

*Purchasing the properties enabled the District to provide a reliable source of water, initially stored in high-country reservoirs and then transported to the foothills.*



## CHAPTER 5

# Securing a Water Supply from the High Sierra



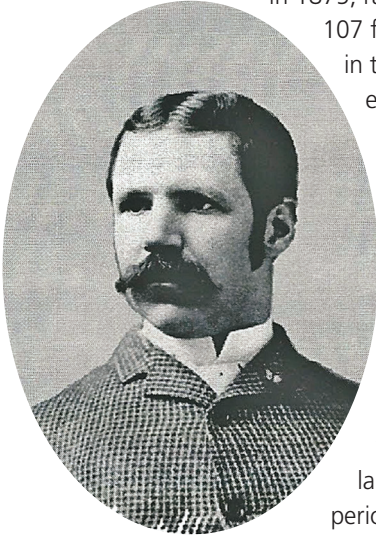
**It didn't take long to put the financing to good use.** The central focus was on securing a water supply in the high Sierra Nevada. But the new District had competition for the vital source of mountain snowmelt and the infrastructure needed to transport the water to the lower elevations. For example, Wisker and the NID Board were well aware that PG&E was making offers to buy Sierra holdings. The utility had hoped to control the market on hydroelectricity, and then sell the water to the San Francisco Spring Valley Water Company, a private company that held a monopoly on water rights in San Francisco from 1860 to 1930.

Local families enjoy the natural surroundings at Bowman in 1897.

The series of many lakes in what's known as the Bowman corridor today was especially enticing to NID. French Lake, at an elevation of 6,835 feet, is part of that series of lakes, including Bowman Lake, Sawmill Lake, and Faucherie Lake to the northwest. French Lake was a natural montane lake of great depth that was harnessed by a rock-filled dam first constructed in 1859 at the headwaters of Canyon Creek. Not far away, as the crow flies, the Faucherie Reservoir, also originally a natural lake, was raised by a dam to an area of 90 acres and of 8.8 million cubic feet (202 acre-feet) by the Eureka Lake Company.

Bowman Reservoir, at an elevation of 5,500 feet, is located about 23 miles northeast of Nevada City. The reservoir was named for James. F. Bowman, a native of Scotland. The dam was 65 feet high in 1875, raised to 85 feet in 1876 and then

107 feet, making it the highest dam in the world until 1888. In 1880, an engineering camp was established at Bowman Lake "with a large crew engaged in surveying the big water and power project it has undertaken. The company, a subsidiary of the Ayer interests, plans an immense hydroelectric development in this region and also the distribution of water to a large area of agricultural land," noted the *Electrical West* periodical, Volume 47, published in July 1921.



William Bourn II owned the Empire Mine in Grass Valley.

Spaulding Dam, owned and operated by PG&E, featured a 275-foot-high dam, which was designed by John Ripley Freeman and completed in 1913 to impound the South Fork of the Yuba River, which originates near Donner Pass. At the time of construction, it was the highest dam in California, and one of 10 PG&E hydroelectric facilities.

In 1924, Lardner noted: "Nevada County in pioneer days boasted the largest and most expensive ditch system in California; today, with the Excelsior Water and Power Company, the Pacific Gas & Electric Company and the Nevada Irrigation District in the field for control of all the

unharnessed water for power and irrigation, it looks as if Nevada County is coming back to its own and may claim to be the greatest county for power and water in the State."

With a bright future, the District was about to make some bold moves. At the time, the private mining companies' activities were dwindling, and many were going bankrupt. Yet PG&E and NID understood the new "gold" in the Sierra was water supply. PG&E's intention was to bring water from the Middle Yuba River to the South Yuba River through Spaulding Reservoir and then down the Bear River to the massive powerhouses the utility had planned. PG&E wanted control of most, if not all, water going to Nevada and Placer counties, according to Les Nicholson, former NID Hydroelectric Manager: "Some of the arguments between NID and PG&E were pretty ruthless, because both were seeking equal footing."

For years Bowman Reservoir was valued as a prominent site for a substantial storage reservoir. At one time it had been the property of W.B. Bourn interests of San Francisco. William Bowers Bourn II was one of the San Francisco elite, who had inherited and operated the Empire Mine in Grass Valley, one of the oldest, deepest, and richest gold mines in California. The mine extracted 5.8 million ounces of gold before it closed in 1956. Bourn also controlled the San Francisco Gas Company, and was an investor in Spring Valley Water Company, which later merged into PG&E.

