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To inspire wonder and discovery of the cultural and natural history of San Mateo County.

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Cover: Building Crystal Springs Dam, c. 1888.

San Mateo County and San Francisco's Search for Water

by Mitchell P. Postel



Pilarcitos Lake in 1926. Photo by George Fanning for the San Mateo County Chamber of Commerce, SMCHA Collection.

San Mateo County has made substantial contributions to the development of California and the West. Its role as a provider of resources for the City of San Francisco after the Gold Rush was of particular significance. Lumber, farm products, shell fish, and much more came from the City's neighbor. While they were important, San Francisco could have survived without these commodities, but it could not have survived without San Mateo County water.

That San Francisco is a poor site for a city comes as no historical surprise. When the Spanish placed the Mission and Presidio at the tip of the Peninsula, they did so for military and strategic purposes, but for most every other reason, this was a terrible location. The soil was too sandy and the climate too damp for the type of agriculture the padres wanted to pursue. There was a lack of wood. Most of the natives of the Peninsula (who would be targets for Christianization) lived south of present-day San Francisco, where the weather was dry and warm. Last, but certainly not least, there existed little fresh water.¹

Early on, the missionaries understood the shortcomings of the place. In 1785, they felt it necessary to establish a far-removed agricultural outpost in the San Pedro Valley (today's Pacifica).² Within a year and a half this successful farm had as many people living and working at it as were at the Mission in San Francisco. Within another few years the outpost was largely abandoned. Traditionally, scholars blamed disease among the neophytes, but there is the possibility that the outpost was scaled back for political reasons. The size and scope of this San Pedro settlement made it comparable to the initiation of a proper mission. The Franciscan fathers in Spain did not approve this enterprise, and the San Pedro experiment may have mostly closed as part of a power struggle. With its closure the fathers, out of necessity, established other outposts down the Peninsula. Most prominent among this group was the one at San Mateo.³

At the time of the American takeover of California, in 1846, brackish water (probably deemed undrinkable by today's standards) was adequate for the little village of Yerba Buena, which had about 450 residents. However, the situation changed rapidly in 1849 when the Gold Rush began. By 1860 the now City of San Francisco had become the most important urban center in the West, with a population of 78,000.

Early residents universally agreed that lack of water was the City's greatest resource problem. Between just two years, 1850 and 1852, San Francisco experienced six terribly destructive fires with staggering financial losses.

Citizens found that even drinking water was difficult to obtain. Enterprising entrepreneurs barged in water from Marin County and sold the precious liquid by the barrel.⁴ Water peddlers then distributed the water on regularized routes throughout the City. Some peddlers strapped barrels to the backs of donkeys and sold water by the bucket. One source has noted that during shortages, buckets of water sold for a gold dollar each.⁵

Recognizing the possibilities for profit, several entrepreneurs formed the Mountain Lake Water Company in 1851 to bring water into town from the Presidio. The competing Bensley Company was organized in 1856. Under the direction of Engineer Alexei Waldemar von Schmidt, John Bensley dammed the mouth of Lobos Creek in the San Francisco hills, bringing a supply of 2,000,000 gallons a day into the City by flume and tunnel.

In 1858, George H. Ensign created yet another company – the Spring Valley Water Company. Its chief source of supply was a single spring near Portsmouth Square, with a capacity of no more than 5,000 gallons a day.

The Bensley Company was clearly the most important water provider for San Francisco during the first decade following the Gold Rush, but in 1860 von Schmidt had a falling-out with the owners. He left Bensley to become chief engineer, and leading stockholder, in the smaller Spring Valley Water Company. It was von Schmidt's idea to look south, to newly constituted San Mateo County, for future sources of water.

He picked Pilarcitos Creek as the site for a dam to create the first out-of-town watershed for San Francisco. He made this choice for some good reasons. Although the watershed here is only half a square mile, it has the greatest rainfall on the Peninsula – forty-nine inches a year. It is also high, at an elevation of 1,875 feet, giving it rapid flow by gravity feed to the City.

