

The
Greening
of
Paradise
Valley

The first 100 years (1887-1987) of the

Modesto Irrigation District

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Commissioned by the Modesto Irrigation District

In recognition of its centennial year

Dedication

In the span of recorded history, the story of the San Joaquin Valley and that portion of it served by the Modesto Irrigation District is quite brief. The impact of a region upon a nation, however, cannot be measured by time alone.

Settled by adventurous, innovative, courageous people who had the vision and determination to change a huge valley which was desert waste in the summer and whose flood-swollen rivers ran 10 miles wide in the spring, the San Joaquin Valley today is the nation's most productive agricultural region. This was the home of people such as Irwin S. Wright, who in 1868 invented jerk-line control of long pulling teams; of Benjamin Holt, inventor of the Caterpillar tractor who subsequently made possible the first army tanks; of George Stockton Berry, who, starting with a discarded portable steam engine, built the first mechanically-driven combine to harvest, thresh and sack wheat in a single operation, and of political and military leaders such as John C. Fremont, the first presidential nominee of the Republican Party, and famed General William Tecumseh Sherman.

It was in this region that the farm cooperative received its greatest stimulus, resulting in the development of the world's largest cooperatives such as the Milk Producers Association of California and Tri/Valley Growers, both of which were founded in Modesto.

More than a century ago, enterprising leaders of this caliber envisioned the rich potential of the region's agriculture; needed was a practical means of bringing water to the land throughout the summer months.

To achieve this goal, they created the nation's first successful irrigation districts, the Modesto Irrigation District and the Turlock Irrigation District, which were to set the pattern for all of California and much of the rest of the nation and the world.

This is the story of a pacesetter, the Modesto Irrigation District, and how the dreams of Stanislaus County's pioneers were achieved. On this, the 100th anniversary of the creation of the Modesto Irrigation District, the directors dedicate this book to those men who turned a vision into reality and insured that the land truly owns the water and the power.

Chapter 1

Paradise Valley

Our road was now one of continued enjoyment and it was pleasant riding among this assemblage of green pastures with varied flowers and scattered groves and out of the warm green spring to look at the rocky snowy peaks where lately we had suffered so much.

John C. Fremont thus described California's San Joaquin Valley on March 27, 1844, as he approached the Stanislaus River at a point west of where Highway 99 now crosses it. While not the first non-Indian to enter the great Valley, the explorer was the first to do so under United States Government sanction. A lieutenant in the Topographical Corps, Fremont was charting the routes to and through California.

His party, which included Kit Carson and Broken Hand Thomas Fitzpatrick, had spent a rugged January and February crossing the Sierra in deep snow and with real hardships, coming close to starvation when snowbound for a month. After resting at New Helvetia (Sacramento), Fremont was enjoying thoroughly a spring ride on horseback south to Walker Pass over a route which gave him a sweeping view of the land now served by the Modesto Irrigation District.

Fremont waxed almost poetic in writing about the beauty of the landscape, commenting in his memoirs:

The lupine (is) a beautiful shrub in thickets, some of them being 12 feet in height. Occasionally three or four were clustered forming a grand bouquet about 90 feet in circumference and ten feet high. The whole summit was covered with spikes of flowers, the perfume of which is very sweet and grateful. A lover of natural beauty can imagine with what pleasures we rode among these flowering groves, which filled the air with a light and delicate fragrance.

He described the live oaks as "the most symmetrical and beautiful we had yet seen in this country" and marveled at the California poppy "of a rich orange color." In subsequent days as he moved through what now is Stanislaus County, Fremont noted that the beauty of the landscape "had been increased by the

additional animation of wildlife and now it is crowded with bands of elk and wild horses and along the rivers are frequent fresh tracks of grizzly bears, which are unusually numerous in the country.”

Fremont was not the first to describe in writing the area between the Stanislaus and Tuolumne Rivers, which later was to be known as Paradise Valley. However, his words were among the most descriptive about its beauty and the richness of its soil.

Spanish soldiers and mission priests earlier had visited the San Joaquin Valley. Among the first was Pedro Gages, who left the coastal missions in 1772 to search the southern Valley for Spanish Army deserters. He described the culture of the Yokuts Indians who populated the Valley from Bakersfield to Stockton in much more favorable terms than did some historians of a century or so later who based their descriptions of the “digger” Indians solely on the remnants of a people devastated by the invasion of the white man.

Estimates of the number of Valley Yokuts range from Kit Carson’s 1829 figure of “hundreds of thousands” to what probably is the most authentic, 25,000 in 50 tribes. The latter estimate was made by the foremost authority on Yokuts, Frank Latta, who grew up in western Stanislaus County where his lifelong study of the Yokuts began.

Heidi Warner, curator of Modesto’s McHenry Museum who has made an independent study of the Indians of Stanislaus County, has located more than 50 burial sites, some as large as 45 acres, evidence that the county’s Indian population was substantial.

In a forward to Latta’s *handbook of Yokuts Indians*, A. L. Kroeber, a University of California anthropologist who earlier had studied the Yokuts, describes them as “a tall, well built people of open outlook...frank, upstanding, casual and unceremonious, optimistic and friendly, fond of laughter, not given to cares of property or too much worry about tomorrow; and they lived in direct simple relation to their land and world, to its animals, spirits, and gods, and to one another.”

The Stanislaus River and Stanislaus County derive their name from an exceptional member of this race, Estanislao.

Estanislao was born and raised at Mission San Jose. It is assumed his parents were Yokuts, for by 1790 the Spanish had swept clean of Indians all the western San Joaquin Valley foothills and plains from the Carquinez Strait to Kern County and as far east as today’s Highway 99. The Indians were taken to the

missions presumably as “neophytes” for conversion to Christianity and to perform the hard labor for building and maintaining the missions.

Named for the Polish Saint Stanislaus, on whose birth date he was born, Estanislao received a good education at the mission and grew to be a tall – more than 6 feet – strong, intelligent leader. He rose to the position of alcalde, the mission’s chief administrative and judicial officer. In 1825 when the people of the mission pledged their allegiance to Mexico, Estanislao fled to the Valley, taking with him many Indian neophytes who had become disenchanted with mission life. Estanislao established his own tribal nation near the present location of Salida. From there, he raided missions and settlements.

In 1829 the Spanish sent two forces against him. The first was routed by the Indians. The second was led by Lieutenant Mariano G. Vallejo, who later as general became Mexican commandante of California. Vallejo was repulsed until he set fire to the woods surrounding Estanislao’s complex fortifications which included a system of trenches and barriers.

His forces literally burned out, Estanislao escaped and returned to Mission San Jose, where he was pardoned and lived until his death some seven years later.

In the spring of 1833 an epidemic variously believed to be cholera, measles, or malaria wiped out entire communities. A pioneer hunter and trapper, Colonel James J. Warner, had noted in 1832 there were hundreds of Indians living along the Tuolumne and Stanislaus Rivers about the San Joaquin River. Many villages had 50 to 100 buildings. When he returned in the fall of 1833, Warner saw only six or eight live Indians.

The first non-Indian to explore the Stanislaus area to any extent was Spanish Lieutenant Gabriel Moraga, who first crossed the Coast Range in 1806. Entering the Valley through the passes southwest of Los Banos, Moraga followed the San Joaquin River northward past the Merced, Tuolumne and Stanislaus Rivers, all of which he named. Only Rio de la Merced – River of Mercy – still is known by its original name. Moraga called the Tuolumne Rio Dolores and the Stanislaus Rio Laquismes. He also changed the name of Rio de la San Francisco to San Joaquin to honor his father, Jose Joaquin Moraga, who had entered the San Joaquin Valley from the north in 1776 and followed the river southward. It is not known if the elder Moraga reached the region now known as Stanislaus County.

Not long thereafter, the fur trappers arrived from Hudson Bay and other companies in Canada and the United States. Traveling in groups of 50 to 100, they found a rich harvest of pelts along the Tuolumne, Stanislaus and other rivers of the Valley. Jedediah Smith, the first American to enter California, trapped along the Tuolumne from 1825 to 1827 and reported the stream abounding with beaver and salmon.

In 1842 Dr. John Marsh, who had purchased “Ranchos los Meganos” at the base of Mount Diablo in 1835, forecast a tremendous agriculture future for the San Joaquin and Sacramento Valleys, describing them as one magnificent valley...capable of supporting a nation” but at the time inhabited by only 150 Americans and a few Indians.

The opinion was not shared universally. United States Senator Daniel Webster of Massachusetts in 1844 asked the United States Senate:

What do we want of this vast worthless area, this region of savages and wild beasts, of deserts of shifting sands and whirlwinds of dust, cactus and prairie dogs? To what use could we ever hope to put these deserts or these endless mountain ranges, impenetrable and covered to their bases with eternal snow?

What could we ever hope to do with the Western Coast of three thousand miles, rock-bound, cheerless and uninviting, with not a harbor in it? What use have we for such a country? Mr. President, I will never vote one cent of the public treasury to place the Pacific Coast one inch nearer Boston than it is today.

Even as Webster spoke, the agricultural economy of the area that would become Stanislaus County and the rest of California was emerging. This economic base ultimately would make the Golden State the nation’s largest in agricultural production as well as in population.

Between 1836, when the Spanish secularized the missions, and 1846, when the Americans took control of the state, the Mexican Government issued some 30 land grants in California, specifically for agricultural purposes, primarily the raising of cattle. All but six of these grants subsequently were confirmed by the United States Land Commission, a process complicated by the vagueness by which they originally were measured and described. Descriptions were from “this tree to that tree” and measurements were by the “length of a rawhide riata,” which was subject to stretching. The grants were limited to a maximum of eight square leagues, a Spanish league being slightly more than 2.6 miles.

Five grants were located in what now is Stanislaus County. Alfias Basil Thompson received 35,000 acres along both sides of the Stanislaus River between the present sites of Oakdale and Riverbank. It was on this ranch that William Tecumseh Sherman, the Union Army general who in 1864 led the

scorched-earth march through Georgia, raised cattle during the 1850s. His partners were Fred Billings, Henry W. Halleck and A. C. Peachy.

Rancho Del Rio Estanislao on the north side of the Stanislaus, extending east from the Thompson Ranch well into Calaveras County for a total of 48,888 acres, was granted to John Rowland.

Three grants were issued along the San Joaquin River. Velentin Higuerra and Rafael Feliz were granted 35,000 acres for the El Pescadero Ranch, which subsequently was the site of San Joaquin City, a river-streamer stopping place which was replaced by Vernalis with the coming of the railroad to the Valley's West Side. This grant extended from about Banta to some distance below Grayson. Immediately to the south was the Rancho del Puerto – 13,000 acres granted to Mariano Hernandez – and farther up river, extending into what now is Merced County, was the Orestimba grant of 26,000-plus acres to Sebastian Nunes.

One of the most famous of these grants was Las Mariposa, which included the present towns of Mt. Bullion and Mariposa. Awarded in 1844 to the former Mexican governor of California, Juan Bautista Alvarado, it never was occupied by its original owner primarily because of the threat of Indians. In 1847, Fremont purchased the ranch, which was to be the site of the 1851 Mariposa Indian War. Fremont, the famed "Pathfinder," resided there when in 1856 he became the first presidential nominee of the newly organized Republican Party, capturing some 40 percent of the popular vote for what then was considered a "third party."

Cattle were the prime product of these ranches, many of which were not habitable until 1847 or later because of the constant threat of raids by marauding Indians which continued in some areas well into the gold rush days.

Of the original five grants in Stanislaus County, it appears that only El Pescadero was occupied on a permanent basis during those early years. Higuerra and Feliz drove some 1,300 head of cattle, 350 sheep and 300 horses from the coast to locate there in 1843. They were the first permanent non-Indian settlers in the Stanislaus area.

The region's first planned colony was established in January 1847 on the north bank of the Stanislaus River about a mile and a half above its junction with the San Joaquin. Two parties of Mormons, one headed by Samuel Brannan traveling by sea and the other led by William Stout going overland, joined

to establish the City of New Hope. This was to be the destination of the Mormon people moving west to the “promised land of California” under the leadership of Prophet Brigham Young.

It is fascinating to speculate what the Stanislaus region would be like today had it not been for a chance meeting on the Oregon Trail.

In his *Valley of the Sun*, historian Wallace Smith tells how a pair of wild western mountain men, Jim Bridger and “Peg-leg” Smith, who had traveled extensively throughout the West, came across the main party of Latter Day Saints somewhere along the Platte River. The Mormon leader queried the pair about their San Joaquin Valley destination. So glowing were the accounts of Bridger and Smith, the Mormon prophet recalled his advance party from the City of New Hope. Young decided that any land which was as wonderful as the two mountain men claimed the Stanislaus River area to be would attract many, many people. Young and his church followers were seeking isolation from the “gentiles” who had persecuted them in the East.

And so, the region was to develop in other ways.

Free-ranging Castillian longhorns roamed the countryside in great numbers. This was stock stolen from the missions by marauding Indians, including bands of “neophytes” who had fled, as had Estanislao and his people. These longhorns were rounded up and branded by the early ranchers. The bands of wild horses mentioned by Fremont in his 1844 diary were from the same source.

At first, the market was not for meat, but for hides and tallow. Jack Brotherton in his *Annals of Stanislaus County* says the shipment of hides and tallow to San Francisco was responsible for the start of regularly-scheduled steamer trips up the San Joaquin and Tuolumne Rivers. The meat was left for the coyotes, vultures and other scavengers.

The American taste for beef during the gold rush changed this. Whole herds of cattle were driven to the mining camps from the Valley’s West Side and coastal ranches.

A new breed of cattle which was to replace the scrawny, stringy Castillian longhorns came with the gold-seeking argonauts of 1849. Some enterprising settlers saw their fortunes not in the mining but in supplying the miners. Walter Crow brought the first midwestern American cattle to California in 1850 with a herd of 500. Crow died shortly after arriving in the state, but his four sons, James, William, Benjamin

and Alfred, drove the cattle to the Stanislaus region where they established a ranch along Orestimba Creek. The family name is borne by the town of Crows Landing.

From that time on, cattle were being driven into the state and Paradise Valley. By 1854 there were many thousands of cattle roaming free on the plains of Stanislaus. Early historian George H. Tinkham quotes cattleman William K. Wallis as reporting the county “was one immense pasture.”

L. C. Branch, who in 1881 wrote the first history of Stanislaus County, included an autobiography by Wallis’ brother Thomas, who recounts his introduction to Paradise Valley cattle when traveling from San Francisco to join his brother in April 1863:

When I arrived in Stockton, I found that no steamer would leave for the San Joaquin River for two weeks and, as there was no stage line or team coming this way, I concluded to come across the country afoot. There were no houses on the plains at the time, and wild cattle roamed over them at freedom in vast numbers. When traveling between the Stanislaus and Tuolumne Rivers, I saw a band of wild cattle coming toward me, shaking their heads. I immediately fell to the ground and crawled on my hands and knees for a long distance until they had lost sight of me. I afterward learned that they were infuriated by being caught and branded, and would have killed me had they caught me.

Even as Wallis was crawling away from infuriated longhorns, the decline of the livestock industry was approaching. The extremes of weather and the influx of people doomed the Paradise Valley cattle industry.

The decline began with the devastating floods of the winter of 1861-62, which brought the entire economy of Northern California and much of the rest of the state to a halt. The floods were followed by three years of drought.

Transportation into Stanislaus County became easier with the advent of river steamers and better roads. The population swelled with newcomers settling on the prime riverbottom land. In 1860 the census recorded 2,245 residents in Stanislaus County. By 1870 the population had tripled.

The new king was to be wheat.

So rapid was the rise in wheat production that within five short years, Stanislaus County’s production topped that of all California counties. The state was the nation’s leading wheat producer. Individual wheat farms of 50,000 to 100,000 acres were not uncommon in Paradise Valley.

Midwesterners, some disillusioned with the mines and other coming to Stanislaus directly from their Plains States homes to seek a new life, found Central California land ideal for growing grains. The

soil was fine loam easy to plow. The rainless summers from May to October meant no worries about showers at harvest time and the wheat heads were hard and dry. Once harvested, the wheat could be left sacked in the fields or in warehouses without worry. For many, farming proved to be more profitable than digging for elusive gold.

As early as 1850 the richness of soil had been recognized by a state legislative committee. It declared that the region around Tuolumne City, a community just emerging on the north side of the Tuolumne River a few miles above its junction with the San Joaquin River, “will shortly be a sort of Jauja’, the golden city of the fabulous region where rivers of milk and honey flowed and farinaceous fruits grew spontaneously.

A couple of years later, James C. Carson, an army sergeant who while on furlough explored the San Joaquin Valley and for whom the Carson River Pass are named, was more specific and much less flowery in his evaluation of the soil’s fertility:

The traveler crossing this valley or traversing it in any direction during the dry season would judge from its parched appearance that it is a barren waste unfit for any of the purpose of man. This was my opinion on my first visit but being a practical farmer, I had a curiosity to examine the soil, and the inducements offered by the general aspects of the country to agricultural pursuits.

Carson referred to Central California as “the garden of California.”

In addition to the vagaries of weather and the influx of people, two factors were significant in the transition of Stanislaus’ farm economy from cattle to wheat. By 1864 the American Civil War had disrupted many traditional wheat-growing areas, thus opening European markets to California producers. Soon thereafter, the Franco-Prussian War created tremendous new demands for wheat to feed starving people on the European Continent. San Francisco financiers were quick to capitalize on these events by encouraging the planting of California wheat.

Although wheat was firmly established as the county’s prime agricultural commodity by 1870, the crowning blow to the cattle industry came that year when the state’s “no fence” law was extended to Stanislaus County. This simply declared that farmers did not have to erect fences to keep livestock out. It was the responsibility of the stockmen to fence in their herds. Those cattlemen who actually owned land

could not afford to enclose the vast acreages required for grazing. Many stockmen had no land to fence as their cattle roamed freely on unclaimed public domain.

In October 1870 the arrival of the railroad in Stanislaus County facilitated the shipment of the crop. On the 27th of that month, the first load of wheat to leave the San Joaquin Valley by rail was shipped from Modesto to Oakland by M. M. McClanathan.

Although the boom in wheat production began in 1867, wheat had been grown in the county for a decade and a half. As early as 1852, when pioneer farmer Elihu Birrott Beard purchased 10,000 acres north of Waterford, farmers began experimenting with the production of wheat, barley and other crops, including produce for home consumption and for shipment by steamer to San Francisco.

Beard, whose son Thomas K. Beard was to be instrumental in the 1913 creation of the Waterford Irrigation District, was the first farmer in 1852 to practice summer fallowing of the land for increased production. He encouraged the use of more efficient mowers, reapers and headers and in the 1860s introduced gang plows by which wheat growers could plow several furrows at once.

An inventory of new equipment was developed in the 1860s by the inventive farmers of Paradise Valley and surrounding areas.

In 1860, only 22,500 bushels of wheat were produced in the county. Production increased so fast that by 1870 more than 4 million bushels were harvested.

A newspaper report in 1868 proclaims: "That part of the county between the Stanislaus and Tuolumne Rivers, an area of 125 square miles and known as 'Paradise', is one unbroken field of grain."

In the expansive literary style of the period, historian Branch described what Paradise Valley was like in 1870:

This part of the county had, within a few years, developed into a rich agricultural region. The largest herds of cattle that once roamed over these plains had disappeared from view; the long horn of the Spanish steer was no longer in view. The farmer had taken the place of the vaquero, the plow the place of the lariat. The branding iron and the rawhide, the lasso and the rodeo had become relics of the past. The first bright gleams of the glamorous future were dawning over our people. The great valley had become a unit in interest and alike in feeling. Agriculture and grazing- the two conflicting interests – no longer crossed their swords in eternal warfare, but they were now united, led by a common interest. All had become stock breeders; all grain growers.

It is true there were no major battles between the cowboys and the sodbusters such as those occurring in other parts of the West. Circumstances had forced the change.

The droughts of 1873 and 1874 reduced production but did not discourage wheat farmers, who bounced back in 1875 to produce 3 million bushels – with 410,000 Stanislaus acres in production – then 5 million bushels the following year and 7 million bushels in 1878, a record unequalled until 1881.

As the new decade of the 1880s began, Branch wrote of traveling for hours through vast fields of wheat: “In every direction was wheat, not a house, tree or object of any kind in sight, only wheat, wheat, wheat.”

On this occasion, he described his first personal look at the Centennial Harvester, developed in 1876 by David Young of Stockton in response to requirements of growers in Stanislaus and elsewhere, in this manner:

At last our eyes caught sight of queer looking object in the distance, and curiosity as well as a desire to see something besides wheat, led us toward it.

We were astonished at the sight, and looked long in wonder and amazement at a combined header and thresher. Twenty-four horses were pushing this immense machine over the ground and as it passed along dropped sacks filled with wheat. The horses were six abreast – twelve each side the tongue – and the swath cut was, we judge, thirty feet wide. The grain heads in the meantime, instead of passing into the header wagon, went directly into the separator and the grain was sacked and thrown off. It was worth a long journey to see this wonderful machine with its twenty-four horses trained like circus animals, and all moving at the command of the man ‘at the wheel’ who guides the header by a tiller attached to a wheel at the end of the tongue which acts as a rudder for this ‘agricultural ship’.

While watching its operations the writer wondered if on his next trip that way, he would not also see the grist-mill attached and the machine throwing off sacks of flour!

One of the first in Stanislaus County to use the Centennial Harvester was E. Cogswell, who in 1878 harvested 20,000 bushels of wheat from nearly 1,500 acres in 42 days.

Growing wheat was a tough, demanding occupation, especially at harvest time. The ground was plowed as soon as the first rains of the fall would permit. Once the wheat was sown, the success of the crop depended upon the weather. In a good year harvest crews would move in after the rains had ceased and the wheat heads had time to harden dry in the hot summer sun.

Handling teams of 12 to 24 mules or horses was an art in itself, to which the muleskinner added an artistic vocabulary when things did not go right. In 1868 one Stanislaus muleskinner, Irwin S. Wright, simplified the task of controlling long teams when he invented the “jerk line.” He extended a single rein

down the left side of the team, attaching it to the collar of the “near leader” in such a manner that a jerk would pull the animal’s head to the right and a steady pull would lead it to the left.

Central Californians who helped to expand the wheat yield with new machines included George Stockton Berry. Starting with a discarded portable steam engine, Berry built the first mechanically-driven combine. Benjamin Holt of Stockton invented the Caterpillar tractor. Although designed primarily to solve the problems of farming the San Joaquin- Sacramento River Delta peat soil, it soon became standard equipment for most farming operations in Stanislaus County. In World War I, the British worked with Holt to develop the first army tank.

The early combines were unique to the San Joaquin Valley because the vast acreages to be harvested made the huge machines practical; in eastern states where fields were smaller they would have been impractical.

Even as the production reached its peak, new forces were working to promote more diversified farming.

Ora McHenry, L. M. Hickman, J. B. Caldwell and others were planting orchards, vines and vegetables. By the start of the last decade of the 19th Century, McHenry was the leader in the fruit industry, having some 100 acres in production. And at Paradise Gardens, three miles from Modesto, Peter Leshner in 1891 grew some 700 tons of fruit, primarily apricots but also including 200 tons of peaches and 8,000 boxes of Bartlett pears.

The same ingenuity, courage and determination that allowed the taming of a wild Valley wasteland, converting it to the state’s leading wheat region in a scant 30 years, were to shape the future of Paradise Valley and much of the rest of the state. This dramatic change was to come through the development of the first fiscally-sound system of irrigation by wisely using the water which flowed from the Sierra through California to the sea.

But it was not going to be an easy task.

Politicians and Vigilantes

In story and film, it was the cowboy who rode in off the prairie and shot up the town, but in the real life of Modesto the “wild West” era came with the wheat boom.

Stanislaus County was born in political strife. In those days, United States Senators were selected by state legislatures. The first of the California’s perennial north-south battles, which today are over the development and management of water resources, was over the selection of a U. S. Senator. As a result of an 1854 effort to “pack” the state Senate in favor of one candidate, Stanislaus County was born.

The adversaries both were Democrats. William M. Gwin was a well-educated physician, a Southern gentleman whose smooth political techniques followed the path of Andrew Jackson. His opponent was David C. Broderick, a glib Irishman who enthusiastically followed the rough-and-tumble politics of Tammany Hall.

Gwin had assumed leadership at the first California Constitutional Convention, and the state’s newly-created Legislature selected him and the “Pathfinder,” John C. Fremont, as the first U. S. Senators.

Broderick wanted the job, which was held in higher esteem than that of governor. To achieve his ambition, Broderick attempted through legislative maneuvering, to cut Gwin’s term short by one year expecting to win the seat for himself. To insure a safer margin of victory, Broderick conceived the idea of creating a new county which would be controlled by Broderick Democrats.

It was an ironic April Fool’s Day joke on Broderick that while his dream child, Stanislaus County, came into being April 1, 1854, the Legislature had circumvented Broderick’s scheme by decreeing that the new county would share its state senator with Tuolumne County, from which it was separated.

Not until 1857 did Broderick finally make it to the Nation’s Capitol, succeeding Senator John B. Weller, who had followed Mariposa’s Fremont. However, the Broderick-Gwin feud continued unabated and with increasing bitterness. The battle ultimately led to Broderick’s death in the last duel fought between major political figures in the United States. State Supreme Court Justice David S. Terry challenged Broderick and, in September 1859, Justice Terry won. After his death, Broderick’s faction of

the Democratic Party swung to the Republicans and, as a result, Abraham Lincoln received the California electoral vote in 1860.