Importantly to NID, Bourn owned the water rights to reservoirs and ditches that were part of the Northern Water and Power Company. This included the Bowman Reservoir built in 1876, at less than one-third the size it is today, and the North Bloomfield Canal, the artery that conveyed water to Malakoff Diggins.

In the early 1920s, PG&E offered \$1 million in stocks and bonds to purchase these high Sierra water properties, infrastructure and water rights from Bourn. However, the magnate felt that someday hydraulic mining would come back, and he would need the canal to supply water to his mining operations. As a result, he declined the \$1 million offer from PG&E.

The early English Reservoir featured a wooden dam face.





When Wisker, who knew and had worked for the Bourn empire, learned that PG&E had made an offer, he sensed an opportunity. The NID manager traveled to San Francisco to meet personally with Bourn to discuss the properties and infrastructure that were key to securing a water supply for the foothill farmers and ranchers, the new NID customers.

In a 1956 interview, Wisker recalled the conversation with Bourn. Wisker said, "I understand you may want to rid yourself of the upper properties." Bourn replied, "I've been made a very lucrative offer, but the North Bloomfield Canal ... what would you do with the North Bloomfield ditch?"

Wisker replied with a twinkle in his eye, "Why, I'd give it to you. The canal, pit and mining would be yours. All I want is the water rights and the reservoirs upstream. I'll sign whatever documents to ensure that forever you will have water for that gravel operation."

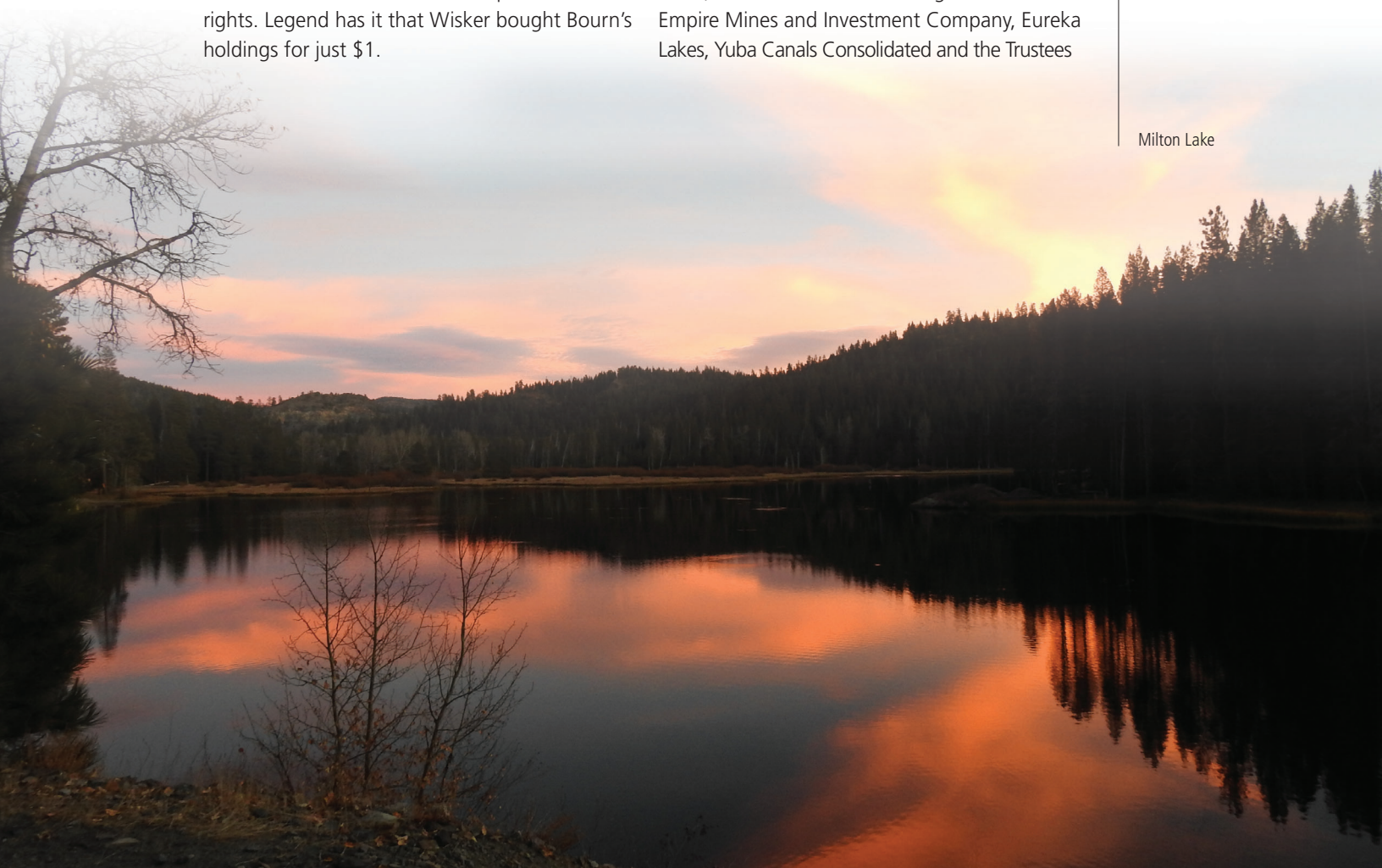
It was an offer that Bourn couldn't refuse. On behalf of NID, Wisker purchased the holdings that included all of the North Bloomfield dams, reservoirs and canals with all the pre-1914 water rights. Legend has it that Wisker bought Bourn's holdings for just \$1.

