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## President's Message



Policies that worked a century ago, or even 50-years ago, to bring water and electricity to Southern California, will not work in the 21st Century. We live in an increasingly complex society and an era of limits.

The population in Southern California continues to grow. The cost of energy, including the cost of fueling our automobiles, is going up. Our imported water supplies are becoming more precious, and in some cases they are being reduced. It is increasingly difficult to import electricity - even green power - into Southern California. Our leaders are constantly scrambling to pay the increasing costs

Overlay on this the need to maintain and improve the infrastructure that produces, supports and delivers our water and electricity.

**Those are a few of the factors that prompted the Water and Power Associates board to pay more attention to the topic of sustainability.**

Our decision to take "sustainability" seriously was particularly prescient. Recently we wanted to learn more about what our region is doing to stretch its water supplies. So, on May 14th, in lieu of our regular monthly meeting, board members and their guests visited two facilities that are helping to reduce the region's need for imported water: the Hyperion Wastewater Treatment Facility, operated by the Los Angeles Bureau of Sanitation and located in Playa del Rey; and the nearby Edward C. Little Water Reclamation Plant, operated by the West Basin Municipal Water District. We are very familiar with the water we drink, including where it comes from, how it gets here, and how it is treated. But we are much less familiar with what happens to the water once it goes down the drain. Dave Oliphant has written a separate article about our Hyperion field trip. It begins below. *(continued on page 2)*

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## W&PA Tour L.A. Hyperion Treatment Plant and West Basin Municipal Water District (WBMWD) Recycling Plant

Most people have a *vague* idea where their water comes from, but few people seem to know or care what happens to the water once it goes down the sink, shower, or toilet. Come with us as we follow the journey of the drains. The fate of water and debris in the storm drains is not included. *(See report of the tour on pages 3, 4, & 5.)*



Hyperion/West Basin Tourists ~ Wednesday, May 14, 2008. Pictured left to right.

*Front row standing in the street:*

Richard Dickinson, Carlos Solorza, Larry McReynolds, Charles Turhollow.

*Standing on the sidewalk:*

Tom McCarthy, John Schumann, Sandy Winger, Steve James, Dorothy Fuller, Wally Baker,

David Oliphant, Jim Schneeweis, Abe Hoffman, Wolfgang Baur, Paul Myers, Anna Sklar,

Ed Gladbach, Mike Moore, Scott McCauley, Joe Hegenbart, John Krattli, Dr. Nancy Brill Downey, Ken Downey.

## President's Message

*(continued from page 1)*

I have written to thank Councilman Tom LaBonge for his support in helping us take this timely and important educational trip of Hyperion. Our knowledgeable tour guides at Hyperion and West Basin deserve thanks for their well-organized and informative tours. It was a very timely tour, given the various articles that have been published about wastewater recycling.

I also thank Anna Sklar (a former guest and speaker at the Water and Power Associates board meeting) for accompanying us on the tour. Anna is the author of a fascinating and recently published book titled *Brown Acres: An Intimate History of the Los Angeles Sewers*. She brought an interesting and useful perspective to the tour. A review of her book is published in this newsletter on pages 10-11.

As the book title says, it is about the history of the Los Angeles City wastewater system dating from the late 1800's when raw sewage was discharged directly into the Santa Monica Bay. Accompanying Anna were her publishers from Angel City Press ([www.angelcitypress.com](http://www.angelcitypress.com)): Scott McCauley, Paul Myers, Jim Schneeweis.

The tour was a great success, and we learned a lot about Los Angeles as a leader in water recycling. Driving home that point is the fact that Los Angeles has increased by more than 1 million residents in the past decade or so, but we consume the same amount of water.

The day after our Hyperion tour, the *Los Angeles Times* reported about a massive water conservation

plan that would include the usual measures, such as fining those who waste water, limiting how much you can use to water your lawn or wash your car. But the proposal also included plans to increase recycling of wastewater. Subsequently, Department of Water and Power was reported to be moving ahead with Mayor Antonio Villaraigosa's crackdown on excessive water use, boosting fines for those who violate city water laws and imposing new restrictions on anyone with a garden hose. The proposed "drought busters" law, would double water-usage fines for residential customers and quadruple them for businesses and apartment building owners. In addition, Governor Schwarzenegger just proclaimed a statewide drought. Along with the proclamation, it was reported that the "Governor issued

# W&P Associates Tour Los Angeles Public Works Hyperion Treatment Plant (from page 1)

Hyperion Treatment Plant processes about 350 million gallons of wastewater each day. After it is cleaned up to secondary treatment standards, about 10% or 20 million gallons a day is sent to the nearby Edward C. Little plant operated by WBMWD in nearby El Segundo for tertiary treatment and further recycling. This article is about our tour of both facilities.