For the first few years, the Stanislaus County seat might as well have remained on wheels.

Adamsville, where Dr. David Adams had established a ferry on the south bank of the Tuolumne River in 1849, became the first county seat by a margin of 30 votes – 495 to 465 – over Empire, which then claimed the honor of being the head of Tuolumne River navigation for entry to the southern mines.

In the absence of a county courthouse, the first Adamsville meetings of the new board of supervisors and the county Court of Sessions were held under a giant oak tree. According to Superior Judge David Bush, Adamsville never had a jail. Prisoners were housed in a convenient hotel. A new election a few months later found Empire victorious and the county seat was moved there, housed in a one-room shack. Fifteen months later, the “courthouse” was sold for \$51 when the county seat was moved to La Grange.

In 1860 came “Walden’s Steal,” the annexation to Stanislaus County of 110,000 acres of San Joaquin County land, including the lively town of Knight’s Ferry. To this day, no one knows why the San Joaquin delegation allowed Stanislaus Assemblyman Miner Walden to engineer an annexation which placed Stanislaus’ northernmost tip north of the latitude of Stockton, which is San Joaquin County’s seat.

As soon as the annexation was consummated, Knight’s Ferry moved to obtain the county seat and won by a vote of 422-393 in September 1860 balloting. Thus, the county seat had moved three times in its first six years.

It stayed put for the next decade, however. Prior to the coming of the railroad, there was no Modesto. Not until 1870 was a one-square-mile town site laid out of the Central Pacific Railroad.

George Cosgrove, who at the time was working as railroad construction foreman Jim Casey’s “rouster monkey” even though he had not yet entered his teens, recalled in an October 1928 letter the naming of the new town:

Tom (one of the engineering staff) at irregular places laid out town sites, apparently for no better reason than that the (railroad) line cut a section on its catawampus course in an awkward shape for a farm.

Since Tom concluded to make a township of it, Modesto’s arc was mapped in pencil. I then marked sheets of Tom’s valued paper with the stylus, making a map in ink. It looked, of course, better to me than to anyone else. I wanted to finish the map by putting a name on it. Asked everyone for a name, even the Chinese boss. Several names

were suggested which would not look well in print. The weather was hot and the sand did blow. As I became a pest and was roused out of every camp gathering, Charlie Crocker, Mark Hopkins and W. C. Ralston (Central Pacific's founders and directors) came down with engine bell ringing constantly when moving, the track was so rough.

They spent half a day with Casey and when ready to start back, Mr. Hopkins noticed the stakes which marked the block boundaries of the town and remarked, "What's this, a new town?" The pest was there proudly carrying the map which no one else had noticed. I proceeded to unroll the map and said they needed a name for the town. Heedless of the side kick from Casey, I held the map exposed to the big bosses who seemed interested, which prevented a more pronounced kick from Casey.

Hopkins said, "Name it Ralston" and Ralston said, "I thank you for the honor but must ask that some more appropriate name be chosen." Tony, the dapper supercargo of the Mexican employees, exclaimed audibly "Esta senior is mucho modesto." Crocker remarked, "That's a good name" and Modesto was placed on the map.

In 1870 when it was certain the railroad was coming, a mass exodus took place in the nearby river-front towns of Paradise and Tuolumne City. A week after James McHenry's house was to arrive in the new town, it was described as a "village of 12 or 15 buildings, all crowded, and doing a lively business." Even before the "mobile" buildings arrived, the first new structure was erected – a saloon. Next came the schoolhouse, moved in from Tuolumne City. Such were the priorities of early-day Modesto.

The Tuolumne City Hotel, operated by Mr. and Mrs. D. S. Husband, was hoisted on wheels and moved in one piece. Even before the building was lowered from its wheels, Mrs. Husband opened for dinner that evening in the renamed Modesto House. A few days later, The Ross House in Paradise was cut in half and hulled to its new location, but not without misfortune. The *Tuolumne City News* reported October 21, 1870:

On Monday last, the dining room was successfully loaded on trucks and a team of 60 horses attached thereto, they had not proceeded over an hundred yards, however, when the wheels of the trucks sank in the soft sand, and at latest news still remained stationary. More powerful apparatus has been sent for, and it is to be hoped that the move will be successfully made.

In November, *Tuolumne City Weekly News* publisher J. D. Spencer packed his type cases and moved his shop and press to the new town. For weeks, Spencer had refused to accept the name of Modesto, referring to "Ralston, alias Modesto," insisting Ralston would have to submit to the will of the people and allow the town to be named for him. William C. Ralston had made his fortune in Mariposa's Marble Springs Mine, from which he recovered enough gold to build San Francisco's Palace Hotel, establish the Bank of California and become a railroad financier.

When Spencer moved to Modesto he changed the name of his paper to the *Stanislaus County News*, avoiding reference to Modesto.

As Modesto grew, so did the pressure to move the county seat. With the general election of 1871 approaching, the contest became bitter. Friends of Knight's Ferry claimed the fledging town was not a suitable place for a county seat:

There is nothing inviting in the location; no trees, no scenery, no water courses, situated upon a plain, and most objectionable of all is the sand, of which the land is principally composed in its immediate vicinity, that is hurled in dense clouds through the air by the prevailing westerly winds that blow during the greater part of the year.

Aside from that, opponents of the railroad town saw no excuse for the taxpayers again having to bear the expense of moving the county seat, which already had wandered around too much in the few short years of Stanislaus' existence.

“To remove it (the county seat) now would be premature, suicidal, detrimental and fraught with the most injurious consequences to the best interests of the county. How long will it be before Modesto will share the fate of Tuolumne and Paradise Cities?” asked those who forecast the demise of Modesto when the railroad moved on south across the Tuolumne.

So bitter were some foes of Modesto that they even proposed eliminating Stanislaus County, ceding that area north of the Stanislaus River back to San Joaquin, creating a new county from the Stanislaus and Merced County areas west of the San Joaquin River and giving the remainder to Merced County.

In spite of its vociferous opposition, Knight's Ferry did not have the votes. Modesto outpolled the then-county seat by a margin of almost 3-to-1, with scattering votes cast for Oakdale, Waterford, La Grange and Graysonville.

The *Stanislaus County New*, on October 20, 1871 described the arrival of the county seat:

On Sunday last, the furniture, records, safes and all the rest of the paraphernalia of the county clerk's, recorder's, auditor's, treasurer's and sheriffs offices reached this place – the whole forming three wagon loads. Its arrival in our town created some little sensation among the naturally inquisitive citizens.

A glimpse of the furniture would be sufficient at once to assure the stranger that our county had been in economical hands. Everything wore a plain and well-used appearance, showing conclusively that there had been no “ring” nor fat jobs in the furnishing department of this county. A rusty, old iron box, resembling much in size and appearance an old-fashioned sailor's chest, with bands of iron around it, was pointed out to us as having been the first

treasurer's safe for the county. The old box is itself a relic of former times. Its age may be unknown, and its appearance leads us to believe that it was manufactured when burglars were not as adept in their professions as at present.

Modesto did not "fade away," as forecast by the dire predictions of Knight's Ferry proponents. Instead, as wheat became king in the decade of the 1870s, Modesto blossomed into a wealthy boom town where money flowed freely. The town soon became not only the largest in the county, but also on occasion it had the reputation of being the toughest in the state.

Wheat production was a rich but rough business, demanding high finances and strong labor throughout the season, especially at harvest time. This breed of worker and the riches of the harvest were followed by a less-than savory element.

Sol P. Elias, for several years mayor of Modesto during the 1920s, wrote *Stories of Stanislaus*, one of the most colorful and oftquoted histories of the region. His book tells of Modesto "Golden Age:"

Like every frontier village that grew up with a rush and experienced unexampled prosperity from the start – thereby attracting to its confines the rougher elements of society who sought opulence without honest endeavor amidst the primitive customs and the open life of a rudely and rapidly constructed town – Modesto, in its infancy, suffered its period of open lawlessness, its era of unbridled gambling, its reign of brutal thuggery, its sway of the malign saloon influence, and its season of brazen, flaunting vice...

Such was the strenuousness of its nightlife that it held the reputation throughout the state of being a place in which there was literally a man served up for breakfast every morning in the year...

Money in plentitude was spent with recklessness and prodigality that baffled understanding... Modesto was in its golden age... The Barbary Coast had been transferred to Modesto. It was a "coast" that well maintained the reputation of its prototype in hilarity, in criminality and in petty thievery. (Its) establishments contained a number of private rooms...

The town grew so uncontrollably fast – there was no such thing as zoning – that all the mixed elements were thrown together. Chinese opium dens and gambling houses were in the middle of the business and residential districts, as were the red-light sections. Saloons were everywhere.

The saloon element dominated politics in Modesto and throughout Stanislaus County. Saloon keepers controlled and delivered enough votes to maintain this balance.

A large measure of lawlessness prevailed throughout the decade, but peaked in 1879 when a bumper crop followed two years of drought. In that year, counter forces went to work. The San Joaquin Regulators, masked vigilantes whose identities supposedly were never known but who privately were

recognized as some of the leading businessmen and “law and order” politicians of the era, were organized. After six months of planning, the Regulators struck on a Saturday evening in August 1879. By the time the northbound train left the next morning, the bulk of the criminal element was on its way out of town. “Law and order” prevailed for only a short time, though. In a few months, it was “business as usual.” Saloons outnumbered churches by more than 2-to-1.

An 1880 inventory of the community included one flour mill, two large breweries, a soda factory, one foundry, two lumber yards, six blacksmith and wheelwright shops, four livery stables, six hotels, three restaurants, 15 saloons (exclusive of hotel bars), two undertakers, six laundries, two photograph galleries and some two dozen stores that included five millinery shops, two jewelers, three butcher shops, a vegetable and produce market, four druggists and four tailor shops.

Add seven churches, six physicians, 14 lawyers, two dentists, several music and elocution instructors, two newspapers, and a hook and ladder company in need of a fire engine.

Elias’ description of the town in the late 1880s, however, includes this comment:

It was a typical rough and ready country village with ungraded streets and unplanked sidewalks, without city water or street illumination. The first glimpse of the town was uninviting. In the summer, the streets were covered with knee deep sand. In the winter, they were overlaid with mud and water puddles. Cattle of all descriptions roamed through the streets at will. (Historian George H. Tinkham noted that free-roaming hogs also were a problem in the town.) Fire protection was confined to the old hook and ladder company. There was little semblance of law and order.

Two of the state’s most infamous desperados associated with the Stanislaus region were not active in that period, however.

It was on Stanislaus River diggings that Joaquin Murietta’s beautiful young wife was raped and fatally beaten, which resulted in Murietta’s embarking on a course of revenge. Within a few months, death had come not only to the five Americans who had ravaged his wife but also to the 20 who had lynched his brother on an accusation of horse stealing. From then until his own death in 1853, Murietta was a bandit feared throughout California.

Chris Evans of the notorious Sontag and Evans gang operated a livery stable in Modesto when an 1891 fire destroyed all of his stock. A short time later, a train was held up at Ceres and Evans was accused of being the robber. Although subsequently identified with many other crimes committed after the fugitive

teamed up with John Sontag, Evans never admitted the Ceres train robbery nor was his involvement in it ever proved.

The Stanislaus region had more than its share of colorful characters in the early days. Among them was James Capen Adams, better known in film and television as “Grizzly Adams” and described by P. T. Barnum as an “extraordinary man, eminently ‘a character’.”

An 1849 argonaut from Massachusetts, Adams earned and lost three fortunes in the mines and on Valley farms before taking to the hills along the Tuolumne River. Adams captured and tamed some two dozen grizzly bears. Included were his constant companion, Ben, a grizzly with whom he ate and slept; General Fremont, trained as a pack animal and, according to Barnum, ridden by Adams through hundreds of miles of the Sierra, and the 1,500-pound Sampson, the biggest of his menagerie.

Adams and his animals toured the nation with Barnum and independently until his last performance in San Francisco in 1880.

These were the influences which affected Stanislaus and its county seat in the decade of the 1880s. A host of diverse personalities ranging from Murietta to Fremont, from General Sherman to inventive muleskinners, from the worst criminal elements to the vigilante Regulators left their mark on the community.

It was to be in the decade of the ‘80s that the people of Stanislaus, still the king of California wheat, came to the realization that irrigation was necessary to insure a more stable farm economy, especially in dry cycles, and to permit the diversification of agriculture.

That the concept of community-owned irrigation, where the land truly owned the water – a concept to be followed throughout the rest of the state and much of the nation – should come from a relatively small frontier community of no more than 2,000 people, attests to the inspiration and determination of the people of Modesto and the immediate area around it.

Dreams Become Reality

We have the climate; we have the soil of a first class country; but, for the want of that water which runs to waste at our very doors, and which a little sagacity and industry could make pour itself over our rich earth, we are living in a comparative desert, and are becoming notorious for our poverty.

This was the November 3, 1871, editorial comment of John Dillard Spencer, publisher of the *Stanislaus County News* and one of the strongest proponents of irrigating the lands of Paradise Valley. He was describing the Stanislaus scene and dilemma of the day.

In reality, Stanislaus County already was ascending to recognition as California's king of wheat, a most profitable crop. However, the vagaries of weather would force many smaller farmers to consider diversification for better, more profitable crops. That could be accomplished only through the development of a workable irrigation system.

Irrigation was not invented in California, nor for that matter in America. Irrigation had been practiced for thousands of years. The Tigris and Euphrates Rivers in the Middle East and the Nile in Egypt had been diverted by ancient people to water fields. Greek and Roman empires developed irrigation systems.

Evidence has been found of irrigation systems dating to prehistoric times in Arizona's Salt River Valley, which is the location of an early U. S. Bureau of Reclamation irrigation development, the 250,000-acre Salt River Project.

When Spanish explorers first entered the Pacific Southwest in 1545 they found Indians irrigating in the Rio Grande Valley as they apparently had done for generations. Missionary priests coming to the New World appreciated the value of irrigation and located missions close to sources of water. In 1771 Father Junipero Serra relocated Mission Monterey to take advantage of a better source of irrigation water. That same year, Mission San Jose dammed a river to divert water for crops. It is said that within hours

after the Mormons arrived at Salt Lake in 1847, they were digging irrigation ditches. The State of Utah in 1865 became the first in the nation to enact irrigation district laws, although they were used very little.

Early California settlers and gold miners dug ditches to water small fields, run sluice boxes and serve hydraulic mining operations. But these were individual efforts.

The potential for larger systems was evident, however.

Only six months after Stanislaus County was created, Silas Wilcox issued his first official report as county surveyor: "The plains in this county could be irrigated by taking water from the rivers running through it as the foot of the mountains by means of canals." He went on to say, however, the idea was not "expedient" because of the "great expense," an insufficient number of consumers and the belief that windmills would provide sufficient water for this purpose. These convictions were held by some farmers for the rest of the 19th century.

The first irrigation systems to be developed in California were privately owned, starting with James Moore's Ditches diverting Cache Creek water to Yolo County farms. Established in 1856, this small beginning was to become nearly a century later the Yolo County Flood Control and Water Conservation District, formed in 1951. During the late 1850s and 1860s, several water companies were created, many of those in Central California utilizing abandoned mining ditches.

In the 1860s irrigation pioneer Will Green devised a canal system to serve the Colusa area from the Sacramento River. The estimated \$350,000 cost was beyond the ability of the local community, so the plan was turned over to the state Legislature for consideration. By the time that body revised the plan, the scheme involved a 100-foot-wide navigation canal costing nearly \$12 million. The idea was abandoned in 1866 as too grandiose.

It would be a German immigrant who arrived in San Francisco in 1851 with only \$5 in his pocket who was to develop San Joaquin Valley's largest privately-owned irrigation works. A butcher by training, Henry Miller followed his trade rather than search for gold. Within a year, he owned shops in San Francisco and soon was acquiring his own supply of livestock for his retail and wholesale business. In the mid-1850s he rode through Pacheco Pass to the San Joaquin Valley and promptly purchased the 9,000-acre Santa Rita Ranch near Los Banos and 7,500 head of cattle.

Ultimately, he and his partner, Charles Lux, were to own 400,000 acres stretching for more than 100 miles along the San Joaquin River from where Highway 99 today crosses it north of Fresno to the vicinity of Crows Landing in Stanislaus County. The partnership also owned 70,000 acres on the Kern River in the vicinity of Crows Landing in Stanislaus County. The partnership also owned 70,000 acres on the Kern River in the vicinity of Tulare Lake and vast holdings elsewhere in Northern California. Pasture was the sole use of the land until the droughts of the 1860s when Miller, the dominant partner, turned to irrigation to raise feed for stockpiling.

In 1871 the San Joaquin and Kings River Canal Company was organized. When the San Francisco speculators behind the project found themselves in over their heads, Miller and Lux, who controlled the San Joaquin River's riparian water rights, bought the company at a small fraction of the original investment in works already constructed. Miller was the driving force behind completion of a canal 45 feet wide, four feet deep and 75 miles long, extending from a diversion point near Firebaugh to Orestimba Creek, four miles south of Patterson. It was from this project that Stanislaus County farmers received their first canal water to irrigate 10,000 acres in the vicinity of Crows Landing.

Although Miller & Lux Company operations would give impetus to the irrigation district movement a decade later, the presence of this canal caused the failure of California's first serious proposal for public ownership of an irrigation system where the land would own and control the water it used.

In the spring of 1875, 50 Grange delegates representing counties from Fresno to Contra Costa met in the western Stanislaus community of Grayson for a two-day convention to discuss ways of irrigating lands west of the San Joaquin River.

Out of this meeting came legislation signed April 3, 1876, by Governor William Irwin that created the West Side Irrigation District, designed to construct a canal from Tulare Lake to Antioch, a distance of 187.5 miles. Engineering studies proved the \$4.3 million project would provide water for more than 340,000 acres. A new concept in irrigation development which would be fundamental to the success of future irrigation district proposals was introduced. All water rights would be inseparable from the lands to be irrigated.

Directors were chosen and taxes approved by the electorate. But on the day in May 1876 that the governor and other dignitaries were celebrating establishment of the district in a major festival held in the

Town of Grayson, the California District Court declared the authorizing legislation to be unconstitutional because it permitted the condemnation of Miller & Lux's San Joaquin and Kings River Canal Company system that extended through the area to be served by the new district.

Although the West Side Irrigation District failed two years before Miller & Lux's canal reached its southern terminus in 1878, the concept of marrying the rights to water with ownership of the land through the establishment of a public district prevailed. This concept became a key element in the subsequent Wright Act, under which the Modesto Irrigation District was created more than a decade later.

While west side farmers were trying their hand at developing a publicly-owned irrigation district, on the east side of Stanislaus County the owner of a private dam and canal system was trying to win government support and subsidy for completing an extensive irrigation system served by the Tuolumne River.

In 1852 a group of San Francisco financiers constructed a dam for hydraulic mining diversions near La Grange. The sturdy structure had withstood many floods, including the disastrous 1861-62 runoffs which devastated much of Northern California.

M. A. Wheaton, a San Francisco lawyer, subsequently acquired full title to the dam and adjacent ditches. As mining waned, he created the Tuolumne Water Company for irrigation diversions. Wheaton's plan envisioned 200 miles of main and branch canals extending down both sides of the Tuolumne River to the San Joaquin. The scope of the project was far beyond Wheaton's willingness to finance and he conceived a scheme whereby Stanislaus County would subsidize the private corporation by issuing \$300,000 in bonds as a loan to the company.

In February 1872 Senator T. L. Keys of Stanislaus County submitted a Senate bill based on this plan, "An Act for the Encouragement of Irrigation." Upon introduction of his bill, Senator Keys presented petitions signed by 130 supporters. In a rather unusual turn of events, he also presented the Senate with another petition signed by 400 opponents who feared higher taxes would result and objected to the county subsidizing a private company.

The *Stanislaus News*, an outspoken advocate of public irrigation systems, editorialized against Wheaton's plan because government "should not depart from the purpose for which it was created" and making the county a "banker" for a private corporation was not a proper purpose of government.

The bill received little or no consideration.

For the next five years, irrigation was discussed. Meetings were held, but nothing positive was accomplished. Severe droughts in the late 1860s had demonstrated the need for irrigation in Paradise Valley. During the 1870s, however, farmer enthusiasm for the idea rose and fell in direct relation to the dryness or wetness of the rainy season.

In a letter to the Stanislaus Weekly News, published July 7, 1876, Wheaton again proposed the creation of a private stock company to purchase the dam and its canals, offering to sell “for just what it has cost me, which is not a tithe of its actual value.” Again he suggested the shareholders in the company be limited solely to owners of land to be served and that each be allowed to acquire only as many shares as the number of acres of land owned, adding, “Land which has no stock subscribed for it shall have no water.”

A drive to raise volunteer funds to achieve this goal began early in 1877. Involved were many community leaders, such as rancher and banker Robert McHenry and others who subsequently played vital roles in the ultimate establishment and operation of the Modesto Irrigation District.

William H. Hall, who had completed the West Side Irrigation District engineering surveys the previous year, was hired. Hall submitted a most enthusiastic report at an April 4, 1877, meeting presided over by A. G. Carver, a sailor from Maine who abandoned the sea to search for gold, then in 1868 turned to farming. Carver later was to serve as president of the MID Board of Directors.

Hall’s proposal again embodied the concept of bringing “the land and the water together in joint ownership,” which he first had advanced for the ill-fated West Side Irrigation District. The corporation was organized, to be activated when 40,000 shares – one per acre – were pledged. The goal was never reached. No more than 1,300 shares were signed.

In 1878 the Legislature authorized the creation of a Modesto Irrigation District, a quasipublic landowners’ corporation to be subsidized by the county. This proposal contained, for the first time, provisions, for the sale of surplus water to generate electrical power. Apathy prevailed once more and the corporation was never formed.

As the years passed, the pressure for irrigation continued. Various proposals were submitted to the Legislature while farmers close enough to the rivers dug their own private ditches. Stanislaus County reports of 1881 show there were 26 miles of irrigation ditches in operation.

Then in 1886 Miller & Lux re-entered the picture.

When California joined the Union, its Constitution was based on English common law, which included riparian water rights. In brief, these provided that the owner of land bordering a stream had a right to use the water of that stream. State courts subsequently confirmed that this right included use of the water for irrigation. Gold miners did not accept this rule. Instead, they simply posted notices “appropriating” the water for sluices and hydraulic mining, a practice approved in 1872 by the Legislature. Thus, California law possessed two conflicting approaches to the use of natural flowing water, one constitutional and one legislative.

James B. Haggin owned thousands of acres of land between Bakersfield and Tulare Lake, but he held no riparian water rights. He built a canal and “appropriated” his irrigation water from the Kern River.

As riparian owners along the Kern River, Miller & Lux sued to block the diversions. The Kern County court decided in favor of Haggin, finding that the lack of rainfall demanded that water be taken away from riparian lands if the rest of the region was to be developed. The California State Supreme Court reversed this decision in 1886, upholding Miller & Lux’s riparian rights.

This meant that if Paradise Valley farmers not adjacent to the rivers ever were to get water, some public system had to be developed.

In fact, the Miller & Lux decision caused such consternation among farming communities throughout the state that Governor George Stoneman called a special session of the Legislature early in the summer of 1886. Some of the Supreme Court justices were accused of incompetence, but nothing was done.

Hall, by now the state engineer, published several reports attacking the riparian laws as unsuited to the environment of the West and opposed to the public welfare. Once again, he urged the development of a system by which the land and the water rights could be married, as he had advocated in earlier reports.

It was this climate that the state legislative election of 1886 was held. Both political parties in Stanislaus County were dedicated to the cause of irrigation. C. C. Wright, a La Grange schoolteacher who had become a most successful self-taught lawyer and served as district attorney, accepted the Democratic Party nomination for state assemblyman. His sole purpose was to achieve the enactment of a workable irrigation district law. This was his only campaign promise and he was elected by a substantial majority.

On January 11, 1887, Wright introduced a bill to authorize the creation of irrigation districts. These would be subdivisions of the State of California much as are counties and school, fire and other special districts. Boards of directors chosen by popular election would have the power to assess and tax all property within the district. One major difference between irrigation districts and the other special-purpose agencies was in the apportionment of the divisions from which each director would be elected. They were divided not only by population, but also by area. This departure of the “one-man, one-vote” doctrine has been upheld by the courts as recently as 1967.

In those days, the Legislature moved with considerably more speed than at present and the proposal was given unanimous approval by the Assembly on February 18. The state Senate took immediate action, amending the bill to strengthen the declaration that the use of water for irrigation is a public purpose and to safeguard existing rights on streams. The bill passed the Senate February 25th without a dissenting vote. On the following day the Assembly concurred in the amendments.

Miller & Lux and Haggin, still battling in the courts, united in a last-ditch effort to obtain a veto. In spite of the unanimous vote in both houses of the Legislature, Governor Washington Bartlett was wavering. Veto demands by Miller & Lux, Haggin and other “water monopolists,” as they were labeled by *the San Francisco Chronicle*, were self-defeating. The governor was convinced such vigorous opposition from these people meant the bill must have substantial merit. He signed it on March 7, 1887.

Wright, who was 38 at the time, returned home to be met by a large, enthusiastic crowd which escorted him to his home with “pomp and ceremony.” Although Wright was to practice law in Modesto for eight more years before moving to Los Angeles, the Iowa native did not seek state office again. He served one term for a single purpose, a good irrigation law, which he had achieved. In later years, attorney Wright defended the act in the United States Supreme Court.