In the 1956 interview, Wisker expressed special pride in having acquired numerous valuable properties that would later become a key part of a water supply agreement between NID and PG&E that would finance development of much of the District's public water system.

As he looked back, Wisker recalled a conversation with Sam Eastman, who served for years as William Bourn's business manager: "That's the only time in my life that I ever knew Bill Bourn to make a business blunder," Wisker recalled Eastman as saying. "Bill should have accepted that million dollars, because he has never done anything with the hydraulic mining properties."

With the acquisition of the Bloomfield ditch by NID, Bourn could not get water to his mining interests on the San Juan Ridge. Bourn negotiated with NID to acquire the Bloomfield Ditch and terms for a water supply to the ditch for his mining interests and agreed to transfer to NID all rights to French, Faucherie and his interest in mountain lakes that fed them along with real estate relative to English (Rudyard) reservoir. From the Board of Directors meeting on December 17, 1925, the minutes read: "NID signs contract with Empire Mines and Investment Company, Eureka Lakes, Yuba Canals Consolidated and the Trustees

Milton Lake







Bowman Reservoir was drained during construction, December 1925.

of Summit Water and Irrigation Company. District offers to furnish to said Empire Mines and Investment Company 'free of charge for the years 1926, 1927 and 1928, water through the Bloomfield Canal for mining purposes.'" On February 13, 1926, the District acquired the deed to French, Sawmill and Faucherie reservoirs and the English properties from Empire Mines and Investment Company.

In 1925 NID also acquired the Excelsior Water and Power Company system, a vital link to bring water from the High Sierra to customers in the foothills. Originally a small ditch company that began operations in the mid-1850s as the Excelsior Canal Company in Smartsville, it expanded via mergers to become a powerful mining and water company. Excelsior had incorporated all water claims and ditch companies south of the South Yuba River, except those of the South Yuba Canal Company. Excelsior Water and Mining Company (name change in 1877) supplied the entire mining district from Nevada City to the edge of the Sacramento Valley "bountifully" with water, "the great secret underlying the profit" of these mines, according to the U.S. Mining Commissioner.

An additional purchase in 1925 included the Deer Creek water system from PG&E, consisting of water rights on Deer Creek and water distribution infrastructure in the form of canals, ditches, flumes and siphons.

The series of purchases of high-country reservoirs and delivery conduits, as well as securing vital water rights, gave NID control of some of the most valuable water storage infrastructure of the time. Purchasing the properties enabled the District to provide a reliable source of water,

initially stored in high country reservoirs and then transported to the foothills.

Starting at French Lake, water flows 1.2 miles northwest below the dam via Canyon Creek, where it enters Faucherie Lake. Then, 1.4 miles further northwest, it enters Sawmill Lake before continuing another mile to the northwest and entering the largest of the four reservoirs, Bowman Lake. Canyon Creek then proceeds to plunge nearly 3,000 feet in elevation in just 9.1 miles through a steep canyon before its mouth at the South Yuba River at an elevation of 2,800 feet, just 2.6 miles due east of the town of Washington.