The Water and Power Associates organization has long recognized the importance of efficient water use, recycling and sustainability. To help us better understand our wastewater system, and the important part it plays in the growth and economic vitality of our community, Water & Power Associates board members and guests recently toured Los Angeles' wastewater treatment and recycling systems. On May 14th in lieu of our regularly scheduled monthly meeting we visited the region's largest wastewater treatment facility.

Accompanying us, and helping as co-tour guide, was Anna Sklar, a past speaker at the Water and Power Associates Board meeting, and a former reporter and public relations official with the Los Angeles Board of Public Works. Anna is the author of *Brown Acres*, a recently published book (see review of *Brown Acres* on pages 10 & 11) about the history of the Los Angeles city wastewater system, published by Angel City Press. (Continued on page 4)

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## President's Message

an executive order intended to speed transfers of water to areas experiencing the most severe shortages, help local water districts boost conservation efforts, identify risks to the state's water supply, and assist farmers."

With all that is going on around us, I would like to make a pitch for members of the Water and Power Associates to become more involved in our interesting programs. The relevance of our organization is only as good as the effort our members put into its programs. When our organization recently lost LeVal Lund, we lost someone who was passionate about water issues and who had endless energy and a wealth of knowledge, both technical and historical. While it is impossible to replace LeVal, our board *and* members have an enormous wealth of information, experience and talent. And we all share a passion for the important role of municipal water and municipal power in the vitality and future of Los Angeles.

Thanks to the hard work of board members, we have some wonderful programs that are making a difference by broadening the knowledge of our members, elected officials, and the general public.

We have board members who stay on top of the important water and power issues that face the policy makers and managers. We have other board members who have worked hard to insure that historic records are preserved, and that historic artifacts are preserved. We have board members who read and review books and literature that may be of interest to our members. We are engaged in a mighty effort to record the history of water and power in Southern California through an innovative "virtual museum" website. These programs and more are making a difference.

With the help of each and every one of you, we can and will do more. Many hands make light work. You each have unique talents. If you become aware of a public policy issue, alert the board members who focus on these issues. If you are aware of an interesting tidbit of history, or aware of an artifact of history that needs to be preserved, let us know. We are working to preserve the Zanja Madre. That would be a fitting tribute to the memory of LeVal. If you would like to work on the Zanja Madre, or write a letter, make a phone call, or speak to an official on another water or power matter, you can make a difference.

We are building "content" for our website and our virtual museum. We will be photographing other places and things for our virtual museum. Many of you may know of an interesting tidbit of history. Please share it with us. If you have artifacts, pictures or stories, please share them with us. Finally, if you know of someone who shares an interest in helping our organization, invite him or her to join. We are all members of the membership committee. ✖



(Continued from page 3) Board members who took the tour included Abe Hoffman, Dave Oliphant, Dorothy Fuller, Carlos Solorza, Tom McCarthy, Mike Moore, Larry McReynolds, John Schumann, Wally Baker, Joe Hegenbart, Mr. and Mrs. Ken Downey, Richard Dickinson, and Jerry Gladbach.

Guests of Jerry Gladbach were Sandy Winger, Executive Director of the *Los Angeles County Local Agency Formation Committee (LAFCO)*, John Krattli, General Counsel for LAFCO. Besides being a member of the Water and Power Associates board, Gladbach also serves as a Director of the *Castaic Lake Water Agency*, and is the Chairman of LAFCO.

Other guests included Donald Dear, a *West Basin Water District* Director; Wolfgang Baur a *high school teacher* and the guest of Alice Lipscomb; Steve James, a retired official with the *Los Angeles County Auditor Controller*, and guest of Richard Dickinson; and Scott McCauley, Paul Myers, Jim Schneeweis publishers of *Angel City Press*, and guests of Anna Sklar.

Recognized by the American Public Works Association (APWA) as one of the top ten public works projects of the 20th Century, the **Hyperion Treatment Plant is the fifth largest wastewater treatment plant in the United States**. It serves four million people in Los Angeles city, and it serves eight other cities and 21 special districts. It converts about 350 million gallons raw sewage each day into a clear effluent that is safe enough to meet federal, state, and local laws. Most of the highly treated effluent is discharged five miles from the shoreline into Santa Monica Bay. That discharge is constantly tested and found to have no harmful effects on aquatic life in the Bay. About 20 million gallons of secondary treated effluent is pumped to the West Basin Water Recycling Plant in nearby El Segundo.

## Hyperion Treatment Plant

It was not always this way: **In 1894, John Henry Dockweiler built the first sewage system using hollowed banded logs to transport the sewage.** It was not a very efficient or healthy system. The wood pipes rotted, developed holes and leaked. The raw sewage that did reach the coast was released into the ocean without any treatment near the site where Hyperion sits today. In 1948-49, the first modern treatment plant began operating in Playa del Rey. The plant is continually being upgraded, but it has been operating in the same Playa del Rey location since it opened. It is fed by five trunk lines ranging from 4 to 12 foot in diameter.