With passage of the Wright Act, the stage finally was set for the development of successful publicly-owned irrigation districts. It also was set for legal and political battles which were to plague the Modesto district for a decade and a half.

The Years of Trial

Paradise Valley weathered the transition from cattle raising to “sodbusting” without the range war popularized in song and film of the “Old West,” but the change from dry farming to irrigation was not so easy. Interrelated fiscal and legal problems, each feeding on the other, were to plague the Modesto Irrigation District for the next decade and a half.

Except for a single incident reported by the *Modesto Evening News* of June 7, 1889, in which a Modesto Irrigation District attorney “implanted a blow on Judge Schell’s nasal organ which caused the claret to flow,” there was no record of violence such as was experienced in other areas during California’s early days of irrigation development.

Lines were drawn between the pro-irrigationists, generally small farmers and city folk whose economic health depended upon an expanding agricultural base, and their opponents, primarily the larger farmers producing vast quantities of grain in traditional ways. Intense battles between the two factions were waged in the courts and by the ballot boxes.

The large wheat farmers liked things as they were. They needed no other reason to oppose change.

Professor Elwood Mead, in a comprehensive report on irrigation in California – U. S. Department of Agricultural Bulletin 100, published in 1901 – commented on this aversion to change:

Men pride themselves on great undertakings and on doing what they undertake on a large scale. Wheat can be grown that way...It is an industry freed from detail...It has none of the petty incidents that go with the management of chickens and pigs, where cows are to be milked, and butter and eggs marketed, where each month has its duties, and where there is no time when something does not need attention.

This sort of farming comes with high-priced land and a dense population, but it does not appeal to the imagination like the plowing of fields so large that turning a single furrow requires a day’s journey, or the cultivation of the ground with steam plows and harrows which require five mule teams to operate them. The cutting, thrashing and sacking of grain in a single operation is spectacular as well as effective. In this respect, it resembles the range cattle business in its best days...

The cowboy on horseback was an aristocrat; the irrigator on foot was groveling wretch. In cowboy land, the irrigation ditch has always been regarded with disfavor because it is the badge and symbol of a despised occupation.

The same feeling, but in a less degree, has prevailed in the wheat-growing districts of California for much the same reason.

That Mead's evaluation of the aversion to change was especially true in Paradise Valley was confirmed personally by George Stoddard, who was deeply involved in the development of irrigation in the Modesto area from his arrival here in 1885. Stoddard, who served first as collector and then as treasurer of the MID from 1894 until 1943, made the observation in a 1942 interview with Benjamin Franklin Rhodes, Jr., who was then preparing a University of California doctoral thesis.

After the March 7, 1887, signing of Assemblyman Wright's California Irrigation Districts Act, the organizers of the Modesto Irrigation District moved quickly, but opponents moved even greater speed.

On April 25th, organizers circulated a petition calling for formation of the district. Seventy-three property owners endorsed the proposal. However, 11 days earlier before any formal move was made to create a district, opponents were in the field petitioning against the idea. One hundred six people, representing farms from eight to 3,720 acres in size that averaged between 400 and 500 acres per farm, signed the opposing petition dated April 14, 1887. The largest farm was that of Christopher Columbus Baker, who was to lead the opposition for nearly 15 years, even while serving 11 years on the district's board of directors.

Baker and another person whose name was to become synonymous with litigation in opposition to the district, William Tregea, were prominent in the formal hearings held before the Stanislaus County Board of Supervisors. Tregea, a Modesto harness maker whose trade allied him closely with owners of large farms, apparently foresaw the strong support which city voters would give to formation of the district. He thus made a strong appeal for its exclusion on the ground that city property would not benefit from irrigation as required for inclusion by the Wright Act. Countering Tregea's contention was a formal request from the Modesto Town Council that the city be included. This issue was to become the basis for litigation which ultimately reached the U. S. Supreme Court.

Baker and other opponents contended further that increased taxes would create unfair burdens without matching benefits and offered a rather novel contention that people with mortgaged property were not true "freeholders" as specified by the Wright Act. Thus, their names should be stricken from the

organizing petition. To have done so would have invalidated the petition because many irrigation supporters were living on and farming mortgaged land.

These arguments and a challenge to the basic constitutionality of the Wright Act were to be the foundation for lawsuits which would not be resolved until after the turn of the century.

After four days of hearings and a field trip to view the area proposed for inclusion in the Modesto Irrigation District, the county supervisors, in spite of the vigorous opposition, called for an election on July 9, 1887.

Tregea's fears proved all too valid. Overwhelming support by the people of Modesto carried the election with a favorable vote of 700 to 156, far exceeding the required two-thirds majority. In creating divisions for the election of directors to serve the proposed district, much of the town of Modesto had been assigned to Division 3. There, the vote was 526 to 25 in favor of formation. However, in the Empire division the vote was 42 to 33 against the proposal and in the farming area north of Dry Creek the vote was an almost unanimous 37 to 5 opposition. Outside the Modesto area, the vote in favor of establishing the district was 174 to 131, far short of the required two-thirds.

Not missing any opportunities to upset organization of the district in case it were to receive voter approval, opponents put their own slate of candidates on the ballot. Two were elected, J. W. Davison from Empire and E. H. Gatlin from the Dry Creek area. Baker, who sought the directorship in the Paradise area south and west of Modesto, lost to irrigation advocate W. H. Finley, 45 to 24. Eight years later Baker's son-in-law, W. W. Carter, unseated Finley, and Baker was elected to the board in 1897 when the foes of irrigation took control.

Modesto banker and rancher Robert McHenry was the only candidate the opposition did not contest and he became the district's first president. A. G. Carver, the sailor turned farmer who was an early advocate of irrigation, was the fifth member of the district's first board.

In the contest for district treasurer, Tregea accumulated 156 votes against 697 for the successful Isaac Perkins; 522 of Perkins' votes came from Modesto. Tregea carried the Dry Creek and Empire divisions, as did G. T. Hughes and C. M. Beckwith in unsuccessful bids for the posts of assessor and collector, respectively.

On July 23rd, the newly-elected Modesto Irrigation District Board of Directors, without a home of its own, met for the first time in the offices of the First National Bank, of which McHenry was president. The directors set about the novel and difficult task of organizing an irrigation district, an effort never before attempted. It was complicated by a lack of experience and a total lack of funds.

At the same time, opponents convened to plan their strategy for destroying the district.

A loose organization was formed under the leadership of Baker, a native of Kentucky who at the age of 19 had driven an ox team west during the rush of 1849 and settled on the Tuolumne River west of the present sight of Modesto, not to seek gold but to raise sheep.

In the wheat boom that followed, Baker grew grain on upland property, but continued to raise cattle and sheep on riverbottom land, some of which flooded frequently. Baker at one point charged: "Here they are charging me a high tax for land that is under water. Do you think I want irrigation for the frogs down in those swamp lands and ponds?"

The first challenge came in September 1888 when the Modesto district levied its first property tax of 33 1/3 cents per \$100 assessed valuation to raise \$13,000 for operation of the district, including the planning of the canal system.

Tregea paid his taxes under protest and promptly sued MID Collector T. O. Owens for recovery of his \$63.16 on the contention that the assessment had been made illegally without benefit of an election as required.

The Stanislaus County Superior Court upheld the validity of the irrigation district's tax. Four years later, the California State Supreme Court reversed that decision, holding that the Wright Act was so written that elections were required before tax assessments could be collected.

As a practical matter, putting the assessments to a vote would appear to have been a foregone conclusion in view of the overwhelming support City of Modesto voters gave to creation of the district and subsequent passage of bond issues. It was the first opportunity, though, for the opponents to take the matter to the courts.

The California Supreme Court in 1892 ordered a new trial in the case, but by that time Tregea and associates were so involved in a much more serious legal challenge to the basic constitutionality of the

Wright Act that they failed to follow through and a new trial was never held. The case and its subsequent decision proved to be a major hindrance to the district, however.

While awaiting the decision, the district continued to levy tax assessments without the benefit of elections. More and more property owners paid their taxes under protest, or flatly refused to pay at all. After the Supreme Court ruling, the practice took a substantial jump.

By that time, Baker and his colleagues in opposition had organized formally as the Defense Association, claiming to represent owners of 70,000 of the 108,000 acres originally included within the district boundaries. In effect, these were the 156 people who originally had voted against the district's creation.

The opponents took to the courts at every opportunity. Suits were so numerous in those early years of the Modesto district that George T. McCabe, in preparing a 1920 Modesto Board of Trade history of Stanislaus County, wrote, "When one spoke of irrigation, he usually meant litigation."

Defense Association attorneys won injunction against the sale of property for delinquent taxes. Finally in 1895 Stanislaus County Superior Judge W. O. Minor, himself a delinquent taxpayer, issued a blanket restraining order forbidding the district from selling any tax-delinquent lands until the *Tregea vs. Modesto Irrigation District* suit and another basic challenge to the Wright Act, *Bradley vs. Fallbrook Irrigation District*, were decided by the U.S. Supreme Court.

As a result of the state Supreme Court's 1892 ruling, Judge Minor's injunction and the depression which hit the nation in 1893 and 1894, the delinquent tax roll for 1895 accounted for \$41,300 of the total \$50,648 MID assessment.

Delinquent taxpayers that year and the next included three members of the MID Board of Directors, the irrigation district's attorney, the newly-elected MID assessor, the prime contractor on building La Grange Dam and canals, R.W. Gorrill, and, most notably, the MID treasurer, G.R. Stoddard.

In the interim, Collector Owens refused to turn over to the board of directors any of the funds which had been paid under protest. He feared that if the money were spent, he might personally be liable for repayment should the courts sustain the opposition.

This refusal to release funds was behind the earlier-mentioned altercation between MID attorney

C. A. Stonesifer and Judge O. W. Schell. Stonesifer alleged that Owens was committing a felony by withholding funds. Judge Schell disagreed, whereupon, according to the *Modesto Daily Evening News*, the attorney called the judge a liar and attacked him.

The most significant case of all, which went all the way to the U. S. Supreme Court, was one started by the district itself.

Throughout the state in the early days of irrigation district operations, it proved impossible to sell bonds because of the uncertainty of the constitutional validity of the fledgling districts and their yet-to-be established fiscal stability. In March 1889 the first in a series of legislative amendments to the Wright Act provided for judicial confirmation of proceedings through which individual districts were established and their bonds issued.

The Modesto Irrigation District initiated proceedings on July 31, 1889, to validate its organization and subsequent bond issues. On the same day the district reissued and sold \$400,000 of the \$800,000 in bonds voted a year-and-a half earlier but never sold for a lack of buyers. Opponents, represented by Tregea, intervened to fight the validation. Tregea, challenged the constitutionality of the Wright Act, the procedures followed in the bond election and the inclusion of Modesto land as part of the district.

In November, after hearing the case over a period of two months, Superior Judge Minor's decision promptly appealed by Tregea.

It wasn't until March 19, 1891, that the California Supreme Court upheld Judge Minor's decision which, as far as that court as concerned, put to rest all the issues raised by the opponents.

While much of the state court decision was devoted to technical issues such as whether proper notice had been given for the Superior Court hearings, the Supreme Court specifically addressed each of Tregea's arguments. In a decision written by Chief Justice W. H. Beatty, the high court pointed out that three years earlier it had ruled that the Wright Act was constitutional and that irrigation districts were public entities with the right of assessment and condemnation. This decision had been handed down when the Turlock Irrigation District brought a friendly validation suit against its own secretary, R. M. Williams.

As to the question of whether the city should have been included in the district, the California Supreme Court declared in its 1891 *Modesto Irrigation District vs. Tregea* decision:

Such as has been the intention of the Legislature, as is clearly apparent, and it being equally clear and notorious as a matter of fact that there are cities not only benefited by irrigation, but actually have in profitable use extensive systems for irrigating land within their corporate limits, it cannot be denied that the Supervisors of Stanislaus County had the power to determine that the lands comprising the City of Modesto would be benefited by irrigation and might be included in an irrigation district.

The court went on to point out that the law provides that each property owner and taxpayer is Entitled to his fair share of the water and if the land were not fit for cultivation because the taxpayer had built a shop on it, that was his problem. He still had to pay the taxes.

This was a total victory for the district, but it did not deter Tregua and his colleagues as they appealed to the federal courts, where initially they received a favorable decision at the appellate level.

The U.S. Supreme Court ruled in both the Fallbrook and Tregua cases November 16, 1896: The decisions once again upheld the validity of the Wright Act and of the irrigation districts created under it.

Of special note in the federal Supreme Court hearings on the Tregua case was the involvement of San Francisco Judge James A. Waymire, who has been called the “Savior of the Turlock Irrigation District.” Judge Waymire held a substantial number of TID bonds and when the Turlock canal contractor defaulted, Judge Waymire took over the contract and saw that the work was completed with the backing of his personal funds.

In the City of Turlock’s lively book about the development of the Turlock’s lively book about the development of the Turlock region, *Streams In a Thirsty Land*, Helen Hohenthal quotes Judge Waymire about his involvement in the development of irrigation in Stanislaus County:

By 1894, strong opposition to the Wright Law developed and many lawsuits attacking the constitutionality of the law, the validity of the districts and their bonds were brought. To make matters worse, a great wave of financial depression swept over the world, so affecting values that even wheat could not be sold for a time in California...Throughout the state, all irrigation construction ceased and the Wright Law seemed doomed. Firmly believing in the soundness of the policy and its ultimate triumph, I determined to make an effort to vindicate the principles embodied in the law by making a success of at least one district. As I held some of the Turlock bonds and had induced others to buy, I naturally turned to that district. ©

Judge Waymire had invested heavily in time and money in insuring the success of the Turlock Irrigation District when the United States Circuit Court in ruling on the Tregua case declared the Wright Act unconstitutional and the bonds issued under the law invalid.

Miss Hohenthal recounts what happened next:

Judge Waymire studied the federal court's decision carefully and decided to carry the case to the United States Supreme Court where he hoped to receive a favorable decision. The bondholders of the different districts raised the money to pay the expenses of the case, leaving to Judge Waymire the choice of legal counsel. And well did he choose them.

To handle the case at Washington, he chose Hon. John M. Dillon of New York, ex-judge of the United States Circuit Court, and Hon. A. H. Rhodes, ex-chief justice of California. Before the case went to trial, Judge Waymire had, in the course of a friendly visit with Associate Supreme Court Justice Field, at the justice's own suggestion, discussed the case with him. He suggested that Judge Waymire also secure the counsel of Joseph H. Choate, prominent New York lawyer. Justice Field, in recommending Choate, said the latter "had a pleasing way of presenting his cases and the judges like to hear him."

(It should be noted here that when the decision was issued, Justice Field's was one of two dissenting votes. Chief Justice Melville W. Fuller's was the other.)

Waymire wired Choate, but found he had already been retained by George H. Maxwell, leader of the opposition, for the sum of \$10,000. The next step of the story is best related by Judge Waymire himself:

"It seemed highly important to find a match for the eminent New Yorker. Finally, I thought of Hon. Benjamin Harrison, ex-President of the United States. He was the equal of any man as a lawyer, his personality would certainly be as interesting and impressive as that of Mr. Choate, and the fact he had appointed three of the judges would do no harm. Fortunately, I had a personal acquaintance with the general. A letter explaining the nature of the case and offering a retainer met with a favorable response." ©

Also deeply involved in the case before the Supreme Court was the author of the basic law, C. C. Wright, often referred to as the "Father of Irrigation Districts."

The basic issue decided by the highest court of the land was that the use of water for irrigation was a public use and as such the districts had the right to levy assessments.

The U.S. Supreme Court decision should have ended the district's troubles, but that was not to be.

No sooner had the Supreme Court ruled in favor of the Modesto district and the Wright Act than the anti-irrigationists attacked from another direction: a scheme to sell to private sources not only the Modesto district but also the Turlock Irrigation District.

The idea was to give the bondholders all the completed works, including La Grange Dam and canals, and acquired right-of-way in exchange for the release of the bonds. A decade of hassle had taken its toll and even supporters of irrigation considered the idea worthy of investigation.

Barely a month after the Supreme Court decision, a taxpayers' meeting was held to advance the sale proposal. A committee of Frank A. Cressey, James Johnson, J. W. Davidson, Hiram Hughson and Baker was named to explore with the bondholders their reaction to the proposal. Cressey, Johnson and Davidson were pro-irrigation, the others well established foes.

Contractor Gorrill, who had received a substantial number of bonds in exchange for construction work on La Grange Dam and MID canals, replied that the bondholders were receptive to the suggestion. He stipulated, however, that all debts other than the bonds must be paid before any transaction was consummated and each district must guarantee that a minimum of 15,000 acres would accept water at a price of \$2.50 per acre per year.

The 15,000-acre guarantee proved to be the stumble block. This constituted more than 20 percent of all of the Modesto Irrigation District where farmers, once burned by a decade of waiting for water that never came, were not willing to guarantee anything further.

As Cressey, acting as secretary of the committee, wrote Gorrill on January 5, 1897: "The land is not in a condition to receive the water and at present our farmers are in such a condition financially that they have not the necessary funds to put it in shape to receive the waters."

Although Cressey indicated a willingness to continue discussions, there apparently was no great enthusiasm on the part of the farmers to follow through on the terms set forth by the bondholders nor interest of the bondholders to compromise on these terms.

Shortly thereafter, the opponents of irrigation took even more direct action. Apathy caused by years of waiting for water with none in sight caused low-voter turnouts at district elections; anti-irrigationists capitalized on it to capture control of the board of directors.

The district's leading foe, Baker, won a seat on the board in the February 1897 election, joining his son-in-law, W. W. Carter, who had been elected two years earlier. With anti-irrigationists B. P. Hogin elected to represent the Empire district in 1897, the opposition now had a majority. The two surviving irrigationists were F. C. Davis, who was elected to represent the Modesto division, and Cressey.

The board refused to take any action toward completing the canal network, to levy taxes or to do anything positive. Carter, who believed in irrigation when not under his father-in-law's influence, and

Cressey resigned. This permitted the Stanislaus County Board of Supervisors to fill the vacancies.

Appointed were two ardent anti-irrigationists from the Defense Association, L. A. Finney and John Adams.

The Defense Association was in complete control then and, starting in 1897, all operations came to a halt. Such was the disdain the board had for the district that in October of that year it rented out the front part of its offices for a barber-shop!

For the years 1897, 1898, 1899 and 1900, no tax assessments were levied. Under the terms of the irrigation law, the Stanislaus County Board of Supervisors was required to levy taxes if the district board failed to do so. By a 4-1 vote, the supervisors, who had appointed two ardent anti-irrigationists to the MID board, refused to make the assessment, using the same argument as did the foes of irrigation serving on the irrigation board; that the Wright Act was unconstitutional and the Modesto district was not formed legally.

Irrigation supporters hoped the supervisors refusal would force the bondholders to act to collect their interest. That proved to be the case in 1899. George Herring of England was chosen to represent the bondholders so that the matter could be tried in the federal courts. In June the following year, the U. S. Circuit Court in San Francisco ordered the district to pay Herring \$17,921.25 in interest due.

Still the MID board refused to levy taxes.

Too impatient to let the district die a slow death by fiscal strangulation, the anti-irrigation board on May 3, 1898 urged the start of new legal proceedings to dissolve the district. R. J. McKimmon, an ardent opponent of irrigation who had served on the MID board from 1890 to 1895, brought suit to accomplish this.

With Davis, the only irrigationist remaining on the board, voting against the resolution, the board of directors voted not to defend itself in the case.

Judge James E. Prewitt, assigned to the Stanislaus court from Placer County to hear the matter, ruled in favor of dissolution of the district, stating that he was doing so only to bring the matter to a final California Supreme Court resolution as soon as possible. The higher court ruling favoring the continuation of the district did not come, however, until 1902. By that time, the opponents had gone too far in their efforts to kill the district and had lost control of its board.

The end of the opposition's control came in 1901.

In 1900, the Stanislaus County Board of Trade, composed primarily of Modesto businessmen, was formed to fight for irrigation.

There were no provisions for the recall of elected officials in those days, but an attempt was made to have the courts remove Baker as an MID director. A civil “accusation” suit was filed in the Stanislaus County Superior Court by J. F. Kerr, supported by a long list of pro-irrigationists. Baker, as a member of the MID Board of Directors, was accused of “corruptly” refusing to act on any of the pressing matters facing the district. The action was dismissed, not on the issues but on the technicality that the suit was not properly taken.

The beginning of the end came January 2, 1901, when the lone irrigation supporter remaining on the board, Modesto’s Director Davis, moved to call the regular election for that year. His motion died for lack of a second.

Ten days later, irrigation supporter R. C. Bailey asked the Stanislaus County Superior Court to mandate the calling of an election. Judge William G. Lorigan of Santa Clara County was brought in to hear the case.

The Defense Association attorneys, Judge Van R. Patterson of San Francisco and C. W. Eastin of Modesto, were prepared to wage a long delaying action, but Judge Lorigan set the trial for the following Saturday morning, January 19th, with the declaration that it would be completed that very day. By 4 o’clock that afternoon, the trial was over. Judge Lorigan ordered the MID board to meet the following Monday and schedule the regular February election. After a heated debate, the MID board complied with the order and called the election.

On February 6, 1901, the back of the opposition was broken. Three new directors, all strong supporters of completing the system and moving forward with the operation of the district, were elected. T. K. Beard defeated anti-irrigationist A. F. Underwood, 24 to 11, in Division 1. Underwood was so angered by the development that he sold his land for \$20 an acre and moved to Santa Cruz, according to historian Sol Elias. W. R. High defeated Adams, 271 to 32, in Division 2. Davis was not opposed in his bid for re-election and Baker was re-elected by a narrow margin of 25 to 23. Finney’s term had another two years to run.

Finney remained on the board until 1907 and Baker until 1908, but their days of opposition were over and the district moved ahead to completion and the delivery of water that had been promised so many years earlier.

Progress In The Face of Adversity

With the election of 1901, the Modesto Irrigation District was back in the control of those who believed in it, but statistically the odds in favor of its survival still were not high.

The Modesto district had not been alone in facing adversity, but it was one of the few agencies that survived. Of 49 irrigation districts formed in California during the first decade after passage of the Wright Act, only eight still existed in 1915 when Frank Adams of the U. S. Department of Agriculture published a major study of irrigation in California. Petitions for 10 other districts had been filed. Five died even before reaching the election stage; the others were defeated at the polls.

Eleven of the 49, mostly located in Southern California, were classified by Adams as speculative, but the remainder were serious attempts to bring water to the land either through the creation of new districts or acquisition and improvement of existing private irrigation systems. Failing districts died for a variety of reasons, including poor engineering, lack of economic feasibility, over-optimism about the availability of water and inadequate management. Creating irrigation districts under a new, untried law was difficult and brought unexpected results.

While Adams said “the disastrous mistakes” made under the original California Irrigation Districts Act “brought a tremendous economic loss to California,” he maintained the “final results (were) essentially constructive and forward.”

For the Modesto district, the final results were most satisfactory, although delays and doubts caused by more than a decade of litigation greatly depressed land values. Assessed valuations of land in the district plunged from \$4 million in 1888 to less than \$2 million by 1900. Small farmers suffered dearly, for they could not survive as producers of wheat in a declining market. Without water, however, there were few alternatives to dry-farming grain.

While statistically the odds were against success, statistics are not people. The initial Modesto Irrigation District directors and officers were “men well fitted for the important offices to which they were elected,” according to a *Modesto Daily Evening News* evaluation immediately after the election.

Robert McHenry, the district's first president, was a native New Englander who inherited that region's habits of industry and economy. President of the First National Bank of Modesto and owner of the 4,000-acre Bald Eagle Ranch north of Modesto, McHenry was the only one of the original five directors not opposed in the 1887 election. He represented much of the City of Modesto.

J. W. Davison, a native of Missouri, was an Empire area grain farmer, one of the first to harvest grain with a combine propelled by 32 mules and horses. A former county supervisor, Davison was elected on the anti-irrigation ticket to represent an area which opposed the creation of the MID. Davison was described by the *News*, however, as "a man of first class ability and full of push and energy...looked upon by the friends of irrigation as a good man for the place, knowing him to be possessed of sound judgement and very progressive," a description which events proved most accurate.

E. H. Gatlin, an east side grain producer farming 960 acres, was the other anti-irrigationist elected, receiving the same 37-to-5 vote cast in the division against the district.

A. G. Carver, the Maine sailor turned rancher, had presided over the 1877 meeting at which Engineer William Ham Hall had presented the basic concept for irrigating Paradise Valley that ultimately was adopted by the Modesto district. Carver was to be the second president of the district, serving until his death in 1891.

W. H. Finley, a Kentuckian who farmed 800 acres near Modesto, was to serve on the board until he retired in 1895, having been the third president for the previous four years.

Isaac Perkins, the MID's first treasurer, was the first hardware store owner in Modesto. V. E. Bangs, a pioneer teacher and farmer who was to be elected the following year to the California State Assembly, was assessor. T. O. Owens, a young farmer who had fought for irrigation, was the district's first collector whose later disappearance revealed a shortage of funds.

Getting the Modesto Irrigation District under way was a slow process, strictly a hand-to-mouth operation.