Von Schmidt finished construction of a preliminary system in 1862 and began delivering San Mateo County water that same year.

In 1864, von Schmidt left the Spring Valley Water Company, and Calvin Brown became chief engineer. On October 8th of that year he made perhaps his most memorable decision when he hired Hermann Schussler as his assistant at fifty dollars a month.⁶

The twenty-one-year-old immigrant from Zurich spoke little English and arrived in San Francisco riding a horse, with little more than a carpetbag containing personal belongings. However, Schussler was schooled in Switzerland and had already gained engineering experience. His first assignment was to assist in a

WATEN NO 1584 San Francisco, Jule Lab. 1869 집 Market Street Spring Walley Water Works, from July L to August 1 Mercivel Payment Springs Valley Water Works bill for \$4 from July 1869.



Camp at the Pilarcitos Dam and Reservoir, Winter 1867-68. SMCHA Collection, courtesy San Francisco Public Utilities Commission.

second Pilarcitos dam project.

Meanwhile, Spring Valley's great rival, the Bensley Company, was experiencing difficulties with its water supply. Soil had eroded into its Lobos Creek reservoir, and customers began complaining about muddy water. Not long after that, Bensley was caught tapping into a Spring Valley main. The Bensley Company failed soon thereafter, leaving Spring Valley as the sole water supplier for the City.⁷

In May of 1866 Schussler became chief engineer. A year later he completed the Pilarcitos main dam at a height of seventy feet. At that time it was one of the world's tallest earthen dams, capturing 600 million gallons of water. Beginning with this project, Schussler made it a policy to purchase not just the reservoir site but the surrounding watershed as well. He would thus guarantee two things for the Spring Valley Water Company. First, using the Bensley Company's unfortunate experience as an example to be avoided, the Company would control the purity of its water supply. Second, as land values increased, the company would possess considerable holdings of valuable property.

To finish the Pilarcitos story, in 1875 Schussler raised

the dam one more time, to ninety-five feet, giving the reservoir a capacity of one billion gallons.

He built nearby Stone Dam between 1870 and 1871 as part of the larger San Andreas project. The dam is built of rubble masonry on granite blocks quarried below the dam site. It is a thin arch dam, a pioneer example of this kind of construction. Its reservoir has a capacity of about five million gallons.

Schussler's objective in building the Pilarcitos and Stone Dams was singular: to divert water from Pilarcitos Creek, which flowed to the coast at Half Moon Bay, and send it to San Francisco instead. As part of this effort he set pressure pipe through a tunnel from Pilarcitos to the San Andreas Dam. The project was begun in 1868 and went 3,400 feet. Few projects like it had ever been accomplished before. This established his reputation as an expert in that field as well as dam building.⁸

In 1868, Schussler constructed the earthen dam that created San Andreas Lake. In 1877, Upper Crystal Springs Lake was similarly formed. In order to obtain the watershed areas, the Company enlisted the aid of the courts to condemn farmlands and other properties, at times for only ten percent of their real value. In



The arched Stone Dam is located south of Pilarcitos Lake. SMCHA Collection, courtesy San Francisco Public Utilities Commission.

1879, even the small town of Searsville was condemned for the formation of a reservoir that was never really needed.

Schussler's greatest engineering achievement, and the crown jewel of all the projects for the Spring Valley Water Company, was the building of Crystal Springs Dam between 1887 and 1890.⁹ He built this 150-foothigh concrete dam with interlocking concrete blocks; it was the largest of its kind in the world. In order that it be constructed, the resort community of Crystal Springs, many farms, and the old Half Moon Bay Road had to be flooded. By the turn of the century, the Spring Valley Water Company owned 20,000 acres of Peninsula watershed, from south San Mateo County to San Francisco.

