have sprung up in the center of the lake, due the influx of fresh water from the irrigation experiments and now that this project is being moved, there is controversy over

this project is being moved, there is controversy over whether or not to save the cattails. Although cattails would not have initially inhabited the lake bed, due to the salinity of the water, their seeds have been "blown all over the valley" by the wind and will emerge wherever there is enough fresh water. And as the surface of the lake continually shifts, it generates new meanings and maps along with it.

The reason for the multitude of maps covering Owens Lake is, in part, the number of governmental organizations that have a legal investment in its future. For instance, the EPA has an investment in the air quality of the Valley, requiring the that Air Pollution District take an active role in mapping out air quality. Next, the State Lands Commission controls the lake bed itself, requiring that the public trust values of the lake bed be mapped out and monitored. As well, various mining corporations have leases and therefore an investment in portions of the lake bed surface--requiring regulations to protect their interest. And the State of California, through CEQA, is legally invested in the environmental quality of the region itself. And of course, Los Angeles, controls the water. So you have mining maps, hydrology maps, air quality maps, environmental quality maps--and also the federal government is directly involved in some of the decisions surrounding the lake,

through the BLM as well as the EPA, the National Forest Service, and the National Park Service. Owning much of the adjoining land, the BLM was recently responsible for providing an EIR on the OLSAC mining project, which would have been built on BLM property.

Discussing the lake bed problem with local BLM employee Surat Omanden, he states, "That lake bed is like a moving target. You think you have your sights set on it, and then the whole thing shifts." What he was describing was the relation of the different governmental organizations, and their responsibilities over lake bed issues. "Someone needs to do a study on that," he said, "How all these different organizations fit together. Nobody knows who's in charge, half the time." This sentiment was to be repeated to me several times during the course of my stay in Owens Valley. With all the different agencies trying to work together to solve the dust problem, there was still often times the feeling that someone else was really in charge. The person I was talking to, whoever it was, would often defer to some sort of implied higher power. And I got the feeling, time and again, that ultimately that power would be Los Angeles.

Los Angeles played a sneaky role in developing the Valley's resources from the start. From the "perfectly legal subterfuge"³⁰ involved in taking over the Valley's water to the underhanded control of the lake's surface

today, Los Angeles will do anything to maintain their rights. For instance, when a patented mining claim was up for sale on the lake bed, the DWP immediately snapped it. They then sold it to a fluoride producer, to be used as a toxic waste site. Driving by this fluoride dump on the lake bed tour, my guide seemed not to want to discuss it. "That was a fiasco of the 1960s," he claimed. "It's a ridiculous place for a waste dump. There are leaks all over from the groundwater. But they reasoned that, since there was a similar chemical compound on the lake's surface, the somehow it would blend back in to the surface. It was a bad mistake. And now it's impossible for us to move it." The company that bought the land was Tungsten Minerals out of Bishop, and the dump is apparently there to stay. When I asked about complications with refilling the lake due to the dump, Ted Schade replied, "Well obviously we wouldn't be able to fill that high. But we're hoping it's close enough to the shore to be able to avoid it." In devious fashions such as this, Los Angeles has attempted to make sure that the lake will not be able to be refilled.

But the main reason for not refilling the lake, is simply that Los Angeles owns the water rights. "Well, they do have the legal right to it," seemed to be a common sentiment. And indeed, they do, merely because Theodore Roosevelt solved the intergovernmental conflict of interests

by siding with Los Angeles in 1902. While that conflict would never have turned out the same today, due to environmental laws and changes in public policy, environmental law is not retroactive. Therefore, L.A.'s water rights appear to be almost sacred. To "mess with" their water rights would be to mess with the idea of private property in general, and even the most avid Valley advocates may draw the line at that point.

It becomes necessary, therefore, to briefly analyze the philosophy of the water law that has led to, and still supports, the decision of 1902. What are the alternatives for water sources for L.A. and is there any weak point in their hold over the water? If we can answer these question, we may get closer to the pinning down at least one of the power structures in the Valley day, as well as possible alternate solutions to the problems it has created.

"Stay alive by staying out," a sign is posted on the Friant-Kern canal in Central Valley, California.³¹ This sign represents the philosophy surrounding water in the West today. "Quite simply," Donald Worster writes in *Rivers of Empire*, "the modern canal, unlike a river, is not an ecosystem. It is simplified, abstracted Water, rigidly separated from the earth and firmly directed to raise food, fill pipes, and make money" (5). The water in Owens Valley has become this abstracted Water, and the aqueducts that

lead it away are posted with similar (though less extreme) no-trespassing signs. The main aqueduct is partially a cemented canal surrounded with barbed wire fences and partially an earth-lined canal, though there is talk of lining these canal to prevent seepage.