The wastewater entering Hyperion goes through different stages of primary and secondary treatment (*see page 13*). The first stage allows the heavy solids to settle to the bottom. Three-story high solid removers take raw sewage and pass it through bar screens and

grit removal processes. Heavy materials, such as bricks, rags, wood and wire are removed and sent to landfills, one to two truckloads a day. Sediment and grit are removed. Floatables such as oil and grease are skimmed off. The wastewater then passes through underground tanks where coagulants are added to further help solids settle to the bottom.

The next stage involves biological secondary treatment in which the fine organic materials of the primary effluent are mixed with microorganisms in a reactor using 96% pure oxygen, and the microorganisms consume and decompose the organic materials. At this point, the secondarily treated effluent is water clean enough to be released five miles out in Santa Monica Bay.

The remaining effluent solids continue the process through clarifiers which, moving slowly, provide for further settling of the biosolids. The waste excess then goes into an anaerobic digestion process. Bacteria that need no oxygen consume the organics in oval-shaped tanks called digesters, destroying any disease causing organisms, and in the process create carbon dioxide, methane gas and water. Sulfides and impurities are removed, and the methane gas is sent to **LADWP Scattergood Power Plant**, which uses it to generate electricity which in turn is sent back to Hyperion, providing power to run the plant

(Continued on page 5)



Hyperion Tram transportation for our group as tourists/guests

## Hyperion Tour

*continued from page 4*

They then take the biosolid remains and put that through dewatering centrifuges. The result is reduced from 2% dry to 30% dry, the consistency of toothpaste, and this biosolid material (sludge) is sent to farmland in Kern County for use as soil conditioners. There they use it to harvest crops such as alfalfa, sorghum and winter wheat, to be used as feed for farm animals.

About 8-10% of the secondarily treated water is piped to the West Basin Municipal Water District (WBMWD) where it receives tertiary treatment before being used for commercial and industrial uses. (See discussion of West Basin Recycling Plant above.)

Since 1998, the quality around the ocean outfall matches the rest of the nearby ocean. It covers an area of 4900 acres – green acres. The Hyperion plant is designed to withstand an 8.9 Richter earthquake.

After visiting Hyperion the tour then viewed the West Basin Recycling Plant. ✖

## Our Tour of West Basin Municipal Water District (WBMWD) Recycling Plant



Hyperion collects about 350 million gallons of wastewater each day. After it is cleaned up to secondary treated standards, about 10% or 20 million gallons a day is sent to the nearby Edward C. Little plant operated by WBMWD in nearby El Segundo.

The WBMWD is a wholesaler. *They buy water wholesale from the Metropolitan Water District (MWD) and wholesale it to some 17 cities and private businesses.* Their Wastewater Recycling Plant is owned by the District but operated by a private corporation, **United Water Facilities**. They have 33 employees, including one engineer in training, and seven professional engineers. They provide a reliable water supply to the communities served, using wastewater that has been cleaned to tertiary standards, allowing the communities served to save more of their regular water supplies.

In this area of southern California, two thirds of all water is imported from three sources – the Los Angeles Owens Aqueduct, the Colorado River Aqueduct and the California Aqueduct. *The water supply has remained constant while the population has continued to rise.* The need for additional water led to West Basin developing this water recycling facility. First, the Basin did a pilot study providing 15,000 gals a day. The next step was to

develop a demonstration facility. The Basin next built the current system in four phases: Phase 1 in 1995, Phase 2 in 1997, Phase 3 in 2001 and Phase 4, in 2006. They have arrangements with Hyperion to receive secondarily treated wastewater from the City. The Basin provides tertiary treatment of the wastewater, filtering and disinfecting it and using microfiltration. The product provides water for industrial customers. *In all, the Basin provides water for 20 million consumers. They provide field irrigation for 200 customers.*

In 1990, their supplies were 79% imported and 21% groundwater. As of 2007, their supplies are 65% imported, 21% groundwater, 7% from conservation and 7% from recycling. *By 2020 desalination will become another part of their water supplies.*

West Basin MWD has a main plant - the Edward C. Little Water Recycling Facility which provides water for irrigation and industrial users. A portion of the water is processed by the District's three satellite plants - one in *El Segundo* that provides cooling tower water to the Chevron refinery, one in *Torrance* that provides cooling tower and boiler feed water to the ExxonMobil refinery, and one in *Carson* that provides cooling tower and boiler feed water to the BP refinery.

They have 75 miles of distribution. WBMWB has invested \$450 million to date and at the end of the present phase, will have \$500 million invested.