Through the years, "The Company" – as the monopoly controlling San Francisco's water supply was known – became the subject of much financial speculation and political debate. In one of The Company's more infamous moments, William Ralston and Charles Felton bought it in 1875. The two hoped to sell the holdings of The Company to the City at a huge profit in order to recoup on losses sustained at their Bank of California. Of course the City did not accept the offer. Ralston was then fired from his position as president of the bank. His body was found floating in the Bay the next day – perhaps a swimming accident, perhaps a suicide.¹⁰

In 1900, as the water needs of San Francisco continued to grow, it remained the last major city in America to have its water supply owned by a private company. Therefore its citizens adopted a new City Charter that allowed the municipal government to make provisions for a city-owned supply. Targeted was the Hetch Hetchy Valley in Yosemite National Park. San Francisco's leaders were further motivated to create a new water system after the 1906 earthquake and fire. The Company's infrastructure proved inadequate in dealing with the disaster.

A rising conservation movement, led by John Muir, opposed the City's Yosemite plan. A thirteen-year political battle raged, but in 1913 President Woodrow Wilson signed into law the Raker Act, making the project possible. John Muir died a few months later, some say of a broken heart.¹¹

The citizens of San Francisco then agreed to spend many millions of dollars. An initial \$45,600,000 bond issue was passed to begin the construction. In another significant bond campaign, voters agreed to pay \$41,000,000 to purchase the properties of the Spring Valley Water Company. The City took over all of the properties on March 3, 1930.¹²



Herman Schussler on Crystal Springs Dam, March 1919. SMCHA Collection, courtesy of the San Francisco Water Department.

By this time William Bourn, one of California's great capitalists, owned The Company. Born in San Francisco in 1857, he had inherited the failing Empire Gold Mine in Grass Valley and was able to revive its profitability. During the 1890s, he invested in several gas companies, selling them off at tremendous profit to the emerging Pacific Gas and Electric Company. With this capital, he began to explore the possibility of buying the Spring Valley Water Company. The Company's holdings and reputation had been severely damaged by the Great Earthquake and Fire. During the financial panic of 1907-8, Bourn purchased the real estate, equipment, and improvements of The Company in its entirety, and reportedly came away with a bargain. By August 1908, he was president of the Spring Valley Water Company. His one great goal was to sell it to the City, an objective he achieved on March 30, 1930, for \$41,000,000. In the meantime, for twenty-two years Bourn had to struggle with politicians, attorneys, engineers, and the electorate of the City.13

During this period, Bourn had time for beauty. He paid \$90,000 for 700 acres south of his Upper Crystal Springs property. On his land, in 1915, he had the renowned architect Willis Polk design a wonderful home, which Bourn called Filoli after his personal motto, "Fight, Love, Live." By September 1917, his family was residing there.¹⁴ Bourn died only six years after he sold the water company, and is buried at Filoli with his wife, son and daughter.

Michael Maurice O'Shaughnessy, the head city engineer hired by Mayor "Sunny Jim" Rolph, led the City's construction effort for the Hetch Hetchy project. Rolph told the Dublin-educated civil servant: "You answer only to me," giving him wide flexibility in getting the huge job done. Around town, O'Shaughnessy became known as "The Chief."¹⁵

O'Shaughnessy had considerable engineering difficulties to overcome, including building in mountains, valleys, and through hills. There were also historic economic problems to contend with. Because of World War I, costs of construction grew an unexpected seventy-five percent from the 1913 estimates. During the Great Depression, which began in 1929, there were various setbacks because of a lack of adequate funding.

Nevertheless, the project, which called for the damming of Hetch Hetchy Valley and bringing water across the width of California to be stored in lakes built by the old Spring Valley Water Company, was successfully accomplished. One of the first steps was to build a railroad, sixty-eight miles long, to haul cement, supplies, and personnel to construction sites for dams and powerhouses. The City also established sawmills to produce some twenty-seven million board feet of lumber. Perhaps the greatest feat of the City's workers was the creation of a 28.5-mile-long tunnel through the Coast Range.¹⁶

In 1932, in a sweeping political move, San Francisco voters approved a new City Charter that allowed for the creation of its Public Utilities Commission. At this point O'Shaughnessy was given the title of consulting engineer; but in reality he had lost political favor and had been removed from the project just as it was nearing completion.¹⁷ On October 12, 1934, O'Shaughnessy died. Only twelve days later, on October 24, the first Hetch Hetchy water flowed through the Pulgas Water Temple, which had been built to celebrate the occasion, for use by the citizens of San Francisco and the Peninsula.