While the ominous "Stay alive by staying out" could be seen as a veiled reference to the mob-like control over California's waters, it also demonstrates how people have been effectively separated from the water of their own regions. In effect, those very waters now equal "death" if attempts are made to reclaim them. The reasons for this separation are historical. The first to use irrigation in the Owens Valley were the Paiute Indians, who numbered approximately 10,000 when the first settlers arrived. The Paiutes used a form of irrigation to encourage the growth of edible species, although agriculture per se was not practiced. Instead, mountain streams would be temporarily blocked and redirected to areas where certain species grew.³²

The next group to use irrigation were the homesteaders, who, in league with certain commercial irrigation companies, created an extensive ditch and canal system in the Owens Valley. These irrigation groups were so effective that the level of Owens Lake was to drop 30 feet in the few years that these projects were in effect. Under the Desert Lands Act of 1877, this form of settlement was encouraged. This

Act encouraged irrigation by allowing settlers to purchase desert lands at 25 cents an acre, with the promise that the settler would provide water for the land in three years.

The next stage of irrigation in the Valley involved the Reclamation Act, which supposed federal irrigation projects. This Act of 1902 was in part a response to the commercial failures of the various irrigation districts, who, because they were not organized together could not provide the continued capital to keep their works running.³³ It was also, however, a response to the failures of the Desert Lands Act, which proved to be a fiasco in terms of land use law. Anecdotes abound of farmers taking a land inspector to their property with a bucket of water, dumping it on the land, and (with a bribe in hand) having the inspector claim the land was irrigated.³⁴ The Reclamation Act provided a means to centralize irrigation projects, provide water to replace the failed irrigation of homesteaders, and continue the dream of settling desert lands.

When Los Angeles came to the Valley, therefore, the process of centralizing control of water had already begun. It was merely necessary for Los Angeles to step in and, through a series of legal loopholes, reappropriate those waters for its own growth. Now, based upon the doctrine of prior appropriation, Los Angeles has secured all of Owens Valley's water in perpetuity. The doctrine of prior

appropriation began in 1866, to settle disputes over water rights for mining claims. Because of the California gold rush, water was instantly in demand to keep miners' sluice boxes running. Essentially the doctrine means "first in time first in right" and implies that whoever first appropriates water for a "beneficial use" becomes its rightful owner. For this reason, Los Angeles had incentive to claim as much water as possible for its projected development, which initially was way beyond any presumed reality. Even today, "surpluses" from the Los Angeles aqueduct are left to flow into the Pacific Ocean. Because Los Angeles has the absolute right to the water, there has been no incentive to conserve, and wasteful uses of L.A.'s water are evidenced throughout the city from the number of golf courses irrigated with drinking-quality water to the malls full of trees and houseplants. Meanwhile, Owens Valley is nearly barren.

The situation in Owens Valley, however, only represents one byproduct of California water law. Although, from the perspective of Owens Valley, all of their water goes to L.A., providing 80% of their water, in the larger picture, Los Angeles only receives 8% of California's water. 83% of California's water goes to irrigation.³⁵ And while the major *consumptive* uses of water (where water is lost to evaporation, transpiration, or run-off) are watering lawns

and irrigating cropland, agriculture consumptively uses approximately 90 percent of California's water, while Los Angeles consumes 8 percent (lawns and all).³⁶ This irrigated land can be further broken down into types of usage: pastureland is the top consumer, utilizing over 4 million acre-feet per year; next, alfalfa also uses just over 4 million; cotton uses 3.5 million, and rice 2.6 million. Other users under 2 million include grapes, almonds, tomatoes, and citrus fruits. Ironically, the top consumer of water, pastureland, also generated the least profit, approximately \$93 million per year--this is compared to the crop with the highest values, grapes, which generate \$1.4 million per year (with only 1.5 million acre-feet of water).³⁷

If the low-value crops of pasture, alfalfa, rice, and cotton were eliminated, there would be enough water for 70 million new Californians while the agricultural income would be reduced by only 15 percent and the total state income by one-quarter of one percent.³⁸ However, federal subsidies encouraging beef production through low-cost water helps to keep this infrastructure in check. Extensive dam-building in the Central Valley not only eliminated much of the local wildlife population, causing a large run of Chinook salmon to go extinct and entirely pushing out numerous other species, it also destroyed the majority of California's

wetlands. Only 400,000 acres remain out of an original 4 to 5 million acres.

Rural-urban relations are becoming more and more aggravated in California, as the majority of water goes to rural areas that generate the least amount of revenue. However, this contention often translates the Owens Valley into just another complaining rural area, in the minds of Los Angeles. Los Angeles has been in a perpetual struggle, during the frequent drought years, with all of California over water issues. If you drive along I-5 today, you will see signs posted by Central Valley farmers that read "Owens Valley II"? While the image may be powerful, the analogy is definitely false. Owens Valley is often depicted in California is a David and Goliath type fashion, pitted against L.A. And while this may be true, this has nothing to do with Central Valley's plight, which controls the majority of California's water already. Loss of topsoil in Central Valley is the main villain to farming practices, creating a dust bowl environment in its own right.

In fact, Central Valley and Owens Valley could be seen at different receiving ends of the water problem. Marc Reisner in *Overtapped Oasis* has suggested that the solution to California's water problems is water transfers, specifically from rural areas such as the Central Valley to urban areas. As it stands, water rights cannot be sold and

sold are more often wasted, as farmers are encouraged to claim (and use) as much water as possible. According to Reisner, the legalization of water sales could both encourage water conservation and reallocation, as farmers will have financial incentive to save money to sell.