There are five types of water they provide, delivering what they call "designer waters": *tertiary water*, *nitrified water* (used for Mobil/Chevron cooling water), *barrier water* (used to provide a barrier against intrusive seawater affecting the groundwater along the coast), *reverse osmosis single pass*, and *reverse osmosis double pass*. Tertiary water is also called Title 22 water. Bacteria are used to consume the ammonia in the water during the processing. Solar panels provide 5% of the power needed to operate the facility. ✖

## Book Review

By Abraham Hoffman, Ph.D.



The term “American West” conjures images of endless plains, Native Americans, cowboys, cattle, prospectors, farmers, wagon trains, railroads—all in epic size, demanding wide-screen movies and coffee-table books. Time-Life did a marvelous series on the West a few decades ago, and American Heritage has published some notable pictorial histories. *American West Chronicle* offers almost a thousand photographs and a scope that encompasses the period 1800-1950. Former U.S. Senator Ben Nighthorse Campbell, a Native American, wrote the Foreword, and the title page lists two prominent historians, Walter Nugent and William Devereil, as consultants. Nugent and Devereil are included in a list of ten writers, also on the title page. Four have Ph.D.s, and one has an M.A. The Introduction claims that the book “attempts what no other heavily illustrated, single-volume history has done to cover a great and ever-expanding portion of the American landscape from 1800 to 1950...”

AMERICAN WEST CHRONICLE: Lincolnwood, IL: Publications International, Ltd., 2007. 448 pp. Illustrations, Index. Cloth, \$24.98. Order from Publications International, Ltd., 7373 North Cicero Avenue, Lincolnwood, IL 60712; (800) 595-8484; pilbooks.com.

The Introduction makes other claims for its coverage—words such as lively, insightful, fascinating, compelling—along with hyperbolic definitions of the West such as its being “*Cinco de Mayo* and an Italian cowboy movie filmed in Spain” (p. 9). Although the book conceptualizes the West as starting with the Louisiana Purchase in 1803, the first chapter provides a review of Native American presence, Spanish exploration and settlement, the French and Indian War, the American Revolution, and the advance of settlement west of the Appalachians, all before 1800. The chapters follow a similar format. They march chronologically across Western history, from the Lewis and Clark expedition through the fur trade, Manifest Destiny, Gold Rush, railroads, cattle industry, and on into the twentieth century. Despite the introductory claim of taking Western history to 1950, the final chapter goes to 2006.

Each chapter begins with an introductory essay about five pages in length. Most of the rest of the pages in a chapter have a running timeline covering events in the chapter’s time period; this is on the left-hand side of the even-numbered pages. There are around a dozen mini-essays that run between 400-800 words. The bulk of each chapter consists of illustrations—historical drawings and photographs, and an occasional map—and commentary on the illustrations, each running around a hundred or so words.

People who expect nothing more than a pleasurable trip through Western history by looking at the illustrations will probably be satisfied with this book. Anyone who reads the text critically, however, will soon be raising eyebrows. Who wrote the essays? The mini-essays? The photo caption/commentaries? The answers are not easily forthcoming. **None of the written material is credited.** The consultants and writers listed on the title page are not given any bylines. **In short, you don’t know who wrote what. And this becomes a serious matter since the book offers no notes or bibliography that might support statements made in the text.** There is an Editor-in-Chief—*David J. Hogan*, and an Editor—*David Aretha*—whose names appear behind the title page, but their biographies don’t appear on the Contributors page where the Consultants and Essayists and Contributing Writers and Factual Verification and Research people are all briefly profiled.

The old saying that a picture is worth a thousand words gets short shrift here, since the illustrations, which make up most of the book, get only about a tenth of that. Such compression inevitably forces the captions to be summarized and generalized rather than providing details. *Here are three examples of the book’s problems in organization, fact-checking, interpretation, and accuracy:*

(Continued on page 7)



**1** John Wesley Powell is noted in two Timeline entries and briefly mentioned in the caption about a Thomas Moran painting of the Grand Canyon and an essay about Francis E. Newlands, sponsor of the 1902 Reclamation Act. A 73-word commentary on p. 168 states that he led "a series of exploratory expeditions throughout the West from 1867 through 1875," but omits mentioning that the Colorado River and Grand Canyon trips were his most famous exploits. These are briefly noted in a 448-word essay on Powell on p. 207. Readers don't get a clear picture of Powell until forty pages after the photo caption, and there only brief mention in an essay that merits more coverage on his life.