In the end, the project took twenty-one years to complete and had required almost \$120 million. The Coast Range tunnel by itself had cost \$28 million and twelve lives. Altogether, eighty-nine men perished in finishing the project. Water was then able to travel



First water flowing through the Pulgas Water Temple, 1934. Photo by Robert H. Caldwell.

150 miles by gravity feed, across the Central Valley, through the tunnel, and under the Bay, ending up at the Water Temple. Hetch Hetchy allowed the City and the Peninsula a capacity of 400 million gallons a day, some ten times that of the old Spring Valley Water Company. The bonus was that the San Francisco Water Department, a public agency, acquired a beautiful 20,000-acre watershed. Ironically, this project that John Muir so clearly opposed resulted in conservation of a spectacular open space only minutes from busy urban centers.¹⁸

Mitchell P. Postel

Mitchell P. Postel has been the Executive Director/President of the San Mateo County Historical Association since 1984. He taught history at the College of San Mateo and is a frequent speaker on San Mateo County history. Postel is a member of the San Mateo County Historic Resources Advisory Board and the Secretary of the San Mateo County Visitors and Convention Bureau. He is the author of seven books on local history.

This article is adapted from his presentation to the San Francisco Corral of The Westerners at the Pilarcitos Lake picnic grounds, San Mateo County, on April 4, 1991.

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² Stephen A. Dietz, Report of Archaeological Investigations at Sanchez Adobe Park Historic District, Archaeological Consulting and Research Services, Inc., Santa Cruz, California, August 1979, pp. 23-24.

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⁴ Edward F. O'Day, Editor, San Francisco Water, Spring Valley Water Company, San Francisco, Vol. 1, No. 3, July 1922, p. 12.
⁵ San Francisco Water and Power: A History of the Municipal Water Department and Hetch Hetchy System, San Francisco, City and County, Third Printing, 1994, p. 8.

⁶ George A. Elliott, Vice President and Chief Engineer, *San Francisco Water*, Spring Valley Water Company, San Francisco, Vol. V, No. 1, January, 1926, p. 30.

⁷ Edward F. O'Day, Editor, *San Francisco Water*, Spring Valley Water Company, San Francisco, Vol. 1, No. 4, October 1922, p. 12.

⁸ Gary M. O'Neill, "Hermann Schussler and the Spring Valley Water System," *La Peninsula*, Vol. XXVI, No. 2, August 1990, San Mateo County Historical Association, pp. 5-7.

⁹ Alan Hynding, *From Frontier to Suburb: The Story of the San Mateo Peninsula*, Star Publishing Company, Belmont, California, 1982, p. 76.

¹⁰ *Ibid*., p. 77.

¹¹ James J. Rawls, Walton Bean, *California: An Interpretive History*, McGraw Hill, New York, Ninth Edition, 2008, p. 309.
¹² Stanger, South, p. 185.

¹³ Donald P. Ringler and George Rossi AIA, *Filoli*, private printing, Hillsborough, CA, 1978, pp. 6-7.

⁴ *Ibid*., p. 10.

¹⁵ San Francisco Water and Power, p. 29.

¹⁶ *Ibid.*, p. 41.

¹⁷ *Ibid.*, p. 42.

¹⁸ Hynding, *Frontier*, p. 265.



William Bowers Bourn II:

President of Spring Valley Water Company and Builder of Filoli

by Joanne Garrison

By the time 51-year old William Bourn became president and controlling shareholder of the Spring Valley Water Company in 1908, he was already a wealthy man. He didn't need another business. However, the company, which was by then the sole supplier of water to San Francisco, was in trouble. Since its incorporation in 1858, the Spring Valley Water Company had been buying watersheds, building reservoirs, and laying pipes-in short, the company controlled the water supply and the means of delivering it to San Francisco. However, due to an old agreement between the City and Spring Valley, the company gave San Francisco the right to set the water rates in exchange for the company's right to lay pipe under city streets.¹ Conflicts arose frequently as the company often wanted to charge higher rates than the city would allow.