In the case of Owens Valley, these water marketing, in making more urban water available, could alleviate the pressure on Los Angeles to maintain their stranglehold over Owens Valley. Under current water law, any conserved water is subject to loss under the "use it or lose it" language of the law. Therefore, there is no incentive to create more efficient irrigation practices, or to conserve in any fashion. If the farmer installs conservation devices, the water that is saved is no longer considered a part of his appropriative right and therefore can not be sold.

California, however, has recently passed a statute allowing conservers to retain control over salvaged water--and this statute may be a first step in bringing the changes in water law that Reisner advocates. And the Metropolitan Water District of Southern California recently negotiated a large lease of salvaged water (more than 100,000 acre-feet per year) from the Imperial Irrigation District.³⁹

Redistributing water usage in the state of California will require legislative changes, some of which are already under way. Yet these changes may be slow to impact the

Owens Valley, which has immediate deadlines in terms of dust. Yet the law is not in Owens Valley's favor in the case of water. In 1882, *Coffin v. Left Hand Ditch Co.* (Colorado Supreme Court) claimed, "it would be an ungenerous and unequitable rule that would deprive one of its benefits simply because he has, by large expenditure of time and money, carried the water from one stream over an intervening watershed and cultivated land in the valley of another."⁴⁰ However, because transbasin water transfers are what initially resulted in the plight of Owens Valley, the state's efforts to implement water marketing have been greatly restricted. The Owens Valley legacy is very real in California, with the Los Angeles Times calling it the "worst environmental catastrophe in the nation." Residents now fear that any transfers of Central Valley water to Los Angeles will also result in an Owens Valley condition.

California, therefore, has enacted several "area of origin" statutes, specifically reserving water rights for those living in an area of origin--the watershed where the water would naturally reside. These area of origin statutes are hopeful for the protection of watersheds, and have been enacted by Arizona and Montana. Marc Reisner writes in *Overtapped Oasis*, "By effectively detaching the West's water from the land, the prior appropriation doctrine fundamentally favors movement of water from one river basin

to another" (70). Area of origin statutes are a way to preserve the ecological integrity of watershed, as well as to promote local self-determination. However, although California now has laws on the books stating that "basins of origin are guaranteed the right to get their water back from an exporter if it is ever needed in the country in which it originates" (*Overtapped* 72), the question remains as to whether these statutes will be enforced. "Does anyone really believe," David Getches, a leading expert in water law responded, "that once the City of Los Angeles becomes dependent on water exported from a rural area, the rural area will be able to command return of the water because it 'needs' it?"⁴¹ Obviously in the case of Owens Lake, this hasn't happened, although it would seem fruitful to look further into the legalities of this statute.

An obvious conflict of interest, regarding this statute, however, is the Central Valley Project. If water is to be returned to Owens Valley, shouldn't it also be allowed to remain within Central Valley. Marc Reisner proposes that there must be large-scale redistribution of California's waters if this problem is to be solved. Alleviating L.A.'s pressure to maintain a stranglehold on their water source by introducing new sources of water may be an easy solution, and one that has been practiced by groups such as the Mono Lake Committee, working with Los

Angeles to find new water sources. Ultimately, however, the question needs to be addressed from a different angle: how much unlimited metropolitan growth should be allowed to continue? Is the answer providing more water for metropolitan areas, or finding ways to redistribute population instead?

CHAPTER V

NO GROWTH

Originally, Los Angeles had hoped to shut Owens Valley completely down. The mayor of Bishop, the largest city in Owens Valley (pop. 10,000) stated, "The Department of Water and Power originally tried to buy up the towns so they could shut them down. They used to talk about grass growing on the streets here one day. But then the area became a tourist draw, and that became impossible. It is still DWP policy to limit growth, however. The more growth they have, the more hassles."⁴² And the DWP has it in their power to limit growth, simply because they own 90% of the land in Owens Valley. In the city of Bishop, only 1% of the land is privately-owned. In 1980, the cost for a third acre homesite was approximately \$50,000. Today, the median price of a homesite is \$135,000. Most Bishop residents, with a median income of \$13,000 cannot afford housing.⁴³ And while this does limit growth in the area, it also opens it up to gentrification from L.A. tourists and retirees.⁴⁴ Los Angeles, in Bishop, owns property on everything from the Safeway to the Frostee Freeze. But at this point in time, because of inflated land prices, Bishop residents could not even afford to buy from L.A. even if the land were for sale.

This creates a Catch-22 rentier culture. If L.A. were to sell the land today, it would have to be opened to franchises such as McDonald's and Wal-Mart, changing the entire structure of the community.