Historian Sol Elias, who at the turn of the century personally participated in some of the efforts to make the operation successful, commented in his *Stories of Stanislaus*:

The first directorates of the Modesto Irrigation District undertook a great enterprise under a new law, the provisions of which were untried, and the validity of which was as yet unadjudicated...There were no precedents to guide

(them)...The first directors groped for means and methods...The colossal magnitude of the problem necessarily impelled slow and deliberate action.

The process of getting water to the fields of Paradise Valley started quickly enough, for it was only two weeks after the initial organizational meeting of the board of directors that C. E. Grunsky of San Francisco was hired to prepare preliminary plans and estimates for an irrigation system. Both the Stanislaus and Tuolumne Rivers were to be explored as sources of supply.

In mid-August of 1887 Director Davison, who was serving as secretary to the board, filed in behalf of the Modesto district notices of appropriation on both rivers. For the next few months, Davison devoted all his time and energies to work with Grunsky in determining the feasibility of various reservoir sites on both rivers.

Although a year later the Modesto board was to opt for the Stanislaus River as its source, Directors McHenry, Carver and Davison had been authorized in September 1887 to meet with the Turlock directors concerning use of the Tuolumne. In the following month, Davison was named a committee of one to contact the Turlock district about possible joint canal operations. Both appointments were made before Grunsky had completed his report. Although MID board minutes fail to show any report on the MID-TID discussions, the idea of the two districts working together existed virtually from their creation.

It was to be three years before the two districts got together, however. The subsequent marriage has lasted for nearly a century, but not without occasional discord.

Today, preliminary planning of water resource development projects is measured in terms of years. Grunsky, however, made his report to the board in just 10 weeks.

He offered four distinct proposals:

1. Irrigate the entire district from the Tuolumne River, using Dry Creek as a canal for several miles; estimated cost, \$1,117,800.
2. Construct a 90-foot-high dam on the Stanislaus River two miles above Knights Ferry and irrigate all the district from this source; estimated cost, \$644,750.
3. Irrigate only 90,000 of the 108,000 acres then in the district by utilizing a Turlock Irrigation District canal down the south side of the Tuolumne River and then a pipeline across the river to the Modesto side; estimated cost, \$458,950.

4. Irrigate 90,000 acres through the joint TID-MID canal and pipeline across the Tuolumne and irrigate the rest of the district from the Stanislaus River; estimated cost, \$788,950.

Today, the concept of irrigating all of the district – which was reduced in size to 80,000 acres in 1889 by an exclusion of much high ground on the east side – by gravity flow via a main canal running through the rolling hills seems quite logical. That ultimately is what was done. In 1887, however, the *Modesto Herald* editorially wrote off the idea as “utterly impracticable” which “will receive no consideration” from the board of directors because of cost.

Grunsky leaned toward the Stanislaus as a source of supply, although its 1,050 square miles of watershed would yield less runoff than the Tuolumne’s 1,501 square-mile watershed, which also included glaciers at much higher elevations.

He outlined his Stanislaus River proposal in great detail, even indicating whose ranches the various canals would cross. The engineer’s concern about the Tuolumne as a source was whether there would be enough water to go around if the MID had to share with the Turlock district.

Even before making a final selection as to which river to tap, it was obvious that any solution would be costly, so on November 19, 1887, the board ordered a special election for passage of an \$800,000 bond issue. The December 19th vote overwhelmingly favorable, 439 to 76.

After traveling to Knights Ferry to inspect the proposed dam site personally, the board on June 16, 1888, voted to proceed with the development on the Stanislaus River. East side Director E. R. Crawford, who had succeeded Gatlin earlier that year, dissented.

Grunsky was authorized to hire whatever personnel he needed to prepare plans. Three months later, after two unsuccessful attempts to sell bonds, the fiscal plight of the district was such that Grunsky and his crew were dismissed.

There was no market for irrigation district bonds, for no one was willing to risk cash to invest in an unknown quantity that lacked a fiscal history.

By October district finances were so grim that the board of directors terminated the services of all employees, except James Rector, who was identified in the board minutes sometimes as a laborer and sometimes as “the construction department,” and recently-appointed Secretary W. W. Granger. Davison,

elected on the anti-irrigation ticket, had served as a volunteer secretary during the MID's first year of existence.

The Modesto Irrigation District survived strictly on credit until June 1888, when the district issued warrants to pay its bills for the first time in a year. Local merchants apparently accepted the warrants as negotiable. Until the first assessment could be levied, there was no money in the treasury.

Based on a \$13,000 operating budget for 1889, a 33 1/3 cents per \$100 valuation assessment was levied in September 1888 with payment due by December. In spite of payments made under protest, the district had money on which to operate. In January 1889, the year-and-a-half-old district was able for the first time to pay its bills with cash and start to redeem the warrants.

Engineer Grunsky was rehired and then refired.

The bay area engineer's telegram accepting reappointment said he would finish the work for \$150. When he got off the train in Modesto, he said that figure was a mistake and he wanted \$750. He was sent packing back to San Francisco.

Things began to seem brighter in March 1889 when the California Legislature amended the Wright Act to permit irrigation districts to file Superior Court proceedings to authenticate their creation and validate the issuance of their bonds.

The Modesto Irrigation District initiated these proceedings in its own behalf July 31st. The move sparked the celebrated *Tregea vs. the MID* suit, which finally was resolved by the Supreme Court of the United States.

As soon as Stanislaus County Superior Judge W. O. Minor upheld the validity of the district and its bonds, the Modesto district tried once again, seeking bids on \$400,000 in bonds, just half of those authorized by the 1887 election.

On January 28, 1890, San Francisco financier I. W. Wilbur purchased the bonds at 90 cents on the \$1. Two-and-a-half years after formation of the Modesto Irrigation District, construction finally could start on an irrigation system.

Stanislaus County still was wheat country – the *Stanislaus County News* in June 1890 described the county as “almost one solid wheat field as far as the eye could see” – producing 90,000 tons of wheat a year, but there was hope for something better.

All was not fiscal roses, however. In April 1891 when Owens, the district's first tax collector, disappeared from his job, family and town, a shortage of funds was discovered. He had not been paid for 14 months, however, and when the salary he was owed was deducted from the shortage, it turned out to be less than \$1,000. When he turned years later and the shortage was repaid, all charges were dropped.

But as the new decade of the 1890s progressed, there was renewed hope for irrigation and within a year grain farmers would be planting orchards in anticipation of the arrival of water.

Oramil McHenry, son of the MID's first board president, for instance, planted several hundred acres of tree fruit at the Bald Eagle Ranch, later expanded to 6,000 acres along McHenry Avenue north of Modesto. He provided interim water from nine 170-foot deep wells. Several nurseries were started that year in anticipation of the transition from wheat to tree crops.

But before water could be delivered, a system had to be designed and built. The first step was to make a final choice as to where to get the water.

In spite of an earlier vote to go with the Stanislaus, the district's third engineer in two years, Luther Wagoner, joined his immediate predecessor, P. Y. Baker, in recommending the Tuolumne River as a more dependable source. His decision was based on the Tuolumne's larger watershed: Its average annual runoff of more than 2 million acre feet far exceeded that of the Stanislaus, averaging 1.4 million acre feet per year. This convinced the directors, who elected to build on the Tuolumne.

M. A. Wheaton, who earlier had tried unsuccessfully to use his dam and water rights as the basis for a semi-public irrigation system, still was willing to sell. On June 18, 1890, the Modesto district bought the Wheaton Dam and water rights "at cost." The agreement provided the MID would pay Wheaton \$10,000 in cash and \$21,000 in bonds.

Wheaton's site was the most desirable on the Tuolumne River, a steep-walled canyon only 80 feet wide at the bottom. It had been used as a dam site since 1855 when a dam was built there to divert water for a flour mill. The mill dam had washed away during the Christmas Eve floods of 1867 and Wheaton replaced it with a sturdy structure built of 12-by-12-inch timbers held together with 16 tons of bolts.

Wheaton Dam had withstood substantial floods. It was not high enough, however, to divert water to serve the Modesto district by gravity flow. A new, higher dam must be built a short distance above it.

The Modesto board was hesitant to proceed alone in building a bigger dam. So in August the Modesto and Turlock boards met and agreed to join in building a new La Grange Dam.

At the time Modesto purchased the dam and water rights, Wheaton was having a dispute with the Turlock district over rights-of-ways for its canal.

In an apparently unwritten understanding between Wheaton and the MID, it had been agreed that the Turlock district was not to become involved in the use of Wheaton's dam or water rights. Enraged at the joint MID-TID agreement, Wheaton brought suit against both districts for an additional \$135,000. A Stanislaus County jury awarded him \$475. Since some of the property and water rights involved were in Tuolumne County, Wheaton sued again in Tuolumne and was more successful. The mountain county jury awarded him an additional \$35,000, of which the TID paid \$32,500 and the Modesto district the balance.

The two districts split the cost of construction of La Grange Dam, but 20 years later they divided costs and benefits generally in proportion to the respective acreage in the two districts: one-third for the MID and two-thirds for the TID.

Each district was to construct its own main canals and distribution systems.

On the last day of 1890, the Modesto District awarded J. R. McDougald of Stockton a contract to build a 9,640-foot section of the main canal from a point across the river from La Grange to Gasburg Creek. Construction soon would be under way, but it would be a long 13 years before the canal system was ready to deliver water to the farms of Paradise Valley.

In April 1891, in the same week that work was started on the main canal, a contract was awarded for the construction of La Grange Dam. It was the second bid attempt. In the previous September the best offer for placement of an estimated 32,000 cubic yards of material was \$10.45 per yard. Those bids were rejected as too high.

On the second round, on June 23, 1891, R. W. Gorrill was the successful bidder with an offer of \$10.39 per yard. The 6-cent difference in the bids amounted to less than \$2,000 on the total cost. The determining factor in accepting Gorrill's offer was his agreement to proceed with whatever cash the districts had on hand plus the balance in bonds at 90 cents on the dollar.

Under the agreement, the districts were to supply the cement, which it expected to purchase for \$3.45 per barrel. Anticipating the use of 10,000 barrels of cement and the placement of 32,000 yards of

rock, the estimated cost of the dam was \$332,480. Actual cost was \$550,000, with 39,500 cubic yards of rubble masonry held in place by 31,500 barrels of cement which cost \$4.50 each. Construction cost overruns are not a new phenomenon.

La Grange Dam, which still is the diversion point for the Modesto and Turlock Irrigation Districts 94 years after its completion, is a “Cyclopean rubble masonry” dam – huge boulders set in or surrounded by concrete. It is faced with rough dressed stone in cement mortar.

With no provisions for storage, it is strictly an overflow dam, 320 feet long, curved on a radius of 300 feet. At the base it is 91 feet, 6 inches thick, tapering to 12 feet thick at the top. When completed in 1894 La Grange Dam at 128 feet, 6 inches tall was the highest overflow dam in the world. It was designed to withstand flows of up to 17 feet deep over its crest. In the floods of 1911 and 1950, up to 16 ½ feet floodwater – an estimated 65,000 cubic feet per second – was measured pouring over its crest.

Construction started with the movement of material and equipment to La Grange in May 1891. The next three months were consumed in establishing a camp to house up to 200 workers and setting up rock-crushing and cement-mixing plants and other heavy equipment. All of this was moved by railroad to Waterford and hauled the remaining 15 miles by wagon.

Educator-historian Herbert C. Florcken recalls the wagon trains which moved the heavy freight and cement to the site:

The ordinary wagon held from five to ten tons and had attached to it two smaller wagons as trailers. Such a rig, if hauled by 16 mules, could transport about 16 tons of freight. The lead mules, just as in the case of pack-train leaders, carried a set of bells riveted to an iron band made in the form of an arch and fastened to both sides of the hames, which were in turn buckled onto the collars. The bells warned persons or teams about to start down a steep grade that a heavily loaded team was coming uphill. They also drowned out the clamor and creaking and groaning of the freight wagons and kept the eyes and ears of the following mules attracted to their leaders.

By October 1891, 25 feet of sand and gravel had been excavated from the riverbed, leaving a solid rock foundation for the dam footing.

By May the following year the dam stood 60 feet tall. Two of the three 4-by-5 foot diversion tunnels which carried the river around the dam site during construction were filled with concrete and closed off in 1893.

In 1893 when there were more than 150 men on the job, the Modesto district ran out of money. Twenty-seven people, including irrigation district law author Wright, several officers of district and private citizens purchased bonds at 90 cents on the dollar to raise by subscription the \$25,000 to buy needed cement.

The gates on the third tunnel were closed December 12, 1893, and the dam was completed officially the next morning. Three days later, heavy floodwaters poured six feet of water over the top of the new dam and throughout the rest of the winter the flow was never less than three feet over the crest.

Even before the dam was completed and with the canal system a long way from being finished, *Irrigation Age*, a monthly publication, featured, the Modesto and Turlock Irrigation District in a four-page article describing the systems as “the best in the country.”

It is ironic that the two directors who took the most active on-the-site roles in construction of La Grange Dam represented divisions which had opposed the initial creation of the Modesto district and which consistently had voted against construction bonds. George D. Wootten of Division 1 and Frank A. Cressey, Sr., of Division 2 were the committee named to represent the MID in dealing with contractor Gorrill and others involved in the project, including the Turlock Irrigation District. Both devoted full time to overseeing the dam project in behalf of the Modesto board.

Wootten left behind a small pocket notebook in which he had recorded notes about the progress of the project. Although most of the entries are accounts of quantities of cement used and on hand, how many yards of concrete were produced from a barrel – the quantity ran from about one-and-a-quarter to one-and-three-quarter yards – some notes shed light on the operations and life at the time.

Modesto district directors were paid \$4 a day when working for the district – at the dam site, at meetings or in court – and \$5.50 a day if they drove their own team. The mileage rate for attending board meetings was 20 cents per mile. Directors did not get paid mileage for court appearances. The railroad fare from Modesto to Folsom, where Wootten spent three days investigating sand sluices, was \$7.10. His board and room for the entire three days was \$3.25.

Stage fare from Modesto to La Grange was \$1.75. When Wootten drove his own team to the dam site, his food bill for two meals was 50 cents, but it cost \$2.25 to feed his team.

Wootten's only reference to a disastrous cement warehouse fire during the summer of 1893 is found in his recapitulation of the cement inventory. Warehouseman W. H. Finley's report to Wootten for the month of July showed 21,091 barrels had been delivered to the contractor, 3,100 had "burned in warehouse," 25 had been "sold," 201 had been rejected, 284 remained in storage.

One of Wootten's responsibilities was to keep an adequate flow of cement moving to the project. This did not always happen, as is noted in a December 5, 1893, entry eight days before completion of the dam: "Used all the cement there was in the warehouse yesterday evening. Expect the teams up by noon today. No work done on the dam this morning on account of not having any cement."

Among his final entries were December 13, 1893, "Completed the dam today," and January 30, 1894, "I, G. D. Wootten, received from C. F. McCarthy, representing R. W. Gorrill, possession of La Grange Joint Dam on behalf of Modesto Irrigation District. The following persons were present at the time delivery, to wit: W. H. Finley, J. S. Alexander. C. S. Abbott, H. S. Crowe. I put H. S. Crowe (then the Modesto district's engineer) in charge of La Grange Dam on behalf of Modesto Irrigation District.

Completion of the dam, whose spectacular overflow was to be described as "the Pacific Coast's answer to Niagara Falls," was followed by local people with great interest.

During construction, regular reports were published in the local papers, although notes of Don Pedro social events preceded progress reports on the dam. After its completion, the *Modesto Morning Herald* reported large parties of Modestans were visiting "the mammoth irrigation dam" at La Grange nearly every day, but commented: "They were all delighted with the sight, but regretful that the water was going to waste because of the still uncompleted canals."

Today, La Grange Dam is an historic engineering landmark, unique in design which probably never will be duplicated.

The late Roy V. Meikle, who from 1912 was chief engineer of the Turlock Irrigation District, noted in 1955 that the type of construction then used is not possible now because of today's high cost of labor and the fact today's arch-type concrete dams can be built more efficiently and economically.

Thus, by early 1894 the Modesto Irrigation District had a means of diverting its water from the Tuolumne River, but no place for it to go. Canal construction had been plagued with problems.

Work on the main canal, which was to carry Tuolumne River water by gravity-flow some 25 miles through the foothills to the district, had begun in April 1890. Even as the work progressed, the idea of serving the district solely through a gravity flow main canal was ridiculed as it had been earlier by the *Modesto Evening News* which still maintained it was “utterly impracticable.”

By 1892 Stockton contractor McDougald, who was building two sections of the canal totaling 36,400 feet, probably agreed with the News for he faced many problems. McDougald finished one 9,640-foot section in January 1892, but the work was not accepted because of a dispute over whether the job had conformed to specifications. An engineer for the district maintained it had not and even if it had met specifications, it should not be accepted.

Yesterday the (MID) Board and Contractor McDougald smoked the pipe of peace and buried their glistening tomahawks in the bed of the Tuolumne River. The tobacco for said pipe of peace will cost Mr. McDougald \$3,200 in the form of a rebate on his bill.

The district decided to repair the work itself, borrowing McDougald’s equipment, including his “pumps, piping, implements and camping equipment,” according to the press report. The contractor withdrew the lawsuits he had filed against the district and purchased district bonds in accordance with a prior agreement.

In the section between Gasburg Creek and Rairden’s Gulch, a distance of 26,760 feet, McDougald faced more difficult problems: digging a 1,150-foot tunnel and coping with everything from hard rock and hardpan to sand.

Tools and earth-moving equipment were primitive. A few early Caterpillar tractors, developed by Holt Brothers of Stockton, were used, but they were bulky and balky, underpowered, hard to maneuver and slow. Most of the canal work was done by “Fresno scrapers” pulled by horses or mules and operated manually by a man on foot. A man and team working an 8-foot scraper all day could move about as much dirt as a medium-sized earth mover can carry in a single load today.

In quick succession, the rest of the main canal contracts were awarded to other contractors in 1892. All were completed in 1893 and early 1894, but before the water could flow, gullies had to be spanned, headworks and gates installed at the dam and lateral canals dug.

San Francisco engineer Otto Von Geldern, who had assisted in the engineering of La Grange Dam, was hired to design the rest of the system.

In a letter dated April 2, 1894, Von Geldern condemned the first 4,000 feet of canal below the dam. In hardly more than a year after completion, he had found the “soft and rotten slate” walls of the canal disintegrating, allowing “water a free escape through the bank.”

To provide a safe and satisfactory flow of 640 cubic second feet of water through the canal, Von Geldern offered three solutions: 1) a concrete canal, 2) a wooden flume, 3) a tunnel.

The engineer recommended the flume because of cost and ease of construction, outlining a 16-foot wide, 6-foot deep flume built primarily of redwood. His plan called for a flooring of 4 x 10-inch beams 24 feet long placed laterally across the flume on 8 x 8-inch longitudinal stringers. The sides would be 4 x 6-inch posts, braced by double 2 x 6-inch planking spiked to each side of the post and the main timber. The whole interior would be lined by 2-inch redwood planking, battened at the sides to reduce leakage.

Figuring the redwood lumber cost \$30 per 1,000 board feet delivered at Waterford, \$7 per 1,000 board feet in hauling costs for the last 15 miles to the construction site and \$7 per 1,000 board feet in labor costs for construction, plus excavation work, Von Geldern computed the total cost of building 3,850 feet of flume at \$34,100. This cost did not include six trestle flumes which had to be erected over gullies in other sections.

Von Geldern subsequently designed the headgates and sluices to capture sand before the diverted water entered the flume. The headgates, it should be noted, would be made of 5 by 8-inch tongue-and-groove planking and would be 8 feet, 6 inches high by 18 feet wide. It would require two men operating hand cranks geared to a 12-inch worm gear to raise the gate. The engineer estimated that two men turning the cranks at the rate of 16 turns per minute could raise them 4.4 feet in 10 minutes.

Von Geldern underestimated the strength of Stanislaus County men and the speed at which they could crank up the 2,200-pound gate.

While the Modesto directors were inspecting the flume in April 1895 prior to acceptance of the work, the gates were raised too rapidly and the rushing water washed away 100 feet of the flume. It was replaced by July, but that was the last development to take place until the turn of the century.

In mid-1895 the MID board, on a 4-1 vote with irrigation opponent W. W. Carter dissenting, called for an election on a \$350,000 bond issue to finance completion of a system of laterals to serve farms

from the now nearly completed main canal. The bonds were approved 282-136, just barely the required two-thirds margin and so much narrower than the overwhelming 439-78 tally eight years earlier.

Delays caused almost continuous litigation brought by opponents were breeding disillusionment over ever getting water to the fields. The bonds went unsold and the Modesto Irrigation District entered a long period of inaction as the opponents took control of the board.

About all that happened from 1896 through 1900 was that the canal work completed during the first half of the decade deteriorated.

Alive Again!

The Modesto Irrigation District came alive again on February 2, 1901.

On that day the control of the district's board of directors was wrested from anti-irrigationists in an election brought on by the irrigationists' refusal to act. Modesto Irrigation District residents, comparing their disintegrating canals barren of water with the irrigation which had started the year before in the Turlock district, declared: "Enough!"

After a five-year hiatus, things began to happen.

The first problem, of course, was money. No tax assessments had been levied for four years and efforts had failed five years earlier to see bonds voted in 1895. The district indebtedness amounted to \$800,000 in outstanding bonds plus \$275,000 in interest due on these bonds. There were some \$50,000 in unredeemed warrants outstanding.

Voluntary subscriptions totaling \$1,433, amounts ranging from \$2.50 to a \$500 donation by Oramil McHenry, enabled the immediate hiring of Engineer R. H. Goodwin to determine what was needed to complete the system and bring water to the land.

By October of that year Engineer Goodwin had prepared a comprehensive plan for completing all the necessary works, including laterals to make the system fully operative.

One of the first things the new board had done was to set in motion procedures for reaching a compromise with holders of the 1887 bonds. As construction plans proceeded, negotiations went on between the bondholders and district officials, concluding on November 5, 1901, shortly after Goodwin had presented plans, specifications and cost estimates for the works.

The compromise included an assurance by the district that it would complete the construction expeditiously, with the district putting up \$71,000 toward its cost and the bondholders contributing the balance, approximately \$231,000. The district would exchange new bonds, voted under 1897 legislation which made irrigation bonds more secure, for the old 1887 bonds on a \$1-for-\$1 basis. The bondholders' contributions to construction were to come from interest coupons on the new bonds. Bondholders withdrew all suits against the district in which payment on the old bonds had been demanded.

As soon as the compromise was announced, a majority of the landowners in the district petitioned the MID board to call the election required for approval of a \$1,056,511 refinancing bond issue.

The back of the opposition was so badly broken that the bond election was approved 433 to 24. In the two larger divisions, Nos. 2 and 3, the vote was 205-15 and 188-9, respectively. The vote was unanimous in Divisions 1, 4, and 5 as farmers in former strongholds of opposition either stayed home on election day, January 13, 1902, or decided, "If you can't beat them, join them."

The latter certainly appears to be the philosophy of the two "anti-irrigationists" remaining on the board, C. C. Baker and L. A. Finney. They continued to serve for several more years without dissension, supporting the moves to refinance the indebtedness and getting construction under way again.

With the refinancing bonds approved, the district board set about to raise its \$71,000 share of the construction money. The bonds approved in 1895 but never sold were purchased by Oramil McHenry, president of the First National Bank of Modesto and owner of the 6,000-acre Bald Eagle Ranch.

Throughout subsequent months during which construction proceeded, McHenry provided the financial backing for many contractors and farmers in developing laterals and ditches.

Once funds were available, contracts were awarded for rehabilitating the main canal which had suffered serious deterioration during years of disuse, completing unfinished portions of the canal and constructing a steel flume across Dry Creek and a number of lateral canals.

Through contracts and by working for contractors, many farmers used their own teams and equipment to work off unpaid assessments during the year of restoration.

The main canal was operative to the district's boundary when water from La Grange Dam first flowed into Dry Creek at 7 AM on April 3, 1903.

A few days later, the steel flume crossing of Dry Creek, built by Pacific Construction Company, was ready for testing and a flow of 200 cubic feet per second was sent down the canal from La Grange Dam for the first time April 10th. During May and June, the main canal portions below Dry Creek and several laterals were completed.

On June 27, 1903, the water that had been promised more than 16 years earlier when the Wright Act was signed into law finally arrived. Farmers along the main canal soon were helping themselves to water and by September some laterals were delivering water.

The spirit of the community was summed up by the *Stanislaus County News* in reporting the initial flow of the Tuolumne River water across the Dry Creek flume in the simple declaration: “The water is here!”

It was truly a cause for celebration.

Chapter 7

Jubilee

And what a celebration it was! Starting upon the arrival of Governor and Mrs. George C. Pardee at 8 o'clock the evening of Friday, April 21, 1904, and the lighting of hundreds of electric lights strung through the streets to make the City of Modesto as bright as day, the three-day celebration included speeches, concerts, grand balls, athletic contests and excursions. The entire city was decked out in flags and bunting of green, orange and purple, the jubilee's official colors.

Sixty newspapers from throughout the state and nation sent reporters to cover the event that drew national attention. Excerpts from the two special dispatches sent by the reporter from the *San Francisco Chronicle* give a first hand, on-the-scene account of the festivities:

MODESTO, April 22 (1904)- "The wedding of the land and the water," that is the way Lincoln L. Dennett gave terse expression to the keynote of the jubilee in this little city when the formal functions were initiated this afternoon. The Governor emphasized the happy expression when he came to speak officially for California, and tonight several thousand visitors joined with residents of Modesto and Turlock Irrigation Districts in toasting the union and prophesying that it will be a long and prosperous one.