After the 1906 earthquake, for instance, much of the company's infrastructure had been damaged and was in need of repair, but the City would only allow a 4 percent profit. The company's president, Captain Albert Payson, a friend of Bourn's and a prominent resident of San Mateo, was thoroughly discouraged and wanted to sell the company to the City of San Francisco for \$32 million.² Bourn thought the price was way too low and he rushed into action. Whether he got involved to save Payson and their fellow shareholders, to save the water supply of San Francisco, or to try to make a quick profit—or some combination of the three—is up to debate.

A little over a year after Bourn assumed the position of president of Spring Valley, he began to understand Payson's frustration at running the company. Now it was Bourn who became so disgusted at the City's failure to be reasonable about raising water rates that Bourn offered to sell the company to the City.³ Bourn's price—\$35 million—was \$3 million higher than what Payson wanted to offer only two years before, but Bourn thought that the \$35 million price was still a bargain given the size of the company's infrastructure and landholdings. At the time, Spring Valley owned a watershed of 128 square miles spread out over five counties (Alameda, San Benito, Santa Clara, San Mateo and San Francisco) as well as the pipes and pump stations to move the water collected in that watershed. However, the City refused Bourn's offer and continued to proceed on a parallel path to secure water for its current and future residents.

For the next 21 years, Bourn and the City of San Francisco engaged in a chess match over who would supply the City's water and at what price-would a private company or public entity ultimately provide water to future generations of San Franciscans? At the turn of the 20th century, San Francisco was one of the last remaining major U.S. cities that did not have a municipal water supply. Around 1901 the City began plans to dam the Tuolumne River and flood Hetch Hetchy Valley to provide for its future needs. By 1910 the idea "had developed sufficiently to warrant consideration by the secretary of the interior."⁴ Bourn fought this project, along with many other people, including conservationists such as John Muir. The City felt that Hetch Hetchy was necessary to provide the water San Francisco needed to grow. Of course, water coming from Hetch Hetchy would also break the monopoly that Spring Valley Water enjoyed. Bourn hired eminent engineers who concluded that there was no need for the City to dam the Tuolumne, as Spring Valley, with its current resources, could provide the

San Francisco with water through 1950 and possibly beyond.⁵ Nevertheless, the City moved forward with its Hetch Hetchy plans.

In May of 1913, just months before President Wilson signed the Raker Act giving the go-ahead to dam the Tuolomne, Bourn made another attempt to sell Spring Valley to the City. He described to city leaders in great detail the complexities of his company's assets, including dams, reservoirs, pipes and conduits (including ones under the Bay to bring the water from the Livermore and Sunol Valleys to the Peninsula), pumping stations and the like. The lengthy description of assets was designed to make "it clear to the supervisors that both labor and materials for a water system were expensive and required ingenuity to conceive and build."6 All of this infrastructure would be necessary for the City to either purchase or recreate in order to bring water from Hetch Hetchy to San Francisco. Bourn then offered a new price for his company: \$50 million. It was rejected out of hand. Some felt Bourn was overplaying his hand. The City hinted that it might obtain Spring Valley Water Company by means of a condemnation lawsuit, if need be. Bourn countered that a judge might value the company at anywhere from \$40 to \$50 million and suggested that the City would be hard pressed to obtain approval from its voters for a bond in that amount.7 And so the chess game continued while the city and Spring Valley Water Company proceeded on parallel paths to obtain water for San Franciscans.

In the meantime, Bourn and his family continued a luxurious life, due mostly to the proceeds from the family gold mine that Bourn had inherited and revived in the 1880s. In January 1875, 17-year-old Bourn had left his home on Nob Hill to begin college at Cambridge University in England. Just three years later, however, his mother Sarah summoned him home before he could complete his prestigious degree. She needed him to come home to assume responsibility for the family's finances that were in serious trouble after the death of Bourn's father.⁸ The family had multiple investments in multiple businesses, but the cash cow up to that



William Bowers Bourn II. Courtesy Filoli Archives.

date had been the Empire Gold Mine in Grass Valley, California. Now the mine sat idle, after three separate outside mining engineers said it was spent and that there was no future in continuing the operation.