**2** William Mulholland is mentioned briefly in an essay on the Metropolitan Water District and another on the growth of Los Angeles in the 1900-1930 period. On p. 282 he is mentioned in a Timeline sentence on completion of the 200-mile (sic) Los Angeles Aqueduct. The familiar picture of Mulholland posing with a tripod appears on p. 284 along with a caption commentary (113 words) that is almost entirely either factually incorrect or of very questionable interpretation. The title of the caption is "Mulholland's shenanigans." Mulholland is said to have "encouraged business cronies to buy land in the nearby San Fernando Valley." Although historians do not always agree on the motivations and outcome of the Owens Valley-Los Angeles water controversy, no one worth his/her academic credentials would claim that Mulholland personally profited from construction of the aqueduct. I corresponded with William Deverell, one of the consultants on the book, and he said that the entry had been done "in house" without his knowledge. "It is an unfortunate portrayal and repeats a good deal of the old chestnuts that portray William Mulholland in a false light," said Deverell.

**3** Mexican Deportation is the title of the mini-essay on p. 337. This essay conflates *repatriation* with *deportation*, more than a semantic distinction since the latter term requires a formal hearing and the former a voluntary (itself a disputable term) departure from the United States. The anonymous author of this essay uses the term Latino interchangeably with Mexicans and claims "60 to 75 percent of deportees" were "believed to have been children born in the United States (no citation on who did the believing). He states the federal government was behind the movement to remove the Mexicans who did leave, and that Dust Bowl refugees (seeking work in California agriculture in 1935) displaced Mexican immigrant labor (the departure peaked in 1931). Any of these statements could have been fact-checked in the published research on the topic of Mexican repatriation and deportation during the Great Depression. The Contributors page lists a fact-checker that clearly didn't earn his money.

Space limitations here preclude other examples. Given the anonymity of the writers who contributed essays, and the very likely possibility that much of the work was done by in-house staff and not vetted by the consultants, **this is a book that is not to be trusted.** Ben Nighthorse Campbell, William Deverell, and Walter Nugent should be more careful in future about putting their names on a work of such questionable value. ✱

**Abraham Hoffman** reviews books for the *Water and Power Associates Newsletter*. His books include *Unwanted Mexican Americans in the Great Depression: Repatriation Pressures, 1929-1939* (University of Arizona Press) and *Vision or Villainy: Origins of the Owens Valley-Los Angeles Water Controversy* (Texas A&M University Press). He teaches history at Los Angeles Valley College.

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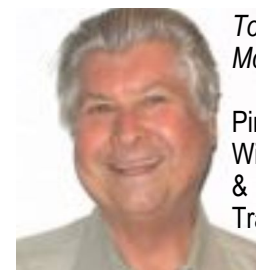
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Book Review  
Brown Acres;  
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Associates: Richard Dickinson,  
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# Pine Tree Wind Farm and Transmission System

*By Thomas J. McCarthy & Rod Opland*

Construction of a new Transmission Line that will connect the output of new wind generation to the existing Department of Water and Power system.

Located in the rugged Tehachapi Mountains within sight of the first aqueduct to feed water to the City of Los Angeles, Pine Tree is unique in that it will be the largest municipally owned as well as the largest municipally operated wind farm in the nation. Pine Tree's energy will come from 80 1.5-megawatt wind turbine generators, a new high-voltage transmission line that connects the wind energy into the DWP grid at the new Barren Ridge electrical substation – with a total estimated cost of \$425 million.

When completed in 2009, the 8,000-acre wind farm will deliver 120 megawatts of wind power to Los Angeles, enough energy to power 56,000 homes. The clean energy produced by Pine Tree will also displace at least 200,000 tons of greenhouse gas emissions – the equivalent of taking 35,000 cars off the road. It will also cut 8 tons of nitrous oxide and 11 tons of carbon monoxide.

Construction of the collector station wind turbine erection is currently underway. In May a vital part of this project, the 230kV Transmission Line, was completed with only right-of-way restoration work and testing of the fiber optics in the optical ground wire to be completed. The transmission line contract is now completed and the construction contractor, PAR Constructors, has completed all work 2 months ahead of schedule. Road constructor, Hatcreek, returned to the project to finalize the access roads and begin restoration of material lay down areas and some access roads designated as drive and crush. Final access road work consists of finish grading and drainage installation.

DWP Quality Assurance personnel witness installation of all aspects of construction including: roads, foundations, structure erection, conductor stringing, sagging, and dead ending in addition to developing correction lists prior to final acceptance. ✱



Helicopter installing pulling lines



Stringing Fiber Optic Ground Wire on Transmission Line

**The Transmission will have the following characteristics:**





## Pine Tree



Stringing Conductor Outside Wind Collector Station



Line worker with Rattle Snake

- 
- Single circuit 230 kV line 8.2 miles in length
  - Rated for 800 mega watts at 348 degrees Fahrenheit
  - Conductor – 1272 kcmil ACSS “Bittern”
  - Optical ground wire – 0.51”, 24-fiber single mode
  - Conductor insulator assemblies – Braced post assemblies
  - OPGW assemblies – AGS single Fiberlign assemblies
  - Structures (74) – Concrete, Lattice steel and steel poles
  - Foundations – Concrete poles: direct embed,
  - Foundations -Steel poles and Lattice steel: drilled shaft reinforced concrete foundations with anchor bolt cages
- 

## MEMBERSHIP



**W&PA board member, Alice Lipscomb**, was the guest of the Los Angeles County Board of Supervisors and the Los Angeles County Commission on Aging (LACCOA) at the Kenneth Hahn Hall of Administration. The occasion was the 43rd Annual Older Americans Recognition Day Awards Program sponsored by The L. A. County Board of Supervisors and LACCOA.