When the town retired at midnight last night, heavy clouds threatened, but the morning broke fair and cool, with a sunny sky above and no rain to mar the festivities and set the color running in the tri-color bunting which covers stores and houses – the orange for citrus products, the purple for the Smyrna figs and the green for the alfalfa crops which come five times a year.

The town was never more noisier, never more crowded and never before joyous. By trains, regular and special, automobiles and teams, new delegations to the festival have been pouring in since early morning from many counties. When the special cars from San Francisco arrived with the State Board of Trade and the California Production Committee, the scene of animation reached its height and this first successful large irrigation district realized in a wink how fully its own joy is shared by the great promotive organizations of California...

The formal opening of the jubilee was in a sylvan setting. Thousands of men and women filled benches which had been erected on the grass under the monstrous trees in the courthouse park. The Third Artillery Band played for an hour and then Governor Pardee arrived from a drive with his wife and others in the carriage of state festooned with the official festival colors.

L. L. Dennett said that this was the celebration of the wedding of the land and water, just as Venice used to celebrate it. Governor Pardee emphasized the truth of Dennett's words and expressed officially the pleasure of the citizens of California at what has been accomplished in the Modesto-Turlock joint irrigation districts.

Then the jubilee was on as per the card. While people crowded forward to shake hands with the Executive, a salute was fired and rockets burst into clouds of color in the sky. Adjutant General Lauck reviewed the battalion of National Guardsmen in camp here, under the command of Major Edward James of Fresno. Company A of Stockton, under Lieutenant F. A. Spencer; Company B

of Stockton, under Lieutenant Charles E. Hill; Company H of Merced, under Captain J. R. Graham, and Company D of Modesto, under Captain W. C. Grove, maneuvered in fine order.

Illumination of the City

At 8 o'clock came the grand illumination of the city. Thousands of lights, which were strung today to add to the effect, blazed across streets and over buildings. The grim outline of the big courthouse was marked with yellow lines. On the lawns and at the doors of residences soft Oriental lanterns swung in the breeze. The heavens blazed with the rockets and bombs. This day has been something of a triumph for certain men who have fought the battle for systematic irrigation in Northern California for years.

Upon the streets today was C. C. Wright, author of the law under which the Modesto-Turlock district has developed, the first thoroughly successful of its kind. Another visitor was Henry W. Cowell of Manteca, who with the late N. M. Harrold, sunk \$400,000 in constructing the Stanislaus irrigation canal in the southeastern part of San Joaquin County, the brinking of the money market leaving both men bankrupt just as the canal was completed. Harrold died in penury and Cowell is just beginning to recoup. His faith has never wavered.

Will S. Green of Colusa, the veteran irrigation expert of the Sacramento Valley, is here, prophesying a similar public rejoicing within his own section within five years. Judge J. A. Waymire who, has spent his private fortune to save the Modesto-Turlock district at a critical moment, says he is repaid in results, if not yet in coin.

Fine Lesson For Visitors

The visitor is met with the facts. He is told how the diverting of water down the south side of the Tuolumne River from La Grange to the Turlock canal has brought salvation to 176,000 acres and how the Modesto canal down the north side of the river has brought new life to 81,183 acres. Land has increased in value from \$60 to \$70 per acre and productiveness has increased a hundredfold...

At the park tonight, T. C. Hocking gave the substantial reason for the jubilee in a neat speech. P. H. Griffin spoke on behalf of Stanislaus County. Governor Pardee delivered an address upon the great work of irrigation upon the great work of irrigation which the state has before it and declared that other districts will profit immensely by the example of this one. Will S. Green, Elwood Mead, Ed E. Leake and C. C. Wright also made brief addresses. The evening closed with grand balls in the Armory and Rogers Hall.

IRRIGATION'S RICH

HARVEST SHOWN

Stanislaus Treats Her Guests to an Excursion Through the Great Canal Districts

MODESTO, April 23 (1904) – That water is wealth was the principle which the visiting participants in the Modesto-Turlock irrigation jubilee had expounded to them yesterday from a rostrum by men who knew, but it was the ocular demonstration furnished the visitors today which captivated their reason and aroused their enthusiasm. By far the most impressive feature of this gay celebration and flow of oratory was the excursion which this morning carried 30 railroad cars filled with visitors from other portions of the state over the twin districts which are divided by the two main canals and their laterals into great rectangles of Eden-like fertility. The very appearance of water-dependent orchards and alfalfa patches, whose crops come only with a flooding miles from any natural stream, was an eloquent tribute to the accomplishments of money, faith and dauntless labor.

“It is like a dream fulfilled,” said General N. P. Chipman, president of the State Board of Trade. “It is amazing and wonderful,” said Ed E. Leake of Woodland. “It is the clean-cut, successful example for the Sacramento Valley to follow,” said General Will S. Green, president of the Sacramento Valley Development Association. “It is not new to me,” said Judge J. A. Waymire, “for it has been my hope and my gospel for years.”

Others added for him that it had been so thoroughly his dream that he had cheerfully put it everything he possessed to make the scheme a success. In town the crowds enjoyed the military parade, concerts, fireworks, a review of the troops, an athletic field-day, addressed by distinguished speakers and two grand balls at night; but it was the visit to the cause of all of this rejoicing that won the praise and hearts of all for Stanislaus County and its enterprise.

Though the town retired late last night, more people than could be accommodated were on hand when the two special trains prepared to leave the depot this morning at 8:30. The visitors were first carried northward across the Modesto Irrigation District to the San Joaquin line. In the laterals which were crossed, the water had been running for only three months, and yet the first fruits of irrigation are already apparent. Wherever a strip of wheat has been reached, the grain shows a darker green, denoting its superior quantity and quality. Whole farms divided by the check levees into alfalfa patches are already producing the valuable fodder. In a hundred fields, the visitors saw men with scrapers throwing up the low dikes about the land which has borne a crop of wheat for the last time.

The fresh paint of new homes glistened everywhere. Ripon and Salida, which have been towns in hardly more than name, are being converted by carpenters and masons into extensive centers. The trains traversed the distance back to Modesto and moved on southward through the Turlock district. Three years of canals and laterals have given this district a great lead. Some of the water-born orchards are already beginning to bear. The alfalfa flourishes from a deep root. Whole tracts of Calimyrna fig trees are shooting out branches.

Vegetable gardens and flower gardens surround the comfortable country homes. In the shade of oak, sleek herds of dairy cows chew the cud and dream of pasture aplenty. Two large creameries are to be seen and the visitors learned that the twin districts, which five years ago imported all their butter from San Francisco, passed the million-pound mark with their dairy products export in 1903, while this year's gain is estimated at 60 percent.

Some of the excursionists left the train at Ceres, four miles south of Modesto, for a drive through the tracts given over wholly to figs. Those who went to Turlock with the train saw a town which is having a phenomenal growth and a great area which is coming under a new sort of cultivation through the work of the Swedish Colony. In 1902 the first Swedish family arrived from Iowa. Now 200 Swedish families comprising, 1,100 industrious people till farms of from 20 to 40 acres, which they purchased at \$25 an acre and which are now worth twice as much.

The citizens of Turlock had decorated the town in honor of the visit. Secretary L. M. Fletcher of the State Board of Trade, who had been placed in charge of the excursion, was escorted to the place of public gathering and crowned with the identical silk hat which Bob Fitzsimmons wore upon arrival in this country from Australia. Secretary Fletcher proudly bore away the tall tile, which had been appropriately draped with the national colors. W. J. Higgins, assistant trainmaster of the division, catered to the wishes of his passengers in halting the trains wherever requested so that points of construction in the laterals and diversion ditches could be studied.

The return to Modesto was made in time for lunch, and on the way through town the visitors stopped to watch the water flowing through the model of the La Grange Dam and canals, which gives a fine idea of the big engineering achievement and shows how 1,920 cubic inches of water per second is started out for distribution over the two districts.

The military parade drew the throngs to the sidewalk again and a review of the battalion by Governor Pardee followed, before the departure of the executive and his wife for Sacramento on the afternoon train. General Lauck, Colonel Handy, Colonel Weineker, Colonel Whitmore, and other officers in showy uniforms lent dignity to the review. W. H. Hatton presided over the exercises under the trees in the park. A children's chorus, the splendidly drilled adult chorus of Modesto and a double quartet rendered appropriate songs.

Judge Waymire told of the struggle which had been crowned with success at last, and also dwelt upon the importance of the visit of the California promotion committee and the State Board of Trade to the districts at this time.

"They will help you in bringing here the people to reap the harvests upon this rejuvenated soil," said the speaker. Colonel John P. Irish told how C. C. Wright, then a young attorney of Modesto, had come to him with his idea of a great system of irrigation and his plan for the law, now known as the Wright irrigation law, by which the formation of successful irrigation districts would become possible. He delineated the long struggle with prejudice and hard times and eulogized its final results. Mayor C. C. Williams of Stockton expressed the pride which the Queen City of the San Joaquin Valley feels in Modesto's great accomplishment.

A re-illumination of the city with the new current from Knights Ferry and another pyrotechnic display ushered in the closing night of the jubilee. F. A. Cressey presided over the exercises at the brilliantly lighted park. General N. O. Chipman spoke on behalf of the State Board of Trade and President Benjamin Ide Wheeler of the University of California made an address in which he prophesied a sometime population of 10,000,000 for the San Joaquin Valley. Other speakers were Dr. Washington Dodge, assessor of

San Francisco, Will S. Green, Professor H. Morse Stephens of the University of California and C. C. Wright, father of the Wright irrigation law, who was warmly received.

Hamilton Wright spoke for California promotion committee, and the whole evening was marked with enthusiasm, the visitors having come to share the feelings of the residents to a marked degree. The Third Artillery Band rendered music, supplemented by local singers. Balls at Armory and Plato's Halls followed.

The visitors began leaving this afternoon and early trains tomorrow will convey away all of them who do not remain to join the excursion to the La Grange Dam. With one accord the visitors are expressing in speeches and privately their enthusiasm over irrigation as it is shown here and the gratitude for the magnificent hospitality of Modesto which has made their sojourn an uninterrupted delight. The local committees are more than pleased with the outcome of the jubilee.

The logistic problem faced by a community of 2,500 hosting an estimated 5,000 visitors for two days did not dismay the people of Modesto at all.

Working through a Modesto Board of Trade committee headed by George McCabe, Modesto found ways to solve all difficulties, building "short order restaurants" on vacant lots, bringing in extra Pullman cars and encouraging home owners to take in guests to ease the burden on overloaded hotels.

The electricity for the street lighting display was brought in especially from Knights Ferry. A steam merry-go-round from Stockton was a favorite with the children. Railroads provided round-trip tickets for one-way fares and advertised the jubilee from Bakersfield northward to the Oregon border.

Five thousand oranges were purchased at \$15 per 1,000 from orchards in Knights Ferry to be given away as samples of the fruits of irrigated land. A working model of La Grange Dam and the upper works of the canal system was built and put on display.

It was quite a party. Nothing like it has been seen since in the town which today has grown to more than 140,000 people, a growth which was forecast April 22, 1904, by Professor Elwood Mead of the U. S. Department of Agriculture, who declared in his tribute to the two districts:

The great material benefits which are to come to the tillers of these fields are not, however, the best features of these districts. It is of greater moment that land and water are here united; that the users of the water control it; that the people and the evils and dangers of water monopoly are here impossible.

Following the Jubilee, the California Promotion Committee, based in San Francisco, which had attended the celebration en masse, wrote a piece that was much quoted throughout the nation. It concluded:

Much has been done in Modesto, and water – just plain water – is the foundation stone of it all. Much remains to be done and for years the process of evolution will continue. But the new order of things has come to stay, and in a few

years water, nature's first aid, will have made "old Stanislaus" one of the garden spots of the most favored of all lands, California.

Indeed, as a weary but happy Modesto awoke the morning of Sunday, April 24, 1904, the work was just beginning in that region, which the *New York Sunday World* in a special California edition had referred to as the "Western Valley of the Nile."

But, the primary task of uniting the land and the water had been achieved.

The Maturing Years

For the decade and a half after the delivery of water to the lands of the Modesto Irrigation District, growth was phenomenal in every way.

In 1903, even before irrigation water finally arrived, land prices started to climb. When cattle dominated Paradise Valley's agriculture 30 years earlier, land went begging at \$1.25 an acre. Now it began to sell for \$35 or more per acre, and this was only the beginning. Within a couple of years when large wheat ranches were divided into 40-acre tracts, they were sold for \$100 an acre. Between 1900 and 1920 land values increased by 549 per cent in Stanislaus County, a pace faster than in any other county in California.

The long, troubled wait for water after the 1887 creation of the Modesto Irrigation District took its toll on property values. By the end of the century, MID assessed valuations were less than half of what they were 13 years earlier. The recovery once the water arrived was spectacular. In just the first year after irrigation began, property values doubled. By 1915 MID assessed valuations had increased more than 300 percent, even though they now were computed only on the value of the land. Assessed valuations on buildings and other improvements were ended in 1911.

For tax assessment purposes, the MID fixed the land values at \$80 per acre, a figure which the Irrigation District Bond Commission a few years later estimated to be about half the true market value. For nearly a half century, until irrigation taxes were canceled outright in 1959, the assessed value of land was not increased even though property values skyrocketed.

Although some farmers had helped themselves during 1903 when water first was turned into the main canal and laterals, the official start of irrigation came in 1904. Oramil McHenry, who had done so much to get the district back on its feet; George Covell, who in 1909 became an MID director, and T. H. Kewin received the first water.

From the outset it was recognized that earthen ditches were, at best, subject to erosion and provided a fine playground for gophers. If disastrous breaks were to be avoided, constant patrolling was essential. Thus originated the job of ditchtender.

At first ditchtenders were concerned primarily with preventing breaks. Dick Funk of Roberts Ferry was the first MID ditchtender, hired as soon as water began to flow in the main canal.

At 5 o'clock every morning Funk would mount his horse and ride down the canal bank for about 10-miles, cross over and return on the other bank, arriving home by noon. After lunch and a change of horses, Funk would ride two miles up the canal to La Grange and return.

Funk's son, Iver, who succeeded him as ditchtender in 1949, recalls in the early days of unlined canals that the hazards were squirrels, gophers and the 11 troublesome wooden flumes. By the time Iver Funk retired 1975 – father and son had served as MID ditchtenders a total of 71 years – automobiles, radios and modern equipment allowed him to patrol the entire distance from La Grange Dam to Modesto Reservoir with ease, in much less time and much more efficiently.

It soon became apparent that the ditchtenders serving irrigated areas had to be more than patrolmen. They also had to control and allocate the use of water.

The enthusiasm for irrigating was such that some farmers used as much as 10 acre feet of water, four times that needed. Many applied water just to just drown gophers or to settle their newly-leveled lands. Farmers often helped themselves by raising gates to let the water flow. Only a few days after the start of the first irrigation season, things were so bad that ditchtenders put locks on the canal gates.

In June, 1904 the board of directors found itself forced to adopt a stringent set of rules.

Each irrigator would be notified 24 hours in advance when to start and stop taking water. He took it or lost it, whether it came night or day. Irrigating was limited to a maximum of one-and-a-half-hours per acre of land. The water was to be furnished in rotation, commencing at the lower end of each lateral or ditch. Only district personnel were allowed to open or shut the gates. Violations resulted in the denial of water. The whole system and its operation were under the control of a water superintendent appointed by and responsible directly to the board of directors.

That wasn't the only operational problem the MID faced.

George Hughes of Waterford was hailed into court in January 1904 for damming the district's lateral No. 1. Hughes contended that the district failed to deliver. When his team got stuck in the mud, he took matters into his own hands and put a dam across the canal over which his team could cross comfortably.

As the large grain farms were broken up into smaller parcels – the 2,400 acre Wood ranch, for instance, in 1904 was divided into family farms of 30 to 45 acres – the population of the county increased by 10 per cent each of the years 1904 through 1906.

The subsequent population growth in the district is reflected in the rapidly increasing number of assessment payers during the first 15 years after the arrival of water. By 1920 there were 4,146 on the assessment rolls, five and a half times the number when the district organized.

Almost immediately, alfalfa became the dominant crop. Although specific crop acreage statistics were not kept by the Modesto district until 1908, it is generally accepted that dairying was to become a major factor in the region's agricultural economy in that first year of irrigation. Modesto already had a creamery in operation and alfalfa was a quick, profitable cash crop to produce.

And Modesto district farmers had the example of their counterparts in Turlock to follow.

In 1904 the San Francisco Bulletin reported from Modesto the economic advantages of growing alfalfa, claiming that as a result of irrigation, 20 acres, yielding one-and-a-half tons per acre per cutting, could support 30 cows. Milked by one man earning a salary of \$35 a month, the herd would return from \$4.50 to \$7 per cow per month, with all the skim milk being returned to the dairyman. He fed this to his hogs and calves, the raising of which covered his daily operating expenses. The acquisition of livestock and land and readying it for irrigation amounted to an estimated \$350 per cow, an investment which could be amortized easily within a few years.

The acreage served by the Modesto district jumped 52 percent in its second year of irrigation with a total of 10,500 acres receiving water. Another 21 percent gain in irrigated acreage was recorded for 1906, a year in which many farmers began thinking about crops other than alfalfa. Stanislaus County statistics show that 1.5 million grape vines were set out and another 2 million were planted in nurseries that year. Also set out were nearly 200,000 fruit and nut trees – 80,000 peaches, 40,000 apricots, 30,000 figs, 20,000 almonds, 15,000 oranges and 10,000 other types of fruit.

In its first edition of 1907, the Stanislaus Weekly News looked back on the just-ended year with great enthusiasm, commenting:

The great wheat fields have been gradually diminishing for several years but last year was marked by a wonderful change. Like magic the wheat fields of a year ago have been transformed into great vineyards and orchards of fruit of all kinds, both deciduous and citrus...

The past year has been one of the great activity in land division; many large tracts have been subdivided and populated by new people...

One of the most significant results of the year is the great increase in diversified farming...Orchards and vineyards now dot every portion of the county, and are yielding such handsome profits that some farmers have decided to plant their entire acreage to fruit.

By 1907 the irrigated acreage had increased to 15,527 acres, two thirds of which were planted to alfalfa.

Many vineyards and orchards now were producing, however, having been planted earlier in anticipation of the delivery of water and irrigated by various means, including windmills. A crop pattern which ultimately would prevail throughout the district was established.

As early as 1902, for instance, McHenry's Bald Eagle Ranch was described as including 10,800 French prune trees, 2,500 Adriatic fig trees, 2,000 apricot trees, 72,000 muscatel grape vines and 4,000 pear, apple, olive, peach, almond and walnut trees.

As these and other orchard and vineyards came into production, a canning and packing plant was opened in Modesto in 1908. For the first time, Paradise Valley's fruit need not be exported to other areas for processing.

The Salida Colony, an extensive small farm subdivision of 30 to 60 acre parcels, was established in 1907 in the northern portion of the Modesto district.

In the winter of 1907- 08, two special rail coaches traveled throughout the nation displaying fruits grown in the Modesto and Turlock Irrigation Districts. They also carried a full complement of real estate agents promoting small farm and residential developments.

Irrigated acreage increased by 19 percent in 1908 and again 1909. Land sales boomed as local developers sponsored railroad excursions from Los Angeles to promote the sale of family farms in the Modesto and Turlock Irrigation Districts. The 1,500-acre Paradise ranch five miles west of Modesto was

divided into 40-acre parcels and sold for \$100 per acre. The same thing took place in 1910 at the 5,000-acre Root Ranch a short distance east of Modesto.

In 1909, 22,137 acres were irrigated, 16,307 of which were in alfalfa. The following year Stanislaus County became one of the leading dairy counties in California. The dairying industry had doubled in just five years, shading the dominance of wheat, once the king of crops. The census that year recorded 2,687 farms in Stanislaus County, an increase of 183 percent over the total 10 years earlier. The gain in the number of farms throughout the state in the first decade of the 20th Century was only 22 percent.

The population of Modesto – and the county – had doubled during the decade and the county seat was in the midst of a great building boom, installing sewer systems and even paving some of its streets. Residents were demanding that the city install street signs.

Modesto, which two decades earlier had a Barbary Coast reputation with such a murder record that San Francisco papers had reported the town “served up a man for breakfast every day,” developed culture. A choral society and an orchestra, which a couple of years later would offer selections from grand opera, were organized. And there was talk of starting a free library for the county.

In 1910 the Modesto and Turlock districts were joined by Modesto’s neighboring Oakdale and South San Joaquin Irrigation Districts and Fresno County’s Alta Irrigation Districts Association of California. Today that organization, now known as the Association of California Water Agencies, represents more than 300 districts which are responsible for approximately 85 percent of all water delivered in California to municipal and industrial consumers as well as agricultural users.

“Water, Wealth, Contentment, Health” became the theme of Modesto in 1911 when businessmen of the city installed the steel arch over I Street.

That also was the year in which the Modesto and Empire Traction Company started operations, connecting the Santa Fe Railroad line in Empire with the Southern Pacific tracks in Modesto to provide better rail access for shipping Modesto’s agricultural products to all areas of the nation.

A Southern Pacific rail depot was built in Modesto and the city council was negotiating with Tidewater Railroad a franchise that would permit Tidewater to lay tracks along 9th Street.

A 20,000-acre increase in irrigated land was recorded between 1910 and 1913, again with alfalfa responsible for virtually all of that gain. By that time, 41,716 of the 48,269 acres irrigated were planted to alfalfa.

The late Paul Christian, who for years taught history at Modesto Junior College and specialized in the history of the local irrigation district, described 1913 as the year “when irrigation gained the upper hand...it was no longer a period of trial and error.” More than half of the tillable land in the district was under irrigation. The land served by the MID had increased by 160 percent during the previous five-year period.

In comparison with today’s high-technology high-investment farming, a University of California economist advised in that period that with a capital investment of \$16,000, a farm should gross \$4,000 a year, \$2,000 of which would cover operating expenses, \$800 would pay interest on the investment and the remaining \$1,200 would be net income.

Before the end of the decade, Borden’s was to establish a major plant in Modesto and the Milk Producers Association, which grew to be one of the largest dairy cooperatives in the nation, was organized here.

As the second decade of the 20th Century ended, Stanislaus County had become the 27th largest producer of crops and livestock in the nation. Boasting some 4,000 automobiles, according to the county assessor’s report, Modesto was the fastest growing community in the San Joaquin Valley. Stanislaus County was second only to Los Angeles County in the pace of growth.

The county seat took great pride in having a most active Chamber of Commerce, Rotary Club, Progressive Businessmen’s Club, Women’s Improvement League, five grammar schools and a new high school. Soon one of California’s first junior colleges was to open and the city had just voted funds to develop a “modern aviation landing field.”

As Modesto entered the new decade of the 1920s, the building boom continued with 350 homes under construction. The Modesto and Empire Traction Company had developed a 100-acre industrial tract in the southeast section of town with 35 major industrial plants and packinghouses. Agriculture-related industries employed more than 2,000 people in the city and a new cannery was about to be built by the Tri/Valley Growers Association.

In 16 years nearly 60,000 Modesto district acres had been brought into irrigation; barely 6,000 acres were left in grain, which had covered 80,000 acres 20 years earlier. The agricultural economy had changed from dry farming of wheat on huge acreages to family farms producing a variety of products. The district had achieved worldwide recognition and a procession of foreign agricultural experts and other visitors began arriving to learn how it was done.

The opening of the decade of the 1920s was another turning point for the MID. The transition from primarily alfalfa to fruit, nut and vine crops, which already had approximately 20,000 acres in production, was gaining momentum.

The *Modesto Evening News* then described Modesto as having “grown out of the countrytown class and rapidly approaching the development of a large California city with a distribution center paralleled by a few San Joaquin Valley towns.”

The Modesto Irrigation District and the Paradise Valley which it served had reached the age of maturity.

Growing Pains

Growing up is a learning experience and a period of adjustment for institutions as well as individuals, and in its formative years the Modesto Irrigation District had more than its share of growing pains.

A short supply of water and imprudent use of it created unanticipated problems once water flowed down the canals for distribution to farms in 1904. There simply wasn't enough water to go around and the demand for it increased faster than the system could be expanded and improved.

The first three decades of the a 20th Century produced great interest and personal involvement in irrigation matters, much more so than at present. This was due partly to the uniqueness of the venture and the trials of growing up and partly to the importance of irrigation in a changing agricultural economy. But just as important, according to Mathew Fiscalini, who retired at the end of 1985 after serving nearly 29 years as a second-generation MID director, is the fact that people then took more interest in the operations of the district.

“There were no other attractions, TV and things like that to keep the people's interest,” Fiscalini comments. “They devoted more time to talking and thinking about the irrigation district and its directors, which might have created more turmoil.”

Turmoil there was!

Early-day irrigators were a vocal bunch, occasionally talking with their fists, but more frequently with their ballots. Late in 1911 a state constitutional amendment allowed the recall of public officials in California.

From 1912 until the mid-30s, attempts were made to recall 19 MID directors. Eleven attempts were successful and in some instances directors chosen on a recall vote were themselves recalled within a year or two. Mass meetings on the issues drew hundreds of people to debate and protest. On occasion, opponents slugged it out.