Twenty-one year old William refused to take "no" for an answer. He reorganized the company and raised new capital (in part, from his mother who mortgaged her Napa Valley property Madrono). His answer to the lack of gold was to dig deeper. He hired his cousin George Starr and together they met numerous challenges at the mine. They made improvement after improvement to processes for obtaining gold from quartz rock. Over the next 40 years, until Bourn finally sold all his interest in the mine in 1929, the Empire Mine would continue to provide the bulk of the Bourn family's income.⁹

By 1910, Bourn had obtained the financial security that had been so elusive in the years following his father's untimely death. Now his last remaining challenge was to help launch his only child Maud into adulthood. In March of 1910, Maud, who was then 26, married Arthur Rose Vincent at St. Matthew's Episcopal Church in San Mateo. The wedding reception was held at Skyfarm, (current site of Nueva School), which the Bourns had rented so he could keep a closer eye on Spring Valley Water Company business and be closer to the social whirl of the Burlingame Country Club. Maud had met Arthur Vincent, an Irish lawyer, in 1906 on board a ship while crossing the Atlantic on one of the Bourn family's numerous "Grand Tours" to Europe and Egypt. When the couple returned from their long honeymoon abroad, they were surprised to learn that Bourn, apparently without their input, had purchased the Muckross Estate in County Kerry, Ireland, to be the newlyweds' home. Built in the 1840s, the estate consisted of 11,000 acres and a 100-room Elizabethan mansion. Bourn also promised the couple a yearly expense account of \$25,000, in addition to paying the estimated annual cost of running the estate (\$65,000).¹⁰ Unlike many other American heiresses who married British nobility and moved into great manor houses, Muckross wasn't in England and it did not come with a title of "Lady" for Maud, but it would have to do. In 1911. Maud was presented to the Court of St. James. an indication of the elevated social status she had recently obtained.

Like many other second generation wealthy Californians (such as the Kohls, the Carolans and the Crockers), the Bourns began purchasing property for a grand home on the Peninsula in 1914. As he had with several other building projects (e.g. his San Francisco home on 2550 Webster, his cottage at the Empire Mine and the clubhouse for the Pacific-Union Club) Bourn turned to his friend, Willis Polk, as his architect. The Bourns' Peninsula home, which they called Filoli (derived from the first two letters of Bourn's motto, "Fight, Love, Live"), was completed in September 1917.

Bourn turned 60 in 1917. He and his wife Agnes thoroughly enjoyed living and entertaining at Filoli for five full years. However, in 1921, the man who had met so many challenges in his life, including bringing his father's gold mine back to life and helping create a modern city in San Francisco with beautiful architecture and ample supplies of gas, electricity and water, finally met a challenge he could not overcome. In the summer of that year, at the age of 64 he suffered a debilitating stroke. For the next 15 years, William continued to suffer a series of strokes.

After Bourn turned 70, in preparation for the inevitable, he began putting his financial house in order and started selling off his far-flung assets. On February 1, 1929, the City of San Francisco finally agreed to buy Spring Valley for a price of \$41 million. Just 11 days after he reached this agreement, his only daughter Maud died, having developed a severe case of pneumonia crossing the Atlantic on her way to see her ailing father. Broken-hearted and frail, Bourn survived another seven years. He died on July 5, 1936, just six months after his wife Agnes. He was buried at the family plot at Filoli, near his daughter Maud, his wife Agnes and a son who died in infancy. At his death, the newspaper San Francisco Argonaut noted that his "career was a record of the building of the West, coinciding in its successive phases with the change of San Francisco from a mining center to a metropolis... In his passing, California has lost one of the foremost of her builder sons."11

Joanne Garrison

Joanne Garrison is a board member of the Burlingame Historical Society and author of the book, *Burlingame Centennial:* 1908-2008.