While development is inhibited for these reasons in Owens Valley, growth continues at astronomical rates in Los Angeles. Ultimately, the issues surrounding the Owens Valley case bring into question the idea of unlimited city growth, in Los Angeles and elsewhere. As more and more City-states like Los Angeles are arising, which sap resources from the countryside, we must ask ourselves if the absolute freedom of mobility (given wealth) must be questioned. The country should not be made to pay for the overconsumption of city residents, including golf courses and Beverly Hills lawns. For while a City Beautification Act required that lawns be watered every day in Beverly Hills during the 1970s drought, Owens residents had no lawns and complained that they could not afford to pay the inflated water prices.⁴⁵

A redistribution of wealth to the countryside would require essentially redistributing population in a sustainable way. Also, it would seem important to look at the quality of water in Los Angeles itself, and if any areas are disproportionately impacted by poorer water quality--due to rerouting to Colorado water, etc. Ideas such as a

graduated water tax in L.A. or other means of limiting growth, such as selling and subsidizing land costs in Owens Valley, may be the direction we need to be looking.

Most "no growth" initiatives, however, are generated locally, not imposed by outside regulation. And the attitude of Los Angeles planners has been historically geared toward growth. As well, no growth initiatives often result in a Not In My Back Yard attitude toward development, which merely shifts the burden of industry to outlying areas. My intention certainly would not be to have Los Angeles move into the desert. On the contrary, I propose that this has already been happening, and with detrimental results. And while "carrying-capacity" rather than accommodative planning looks good on paper, Los Angeles is far from making such decisions. For stagnating economies, growth means money--and water.

Kathleen Newland in a Worldwatch Paper suggested that city growth can only be curtailed by investment in agricultural communities. She writes, "The corrective to this kind of distorted development pattern is straightforward, but far from simple. It lies in building industrialization literally from the ground up: that is, investing first in agriculture" (26). Newland further comments that supporting agriculture will result in "decentralized, labor-intensive industries that would

process agricultural products and produce simple, affordable goods" (26). Newland's argument appears to run into direct conflict with Marc Reisner's. For Reisner, subsidies in the form of water must be stopped to agricultural areas and be made available to municipal areas. Newland, on the contrary, seems to think that more support needs to be given to agricultural areas. While the pro-active measures of supporting rural economies seem preferential to legislating city growth, the role of agribusiness in rural areas must be taken into consideration. Agribusiness subsidies have accounted for much of the problem in Central Valley today. However, if we look at both of these proposals closely, there are common links. If, for instance, farmers in the Central Valley were encouraged to diversify--potentially through water sales, but mainly through more sustainable forms of agriculture--the Central Valley, which is now becoming a dust bowl requiring more and more water as well as fertilizer, might stabilize and become attractive to further settlement. As it stands, unsustainable control by large agribusiness only further destroys the land and makes settlement there unfeasible.

The U.S. government must instead provide initiatives for rural development based upon the goals of sustainability. Only in this way may the question of equity as well as environmental integrity be addressed. Dan

Tarlock has commented, "Environmental evaluation procedures should include human, as well as natural ecology" (883). As well, Tarlock claims that "wealth transfers and subsidies have a legitimate role to play in environmental protection" (883). In the case of Owens Valley, this project is easy to conceive of. Wealth transfers could take place in the form of subsidies for the purchase of DWP lands in Owens Valley. As well, the people of Owens Valley must be figured into the protection of the environment, if further inequities are to be redressed. Sustainability, in this sense, means simply treating the needs of the environment and people together, for the protection of a future for all. Subsidies should therefore be based upon environmentally-sensitive and small-scale development.

Ultimately, the questions surrounding Owens Valley and Los Angeles water rights are questions of scale. The history of western water law determines that water rights will be based upon maximum utilization. The Benefit-Cost Analysis scale, which first emerges out of the Flood Control Act of 1936, determines that efficiency is based upon the aggregate. And the U.S. economy supports "economies of scale" not small-scale community development. If inequities are to be addressed, the fundamental logic of aggregate welfare must be questioned, as environmental and public concerns must share the same space.

Today we are left with a situation where the health and welfare of local communities are sacrificed either to environmental integrity or to large-scale industry, both in the name of efficiency. If Los Angeles can afford to return water to Mono Lake, why not to Owens Lake? Ultimately, I would suggest that it has become an issue of environmental justice. The Mono Lake Committee succeeded because they had the money, the media power, and lots of urban-educated environmentalists working on their case. Owens Lake does not have this backing, this media attention, or this history. No one from L.A. is going to come over to fight for Owens Valley, and if they did, I doubt the local residents would trust them. As one Owens Valley resident aptly put, "We haven't had the resources to fight Los Angeles... We're not unlike a Third World country in that respect." So Owens Valley remains in its position of subservience to the strength of Los Angeles, who is now at the drawing table once again not with local residents but with the federal government. And this, in the minds of Owens Valley residents, has proved to be an unholy alliance. Refilling the lake has never been seriously addressed or proposed by anyone simply because Los Angeles receives 80% of its water supply from Owens Valley. Again, the cost to Los Angeles is considered too large to outweigh the benefits to the people of Owens Valley. Los Angeles claims that

finding an alternate supply would require a \$1 billion expenditure, as well as \$100 million per year.⁴⁶

It would seem as though the solution should be simple. The water must and ought to be returned to Owens Lake. Even with Owens River water, the \$1 billion expenditure for a desalinization plant is inevitable at the rate that Los Angeles is still growing. Ninety miles to the north, Santa Barbara is already building one. President Clinton has approved the same sum to build a desalinization plant at the border to Mexico, due to the poor quality of water left from the Colorado River. So why do Los Angeles and the federal government consider this option an impossibility? If one examines the history of the relation between Los Angeles and Owens Valley, it would seem that the answer is simple. This option is considered an impossibility simply because Owens Valley has not been considered "to count" enough to warrant such an expenditure. Nor are the local towns, including my hometown of Ridgecrest, considered large enough to warrant a health study. These towns range in size from approximately 400 to 27,000 people. This is not an issue about money, but rather one of power relations. If Owens Valley has thus far been considered basically a colonized region with the sole purpose of supplying water to Los Angeles, it is precisely this prejudice that now keep Los Angeles from aggrieving their wrongs.