Some disputes involved San Francisco's move onto the Tuolumne River watershed and the director's reaction or lack of reaction thereto. Most involved local issues, however. These varied greatly. Some were major, such as the storage and distribution of water, sale or distribution of power, allocation of limited finances for improvement of the main canal or laterals. Others involved lesser problems such as a director taking water out of turn, general management of the district, or just general dissatisfaction with the way in which a director represented his area.

Robert Durbrow, who for years was executive secretary of the Irrigation Districts Association (now the Association of California Water Agencies), explains that until the 1960s no formal reason had to be stated on recall election petitions, commenting: "You could try to recall a director just because you didn't like the type of tobacco he was smoking in his pipe."

Internal disputes among board members were frequent. It seemed that every board had one or two dissenters and none was timid about speaking out. As early as 1913 the *Modesto Morning Herald* gave special attention to a letter from an unidentified reader who cited "petty spies" and "sectional feelings" among board members as having "wrought incalculable damage to the district as a whole and retarded its progress."

The writer went on to say that other districts found it almost impossible to do business with the MID, adding: "We have had no definite policy, our dirty linen has been aired to the edification of the whole state and our prosperity hurt accordingly."

Throughout the early years, regardless of who was serving on the board, the directors generally set policy and then appointed one of their own to administer that policy. This practice came under frequent attack and resulted in some recall efforts.

Water, its delivery, its use and its misuse were the main causes of growing pains, however.

The 1904 irrigating season lasted until September 2nd and by late summer the need for additional water became obvious. The following year was gone by August 4th, causing even stronger agitation for storage facilities.

Early in October a large group of irrigators petitioned the board to build storage reservoirs. The districts immediately filed for an additional 50,000 miner's inches of water to supplement its initial appropriation of 225,000 miner's inches obtained in 1890, but no plans were made to store it.

In 1905 the district showed a fleeting interest in Lake Eleanor and Benson Lake, both on tributaries of the Tuolumne River in Yosemite National Park. In November Directors T. K. Beard and W. R. High reported that federal agencies had withdrawn all reservoir sites in Yosemite and in the surrounding forest reserve, which seemed to end any discussion of that possibility. Eight years later following a monumental struggle, the City of San Francisco won the right to develop reservoir sites not only at Lake Eleanor but also in Hetch Hetchy and Cherry Valleys.

Although the irrigating season never lasted beyond September 4th and usually was over by early August, little was done about storage until 1908, when the Modesto and Turlock directors met jointly to discuss possible solutions.

Separate engineering surveys led to the decision that each district should provide its own storage along its own main canal below La Grange Dam, over which large volumes of water spilled during spring and early summer. The diversion and storage of this excess water were expected to meet late summer demands.

Recommended for Modesto was a series of low earthen dams to enlarge into a single reservoir the existing natural Dallas and Warner Lake near Waterford. The combined reservoir would cover 2,800 acres and have a capacity of 27,700-acre feet. The cost, later claimed by some to have been underestimated deliberately, was set at \$200,000 and a bond issue in this amount was approved by an overwhelming majority of voters on April 17, 1909.

Bids were called but none was received. Over the vigorous objections of Director George C. Covell, the board authorized Water Superintendent A. Griffin to negotiate a contract for the work. In August he reported that T. K. Beard, who had served as an MID director from 1901 to 1907, would be the contractor.

This raised a storm of protest throughout the district, with the Salida Chamber of Commerce formally condemning the board's failure to readvertise for bids. Protesters also raised the cry of "conflict of interest" because the district's legal counsel, L. L. Dennett, in his private practice also represented Beard. More than 200 petitioners demanded an explanation. Whether or not the explanation satisfied the objectors, Beard proceeded with the contract.

At a special meeting on the matter, it was admitted that cost estimates were knowingly low, but the board feared the public would not vote \$250,000 in bonds. Once the work was started, however, directors had little doubt that the taxpayers would approve the money to complete the job. Whether or not the people would have approved the larger amount in the first place is unknown, but in November 1910, a year in which irrigating ended on July 23rd, a 330-to-82 vote approved bonds for the additional funds required.

Actual cost was \$271,809.

“Much difficulty was encountered in building Dallas-Warner,” comments Charles Crawford, who served for many years as irrigation engineer for the MID and climaxed his long career as project coordinator for the New Don Pedro Project. “This was due to the nature of the soil and lack of experience in constructing earth dam.”

Earthen-dam construction was primitive in those days. Only three of the seven dams built to create Dallas-Warner – now known as Modesto Reservoir – had cores and these were of rigid concrete. The earth was moved by railroad gondola cars, loaded by clamshell buckets and then just dumped over the top of the cores was common when unequal pressure built up due to seepage and casual compacting.

Much of the land was hardpan, notorious for weak spots which suddenly gave way, creating seemingly bottomless holes. It took many, many years of constant work, grouting and filling to stabilize the dams, some of which were hardly more than levees. Even today an occasional hole breaks through, requiring more grouting.

It later proved much more satisfactory to use an impervious clay core with a high degree of compaction and carefully-graded filters on either side of the core. This type of construction is the heart of most earth-fill dams today, including New Don Pedro. Mistakes made in constructing the relatively-low dams of Dallas-Warner Reservoir contributed greatly to the engineering knowledge which ultimately permitted the construction of huge earth-fill structures such as New Don Pedro and Oroville.

Even with the completion of Dallas-Warner Reservoir in 1912, a year in which irrigating was ended July 1st, it was recognized that the additional 28,000 acre feet of storage was only an interim solution. Irrigating still ended in July or August for lack of the capacity to store more of the early spring flood flows.

Thus, Modesto joined the Turlock district in considering a partnership with the Yosemite Power Company operating near La Grange. It was proposed that the districts acquire all that company's rights and facilities in the La Grange area for a price to be negotiated. This would allow the development of MID-TID "Dam No.2" upstream from the La Grange diversion dam. The districts would contribute \$2 per acre foot of storage capacity toward the cost of additional Yosemite Power Company reservoirs to be built upstream from the MID-TID dams. The districts would own the water behind the power company dams but the company could use it for the generation of electrical energy.

Opposed by Directors Covell and J. B. Trask, who insisted that the MID should spend its money on upgrading its canal system before building any additional storage on the Tuolumne, the scheme fell through but not until after considerable debate and a recall election or two.

The only positive move to increase its water supply taken by the Modesto district came in 1917, when it contracted to receive up to 50 second feet of waste water from the Oakdale Irrigation District. This water had been spilling into Dry Creek and the Stanislaus River.

Even though there was too little water for late irrigations, a major problem arose because farmers were using too much water. During the first four years, irrigators averaged 10 acre feet of water on their crops. Today it is known that, at the most, only three-and-a-half acre feet of water is needed to irrigate most crops. In drought periods, farmers have survived with less. Whereas normal irrigation practices would raise water tables, its excessive use caused ground-water levels to rise dramatically.

In 1905 U. S. Department of Agriculture engineers estimated that the water table was rising an average of four feet per year. In the winter of 1906, the water table had risen so that ponds were standing in swales on lower lands of the Modesto and Turlock Irrigation Districts. By 1907 vast acreages had been made untillable.

The damage was not confined alone to the submerged land. In many areas the water was so close to the surface that it injured the roots of trees and vines and rendered cultivation impossible.

U. S. D. A. Experiment Station scientists blamed much of the problem on over-watering, citing instances where as much as 16 acre feet of water had been used on some farms. Even though Modesto irrigators were forced to practice greater economy in the use of water, the federal scientists warned, "It is

the experience of past irrigation the world over that drainage and irrigation go hand in hand, and the best use of water will not make drainage unnecessary in such land, but only minimize it.”

At first, irrigators and directors alike failed to realize the seriousness of the problem. Those who did, however, disagreed violently as to the best method of correcting the situation and how much it would cost. Owners of higher-elevation land fought spending money for the drainage of lowlands, failing to accept that the drainage problems in the lowlands were caused in a great measure by irrigating highlands.

Following water table surveys made early in 1907 by Modesto Water Superintendent Griffin, opposition to drainage weakened and in August 1907 a \$20,000 bond issue was approved to develop drainage systems.

An initial attempt at pumping groundwater failed. A drainage ditch seemed the only solution. Since the ditch could not be dug by horse-drawn scrapers because the horses bogged down in the ditch bottom, a \$5,000 dry-land or skid dredge was purchased and put in operation February 1, 1908. The awkward dredge was mounted on an 18-by-30-foot skid platform secured to wooden rollers which ran on planks placed on the ground. A 40-foot boom carried a 2,800-pound, one-cubic-yard bucket. The dredge moved 747 yards of dirt per 10-hour shift at a cost of 3.5 cents per yard.

Although weeds made the maintenance of drainage canals and ditches difficult, the drainage network was successful and has been expanded.

Even though the water table on more than 11,000 acres of Modesto Irrigation District land was less than 4 feet below the surface in 1918, disagreement over the importance of solving drainage problems continued. A \$75,000 assessment for drains was defeated by voters in June that year. A \$50,000 special tax was approved in October, however, and a massive attack on the ground-water situation was launched.

By 1920 the Modesto district truly had a handle on the drainage problem. By then, pumping and drainage canals were proving effective and the total acreage in which the water table was less than 4 feet was cut in half. The drainage problem was well under control by 1925 as the district, using its own Don Pedro generated power, expanded its pumping system.

Today the MID has 80 miles of drainage canals and 64 drainage pumps in operation. Each drainage well can control groundwater levels for a distance of half a mile or more and 20 percent of the

water used each year for crops comes from this source: The pumped water is recycled by discharging it into irrigation canals.

Throughout its early days the Modesto district faced a constant need to improve and upgrade its canal and lateral systems, not only because of the demand for more water – the number of acres irrigated increased from 6,895 in 1904 to 28,197 by 1910 – but also because some of the original structures proved inadequate.

As early as 1905 it was reported that much of the 2,950-foot wooden flume extending from La Grange Dam was being replaced by a concrete structure. By November 1, 650 feet were under construction as the work was speeded to completion before the start of the 1906 irrigation season.

In the 10-mile section of the main canal between La Grange Dam and Dallas-Warner Reservoir, flumes crossed 11 draws and canyons on wooden trestles 500 to 900 feet long, 14 feet wide and 50 to 90 feet above the ground. A major effort was undertaken in 1912 to replace these wooden trestles and flumes with hydraulic fills and 20-foot wide concrete canals.

Again, by current standards, work was primitive but effective. Electric pumps forced water under pressure through large monitors (or nozzles) similar to the “Long Toms” used earlier in hydraulic mining. These literally washed the hills above the flumes down around them, filling the gullies with mud, building higher and higher until the trestles and flumes, still in place, were covered completely. The weight of the mud compacted the soil. Once the flumes were covered, larger, wider but more shallow concrete flumes were installed. While the procedure worked satisfactorily for the time, rotting wood under the concrete flumes caused problems of canal stability in subsequent years.

By 1914 three of the 11 wooden trestle flumes had been replaced and two others were under reconstruction. The *Modesto Evening News* described the progress as “piecemeal,” commenting:

With the main canal widened to 20 feet for a considerable portion of the 10 miles between La Grange Dam and the (Dallas-Warner) Reservoir and with five out of the 11 flumes eliminated or in process of elimination, the \$300,000 raised by special assessment and expended in making these improvements was for the time being earning the district nothing whatever for the reason that so long as one 14-foot wooden flume remained, the carrying capacity of the whole canal would be limited to the capacity of that one flume.

In an April special “Progress Edition,” the *News*, however, boasted that the MID and the voters had on March, 31, 1914, approved by a seven-to-one majority two bond issues totaling \$610,000 as part of

a “general policy of expansion of the irrigating facilities and of superseding the more temporary types of early construction with permanent and practically indestructible concrete. Permanence is the primary consideration.”

Of the total, \$500,000 was earmarked to cover the construction of hydraulic fills to replace the six remaining wooden trestle flumes, widening the main canal where needed, raising the dam of the upper portion of Dallas-Warner Reservoir five feet to increase the reservoir’s storage capacity another 10,000 acre feet, facing with concrete the dams and levees of the foothill reservoir, and drainage work. The proceeds of the \$110,000 bond issue were spent within the district proper for the construction of new headgates, weirs and diversion points and for the replacement and improvement of existing canal facilities.

These were the first bonds voted for general improvement of the system since January 2, 1902, when the newly revitalized district had refinanced its 19th Century indebtedness. The only other bonds, approved in 1909, were for the construction of Dallas-Warner Reservoir.

From the time the district had come alive again until 1914, canal and distribution system improvement work had been funded through special assessments. From the ouster of the anti-irrigationists in 1901, the Modesto board was most mindful of the disruption caused years before by William Tregea and his lawsuit protesting property assessments without a vote of the people, a position upheld by the California Supreme Court.

Starting in 1904, assessments – in effect property taxes – for routine operation, maintenance and construction were placed before the voters for approval. The first ballot was on a levy of \$38,400, of which \$18,000 was to be used for construction on the main canal and the balance for general maintenance and operational costs. It was approved September 10th by the nearly unanimous margin of 86 to 6. Although a two-thirds majority was required, assessments were voted by comfortable margins each year. The affirmative 200-to-43 vote for the 1910 assessment was typical.

But in 1909 agitation to exempt improvements from irrigation district taxes surfaced. The exemption was defeated by a narrow margin, 411-389, in a special election January 8, 1910. In the City of Modesto some property owners were paying more taxes than large ranchers but getting no water. City voters supported the exemption but were outvoted by rural voters. The pressure for the exemption

continued to grow, but the only concession made by the farmer-dominated board was to allow the annual assessments to be paid in two installments instead of one.

In April 1911, 250 property owners petitioned the board for another special election. The board refused to be pushed into an election at that time, but a month later relented and on its own initiative called the election. The vote was 487-405 in favor of the exemption, although rural Divisions 4 and 5 held out with overwhelming majorities in favor of continuing to assess improvements.

Although the matter of assessing improvement was resolved, considerable displeasure with the district's operation remained.

An August 1911 vote on \$85,000 in assessments - \$61,000 for canal repair and improvements and \$24,000 for salaries and operation – still exceeded the two-thirds requirement, 529-208, but the majority was eroding. A 300 percent increase in voter turnout reflected the strong feelings prevalent. A supplementary assessment was rejected in March 1912, 549 to 505 – a slim majority but a long way from the two-thirds required. A month later, another special election failed to receive the needed two-thirds majority, 952-641.

A 1911 amendment to the basic state irrigation law provided that assessments could be voted by a four-fifths majority of the board of directors. Efforts to utilize this provision failed when Directors Covell and Trask refused to go along because they were in disagreement with some of the projects the engineers had proposed.

With the needed \$20,500 still not available, three members of the board – W. H. Frazine, J. S. Wootten and R. E. Gilman – threatened to impose a toll on water delivered to farmers. This tax could be established by a simple majority vote of the board. Facing this threat, Covell changed his position “so that the employees might be paid.” Director Trask refused to concede and the final vote was 4-1.

In July that year, an assessment totaling \$30,000 for salaries and operations and another \$50,000 for improvements failed to achieve a two-thirds majority and the following month the board voted 4-1 again to levy the assessment, Director Trask still adamantly opposed.

By 1913, however, following an unsuccessful 1912 attempt to recall Covell and Trask, the problem seemed to be behind the district, for in June a special \$75,000 assessment was approved 422-102. Assessments were voted either by the electorate or by the board without trouble from that point on.

The period of disputes over assessments – how much and whether they should be levied – coincided with a flurry of recall activity in the Modesto Irrigation District.

The MID was one of the first irrigation districts established under the Wright Act. Throughout its history, the MID has achieved a record of being first in many irrigation matters. It was only fitting, then, that Modesto was the first to experience a recall election under the provisions of the 1911 state Constitution amendment providing for the recall of public officials from office.

In the spring of 1912 soon after the recall provision became effective, petitions were circulated against a majority of the board: Directors Covell of Division 3, Trask of Division 4 and Gilman of Division 5.

The issues in these first recalls were mixed.

Covell was accused of taking irrigation water out of turn and misrepresenting the proposed MID partnership with the Yosemite Power Company. Many signers of the original petition against Covell later renounced their opposition, charging that his foes had misrepresented his position on the power company deal.

Director Trask, frequently at odds with the majority of the board, was accused of opposing the Yosemite Power Company partnership and “aiding and abetting” Covell in getting water out of turn, accusations which caused Trask to file a libel suit against the petition circulators. The case was thrown out of court after the petitioners’ attorney, L. L. Dennett, who also was legal counsel for the Modesto Irrigation District, labeled as “cowardly and childish” the suit brought by Trask, one of his “bosses” on the MID board.

Covell and Trask were accused of being disruptive forces. One of Covell’s accusers, T. J. Crispin, who until 1911 had served with Covell on the MID board, also had a personal disagreement with Covell over the price paid by the MID for some of Crispin’s land. One day during the election campaign they came face to face on 10th near I Street. The meeting ended with Crispin arrested and fined \$25 for attacking Covell.

Covell and Trask were retained in office by comfortable margins, Covell 470-210 and Trask 134-41.

Not so fortunate was the third recall target, Director Gilman. The charges against him were general, involving the way in which the district and canal system were managed. He was recalled by a vote

of 155-to-105. Elected May 29, 1912, to succeed him was B. F. Anderson. A few months later, water users of his division asked Anderson to resign. When he refused, saying he would do so only if he won a recall election, his foes took up his challenge, charging that he was “incompetently inefficient.” He was recalled by a vote of 90 to 71 on November 20, 1913, after serving but a year and a half.

On the same day as the Anderson recall election, another attack was made on Covell. He was accused of “throwing down” his constituents, contributing to poor administration of the district and using his influence as president of the MID board to win approval of an “excessive” 8 percent loan from the Bank of Modesto, of which he was a stockholder. This time, Covell was not so fortunate. He was ousted, with 185 voting to recall him and only 69 for his retention. Allen Talbot succeeded Covell and Laud C. Gates replaced Anderson.

Years later, Gates, who laughingly said his nickname was “Loud,” recalled those turbulent days, citing even a fist fight he had with another board member during one of the meetings. He refused to divulge the name of the director he backed up against the wall. The minutes do not reflect the disturbance, either.

Even before all the votes were counted, another recall petition was filed, this time against Empire Director J. S. Tully, who had been appointed to fill the position a few months earlier when Director Frazine retired. One of the “charges” against Tully was that he had been appointed and not elected and his farming operations were more involved with the Turlock district than Modesto’s. His detractors also contended Tully favored changing the water distribution system to one which would work a “great hardship” on the water users and that he had supported the Raker Act, which gave San Francisco the right to build on the Tuolumne River. The entire MID board subsequently repudiated this position.

Tully won handily, 263-to-159, a “cold finish of a contest that has been of the warmest and which has created interest among the voters of this district to a fever heat,” according to the *Modesto Morning Herald*. The *Herald* had supported Tully and blamed Modestan W. C. LeHane for masterminding the bitter recall campaign. Tully continued to serve until 1919.

LeHane, who had run against Tully as an unsuccessful write-in candidate, played an interesting role in the development of the Modesto Irrigation District during its troubled maturing years.

A native of Nebraska, LeHane came to Modesto sometime after the turn of the century. An attorney by profession, LeHane became known as the “King of the West Side” because of his large land holdings on the west side of the City of Modesto. Claiming to be an expert in the field of irrigation, LeHane declared in his 1914 unsuccessful bid for Congress that, prior to coming to Modesto, he had “made an extensive investigation and personal examination of all the larger irrigation projects in the United States.”

Well into the 1930s, LeHane was a persistent critic of the Modesto Irrigation District, attacking the entry of San Francisco into the Tuolumne River watershed until the 1930s when Hetch Hetchy water finally flowed to the bay city. For a while, he was special counsel to the district to carry the legal fight against San Francisco. He was fired when his sponsors on the board were recalled in an election in which he was an issue.

For years he argued the district needed a general manager instead of being operated by the directors on individual assignments, a system which he said caused director-administrators to “know something about almost everything but nothing about something.” While the *Herald* denounced LeHane for his comments, it concluded its report by noting that the directors wound up the day by “doing something about almost everything, but nothing about something.”

From the first recall election in 1912, LeHane appears to have been involved in opposition to the board as a whole and to individual members who did not share his views.

On September 16, 1913, the *Modesto Morning Herald*, which for several years carried on a running battle with LeHane, made the following comment on reporting a meeting at which the successful recall against Director Covell was organized: “The ubiquitous Mr. LeHane who seems to be the leading spirit in everything in the way of agitation now under way in the Modesto District was among the speakers.”

It was not until 1917 that the next recall election was held.

The target was C. A. Hilton of Division 5. The issue involved the development of adequate capacity in the main canal to meet the needs of the water users, with an added dispute over the agreement to carry the Waterford Irrigation District’s water from La Grange to the fledging district. In a bitter fight in

which LeHane also played a major role, Hilton survived by a two-vote margin, 185-183. A recount widened the margin to 190-186.

The friction and dissension evidenced in this election, in which almost every qualified voter went to the polls, reflected the spirit of the times. In the regular 1917 election of directors held just a week earlier, one of the two most bitter contests which the district ever was to experience wound up with the narrowest result in history. Director Trask won re-election by a vote of 158 to 156. His opponent, J. W. Frederick, charged that illegal votes were counted and filed suit in the Stanislaus County Superior Court. The case was dismissed as the court held it had no jurisdiction in irrigation district elections.

In the second race in that hotly-contested election, Fred Way had a more comfortable 748-613 margin over W. F. Riemenschneider for the directorship in Division 2. The outcome may have been decided by an election-morning change of position by the *Modesto Morning Herald*, which up until the day of the balloting had supported Riemenschneider editorially.

In this case, a community argument over whether to build Modesto's new high school on the west or east side of town was injected into the irrigation district election.

LeHane was in the middle of the school site battle, too. He had offered to donate the land at 1st and H Streets on the west side for the school. Riemenschneider supported the east side. The newspaper learned at the last minute that candidate Riemenschneider might have been involved in a move to seek a court injunction against the west side site. Riemenschneider "equivocated by declaring himself neutral," according to the *Morning Herald* and by this act "proved himself unworthy to be a public official."

The 1920s proved a heyday for recall movements.

In 1920, after the people had voted \$2,000,000 in bonds as the MID's share of the cost for building the original Don Pedro Dam and Reservoir, a majority of the board was recalled for what the petitions alleged were delays in Don Pedro due to inactions or actions by the three recall targets. Press reports, however, indicated the real issue was LeHane, who the *Modesto Morning Herald* labeled as "the big boss of the majority of directors" over whom he had "complete power."

The targeted directors, A. W. Stratton, Allen Talbot and Trask, denied they were "dragging their feet" on building Don Pedro. Instead, they insisted, they were refusing to be "dummies" or "rubber stamps" to the Turlock Irrigation District by not knuckling under to TID demands on various points of

contention about who would control the progress of the project and TID's insistence that its chief engineer, Roy V. Meikle, be named project engineer.

The fact was that Modesto, in a way, was the junior – 31.5 percent – partner in the Don Pedro Project and the Turlock district board, Chief Engineer Meikle and Attorney P. H. Griffin had been more aggressive in pushing the project.

On June 1, 1920, the three Modesto directors were removed from office by substantial margins: Stratton, 380-242; Talbot, 217-148, and Trask, who had survived a 1912 recall effort, 161-118. J. W. Guyler succeeded Stratton. W. H. Franzine took Talbot's seat. Charles Swanger replaced Trask. The first action after the new board was seated was to fire LeHane as special MID counsel.

During the campaign, opponents skirted around the issue of the generation and distribution of electrical energy as part of the Don Pedro Project. Three years later, in still another recall campaign, the *Morning Herald* charged that the earlier recall of Trask, then seeking to return to the board through the recall of Director E. L. Routh, had been a "frame-up" which paved the way for a board dedicated to wholesaling Don Pedro Power to Pacific Gas & Electric Company.

The retail distribution of power definitely was the issue in the next series of recalls.

On December 20, 1922, Guyler and Directors H. J. Coffee and C. A. Hilton, all of whom earlier had voted to wholesale power to PG&E, fell to defeat in recalls.

One week later, Director J. R. Broughton, the fourth to support wholesaling, survived a recall by a substantial 745-386 vote.

The following year, Director J. R. Broughton, the only director who in 1922 had held out for the distribution of power by the district, was recalled. The *Modesto Morning Herald*, a firm advocate of distribution, had labeled Routh as a "wobbler," charging he was "on both sides and on top of the fence" in the distribution issue and demanded a board which was determined unequivocally to the goal of distribution. N. L. Rose succeeded Routh on April 25, 1923, in this, the last successful recall election to be held in the Modesto district.

Other attempts were made, however.

In December that same year Director O. E. Lambert survived a recall attack that came from the power distribution association, which charged that Lambert was too close to PG&E. In 1924 Rose defeated

a recall move. In 1927 a petition to recall Division 3 Director H. H. Sturgill was filed, but no election was held because there were insufficient signatures on the petition.

The Modesto Irrigation District's politics were maturing, however, as the flurry of recall activity was followed by only two more unsuccessful recall attempts.

In 1931 Director John B. Fiscalini was challenged because he believed the district needed to increase taxes to maintain its operations and had the courage to say so. His foes charged that farmers could not afford higher taxes while in the depths of a depression. Fiscalini survived by a wide – 386 to 83 – margin.