Endnotes

 ¹ Ferol Egan, Last Bonanza Kings, the Bourns of San Francisco, University of Reno Press, Reno, Nevada, 1998, p. 168.
² Ibid., p. 166.
³ Ibid., p. 178.

- ⁴ Ibid., p. 179.
- ⁵ *Ibid.*, pp. 184-185.
- ⁶ *Ibid.*, p. 190.
- ⁷ Ibid., pp. 190-191.

⁸ *Ibid.*, pp. 72-74. Six months before Bourn had left for Cambridge his father was found dead on the bathroom floor at their home at 1105 Taylor in San Francisco from a gunshot wound to the stomach. Despite newspaper headlines that blared "Shocking Suicide of a Noted Capitalist," his colleagues felt that no man commits suicide by shooting himself in the stomach. They speculated that Bourn Sr. had fumbled his pistol and it went off accidentally.

⁹ Now a state park, by the time the Empire Mine closed in 1956, the mine would earn the reputation as "one of the largest, richest and longest-operating (1850-1956) gold mines in California, producing more than eight billion dollars in gold by today's standards."

- 10 Egan, pp. 180-183.
- 11 Ibid., p. 252.

Images of Building Crystal Springs Dam





The Dam

Construction of the Crystal Springs Dam began in 1887. Falsework was constructed to support the dam during construction. Top: View looking west. Bottom: View looking east.





Construction

Due to the large dimensions of the dam, Hermann Schussler designed it to be built in concrete blocks that measured forty feet long, eight feet high, and thirty feet wide. Blocks were alternated when put in place, and the spaces between them filled in with concrete afterwards in order to lessen the effect of shrinkage.

Top and left: General construction overview, 1888. Right: Hand excavation to key dam into canyon walls.









Construction

Top: Workers prepared finished blocks prior to filling the concrete into the space for the remaining blocks.

Right: Steam stacks indicate the boilers needed for operating rock crushers during construction.

Left: Workers at the gate valve on the 44-inch outlet line.



The Management and the Workers

Top: Among his business interests, Antoine Borel (back row, far left) had shares in the Spring Valley Water Company. Hermann Schussler (top row, second to the left) served as the chief engineer of the Spring Valley Water Company during the construction of the Crystal Springs Dam.

Bottom: Many of the workers employed to build the dam were Irish immigrants.



Visiting the Construction Site

Redwood City photographer James Van Court recorded local residents visiting Crystal Springs Dam. Apparently, the visitors were allowed to wander the construction site. Top left: Visitors in center of picture.



Pipes

The Spring Valley Water Company laying water pipes, c. 1888. Top left: Workers dug ditches at a rate of 1,000 feet per day along El Camino Real in San Mateo. Top right: Digging trench with plow and mules for 44-inch line on El Camino Real near San Mateo. Bottom left: Blasting hard ground on the Old Country Road near Belmont. Bottom right: Laying 44-inch water main along El Camino Real in San Mateo.



Peninsula at War! San Mateo County's World War II Legacy



Discover *Peninsula at War! San Mateo County's World War II Legacy*, on exhibit at the San Mateo County History Museum (December 7, 2016 - February 4, 2019). Through artifacts, images and oral histories, the exhibit explores the contributions of local service people and highlights home front activities.

Your Country Needs You! Posters of World War II



During World War II, posters became a means to motivate American participation in the war effort. Your Country Needs You! Posters of Worlds War II, on exhibit at the San Mateo County History Museum Rotunda (April 24 - September 30, 2018) features 12 posters emphasizing the need to fight and sacrifice.

Dr. Stanger Legacy Society



Dr. Stanger at Millbrae excavation site, 1944.

Dr. Frank Stanger was the first executive director of the San Mateo County Historical Association. Among his accomplishments, he opened the organization's first museum and started publishing *La Peninsula*.

Some of our thoughtful supporters have joined the Dr. Stanger Legacy Society by including the Association in their wills or trusts. Their gifts, and yours should you choose to join them, help us preserve and interpret the history of San Mateo County.

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