CHAPTER VI

CONCLUSION

"You can always print more money," Ted Schade had concluded as to why L.A. was reluctant to give more water, "but water around here is more precious than gold." Indeed, Owens Lake calls us to rethink notions of capital itself. With natural resources being consumed as if there were no tomorrow, the fight for control over them can only become more and more brutal. In the case of Owens Valley, the brutality of this struggle has been in effect since the turn of the century, but even with increasing environmental protections in the State of California, from CEQA to "area of origin" protection, the power imbalance surrounding Owens Valley remains firm. Indeed, there appears to be a growing sense of irony in the Valley as L.A.'s power grows as fast as the environmental regulations that would keep it in check. This competition was definitely in full force during the struggle over Owens Valley groundwater, and while L.A. has been forced to make some concessions, it is still pumping groundwater and draining the Valley of its surface waters. In regards to the Great Basin's pumping of lake bed waters, a resident remarked, "You have to realize it's like

a net loss of water around here. We can make excuses to make it seem okay, but any more water that is pumped is going to hurt the Valley somehow." And pumping the lake's groundwater to help the dust problem, will cause a further net loss through evaporation.

The escalating struggle to stop the dust so far has only highlighted the resilience of the natural world in resisting its control. "The more devices we invent for dominating nature," Horkheimer once wrote, "the more we must serve them if we are to survive" (3). This is definitely the case in Owens Valley. The aqueduct that once was the solution to L.A.'s water problem, has now created the greatest dust problem in the nation--and the solution that are being attempted may be creating an even greater environmental hazard. What happens when the clay dries or when the sand dunes can't be controlled or when the wetlands disappear? These types of questions aren't really being addressed simply because the engineers and scientists are only trying to deal with the problem at hand, however they can.

Ted Schade stated, "If it weren't for the public trust, we would have layered the lake bed with old tires long ago. Our job is to stop the dust." As it stands, the attempted control of nature in Owens Valley is escalating to a dangerous point. What will happen when, or if, all these

projects fail? "Then we may have to refill the lake," Duane Ono admitted. Meanwhile, enormous expenditures are being made to prevent precisely that from happening. Why? Because any expenditure that L.A. has to make to keep its water, even if its more than the water itself is worth, keeps the whole city growing, keeps land speculation alive, keeps the tax base strong, keeps all those sources of income that are dependent upon that unspoken agreement that water *will be provided*. And this is what L.A. does not want to give up, at any cost, it's own self-identity, which is very much dependent upon Owens Valley water.

Take away the facade of "free" water that keeps the city alive, and you take the very scaffolding that holds it up. And what if there are existent laws that can do precisely that? This is, I think, what Los Angeles is afraid of, and why such a veil of secrecy seems to hang over Owens Valley. This is why movies aren't being made and non-profits aren't springing up, and why the nation *doesn't know* of Owens Valley's plight. I would like to review, in summary, some of these laws, and how they could be used to change the shape of the Valley:

1. Public trust doctrine. The public trust doctrine has proven extremely effective in having Mono Lake's waters returned. Although Los Angeles' water rights were deemed inviolate, the California Supreme Court in the 1983 Mono

Lake decision ruled that the public trust imposed the duty on Los Angeles of continually monitoring water usage in accordance with that doctrine. It determined, "In exercising its sovereign power to allocate water resources in the public interest, the state is not confined by past allocation decisions which may be incorrect in light of current knowledge or inconsistencies with current needs."⁴⁷ This decision could ultimately impact rulings over water usage in Owens Valley, giving the state the power to re-evaluate the allocation of water according to the public trust.

As well, the California State Lands Commission has ruled that gravel and possibly sand fences are a violation of the public trust. If the Great Basin UAPCD is made to concur with this ruling, the future of the lake bed could be changed. As it stands, the Great Basin UAPCD and the California State Lands Commission need to be informed by the citizens of California that the public trust should be considered a priority in lake bed issues. These public trust values include ecological restoration, which should also be prioritized, as a means of having water returned.

2. Lahonton Irrigation District Rule. This law, created for unknown reasons, states that no water of "less than drinking-water quality" shall be pumped onto the lake bed. Although this ruling may in the future be revised, for

now the Great Basin UAPCD needs to receive public pressure to adhere to this ruling. If this occurs, Los Angeles will receive more pressure to allocate water for the dust problem. If the Great Basin UAPCD is forced to utilize only "dry solutions," their history of experimentation will be abruptly shortened.