Division 5 Director Hugo G. Jacobson was challenged in 1934 in a dispute over district expenditures on the main canal as opposed to the expansion of laterals, with apparent undertones that he was not sufficiently anti-Hetch Hetchy. Jacobson squeaked through by a narrow 376-345 vote, only to lose a year later to Modesto dairyman Milton Kidd, who served on the board until his nephew, John E. Kidd, who still represents Division 5.

During his long tenure, Milton Kidd was active in and served as president of the statewide Association of California Water Agencies.

Thus, the Modesto Irrigation District survived its growing pains. Water supplies became adequate to meet late-summer and early-fall needs, the fiscal situation stabilized and the period of internal strife was over, replaced by an era of more effective management and cooperation among district directors.

The years ahead were filled with innovative growth, but this was achieved more quietly than during the MID's troubled "adolescence."

Meantime, between the MID's eastern boundary and La Grange there was formed a new Waterford Irrigation District which on January 1, 1978, was to merge with the Modesto district. In maturing, it too had growing pains. These problems were more financial than political, however.

The Waterford Marriage

One day in 1909 I was delivering a load of barley to the warehouse at Waterford and was returning home with an eight-mule team and two wagons when T. K. Beard and attorney L. L. Dennett overtook me at about the location of the Davis Drop near the Roen Ranch on the La Grange Road.

Mr. Beard told me he was trying to get farmers to agree to include their land in a water district in cooperation with him. I heartily agreed with him and with others, that all this arid but rich and fertile land needed was water to bring it into a land of fruit trees, pastures and gardens.

In this manner, Alfred E. Ketcham first heard about the idea of creating a Waterford Irrigation District, which after 64 years of independent operation merged with the Modesto Irrigation District in 1978.

His dream of “a land of fruit trees, pastures and gardens” quickly turned to reality once water was brought to the land, but as was the case with the creation of almost all irrigation districts, it took time.

Irrigation was not new to Waterford, known as Bakersville until 1870 – there were too many “Bakers” towns in California. The name Waterford was chosen because the Tuolumne River could be forded there during much of the summer and fall.

Adrien Fauvre, a native of France, came to California in quest of gold in 1850 but in 1869 turned to produce farming in Waterford. “Monty” Fauvre immediately built what probably was Stanislaus County’s first true irrigation system. Certainly it was the most complex works of the day. Windmills pumped water from wells into several large storage tanks. Horses also powered a lift from the river. From both sources, he irrigated extensive holdings. But nothing of the scope envisioned by Beard, Ketcham and others in the first decade of the 20th Century had ever been tried in Waterford or any other community as small.

In 1913, four years after Ketcham first was approached about the proposal, the district was formed and the Roberts ferry farmer was one of the three original directors. He filled the post for more than four decades, one of the longest records of services as an irrigation district director in the State of California.

The project got off to a modest start, as Ketcham years ago told his son Donald R. Ketcham, who still lives on the property which has been in the family since 1856:

Most of us donated 5 cents per acre to run a surveyor's line around an area of land that we thought would irrigate successfully. T. K. Beard, at one time owner of 6,000 acres in the district, was the moving factor in the organization of the district. The project was made possible for he was willing to cut his property up into smaller irrigated farms and bear a great deal of the costs.

Thomas K. Beard, the son of Elihu B. Beard, who first settled in the Waterford area in 1852, was born on the family farm in 1857, the year in which the town of Waterford was established as Bakersville. Although the Beards subsequently moved to Modesto, the family maintained their Waterford area holdings. The original Beard home at the end of Tim Bell Road still is in the family. When T. K. reached the age of 20, his father gave him 1,000 acres to farm on his own.

T. K. always was a practical visionary as well as an innovative, enterprising worker. As he continued farming, T. K. branched out into the construction business and land development. As a contractor, he built the Modesto Irrigation District's Dallas-Warner Reservoir, Owens Reservoir for the Turlock Irrigation District and Goodwin Dam, which diverted Stanislaus River water for the Oakdale and South San Joaquin Irrigation Districts. While his construction work included roads and other public works throughout California, his specialty was reservoir, canal and other irrigation-related construction.

Recognizing that for stability wheat farmers had to look a different future and believing there was something better for the small settlement of Waterford than dry farming primarily by absentee landowners, T. K. began to agitate for the development of an irrigation system to serve the area.

The basic motivation behind the development of the WID was to convert large land holdings into small farms. In this manner, Waterford would become a prosperous and congenial community of family farmers.

Beard, Ketcham, Tim Bell Road grain farmers Jess M. Finley and Waterford blacksmith Joe Prouty – Ketcham, Finley and Prouty were to serve as interim directors during the organizational period – had seen irrigated agriculture develop in a few short years in the Modesto and Turlock Irrigation Districts. They realistically dreamed of the transition from dry-farmed land to orchards, vineyards and pastures. The concept was to sell 20-acre plots for \$500 per acre. Twenty acres was believed to be the proper size for a family which farmed alone without hiring additional help. Horses and mules were used for motive power.

And their dream was realized in the late teens and early 20s of this century as soon as water was brought to the soil.

Fresnan Robert H. Nicol, writing in the *Modesto Morning Herald* in December 1921, only three years after water first was distributed through the Waterford Irrigation District system, reported: “(Waterford) was a live community in the days when Bret Harte and Mark Twain lived in those hills... (but until) 18 months ago was only a memory of the past.”

Since the advent of irrigation, Nicol wrote, Waterford had become a “progressive community,” which had three stores, a lumber yard, a bank “located in a substantial cement building,” a drugstore, a newspaper, garages and other “minor business houses,” he added:

There are three church organizations with good buildings, the Baptists, Dunkards (or Brethren) and Methodists. A fine school building houses the pupils of the community with a competent corps of teachers. A lighting system has been installed and many civic improvements are planned for the community.

Like all live communities, this one has a live chamber of commerce...with 100 members (all of whom) take an interest in its meetings and work shoulder to shoulder for the upholding of the town and country.

All this, according to Nicol’s 1921 account, had occurred in a mere 18 months, due entirely to the delivery of water to the lands of the Waterford Irrigation District.

In 1917 the assessed value of the land was \$701,758. Five years later it exceeded \$1.1 million. Before the first water was delivered, there were 103 properties on which assessments were levied in the district. The number had tripled by 1922, as larger holdings were broken up into smaller, more-intensely farmed parcels. Many of these were only one to five acres in size.

Much of the rapid development between 1918 and 1920 was due to the formation of the Waterford Development Company by T. K. Beard. During those years, Beard subdivided much of the family holdings in cooperation with a colonization program headed by Levi Winklebleck, an elder in the Church of the Brethren.

The district was organized September 15, 1913. The vote was 63-1 for its formation. Although the ballot was secret, everyone believed they knew the lone dissenter, an individual who liked to be against most anything everyone else was for. Throughout its history, bond elections all received near-unanimous support.

In later years the WID was to have a few legal problems, but its formation was not delayed by litigation which had plagued irrigation districts that were created earlier. The issue of whether the Wright Act and the districts created under it were legal had long been resolved.

However, it was to be almost five years before the WID was to have water.

Even before the district was organized the first filing for water rights was made February 27, 1913, by ardent irrigation enthusiast Finley. Upon creation of the WID, Finley was to become its first assessor. Eight months later he became a director when original Director Al Gatzman's land was excluded from the district and he resigned. Once the district was organized formally, Finley transferred the water rights to it. This and a subsequent filing on November 13, 1913, were for the floodwaters of the Tuolumne River, which assured water only during the high runoff season that ended in June or July. There would be no WID water for irrigation after that.

The district had the water rights but no way yet to deliver the water to the land.

Only 14,000 acres, in size, the district was a narrow strip of land 16 miles long extending along the north side of the Tuolumne River from near La Grange to the eastern border of the Modesto Irrigation District. On the average, it was a mile and a quarter wide.

Running through the middle of the Waterford district for 15 miles between La Grange Dam and the Dallas-Warner Reservoir was the main canal of the Modesto Irrigation District. From Waterford's standpoint, it would be far more practical and economical to contract with the Modesto district to deliver water to Waterford via the MID main canal than to build an entirely separate large canal or to pump from the Tuolumne, which was 100 feet lower in elevation than most of the WID land.

When Waterford approached its much larger neighbor to the west, the Modesto district was most reluctant. It was not until Waterford threatened to go to the California State Legislature with a proposal to declare all irrigation canals to be "common carriers", and filed a Stanislaus County Superior Court condemnation suit against the Modesto district that the older district grudgingly agreed to deliver the young upstart's water via the MID's main canal.

When agreement finally was reached, a consent judgment of condemnation was entered in court. A minority of the Modesto board still opposed steadfastly and the vote to accept the compromise was 3-to-2. Waterford was unanimously in favor.

A formal settlement between the two districts was not reached until September 25, 1916. On the strength of preliminary agreements, however, Waterford voters four weeks earlier had approved, 81-to-18, a \$465,000 bond issue to pay \$254,000 to the MID for enlarging its main canal to carry 250 second feet of

water from La Grange to WID diversion points. The bond issue also included \$211,000 for the construction of Waterford's canals and laterals.

Construction on a delivery system could finally begin, three years after formal creation of the district.

Negotiations over the cost maintenance continued. The MID wanted Waterford to pay one-twelfth of all maintenance costs, which the small district could not afford. The final settlement was that the WID would pay a flat \$100 a month as its share of the maintenance of the Modesto's main canal, an agreement which remained in effect for 60 years until the merger of the two districts.

Work had progressed during the first three years with formal organizational paperwork and engineering. The fact that the district had three engineers during those years slowed the process through a lack of continuity.

In September 1913 upon formal establishment of the district, S. A. Hart became the first engineer, primarily to do the survey work. He was replaced in mid-1914 by A. Griffin, hired away from the Modesto Irrigation District. Griffin stayed two years. In August 1916, just two weeks before the first bond issue was approved, Everett Bryan, an Irishman who once got in a fistfight with a land-owner during a meeting of the board of directors, was hired.

The hard-driving, positive-mannered Bryan supervised construction of the district's system of 50 miles of canals and laterals, all to be served by the enlarged Modesto main canal. The Waterford work was done with district employees and various contractors, all under Bryan's engineering supervision but under the direct administrative control of the board of directors, which passed on the most minute details.

In 1917 and 1918 even a few miles to town was too far to commute, so construction crews camped out; the irrigation district supplied the camp cook. The board minutes show that a discussion of the finer personal qualities of an applicant for the cook's job ended when one director said bluntly: "If he can cook, hire him!"

Construction was difficult. Everything was done by hand. Canals were graded with the only land-leveling equipment available in those days, the old Fresno scrapers pulled by horse or mule. Although primitive, they did the job. A 1,900-foot long free-standing tunnel through solid hardpan was dug by crews

using picks, shovels and black powder. Rails were laid in the floor of the tunnel and donkey carts were used to haul out the blasted rock.

The first water was delivered to 800 acres in 1918. The primary crops irrigated were alfalfa, corn, hay beans and tree crops.

Even before that first irrigation season was over, it was obvious the “floodwaters” of the Tuolumne were not adequate to meet the district’s needs. By June or July the water was gone, even before crops matured. An additional source had to be found to carry irrigators through the rest of the summer.

Nearly half a century earlier, on June 8, 1871, Edmond Green and A. D. Allen had filed a claim on the Tuolumne River for the construction of a dam to divert approximately 66 second feet (3,000 miner’s inches) of water and a ditch to serve the mining districts around the town of La Grange. This is the earliest Tuolumne River water right now recognized. Through a succession of transfers, the La Grange Mining Ditch water rights were conveyed to the Sierra & San Francisco Power Company.

To augment its own floodwater filing, the WID in 1919 bought for \$170,000 the right to the La Grange Mining Ditch water for six months of each year, May 1st to October 31. Of this, three second feet were reserved for domestic water purposes in the town of La Grange. The ultimate 63 second-foot yield was enough to carry the WID through normal irrigation seasons for the immediate future.

Ultimately, on May 12, 1922, the Modesto and Turlock Irrigation Districts bought the La Grange Mining Ditch water rights to the 66 second feet during the other six months of the year to use for power generation. The original water rights filed in 1913 and those purchased in 1919 by the WID went to the MID at the time of the merger. Thus, the Modesto district now owns the oldest rights to Tuolumne River water.

The WID’s second bond issue was approved May 2, 1919, by a unanimous vote of all 65 who went to the polls. Of the total \$205,000 in bonds, \$170,000 was used to purchase the mining ditch water rights. The balance was used to complete irrigation laterals and canals.

Although the costs of operations and bond retirement were high during the 1920s, things went along smoothly until the depression days of the 30s.

The total bonded indebtedness of the WID at that time was \$670,000. Taxes needed to retire the bonds and to operate the district were substantial for such a small district. Most depression-struck farmers

and townspeople could not pay. By 1933, 61 percent of all WID taxes levied were delinquent. The WID was forced to take possession of 400 unimproved lots in the town of Waterford and 2,000 acres of farm land for non-payment of taxes. Thus, the WID owned approximately a seventh of the total area within the district. For the most part, these were plots subdivided by the larger ranchers but never sold. The ranchers chose to lose these lands and use their limited funds to operate their improved and more productive property.

At this point, the Waterford district, facing default on its bonds, called in the Federal Reconstruction Finance Corporation. The RFC reorganized the district's financial structure and sold off land which had been seized for non-payment of taxes. Town lots went for \$25 to \$35 an acre. Even at that price, purchases were paid for by installment. Town buyers primarily were Midwest dust-bowl refugees who had been working in the producing orchards of the region and wanted to settle down. Farm land which originally had been priced at \$500 an acre went largely for \$40 to \$50 an acre.

In addition to selling off irrigable acreage, the district in 1940 and 1941 excluded 3,466 acres, including rolling-hill lands which could not be irrigated by gravity flow. Some of these lands were still in private ownership, although taxes were in default, and some already had been taken over by the district. In either case, no one wanted the land as long as it was subject to irrigation taxes with no hope of receiving water. With the exclusion, tax delinquencies were wiped out and original owners retained title to the property.

After the 1978 merger of the Modesto and Waterford Irrigation Districts, some of these lands were annexed again and now, with plenty of MID water available, are producing almonds and Ladino clover with flood irrigation and sprinklers.

Settlement with the bondholders was the most difficult of the Reconstruction Finance Corporation tasks and involved considerable litigation from the mid-1930s to 1941.

When the RFC took over the district, it appraised the holdings and agreed to refinance only \$312,500 of the \$632,000 indebtedness, which meant a payoff of only 48 cents on the dollar. Many bondholders agreed, but some with larger bond portfolios held out for full payment. After several years of litigation, the Waterford district filed for bankruptcy under new federal laws enacted specifically to meet the needs of public entities such as the WID. The court forced acceptance of the 48-cent settlement. The

bondholders ultimately received 65 cents on the dollar, however; the increase was made possible by the sale of tax-default lands. The litigation consumed much time, effort and money for the WID and still left the district with a sizable indebtedness which was not retired until 1957.

Once water was brought to the lands, the acreage converted to irrigation rose dramatically. Only 800 acres received water in 1918, the first year deliveries were made. By 1920, acreage jumped to 2,400 and two years later nearly doubled with 4,663 acres under irrigation. By the time the two districts merged, 700 irrigators were farming 10,600 acres in the WID.

Almost every crop imaginable was tried. Early in the district's life, even cotton was raised briefly. Rain and cold weather came too early at the edge of the hills for the cotton to mature and be harvested. Most of the former cotton land now is in rice. Also tried were figs, apricots, almonds, walnuts, vegetables, permanent pasture, beef cattle, dairying, boysenberries, beans, alfalfa, melons and other typical California crops. As time passed, however, the primary crops became Ladino clover, almonds, walnuts, peaches and grapes, as is the case today.

Permanent Ladino clover pastures, introduced in 1928, became the predominant crop by 1952 with 3,584 acres in production, 53 percent of the total land irrigated.

Each new crop demanded more water.

Again by the late 1930s, Waterford needed more water than could be supplied even by the two water-right sources. During late 1939 and early 1940, Bill Lehmkuhl, who served the WID as engineer for 46 years, negotiated a novel contract with the TID.

Because of intensive irrigation in the Turlock Irrigation District, the control of groundwater levels required pumping that cost about \$1 per acre foot. Lehmkuhl persuaded the TID to sell to the WID an equivalent amount of water from the river for \$1 an acre foot – offsetting pumping costs – and irrigate from its drainage wells. Once more, the WID had enough water to meet its needs, but this situation was not to last for many years.

As the Waterford district struggled to keep pace with its water needs, the idea of merging with the Modesto districts surfaced. When first mentioned in 1959, there was reluctance on the part of both boards. The Waterford district did not wish to give up its independence. The Modesto board, entangled in problems leading to the construction of New Don Pedro Dam, was uninterested in any new venture.

Relations between the two districts were good, however. Since 1926 Modesto had been serving electrical energy to Waterford homes, farms and businesses. The Modesto district had come to consider Waterford as a “small neighbor” to be cared for – if it didn’t prove too costly.

Additional water was obtained in 1964 when the Modesto and Turlock districts sold to the WID up to 15,000 acre feet for delivery during normal years – whenever the Tuolumne River runoff from April to July amounted to 900,000 acre feet. This, however, was of no help in the one out of three years when the runoff did not reach that level.

Cecil Hensley, who served as WID secretary from 1955 until he succeeded Lehmkuhl as WID general manager in 1966, was convinced that a merger was the only solution and kept nudging Waterford toward the idea.

By the 1970s water supplies again were to become a problem as agriculture became more water intensive. At that point, really serious MID-merger talks began.

The Modesto district was prospering due to the sale of electrical energy. From 1959 until 1974 MID water users had paid nothing for their water. On the other hand, the WID irrigators were paying at much as \$14.88 per \$100 assessed valuation in taxes plus an additional \$4 per acre water charge even when the district maintained a staff of only seven employees.

With these facts of life in mind, the WID Board of Directors formally proposed a merger of the two districts.

From a financial standpoint, there was no argument about the advantages to WID irrigators of merging the two districts. Even more important, from Waterford’s point of view, was the fact that the merger would guarantee it a dependable supply of water. Possibly a half dozen Waterford people objected, but not too strongly. They disliked giving up their independent identity – it is hard to give up habits of more than a half century – but generally everyone was resigned to the fact that it was the only practical solution to Waterford’s fiscal and water problems.

The benefit to Modesto was that it replaced farm land which had been lost to urbanization and industrialization, giving the larger district a fine opportunity to put its water rights to beneficial use, as it must do if it is to maintain them.

The difference in taxes and the wide divergence of standards in the canal systems of the neighboring districts caused Modesto to “drag its feet,” as former MID Board President Mathew Fiscalini described it, until these problems could be resolved without imposing an unfair financial burden on MID taxpayers.

The marriage was not to be consummated until January 1, 1978.

The merger agreement provided for a 10-year program of upgrading Waterford’s distribution system, which consisted mainly of unlined dirt canals and ditches. The \$1 million program was completed in seven years, during which approximately 10 miles of the primary lateral canal and distribution ditches were lined or piped. This was financed by a special \$6.50 per acre annual assessment levied against the property formerly served by the Waterford district. The assessment was in addition to the regular MID water charges.

Once the work was done, the special assessments were ended and everyone in the Modesto district now is on the same financial and water footing.

In the nearly 70 years from the time that creation of the Waterford Irrigation District first was proposed, three names stand out: T. K. Beard, whose initiative, determination and financial assistance has been detailed, Alf Ketcham and Bill Lehmkuhl.

A. E. Ketcham was a young 29-year old grain farmer following a family tradition which had lasted for more than a half century when in 1909 he first was approached for support in creating the WID. He devoted the next 48 years to the district and to the cause of irrigation throughout the State of California.

Appointed by the Stanislaus County Board of Supervisors as an “interim director,” he served on the WID board from its creation in 1913 until 1957, with the exception of two years.

In April 1930 he resigned in order to bring suit against the Waterford and Modesto Irrigation District, contending their operations had an adverse impact on his Tuolumne River bottomlands. Alkali from rising water tables was a threat to land on which Ketcham had grown for 17 years the crop of which he was most proud, spinach. He blamed Waterford’s unlined canals and Modesto’s Dallas-Warner Reservoir just north of his farm.

A Stanislaus County Superior Court jury and the appellate court agreed with Ketcham's claim and awarded him a judgment of \$7,500 plus expense. When Ketcham resigned, William Rushing was appointed his successor. After the litigation was resolved, Rushing resigned November 12, 1932, and Ketcham was reappointed to the board. He served until he was 77 years old.

Bill Lehmkuhl deservedly was known as "Mr. WID."

An engineer working with T. K. Beard on a variety of projects, including the construction of dams and canals throughout the state, Lehmkuhl decided to settle down for a few years so that his two daughters might go through school without moving around. He had no intention of making it a prolonged stay. It was 46 years of building "Bill Lehmkuhl's district" before he retired in 1966.

Retirement came only after a serious heart attack which made him realize he could not maintain the seven-days-a-week pace he had set for himself for nearly a half century as the WID engineer and general manager.

When Lehmkuhl retired, he was succeeded as general manager by Hensley, who worked through the difficult merger negotiations and then for the next seven years supervised the improvements to the Waterford system. With the system up to standards, he was transferred to the MID's irrigation department.

The Battle for the Tuolumne

One of the most divisive and fascinating chapters in the history of the Modesto Irrigation District was precipitated by the determination of the City and County of San Francisco to tap the Tuolumne River for its domestic water supply.

Although in later years the three entities – the Modesto and Turlock Irrigation Districts and the City of San Francisco – were to work together developing the Tuolumne’s resources, both districts at first were “unalterably opposed” to San Francisco being on the river. The bitter early fights were to generate recall elections in the MID, split the Modesto and Turlock districts in a manner that for some time threatened further cooperation in the development of the original Don Pedro Reservoir, and generated intense emotions among the people.

Long before the great 1906 San Francisco earthquake and fire proved that city’s water supply to be tragically inadequate, San Francisco was looking to the Sierra for water.

In 1882 the San Francisco and Tuolumne Water Company of Sonora had proposed carrying Tuolumne River water to San Francisco from Jacksonville, a community flooded nearly a century later by the construction of New Don Pedro Reservoir. In 1888 two years before Yosemite National Park was created, George M. Harris stressed the value of the Hetch Hetchy Valley as a reservoir site and offered all his rights on the Tuolumne River, including title to his lands in Hetch Hetchy Valley, for \$200,000. The offer was repeated in 1894.

But it was not until the turn of the century that San Francisco’s interest was stirred by Charles S. Grunsky, who, ironically, had made the original surveys of the Tuolumne and Stanislaus Rivers for the Modesto Irrigation District. Grunsky, who subsequently was fired by the MID in a dispute over the cost of completing the planning for the Modesto system, was by now San Francisco’s city engineer.

Grunsky turned to an 1899-1900 United States Geological Survey report which suggested that a reservoir in Hetch Hetchy Valley could furnish “the City and County of San Francisco and unending supply of pure water.” He called this to the attention of San Francisco Mayor James D. Phelan, who immediately instructed Grunsky to study 13 possible municipal water sources: Spring Valley Water Works, Lake Tahoe,

Yuba River, Feather River, American River, Sacramento River, Eel River, Clear Lake and Cache Creek, Stanislaus River, Mokelumne River, Tuolumne River, Bay Shore gravels and the Bay Cities Water Company, a scheme which looked to the American and Cosumnes Rivers for its water supply.

There are strong indications that, even before the study was completed, the decision was made to move on the Tuolumne on the basis of Grunsky's earlier Modesto Irrigation District surveys.

Mayor Phelan, Grunsky and Marsden Manson, who was to succeed Grunsky as city engineer and who shared his predecessor's enthusiasm for the Tuolumne, quietly put up the money to finance privately the necessary surveys and water filings. Acting as a private citizen, Mayor Phelan filed for water rights on July 29, 1901.

Manson later was to comment, "If we had attempted an appropriation through the board of supervisors, the cat would have been out of the bag – so we paid the expense ourselves."

Although the *Stanislaus County News* was expressing concerns over the Phelan-Grunsky filings as early as January 1902, the cat did not get "out of the bag" until more than a year later when the water rights were transferred by Phelan, Grunsky and Manson to the City of San Francisco and the city applied for a United States Department of Interior permit to develop the upper reaches of the Tuolumne, which by this time, had been included in Yosemite National Park.

Concerned about the invasion of the bay city into its watershed, the Modesto and Turlock districts were elated in June and again in September 1903 when President Theodore Roosevelt's interior secretary, E. A. Hitchcock, denied San Francisco's applications on the ground that he had no authority to grant such rights-of-way. This position prevailed until the 1906 discovery of an earlier attorney general's opinion.

Still under pressure from Phelan, Grunsky and Manson, the city continued to pursue the goal of tapping the Tuolumne River. Subsequent developments, however, indicated the new San Francisco administration of Mayor Eugene Schmitz, who had succeeded Phelan in 1902, may not have been too dismayed at the adverse decision. It had other ideas about which water supply to tap.

Early in 1904 a request was made by San Francisco to meet with the Modesto and Turlock boards to discuss the city's development of the Tuolumne. The two district's declined to meet. They flatly opposed the proposal and held there was nothing to talk about.

In Modesto the debate raged on, with the town's newspapers split on the issue. On March 31, 1904, the *Morning Herald* editorialized that opposition to allowing San Francisco to obtain water from the Tuolumne was a "dog-in-the-manger" attitude.

That same day, the *Modesto Evening News* countered with a series of "on-the-street" interviews on whether or not the two irrigation districts should "treat" San Francisco to reservoir sites in the headwaters of the Tuolumne.