In order to transport the water from these newly acquired assets to NID's service area and to PG&E's Drum-Spaulding facilities, the Milton Diversion Dam, Milton-Bowman Tunnel and the Bowman-Spaulding Canal needed to be constructed. 1926 was a busy year: Construction began on the Bowman-Spaulding Canal; NID purchased the Parker Reservoir site on the Bear River and also the Tarr Ditch and its water rights. Construction projects were under way at Bowman, Milton, Lower Scotts Flat and Combie.

### Bowman Dam is raised

Bowman Dam (elevation 5,500 feet) is located about 40 miles northeast of Nevada City. The dam was California's second rockfill dam, built in 1872 to supply water for hydraulic mining, including to Malakoff Diggins. The dam's upstream face was constructed with rock-filled timber cribs and sloped 60 degrees for the first 30 feet, and then 45 degrees on both the upstream and downstream faces. Originally built at 86 feet high, when the dam was raised to 107 feet, it became the highest dam in the world between 1880 and 1888.



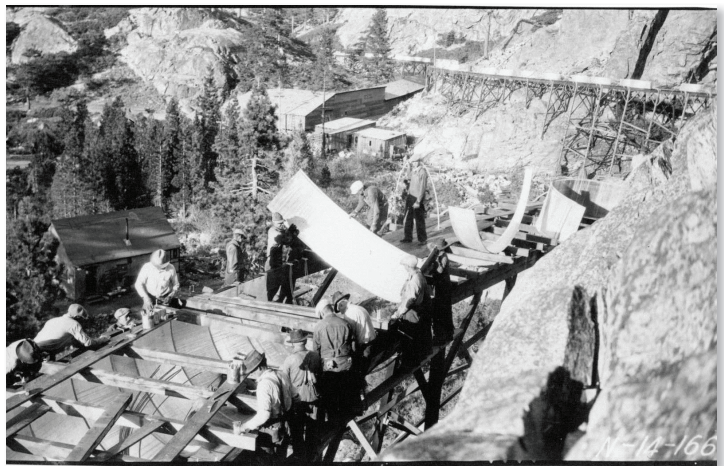
The dam held back water fed by Canyon Creek, a major tributary of the South Yuba River, in a reservoir that could hold about 21,350 acre-feet of water. NID had plans to make the reservoir the primary water supply for the new District. Once purchased from Northern Water and Power Co., the dam needed to be upgraded and raised, an expensive move that the new directors entirely supported. Financing was made available through the \$7.25 million bond, passed by voters in 1925.

The District hired Warren A. Bechtel, the founder of the today's major global engineering firm with the credit of being one of six companies that built Hoover Dam in the early 1930s. Shortly after Bechtel, his three sons and brother joined to incorporate as the W.A. Bechtel Company in 1926, NID granted the new company its first major contract to construct the Bowman Dam.

The construction site was so remote, with snow-pack lasting nearly six months out of a year, the Bechtel Company needed to establish a camp complete with a hospital, a hundred head of cattle and a slaughterhouse and storage facilities to sustain the crew for the winter. The work was impressive; crews went to work to dismantle the existing timber infrastructure and replace it with a larger rock-filled dam that was porous yet also used firmly packed gravel and sand with an area of concrete to completely block the water. When complete, Bowman stood at 176 feet high. It was the world's second-largest rock-filled dam and had a capacity of 68,510 acre-feet of water.

In the January 1927 edition of the Pacific Service Magazine, published by PG&E, the editor noted the importance of Bowman Dam and Reservoir: "... the central and most important of the system is Bowman, situated on Canyon Creek, a tributary of the South Yuba. Bowman is the chief of a smaller cluster of reservoirs lying under a ridge separating the Middle Yuba watershed from that of the South Yuba.... As a matter of fact, Bowman reservoir itself was built more than a half a century ago and was long used as a source of water supply for the North Bloomfield hydraulic mines. It has two dams, at separate openings, and the work now consists in replacing these old timber-crib relics of the '70s with

The concrete Bowman South Arch Dam was taking shape on October 29, 1926.



Workers toil to construct the flume on the Bowman-Spaulding Canal.



A crew works to construct the north portal of the Milton-Bowman Tunnel on July 12, 1926.



modern structures. The main dam now in process of construction is to be of rock-fill type, 176 feet in height and 680 feet along the crest, while the second dam, which will be used as a spillway, will be a concrete structure 117 feet in height and 430 feet in crest length. This work will result in the development of a storage reservoir of 65,000 acre-feet estimated capacity."