3. Area of origin protection. Although this statute in California has so far received little attention, it again implies water may be redistributed to Owens Valley by State ruling, in order to protect the current needs of the basin from which L.A.'s water has been taken. If anything, the extreme nature of the dust problem in Owens Valley should set a precedent in "area of origin" rulings.

3. California Fish and Game codes. Another main impact on the Mono Lake victories was the fish and game codes, which were previously unenforced. Section 5937 states, "the owner of any shall allow sufficient water at all times to pass over, around, or through the dam, to keep in good condition any fish that may be planted or exist below the dam." Section 5946 states, "no license to appropriate water [in portions of Mono and Inyo counties] shall be issued... unless conditioned upon full compliance with section 5937." This law recently had a bearing on an upper Owens River suit. The aqueduct, having sprung a leak, quickly supported a native trout population previously not

found in the area. Lawsuits were filed in order to protect that species and the aqueduct releases had to be maintained. This law could also be used to protect lower Owens River fish, as well as fish affected in mountain streams from a second aqueduct built in 1974.

Violating the Public Trust Doctrine, CEQA, the Clean Air Act, and California Fish and Game codes, should be enough to make Los Angeles nervous. Why more lawsuits aren't being filed to date remains a mystery. To understand one possibility, I would like to return, in closing, to the history of the Valley itself and to the plan that got the aqueduct started. When the chief of southwest operations for the National Reclamation Service, J.B. Lippincott, decided to go into business with Fred Eaton, mayor of Los Angeles, the history of Owens Valley was to be sealed. Learning of Owens Valley water from Lippincott's project to irrigate the Valley, Fred Eaton discovered that if he purchased a mere 12,000 acres of land (for a half million dollars) he would own the proposed dam site--to which the local ranchers had already signed over their water rights--for the Reclamation Service. Lippincott, who was also put on city payroll at the time, reported to the Reclamation Service that the irrigation project no longer seemed feasible. William Mulholland, superintendent of water in Los Angeles, then bought out Eaton's water rights--for the

cost of the land itself. The city then began to acquire all the downstream water rights, while the Owens Valley residents still believed they were working with the Reclamation Service for their own benefit. As the dreams of Valley residents began to falter, land prices dropped, and Eaton was able to move in and acquire their lands for ranching. Meanwhile, members of a land syndicate, who owned 3 of the 4 leading papers in Los Angeles, bought up worthless land in the San Fernando Valley with the intent of diverting some of the aqueduct water for irrigation. With control over the media, an obvious silence was maintained.

This history of the Valley can be repeated like a mantra by most of its residents. The history of water has become their religion as well as their local mythology, impacting their very livelihood. The water that Los Angeles owns in the Owens Valley is surrounded by federal government land, from the BLM to the Inyo National Forest. Public lands are being destroyed by the diversion of Inyo County water, making this more than a local issue. Yet through the course of 20 years and 5 drafts, Los Angeles has not yet come up with an acceptable EIR to account for this damage. In 1929, Los Angeles received their first injunction to stop pumping, but in those days it "simply bought or forced out troublemakers and had such injunctions dismissed."⁴⁸ Today,

they go through drafts of bad EIRs, all the while fighting Inyo County tooth and nail in the courtroom.

Local Lois Wilson claimed in 1981, "You know what some genius from the DWP office in Los Angeles said? He said the dust problem was caused by the dune buggies."⁴⁹ While Los Angeles may not today be able to get away with such wild claims, the history of these claims is well-documented. As are the rebellions of Owens Valley natives. In 1980, Inyo County residents showed up in record numbers to pass an ordinance that would return control of groundwater pumping to local authorities. Today, record numbers are showing up to find out how the dust will be managed. But the results today are not so hopeful.

"If you can find something that will survive in Owens Lake," Mary DeDecker was quoted as saying in 1981, "you may well have found a monster that will eventually take over the whole valley... The solution is not to solve one problem by creating another."⁵⁰ In reference to the current planting of *Salicornia* on the lake bed, her warning may be portentous. Projected "solutions" to the dust problem appear to be endless; however, it may be time to start looking for solutions to Los Angeles instead. This is exactly what the Mono Lake Committee did in 1994, when they devised a water reclamation plan for the Central Valley that would effectively create 141,250 acre-feet of new water supplies

for Los Angeles.⁵¹ And in 1995, they attempted to present a check to Los Angeles for \$4 million to help create replacement waters. Los Angeles, of course, refused the money "on principle," once again demonstrating that water is worth more than money.

But if replacement waters can so easily found for Mono Lake, Owens Valley should investigate this angle. The lake would need 350,000 acre-feet per year to be refilled, and while residents at the Advisory Board Meeting sighed in disbelief at the immensity of that figure, the Mono Lake Committee demonstrated, in part, that it can be done. But first, public attention needs to be focused on the plight of Owens Lake, thus breaking the stranglehold that Los Angeles has over the people of Owens Valley and their water. Until this pall of silence is broken, and the needs of Owens Valley residents gain legitimacy, Owens Lake may indeed be obfuscated by the layers of its own dust.