Lipscomb was nominated by the City of Huntington Park to receive tribute and commendations for Outstanding Community Service. She received the award on May 28, 2008 for her volunteerism in the:

- ☛ L. A. Council of Older Americans;
- ♦ Altrusa International of L.A. - 30 years;
- ♦ Good Shepherd Guild for  
Abused Women and Children -- 20 years;
- ♦ Good Shepherd Shelter for  
Homeless Women;
- ♦ Corlow University Alumni;
- ♦ Family and Consumer Affairs Association;
- ♦ Women Educators;
- ♦ St. Matthew Womens' Guild;
- ♦ World Affairs Council;
- ♦ L.A. Conservancy;
- ♦ L.A. Water and Power Association, Inc.

☛ She has also been awarded a crystal pitcher (water pitcher, of course) from the Water Replenishment District of Southern California as **Water Person of the Year**.

Alice is a Home Economist formerly with L.A. DWP and currently she teaches Cultural Studies and Health & Nutrition at several cities for L.A. Unified Schools. ✱



## REVIEW

by David J. Oliphant

**Brown Acres by Anna Sklar**

With a Master's degree in history from UCLA, and a career that included work as a news reporter, college instructor, union organizer, political writer for Tom Bradley, and public information director for the Los Angeles Public Library, Cultural Affairs Department, and for twelve years the Department of Public Works, Anna Sklar had the ideal background to write the story of the Los Angeles Sewer System. Her presentation does not disappoint.

Like the other side of an equation, in **Brown Acres**, we learn about what happens to the water story, *after* the water has been used. And, we find a number of the players of the water story were also involved in the sewer story.

We learn that Fred Eaton, who Mulholland always acknowledged as the "father of the Los Angeles Aqueduct," designed the Los Angeles sewer system.

We learn that Harvey Van Norman, assistant DWP General Manager to Mulholland, took a leave from the Water System in 1923, to build a new sewer system outfall to the ocean, and consequently was appointed City Engineer for a brief period, before returning to DWP to work on construction of the Colorado Aqueduct.

**BROWN ACRES**, An Intimate History of the Los Angeles Sewers: Angel City Press. 2118 Wilshire Blvd. #880, Santa Monica, California 90403. 310. 395-9982. 232 pages. Illustrations, Index. Paperback. \$19.95. Copyright 2008.

We learn that J.B.Lippincott (who later, while working for the United States Reclamation Bureau favored the proposed Los Angeles Aqueduct over the Owens Valley) in 1897 was asked to report on operations of the sewer system's ocean outfall, having previously designed a drop chamber for the system. Even Mulholland was involved briefly when, in 1895, he came to the public defense of City Engineer Harry Stafford, under attack because of failure to complete construction of a new sewer outfall.

History never occurs in a vacuum. It is an ongoing process with many major and minor events affecting the outcome. This presents a problem for the historian. When reporting a historical event, the question is how much should be said about related events, people, dates and times. Too little fails to tell the story and too much confuses.

In **Brown Acres**, Anna Sklar tells the story of the development of the Los Angeles sewer system. As she tells it, she does an excellent job of showing how contemporary events such as world war, the depression, political reform, the growth of the movie industry, occurring at the time of each sewer system development had a major effect on that development. In so doing, she serves a purpose beyond just telling the story. There are a number of good books covering the politics and development of

LA's water system. But the same can not be said of the sewer system. This book is the first that lays out the sewer history and shows how the personalities and events involved at the time affected each phase of that history. **Brown Acres** complements, if not completes, the water story.

Anna Sklar's book tells the history of the sewer system chronologically from the beginning faltering steps to the present time. For every step forward, it seems two steps backward were frequently taken. For example, Fred Eaton, designer of the system that was ultimately built to take the sewage to the ocean, proposed building the system using bricks, concrete and iron pipe. It was to be built with an outfall to the ocean at Santa Monica. In 1890, the voters would only approve bond funds for the interior sewer system. They saw no reason to be responsible for sewage beyond the City limits. At that point, the critics felt, sewage should be sold for fertilizer and spread on adjacent farmlands.