The editor also noted NID was "under obligation to deliver to our company 108,000 acre-feet of water from July 1 to March 1 of each year, from which the minimum annual revenue from power to the district will be \$370,500."

The rebuilt and enlarged Bowman Dam was dedicated by Kate "Ma" Church on June 29, 1927. She broke a bottle of clear mountain water against a plaque on the crest of the rebuilt Bowman Dam, hidden valves opened below and,

The Bowman Dam dedication in 1927 drew an enthusiastic crowd.



as reported in The Union newspaper, "a great column of silvery water gushed forth the bed of Canyon Creek on its way to Lake Spaulding."

These were the words Kate Church spoke: "To the completion of the work of our pioneers... the use of cities that are yet to be... to the tireless wheels of industry... to a richer rural life... to a greater measure of prosperity... to a higher standard of living... to a fuller realization of happiness... and to the maximum service of humanity. The great works and the life-giving waters of Nevada Irrigation District are here irrevocably dedicated... Here and now, I dedicate these waters to the service and constructive purposes of man in his pursuit of the useful arts of peace in this generation and in the generations to come."

### Bowman-Spaulding Canal construction

While the pieces of the water source puzzle were coming together, NID realized it needed to connect its mountain reservoirs to PG&E's Lake Spaulding, where water could then be routed to customers in both Nevada and Placer counties. The answer was the construction of the Bowman-Spaulding Canal, which carried water from smaller upper reservoirs through Bowman Reservoir about 11 miles down to Spaulding Reservoir, where flows could be diverted downstream. The undertaking was enormous.

The conduit, which began at the Bowman Afterbay Dam, was constructed with a flume mounted on wooden trestles and bents, wooden siphons and unlined canals, which were all vulnerable to damage by snow and rockslides. The new Bowman-Spaulding infrastructure included three half-mile tunnels and nine miles of canal by which the water from Bowman could be carried to the upper end of Lake Spaulding. There, the water was used to turn the wheel of a new hydroelectric powerhouse on the rim of the lake, known as Spaulding No. 3.

The first tunnel was 1,400 feet in length, with a 12-by-12-foot horseshoe cross-section that started at the Bowman Afterbay Dam. A gunite (a concrete slurry used for lining) canal 1,200 feet long followed, terminating at the head of the second tunnel, which was 7,500 feet in length. The second tunnel terminated at another





gunite canal immediately above Texas Creek. Two short tunnels and a small concrete gravity dam across Texas Creek connected by yet another canal connected to the Jordan Creek Siphon, where the water flowed through a gunite canal reaching to the head of the penstock to PG&E's Spaulding No. 3 power plant at Lake Spaulding.

NID's water was split at Lake Spaulding, and 105 cubic feet a second (cfs), more than 785 gallons per second, was delivered through PG&E's South Yuba Canal, flowing to Deer Creek and Scotts Flat Reservoir and through the utility's Drum Canal and the Drum power plant located on the Bear River. The capacity of the Drum Canal was 700 cfs, or 5,236 gallons per second.

"This newborn year of 1927 promises well. Fall rains drenched our State from end to end and laid good foundation for a solid wall of snow on the mountain tops. It looks like a long, open winter, and if early promise holds out there will be crops a-plenty and good water for the farmer during the irrigating season," the Pacific Service Magazine noted. "These are the days of active construction work in every section of 'Pacific Service' territory. New projects are in process, and with our steadily increasing population and agricultural and industrial growth there is an ever

pressing need for extensions and betterments of distribution facilities, both gas and electric.

"A deal of important reconstruction work will be in order in the spring to prepare the Spaulding-Drum system for the additional water supply that after use for power generating purposes will give sustenance to the deciduous fruit lands of the foothill country round Auburn and Newcastle. This Spaulding Drum system comes into prominence again through our company's agreement with the Nevada Irrigation District."

### Placer County joins in 1926

At its formation, NID included 202,000 acres in Nevada County. Five years later, in 1926, residents of Placer County chose to join the District, and another 66,500 acres were added. Today, NID includes more than 287,000 acres. Following its formation, the District achieved rapid progress in laying the groundwork for the new public irrigation system. During the 1920s, many important water rights were obtained, key water rights the District retains to this day. The acquisition of land to store and deliver water was a very important step in the District's development. ■

The Bowman Dam was completed in 1926, and could store 65,000 acre-feet of water.