In the case of Owens Valley, the health of the ecosystem and the people has become intimately connected. Refilling the lake will serve not only to restore the integrity of the environment, but also to provide restitution for the history of oppression inflicted upon the citizens of the Valley. Restoring this environment, furthermore, will serve to call into question the water policies of the American West, rethinking the idea of "beneficial use" and the needs of the

aggregate. As well, it will bring into question the benefits of economies of scale, forcing the city to rethink its relationship to agricultural areas as well the the possibilities of unlimited urban growth. This may seem like a tall order for one lake whose waters have been gone for over 80 years. However, the dust storms on Owens Lake are the inevitable result of this history and ultimately have served to force these changes. Whether we listen to the needs of Owens Valley now or 100 years from now, its history will be redressed. Owens Valley is linked to the history of Los Angeles itself, and if Los Angeles continues to ignore the problems of the Valley, they will ultimately become its own problems. Because the water cannot be detached from the land without consequences.

ENDNOTES

¹ This number is from a personal conversation with Ted Schade, and is twice the previously documented level of 12 times the federal standard.

² Owens Valley PM-10 Planning Area Best Available Control Measures State Implementation Plan (i).

³ Gill and Cahill (65).

⁴ Gill and Cahill (66).

⁵ Sharing the Vision: The Story of the Los Angeles Aqueduct by the Los Angeles Department of Water and Power (9).

⁶ *Ibid* (13).

⁷ Reisner (52).

⁸ As excellent anecdotal version of this story is presented in Cadillac Desert. For a more in-depth treatment, see Western Times and Water Wars: State, Culture, and Rebellion in California by John Walton.

⁹ Walton (132).

¹⁰ See "The Rape That's Not" by Louis Winnard.

¹¹ For a disturbing portrait of this area prior to development, see the section on Owens Valley in Guide to Highway 395 by Ginny Clark (54-110). As well, naturalist and novelist Mary Austin documents the flora and fauna of Owens Valley in her essay, The Land of Little Rain. Unfortunately, this history has been largely forgotten, as Owens Valley resident remarked, "People who come to the Owens Valley don't have any idea what's happened to it."

They come here and say, 'Gee, this is a beautiful high desert valley.' But they weren't here when the trees where up and down the valley, the river was running and the brush was green. It was a thousand percent better than it is today" ("David-Goliath Fight Continues Over Water from Owens Valley" in The Bakersfield Californian, October 26, 1980).

¹² In the early 1900s a local paper called "Inyo--the Peerless" described the Owens Valley as "the garden spot of Inyo, presenting an area sufficient for thousands of small homes--thousands of small farms." The valley was at this time known for its prize-winning sugar beets, corn, potatoes, and fruit. In contrast, the Grand Jury in 1974 described the area, "The land is essentially barren, the pheasant population is zero, planted birds are shot in a few hours on two or three designated days. Quail may be seen principally around population centers and near water supplies... Ducks and geese rarely use the area, once a major flyway, since food and water are no longer available."

¹³ These statistics and resulting controversies are as described in "Owens Water Dispute Becomes a Battle of Experts" by Robert Jones.

¹⁴ This project includes, along with riparian restoration, planting trees in town and building a new sports complex.

¹⁵ *Ibid.*

¹⁶ Sharing the Vision (59).

¹⁷ For information on the North-South water controversy in California, see "MWD Agrees to Give Up Water from North" in the Los Angeles Times.

¹⁸ Several National Forests in the Owens Valley were created primarily for the benefit of Los Angeles, although there is not a tree in them. For a complete treatment of this process, see Western Times and Water Wars.

¹⁹ See "Just Add Water" by Charles Petit.

²⁰ *Ibid.*

²¹ See Edwin Pister, "Species in a Bucket."

²² See Cadillac Desert.

²³ See "Air Quality May Suffer Under L.A. Pumping Plan" by Robert Jones.

²⁴ One of the roads in the Owens Valley has been so regularly used for filming purposes that it has been named, "Movie Road." The Alabama Hills in Owens Valley are the most common site used today for the filming of chase scenes in Westerns, as well as automobile commercials. In this area alone, over 300 films have been shot.

²⁵ See the letter from Phillip Wyman.

²⁶ BACMSIP 62.

²⁷ See "Decision due on soda ash plant at Owens Lake," *NWC Rocketeer*, August 28, 1981.

²⁸ Chemical Week, October 11, 1995.

²⁹ As quoted in "Inyo County: Land of the New Colonials?" by William Overend.

³⁰ This is Reisner's description of the Owens Valley scandal in Overtapped Oasis.

³¹ This is quoted in Donald Worster's Rivers of Empire.

³² See Worster (32).

³³ In Cadillac Desert, Reisner describes how these companies were to fail because water in western states can only be contained by building large dams, which these small companies did not have the capital to do. Reisner describes one speaker's response at the 1898 National Irrigation

Congress: "The western landscape is... littered with crushed and mangled skeletons of defunct irrigation companies... which suddenly disappeared at the end of brief careers, leaving only a few defaulted obligations to indicate the route by which they departed" (116).

³⁴ See Reisner, Cadillac Desert.

³⁵ Reisner, Overtapped (28).

³⁶ *Ibid* (30).

³⁷ *Ibid* (31).

³⁸ *Ibid* (33).