In 1892, probably encouraged by the strong odor of sewage in the air, a bond issue was finally passed to build the outfall. But in order to save money, John H. Dockweiler, who succeeded Eaton as City Engineer, chose to use wood stave pipes for nearly half the system instead of the recommended brick, concrete and iron. Consequently, in fairly short order the system soon leaked. Whenever the system leaked, it usually meant odors, sewage backups and street flooding. (Continued on page 11)



In **Brown Acres** a number of repeated themes feature development of the Los Angeles sewer system. One theme is that with each new sewage construction, there would be satisfactory completion followed sooner or later by failure and the inevitable odors, raw sewage in the streets and backing up into property. This was often brought on by heavy rainfall overwhelming the system and sometimes by sludge causing it to back up.

A second theme is the continuing dispute between providing an outlet to the ocean for sewage effluent or taking the effluent at the end of the sewer line and selling it for fertilizer. The latter was and is a common practice.

A third theme is the continual repair and subsequent failure of the ocean outfalls, followed by beach contamination. Pipelines through the ocean face different stresses from those on land. Tides, wave action and loss of support can cause them to break with the release of effluent in the wrong locations such as close to the shore.

Perhaps, the over-riding theme is that as the sewer system continued to develop, the population would grow even more and outstrip planned sewage capacity. The system could not be successful until the City built treatment plants of sufficient capacity that effluent treated to a secondary level was no longer harmful to the ocean and biosolids (sludge) removed at a level that avoided system back-up while making the biosolids valuable and safe as fertilizer. This required working cooperatively with the environmental, beach, and local communities to gain support and reach common goals.

The story of the sewers has come full circle. In the beginning, we drew our water from the Los Angeles river. Then we poured our sewage back into the same river. Today, areas outside the City are putting reclaimed water from the sewers back into the water system, mixing it into the groundwater table. *The difference today is that the sewer water put back into the water system has received tertiary treatment to make it potable.* Yet, local concern over its potability remains so strong that as recently as the Hahn administration, despite a completed plant ready to do so, the City of Los Angeles refused to put reclaimed water back into the Los Angeles groundwater basin.

Nonetheless, because of the ever-increasing population and lack of availability of new water sources, we need to use more reclaimed water. In **Brown Acres**, Anna Sklar covers the history behind the opposition in some detail. **Reclaimed water has been safely used for many years.** That Los Angeles is not using reclaimed water to recharge the groundwater basin, Sklar says is an outrage.

**Brown Acres** is a thorough treatment of the sewage story from start to present, thoughtfully told without an agenda, including accounting for the politics, events, and people involved, good or bad. Though more maps might have been included to illustrate the different routes actual and proposed for the main sewers, interceptors and locations of the four treatment plants, all in all the story is quite complete.

Particularly entertaining are accounts of the odder transactions involved such as the proposed agreement to ship half of the City's sludge to Puerto Quetzal in Guatemala, killed when the president of that country refused the agreement categorically despite earlier letters apparently to the contrary. From initial sewage through tertiary treatment to reclaimed water that is potable and biosolids used to fertilize farmland, sewage is being turned from a continual problem into a valuable asset. That is the **Brown Acres** story, well told. ✱

### William Mulholland Inducted Into VICA Hall of Fame

On Thursday June 12, at the Sheraton Universal the Valley Industry and Commerce Association (VICA) presented its inaugural **San Fernando Valley Business Hall of Fame Awards to the following five recipients: Daily News of Los Angeles, Bob's Big Boy, Bob Hope Airport, Voit Development Company and William Mulholland.**

Mulholland was honored for designing the Los Angeles Aqueduct that delivered water from the Owens Valley and allowed the Valley to grow into a major economic center and home to 1.8 million people. Catherine Mulholland, granddaughter, received the award on behalf of the Mulholland family.

The event was emceed by Channel 4's weatherman Fritz Coleman. Beside many government and other dignitaries present to honor Mulholland were Richard Dickinson, Abe Hoffman, Ken Downey, and Dave Oliphant from the Associates, Tom Mulholland (Catherine's nephew), Joe Ramallo, Tom Erbs, Thu Pham, and Fred Barker from the LA Department of Water and Power, Councilman Tom LaBonge, and former DWP Commissioner Dominick Rubalcava. ✱



# LAFCO ~ CALAFCO

Local Agency Formation Commission  
For The County of Los Angeles

## Objective: To Encourage the Orderly Formation of Local Government Agencies

We were joined on the tour by LAFCO board members at the nearby West Basin Municipal Water District Edward C. Little Water Recycling Center before our tour of that facility.



- ♦ **Sandor I. Winger**, Executive Officer.
- ♦ **Donald L. Dear**, Commissioner;  
West Basin Municipal Water District President.
- ♦ **Ed "Jerry" Gladbach**, Chairman of Commission;  
Water & Power Associates Board member.
- ♦ **John Kratti**, Legal Counsel.