³⁹ *Ibid* (98).

⁴⁰ *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443, 449 (1882).

⁴¹ This is quoted in Reisner's Overtapped Oasis (72).

⁴² As quoted in "Inyo County: Land of the New Colonials?" by William Overend.

⁴³ This information is taken from the 1990 U.S. Census Bureau Report.

⁴⁴ One resident stated, "What's happening to us is that we're turning into a retirement community." See William Overend for a description of this processing, including the attraction of wealthy newcomers to the region.

⁴⁵ One resident commented, "People don't even flush their toilets anymore except when it gets really bad--and all the time they keep pumping water right out of here to people hundreds of miles away." See Overend.

⁴⁶ "MWD Agrees to Shut Off Its Supply of Northern California Water Within 10 Days" by W.B. Rood.

⁴⁷ 189 Cal. Rptr. at 365.

⁴⁸ Stegner (65).

⁴⁹ Stegner (65).

⁵⁰ Stegner (68).

⁵¹ Mono Lake Newsletter, Special Issue, 1994.

BIBLIOGRAPHY

- Austin, Mary. The Land of Little Rain. New York: Penguin, 1988.
- Babb, David. "History of Early Water Diversions and their Impact on Owens Lake." The History of Water: Eastern Sierra, Owens Valley, White-Inyo Counties. Ed. Clarence Hall, Jr. et al. Los Angeles: White Mountain Research Station, 1992.
- "Blame Owens Valley for Your Wheezing." NWC Rocketeer 26 January 1992.
- Clark, Ginny. The Guide to Highway 395: Los Angeles to Reno. San Luis Obispo: Western Trails, 1990.
- Daily, Hall. "David-Goliath Fight Continues Over Water from Owens Valley." The Bakersfield Californian. 26 October 1980.
- "Decision Due on Soda Ash Plant at Owens Lake." NWC Rocketeer. 28 August 1981.
- Gill, Thomas E. and Thomas A. Cahill. "Playa-generated Dust Storms from Owens Lake." The History of Water: Eastern Sierra, Owens Valley, White-Inyo Counties. Ed. Clarence Hall, Jr. et al. Los Angeles: White Mountain Research Station, 1992.
- Great Basin Unified Air Pollution Control District. Owens Valley PM-10 Planning Area Best Available Control Measures State Implementation Plan. 29 June 1994.
- Haraway, Donna. Simians, Cyborgs, and Women: The Reinvention of Nature. New York: Routledge, 1991.
- Horkheimer, Max and Theodor Adorno. Dialectic of Enlightenment. Trans. John Cumming. New York: Routledge, 1972.
- Jones, Robert. "Air Quality May Suffer Under L.A. Pumping Plan." Los Angeles Times. 17 December 1978.
- . "Owens Water Dispute Becomes A Battle of Experts." Los Angeles Times. 17 December 1978.

- Kahrl, W. Water and Power. Berkeley: U of California P, 1982.
- London, Michael. "Watered-Down Drama." Los Angeles Times. 3 April 1983.
- Los Angeles Department of Water and Power. Sharing the Vision: The Story of the Los Angeles Aqueduct. Los Angeles: Los Angeles Department of Water and Power, 1988.
- Martin, Emilie. "Water's Role in Early History of Inyo National Forest." The History of Water: Eastern Sierra, Owens Valley, White-Inyo Counties. Ed. Clarence Hall, Jr. et al. Los Angeles: White Mountain Research Station, 1992.
- Newland, Kathleen. City Limits: Emerging Constraints on Urban Growth. Washington, D.C.: Worldwatch Institute, 1980.
- Overend, William. "Inyo County: Land of the New Colonials?" Los Angeles Times. 4 January 1981.
- Petit, Charles. "Just Add Water." The San Francisco Chronicle. 26 November 1995.
- Pister, Edward. "Species in a Bucket." Natural History 102, January 1993.
- Reisner, Marc. Cadillac Desert: The American West and Its Disappearing Water. New York: Penguin, 1986.
- and Sarah Bates. Overtapped Oasis: Reform or Revolution for Western Water. Washington, D.C.: Island P, 1990.
- Robinson, D. The Early History of Inyo National Forest. Bishop: Supervisor's Office, Inyo National Forest, 1933.
- Rood, W.B. "MWD Agrees to Give Up Water from North." Los Angeles Times. 24 February 1977.
- Stegner, Page. "Water and Power." Harper's. March 1981.

Tarlock, A. Dan. "Environmental Protection: The Potential Misfit Between Equity and Efficiency." U of Colorado Law Review 63 (1992): 871-900.

"Vulcan Chemicals Moves Ahead with Owens Valley Development." Chemical Week. 11 October 1995.

Walton, John. Western Times and Water Wars: State, Culture, and Rebellion in California. Berkeley: U of California P, 1992.

Winnard, Louis. "The Rape That's Not: Relationship of Los Angeles, Owens Valley is One of Mutual Benefit." Los Angeles Times. 26 October 1976.

Worster, Donald. Rivers of Empire. New York: Pantheon, 1985.

Wyman, Phillip. Letter to Captain John A. Burt, Naval Weapons Center. 7 March 1988.