The Commission on Metropolitan Area Problems, was appointed in 1959 by Governor Edmund G. Brown, Sr. to study and make recommendations on the "misuse of land resources" and the growing complexity of local governmental jurisdictions. The recommendations were introduced in the 1963 Legislature, and resulted in the creation of the Local Agency Formation Commissions, or "LAFCO," operating in each county except San Francisco.

LAFCOs review proposals for the formation of new local governmental agencies and for changes in the organization of existing agencies. There are 58 LAFCOs working with nearly 3,500 governmental agencies (400+ cities, and 3,000+ special districts). LAFCO decisions strive to balance the competing needs in California for efficient services, affordable housing, economic opportunity, and conservation of natural resources.

Nearly all LAFCOs are composed of 2 members from the Board of Supervisors and 2 from the city councils in that county who select a representative of the general public who is not seated on any elected body. By statute, each agency eligible to have an official seated on the Commission must contribute to the LAFCO budget. ※



Digesters



Clarifiers



Centrifuge



Centrifuge

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# Hyperion Wastewater Treatment Systems

“(From Hyperion Information Pamphlet)”

## Sources

Wastewater goes to the Hyperion Treatment Plant via the sewer system. Most of it comes from inside houses; from sinks, dishwashers, bathtubs, toilets, and washing machines. Some of the water that is treated at Hyperion comes from commercial and industrial users.

## Headworks

The first materials removed from wastewater are the most noticeable ones; like wood, sticks, plastic and rags. Bar screens let the liquid flow through, but stop the big objects.

Sedimentation tanks are then used to capture sand and other gritty solids.

Fifteen tons of these solids are removed and driven to landfills every day.

Wastewater continues to primary treatment.

## Primary Treatment

The wastewater now flows slowly through under - ground tanks that are the size of football fields (it takes one hour). Chemicals, called coagulants, are added to help solids that are suspended in the water settle to the bottom. The solids are then pumped to the digesters for further processing. Oil and grease are also skimmed off the top of the wastewater. The wastewater flows to its next level of treatment: biological/secondary treatment.

## Oxygen Reactor

Nature's tiny decomposers are now called upon to remove the organic materials that are left in the water after primary treatment. These microorganisms thrive and multiply when given plenty of oxygen and "food" (the organic solids in wastewater). Several hundred tons of microorganism are mixed with wastewater and oxygen in oxygen reactors for one to two hours. A special 'Cryogenic Air System' is used to separate oxygen from other gasses in the air and concentrate it to provide decomposers with 96% pure oxygen.

## Settling, Clarifying Tanks

Once the organic food is depleted, the secondary wastewater flows into clarifying tanks. It stays there for four hours while the biological solids - tons of microorganisms - settle to the bottom. By this time 90% of the solids in the wastewater have been removed and the effluent (treated wastewater) is clean enough to enter the Santa Monica Bay or be recycled. The biological solids that have settled to the bottom are now pumped through a separate piping system and some head to their next level of treatment: the digesters. Most are recirculated back into the oxygen reactors to continue biological treatment.

## Water Reuse

Most of the secondary treated effluent is discharged into the Santa Monica Bay through a pipeline that goes five miles out from the shore and is 190 feet deep. At this distance and depth, the water does not return to the shore. The discharged effluent has plenty of oxygen and is blended with Bay waters. About 6% of the cleaned water is pumped to a water reclamation plant where it is run through another level of treatment and used to irrigate golf courses and parks and to provide industrial water to local businesses. A small amount of water returns to Hyperion where it is used at the plant for cooling water, irrigation and chemical dilution.

## Digestion

Again, we call on Mother Nature to help us. This time to destroy the disease causing organism (pathogens) in the biosolids. The solids that were removed from primary and secondary treatment are now pumped into huge, totally enclosed, egg shaped tanks called digesters. Bacteria and other microorganisms that live without oxygen, thrive there. It takes about 15 days for these microorganisms to eat half of the biosolids, destroy the pathogens, and release a natural methane gas that has tremendous energy value.

## Dewatering

Biosolids are very watery when they leave the digesters. To lower transportation costs, we reduce the amount of water in the biosolids by sending them through a centrifuge. It acts like the spin cycle of a washing machine and removes one-fourth of the water. The biosolids now have the consistency of toothpaste and are ready for transportation to their beneficial reuse location.

## Energy Recovery

Methane gas that is produced during digestion is captured and piped to a nearby power plant. In exchange for the gas, Hyperion purchases power from the power plant at a reduce price. In sense, Hyperion is now powered by its own biosolids! ※

## WATER AND POWER ASSOCIATES, INC.

[www.waterandpower.org](http://www.waterandpower.org)

Water and Power Associates, Inc.  
is a non profit, independent, private organization  
incorporated in 1971  
for informing and educating  
its members, public officials and the general public on  
critical water and energy issues  
affecting the citizens of Los Angeles,  
of Southern California, and of the State of California.