Reaction generally was negative.

Outspoken J. S. Wootten declared himself "unalterably opposed to having anything to do with San Francisco in this matter, first, last and all time."

Downtown merchant G. P. Schafer prophetically commented:

We have a priceless heritage in our prior water rights, why not stay with it? We have just emerged from a dozen years of litigation. Why enter into an alliance with San Francisco that will surely lead to litigation more grievous than that?

Banker and farmer J. R. Broughton, whose daughter Esto years later was to play a key role as a state legislator in improving the operations of the MID, added, "No agreement with San Francisco can be binding. A law passed by Congress giving us all the water we want from the reservoirs is the only way I can see out of this matter." Such a law still was nine years away.

George T. McCabe, who nine years later took a major part in the last-ditch battle in Washington, D. C., against the project, flatly declared there "is no reason to, treat, San Francisco when our rights are established." Subsequently, McCabe traveled throughout the San Joaquin Valley in an effort to enlist farmers and public agencies in support of the districts' opposition to the invasion by San Francisco.

It was Oramil McHenry, the Modesto Irrigation District's largest landowner and son of the MID's first board president, who had the most to say:

We are right in contending that we have the rights to the water and that San Francisco cannot enter into any contract guaranteeing that to us. The claim of the La Grange Mining Ditch (later to become the Waterford Irrigation District's source of supply) must also be respected as well as ours.

The *Herald* in its article this morning presumes to state that we are playing "dog in the manger" on the account of our inability to make use of the dam sites. The fact that we cannot use them at present is not a justification for giving them away and allowing San Francisco to take them without a protest on our part.

The storage of water will ultimately be required, not only on account of the acres in our two districts at present, but because by surveys already made, it is very evident that at least 400,000 acres of additional land can be irrigated...It appears to be only a question of time, if they share the water with us, when complications will arise and we will be sure to get the worst of it.

McHenry was the first to sign a petition presented to the MID Board of Directors declaring: "We have vested interests and see no reason to enter into any agreement with San Francisco at this time!"

On June 14, 1904, the Modesto board instructed Attorney L. L. Dennett to petition the U. S. Department of the Interior not to permit any filings for reservoir or dam sites upon the Tuolumne River "until such time as adequate provisions can be made for public needs."

Later that year, the City of San Francisco enlisted the support of three Alameda County cities and tried again to confer with the two irrigation districts, offering to build additional storage to capture floodwaters for late-season use by the irrigators.

The Turlock board was willing to meet with San Francisco representatives, but made it clear it was "not yielding an inch" from its opposition to San Francisco's invasion of the watershed. Modesto directors flatly refused to meet on the basis that nothing could be accomplished and it would be a waste of time.

In the colorful newspaper style of the era, the Stanislaus County News filled its entire front page on August 5, 1904, with a defense of the Modesto district's position and called upon citizens from throughout the San Joaquin Valley to "seize their swords and bucklers in preparation for a more desperate defense."

One lengthy sentence stated the case:

It is that we oppose San Francisco's transporting any moisture from the Tuolumne watershed for consumption abroad, for the reason that all such moisture as the said watershed yields is necessary for redemption from aridity and fructification of the lands of the San Joaquin Valley tributary to the streams of such watershed; that obviously nature in depriving the plains of the moisture needful to render them tenable to man, and depositing moisture amply adequate thereto in the mountains immediately adjacent, had schemed it as a task for the future men who were to inhabit the valley that the land and water should be brought together; the waters of the Sierras belong to the lands of San Joaquin Valley just as completely as the disintegrating sands of the rocks of those mountains out of which the soil of the valley was formed belonged and do belong to the valley.

Comes now San Francisco in the business with the intent and design to interrupt this beneficent and Divine plan; she would lay hold of and carry off large quantities of this vivifying fluid, upon which the very life of our valley here depends, and leave us the aridity and desolation which is our doom if needed moisture be denied us.

Two weeks later, the *News* reprinted under the headline “Chronicle Thinks We Are Farmers” an article from that San Francisco paper, which seemed to have a facility for stirring strong reactions from Valley people. The report said that directors of the Modesto and Turlock Irrigation Districts were “said to be honest and substantial farmers without much knowledge of the water needed by their districts...” The *Chronicle* urged the city to proceed to take water from the Tuolumne with or without the districts’ consent.

The year 1905 was an upsetting year for water development. Los Angeles was moving on the Owens Valley and rumors persisted that the Rockefellers were trying to make a power grab of the Tuolumne and other San Joaquin Valley rivers.

In early 1906 some 1,200 landowners in the Modesto and Turlock Irrigation Districts petitioned the San Francisco Board of Supervisors to abandon the Hetch Hetchy scheme on the basis that the irrigation districts’ prior water rights on the Tuolumne were threatened.

In February the San Francisco board, dominated by Mayor Schmitz, promptly concurred and formally adopted a resolution abandoning the project.

Victory once again seemed at hand, although events later proved the San Francisco mayor was not as concerned about the threat to the Valley farmers’ water as he was interested in promoting another scheme; buying out the Bay Cities Water Company for \$10.5 million.

Had it not been for the disastrous April 18, 1906 earthquake and fire two months later, the decision might have prevailed. The woeful inadequacy of San Francisco’s water system in fighting the disastrous fires raised a hue and cry for action. Mayor Schmitz appointed a panel of engineers to investigate 11 new sources for water, but the panel failed to make a recommendation, reportedly because it could not accept the Bay Cities Company proposal wanted by Schmitz.

In the absence of any recommendation, the San Francisco Board of Supervisors favored Mayor Schmitz’ project.

Neither Schmitz nor the irrigationists had counted upon the persistence of San Franciscans Phelan, Grunsky, Manson and friends who, following the Bay Cities Water Company decision, pressed for an investigation into corruption in the Schmitz administration. This resulted in indictments and convictions on

graft and other charges. While Schmitz's conviction was overturned in the appellate court, he and 16 members of the San Francisco Board of Supervisors resigned. Their successors were more receptive to the Hetch Hetchy plan.

(As a personal sidelight to the relations between Modesto and San Francisco, it might be noted that William H. Langdon, who as San Francisco's district attorney prosecuted Schmitz, subsequently met and married the widow of the Modesto area's largest and most progressive farmer who opposed San Francisco's being on the river, Oramil McHenry. Langdon, a great friend of Governor Hiram Johnson, later became a California Supreme Court justice.)

Meanwhile, as President Teddy Roosevelt started his second term, the Hetch Hetchy advocates spent much time between 1903 and 1906 convincing the President of the project's merits. They had considerable assistance from conservationist Gifford Pinchot, who founded the U. S. Forest Service and later was to become governor of Pennsylvania. Pinchot forecast that Lake Eleanor alone would serve the domestic water needs of San Francisco for 50 years or more, urging that damming the Hetch Hetchy Valley be delayed to "preserve it in its original beauty" as long as possible.

Roosevelt's new secretary of interior, James R. Garfield, held a hearing in July 1907 and in May 1908 approved San Francisco's Tuolumne River development.

With this approval, the City of San Francisco in November 1909 votes 6-to-1 support of \$600,000 in bonds for the purchase of privately owned land within Yosemite Park around Lake Eleanor and Hetch Hetchy. A \$45 million construction bond issue was voted by a 20-to-1 margin in 1910.

The year 1910 marked the start of the administration of President William Howard Taft. Secretary of Interior Richard A. Ballinger, ordered the city to show cause why the Hetch Hetchy Valley permit should not be revoked. President Taft and Ballinger were reported to oppose the Hetch Hetchy Project primarily due to the efforts of the Sierra Club and fellow preservationists. A hearing on the issue concluded with Interior Secretary Ballinger requesting the Army Engineers to investigate San Francisco's Hetch Hetchy proposal both as to feasibility and alternate sources of water.

The engineers' report, not submitted until February 19, 1913, recommended in favor of San Francisco, a decision which apparently relied heavily upon a comprehensive 401-page report which had been filed by the City of San Francisco.

San Francisco had hired John R. Freeman, a world renowned hydraulics engineering specialist later to be president of the American Society of Engineers, to prepare its case for submission to the Army Engineers. In so doing, Freeman designed down to the last detail the system which ultimately was constructed – reservoirs at Hetch Hetchy, Lake Eleanor and Cherry Valley, power plants at Early Intake and Moccasin Creek, aqueducts and roads – and provided detailed engineering and cost breakdowns for all aspects of the extensive project.

In Freeman's own words, the report was prepared over a two-year period with the assistance of "a staff of skilled engineers." Yet, the two organizations which were to submit the primary rebuttals to the report – the combined Modesto and Turlock Irrigation Districts and the Sierra Club – were given but two months to respond.

Freeman and his associates, often chiding the Sierra Club for being "solitude lovers," contended that construction of Hetch Hetchy Reservoir would offer outstanding recreation benefits to the state. He even suggested that a grand hotel could be built to provide for the many visitors to the new reservoir. Freeman showed scenes of the recreation advantages of other municipal reservoirs from Boston to Norway, from New York to Scotland and Wales. Furthermore, he contended that building a high Hetch Hetchy Dam would prevent the later need for flooding Tuolumne Meadows for reservoir purposes.

"It will make Hetch Hetchy Valley more beautiful and a far more useful instrument of pleasure than it is today," declared the report, adding that it would eliminate a major mosquito problem. The mosquito issue later was raised by the House of Representatives Committee on Public Lands in endorsing the Hetch Hetchy Project, claiming that in the spring there were too many mosquitoes in the canyon to make camping pleasurable and later in the summer it was too hot to camp.

In 1907 the City of San Francisco had told then-Secretary of Interior Garfield that it wanted only Lake Eleanor and Cherry Creek for dam sites. By the time Freeman filed his report, San Francisco had spent \$1 million acquiring land in those areas. Freeman's plan was a whole new proposal centered on Hetch Hetchy, ignoring the needs of the irrigation districts. San Francisco City Engineer M. M. O'Shaughnessy said the districts had "all the water they want and have no kick coming."

A 300-page irrigation supplement to the basic Freeman report charged, among other things, that Modesto and Turlock farmers were “water-logging” the land by over-irrigating. It was summarized as follows:

These investigations make it plain that the (Modesto and Turlock) districts now comprise all of the arable land lying between the shores of the Stanislaus River on the north and the Merced River on the south, the rough foothill country on the east and the swamp lands of the San Joaquin River on the west, and thus contain broad areas that naturally should have looked to the Stanislaus River and the Merced River for their irrigation supply and there is no important area of irrigable land remaining which should naturally look to the upper Tuolumne River.

In effect, it was proposed that the irrigation districts redesign their systems to accommodate the City of San Francisco if additional water were needed. At the same time, the engineers contended there was more than enough water in the watershed for all three entities.

Throughout the report, the influence of engineer Grunsky, who made the original surveys for the Modesto district, was apparent. He had leaned toward the Stanislaus River as the MID’s best source of water and wrote San Francisco’s evaluation of the Stanislaus River for irrigation vs. domestic water use.

Modesto Chief Engineer H. S. Crowe and Turlock Chief Engineer Burton Smith in an extremely limited time compiled a comprehensive reply. They pointed out that from 1901 until 1912 the number of property owners in the two districts had increased from 1,211 to 6,317 and the assessed valuation of the land had increased fivefold. Yet, only half the total area of the districts had been brought under irrigation.

They further contended that the estimated needs of San Francisco were being expanded at a great rate.

In 1902 Grunsky had said the city would take only 60 million gallons a day from the river. Ten years later, Freeman said the city should have 500 million gallons per day – 57 percent of all the water available in dry years. At the same time, Freeman recommended that all reservoir sites upstream from Hetch Hetchy, Lake Eleanor and Cherry Valley should be reserved for the city because ultimately the storage would be required to meet the city’s needs.

The Modesto and Turlock engineers challenged Freeman’s basic assumptions, including the use of Montana and Colorado irrigation statistics to determine the San Joaquin Valley’s needs. The former have growing seasons not exceeding 100 days per year, while in this Valley the season extends for as many as 250 days per year. The MID and TID engineers declared:

We believe that we have comprehensively and conclusively shown that there is not a sufficient amount of water in the watersheds of the Tuolumne River for the Modesto and Turlock Irrigation Districts and the City of San Francisco and its neighboring cities...San Francisco acknowledges the prior rights of the Modesto and Turlock Irrigation Districts to the waters of the Tuolumne River, but desires in its brief to limit the quantity of water to be used by these districts.

We are entitled to the water to the amount of our original appropriations, provided that we can make beneficial use of the same and in that event, we contend that there will not be water for San Francisco and its neighboring cities sufficient to meet with the least of their demands.

Stating that ultimately the districts will require additional storage to meet their needs, the irrigation engineers pointed out this must be found on the Tuolumne River and its tributaries and “San Francisco is attempting to secure the three choicest sites in the entire watershed and also desires that all permits for reservoir building on the public lands upstream from Hetch Hetchy, Lake Eleanor and Cherry reservoir sites be reserved in favor of the municipalities of the Greater San Francisco.”

Urging that San Francisco look to the Sacramento Valley watershed for its water, the Modesto and Turlock districts concluded their plea by declaring:

There is no Sierra stream north of Sacramento that can possibly be so complicated with adverse rights, both moral and legal, as the Tuolumne River. Adverse claims on these streams can be purchased at a reasonable cost for no land is dependent on it or is shown to be of value. Before water can be taken from the Tuolumne for use outside the San Joaquin Valley, there is certain to be long and bitter litigation.

But it all boiled down to a question of economics and Freeman’s basic question:

Should the Cities of Greater San Francisco be compelled to spend some \$10 million or \$20 million extra for another, less desirable source of domestic water supply in order that 10 or 20 solitude lovers have this beautiful valley mostly to themselves?

The 1913 Army Engineers’ report which was to influence Congress concluded that the answer to this question was an emphatic “No!”

Arguing in support of the use of Hetch Hetchy by San Francisco, the Army Engineers expressed graphically the argument later to be used by San Joaquin Valley water users who fought the export of any water from the basin.

“On account of the fertility of the lands under irrigation and their aridness without water, the necessity of preserving all available water in the Valley of California will sooner or later make the demand for the use of Hetch Hetchy as a reservoir practically irresistible,” declared the Army’s report in justifying

its recommendation that San Francisco not be required to delay building a dam across Hetch Hetchy Valley.

Long before the Army Engineers' report was filed, Interior Secretary Ballinger had resigned and his assistant, Walter A. Fisher, succeeded him. Following a personal inspection of Hetch Hetchy Valley, Fisher was believed by the Sierra Club representatives to be on their side. An additional hearing on the issue was not held, however, until mid-November 1912, by which time President Taft had been defeated by Woodrow Wilson.

It was at these hearings that the Turlock and Modesto districts first indicated they might accept the suggestion made some eight years earlier by San Francisco and withdraw their opposition if they were assured an adequate supply of water.

MID attorney E. R. Jones, who participated in the hearings, reported to his board that his TID counterpart, P. H. Griffin, "made a proposition, which was ratified by me, to the effect that if the city would agree to turn loose during the months of July, August, September and October the amount of water necessary to irrigate the two districts – such water to be paid for by the districts at the actual cost of storage – all opposition on the part of the districts would be withdrawn. Jones' report continued:

This proposition was made immediately after a statement was made by Mr. Freeman that there was water enough to give San Francisco all she wanted, supply all the needs of the two districts and still allow a large quantity to run to the ocean. It put the city up against a peculiar condition – either they had to agree to accept our proposition or admit they had not enough water for all parties.

Before the local San Francisco representatives had time to discuss the matter. Mr. Freeman jumped up and very emphatically declined to do anything of the sort.

The Secretary (Interior Secretary Fisher) then asked why not, saying that the proposition seemed a very fair one, and they had just stated that there was water enough for everyone. Freeman attempted to explain, but his statements were very feeble in the opinion of all disinterested, and he was told by the Secretary that he was not satisfied with the explanation made.

Jones added that, while Secretary Fisher gave no indication of what his decision would be, the Modestan was satisfied that Fisher "will see the districts are fully protected in all respects in case he grants the city the right to Hetch Hetchy."

In his report to the board, MID Engineer H. S. Crowe backed up Jones' statement that "the eminent engineers had paid very little attention to any other source of supply. Their bias was very evident

and called for some sharp comments from the Secretary,” stressing that some sources “had been condemned without any examination whatever.”

Secretary Fisher ordered Freeman and his San Francisco employers to prove more adequately that the Tuolumne River was the only reasonable source and also to submit new cost estimates using comparable labor figures. On the Tuolumne River project, labor had been computed at the then-minimum wage of \$2.25 per 9-hour day while costs on all other competing projects were figured on San Francisco’s charter requirements of \$3. Per 8-hour day minimum.

This demand on San Francisco for additional information caused what may have been a fatal delay for the opponents. The city was given until December 23, 1912, to comply with the request. The Army Engineers would not file their final report until after receiving and studying San Francisco’s supplemental information.

While admitting there were other suitable sources for San Francisco, the Army Engineers recommended granting the Hetch Hetchy Project permits strictly on engineering and economic grounds. This came two months before Wilson’s March 13th inauguration.

There were no federal environmental impact requirements in those days.

Three days before leaving office, Secretary Fisher concluded that a restrictive permit probably should be issued, but he questioned his authority to do so without further congressional action. Time had run out so he left in force his predecessor’s restraining order.

President Wilson’s secretary of interior was Franklin L. Lane, who had been San Francisco’s city attorney in the days when Mayor Phelan had initiated the Hetch Hetchy Project and made the first filings. Within a week of assuming office, Lane made it clear that, while congressional action would be required, the Department of Interior would support the city’s position fully.

Well aware that a permit would be subject to the comings and goings of secretaries of the interior, San Francisco concurred and approached Manteca Congressman John Raker, whose district included Yosemite National Park. In 1911 during the previous session of Congress, Raker, a firm supporter of the San Francisco position, had introduced legislation to authorize the Hetch Hetchy Project. No action had been taken on the measure when the 62nd Congress adjourned.

Within a month after Lane took office, Raker introduced a new bill. Four revisions subsequently were introduced in the 63rd Congress as negotiations among all interested parties, except for the Sierra Club, progressed. The fifth and final version which ultimately became law was presented August 1, 1913. Hearings were held two days later by the House of Representatives Committee on Public lands.

Ever since the 1912 secretary of interior hearings, Modesto and Turlock attorneys had been negotiating with San Francisco and the Interior Department for language which would protect the rights of the two districts.

By early February 1913 the districts told the secretary of interior that they did not want to be “placed in the light or in the position of consenting to” San Francisco’s plan. However, they did note the need for additional irrigation flows from July to October and laid down their minimum requirements which might bring accord from the irrigation districts. In the months to follow, San Francisco acceded to the demands. They were incorporated in Raker’s final bill.

The restrictions which remain in force today are:

1. That the city must recognize the prior rights of the Modesto and Turlock Irrigation Districts and shall Release enough stored water to maintain a flow of 2,350 second feet measured at La Grange Dam. From April 15th to June 15th, the peak flood periods, this minimum flow shall be 4,000 second feet. The House Public Lands Committee report on Raker’s bill stated, “It should be borne in mind that San Francisco does not contemplate interfering with the natural flow of the Tuolumne. The intent is to store floodwaters which come from melting snows and leave the normal flow of the river uninterrupted.”
2. The Hetch Hetchy Dam must be 200 feet high. “This means,” the committee report says, “that the city will expend from \$500,000 to \$1,000,000 in excess of initial expenditures necessary for its immediate needs. The intent is to build the dam high enough to provide adequate storage to meet the conditions of the grant, and is primarily a benefit for the irrigationists.”
3. San Francisco is prohibited from selling or letting to any corporation or individual except a municipality, water or irrigation district the water or electrical energy generated at the project. This was to prevent any private monopoly from obtaining control of the city’s water supply, according t the committee report.
4. The Modesto and Turlock Irrigation Districts, which at that time included 257,000 acres, are allowed to expand to 300,000 acres.
5. After domestic needs of the city are satisfied, the irrigation districts may purchase as much surplus water as they can use beneficially. Water to be used for the generation of electrical energy by the city shall be released into the Tuolumne River without charge to the districts.

According to the House of Public Lands Committee report, these conditions were “acquiesced in” by San Francisco and the irrigation districts as “the result of an amicable settlement between the two parties.”

The city had held out, however, against a final restriction that it “shall not divert beyond the limits of the San Joaquin Valley any more of the waters from the Tuolumne watershed than, together with the waters which it now has or may hereafter acquire, shall be necessary for its beneficial use for domestic and other municipal purposes.” Freeman had suggested that surplus water could be used for intensified farming in the San Francisco Bay area. This restriction would prevent that. It was incorporated into the bill, however, and San Francisco did not fight the issue in order to move the legislation.

At a joint meeting on August 13, 1913, MID and TID directors adopted a formal resolution declaring everything possible had been done to protect the districts’ rights and the bill, as amended, was the best that could be achieved “owing to the conditions existing in Washington.” The two boards telegraphed the House Public Lands Committee their endorsement, but emphasized that the amendments must be preserved. Four months later, this telegram had a vital role in defeating a last-ditch effort to kill the bill.

Now, according to the House Public Lands Committee, the legislation had the support of the Departments of Interior and Agriculture, the Army Engineers, California’s two United States senators and 11 of the state’s representatives in congress, the governor and Legislature of California, the landowners of the Modesto and Turlock Irrigation Districts, the Commonwealth Club of California, and many members of the Sierra Club. All opposition, except for a “small group” of “nature lovers,” had been withdrawn, according to the committee’s report.

The Raker bill passed the House of Representatives on September 13, 1913, with little debate and a strong 183-to-43 margin.

There remained considerable unhappiness with the legislation throughout the Central California farming community, however.

The San Joaquin Valley Water Problems Association directors adopted a resolution which declared that “no water should be diverted from the San Joaquin Valley for domestic or other purposes, but should be retained in the valley for the irrigation of the arid lands.”

After the U. S. Senate Public Works Committee endorsed the proposal unanimously on September 24, 1913, Raker's bill was to have been heard promptly by the full Senate. Action was delayed until December, however, at the request of California Senator John D. Works, whose postponement request stated: "Ninety-nine per cent of water users in the irrigation districts are strongly opposed to it, and claim that they were betrayed by those who consented to the compromise measure."

The spark that really solidified the opposition to the act was a mid-October *San Francisco Chronicle* editorial which stated, in part:

If the Raker bill passes in its present form and it becomes necessary for the people of this city to accept it, we should accept only in pro forma and under protest and especially reserving all (water) rights under State law.

To this, the *Modesto Morning Herald* replied:

This reflects the sentiments of a good proportion of San Francisco people and of such men as Engineers Manson and Grunsky. From a local viewpoint, it would seem that if we are to have a fight, we might as well have it now and get this thing settled.

The *Herald* called for all of the San Joaquin Valley to rally against passage of the act in the Senate, maintaining that it was no longer just a Modesto-Turlock battle but a Valleywide war to keep outsiders from taking the water needed at home.

Newspapers in Oakdale, Merced, Stockton, Bakersfield and other Valley towns were condemned by the *Modesto Morning Herald* and the *Turlock Daily Journal* for being latecomers in joining the fight to preserve the Valley's water rights, claiming that farms in the entire San Joaquin Valley were in peril. By late October, the *Stockton Record* was demanding that San Francisco turn to the north coast streams for its domestic water. Identified specifically were the South Fork of the Eel River and Putah Creek. The Eel still is untouched and probably never will be tapped because it since has been classified as a wild and scenic river. Lake Berryessa was developed on Putah Creek by the U. S. Bureau of Reclamation in the 1950s.

The Modesto Irrigation District board, repudiating its earlier endorsement of Raker's bill, immediately voted \$2,500 to finance the fight to oppose its passage. Another \$1,000 was added to the battle fund later.

Leaders and members of the San Joaquin Valley District of the Federated Women's Club of California exploded when they received a letter from San Francisco Mayor "Sunny Jim" Rolph and the

State Women's Club president, a San Franciscan, urging support of the Raker Act in the U. S. Senate. After hearing George T. McCabe, secretary of the Stanislaus County Board of Trade, give Mayor Rolph's letter a "thorough scorching," the ladies voted to contact every chapter in the state and to alert them that Rolph's statements were "not in accord with the actual facts" because all of the Tuolumne River's water was needed in the valley.

The *San Francisco Chronicle* added fuel to the fire in early November by editorializing:

Under the laws of California the right to store and use every drop of floodwater belongs to this city without any strings on it whatever except that we proceed with due diligence to put it to beneficial use.

The bureaucrats of the Federal Government are endeavoring to make use of an alleged power to grant or withhold a right-of-way to unlawfully, hatefully, unjustly, and tyrannically substitute their individual will for the laws of this state.

We deserve Congress to pass the Raker Bill because when a robber has the drop on you it is best to compromise for the time being.

After receiving a petition signed by 98 percent of the water users in the Modesto Irrigation District and approximately 60 percent of the TID irrigators, the Stanislaus County Board of Supervisors added \$2,500 to the anti-Raker bill fund started by the MID. The Turlock district, however, refused to make such an appropriation, holding to its earlier commitment to support the legislation. TID Engineer Smith considered that a reversal of his district's position would be an attack on his integrity.

The bitterness in the Modesto district caused by Turlock's refusal to join the fight did not dissipate for some time and may have contributed years later to Modesto's initial reluctance to join Turlock in the development of Don Pedro Reservoir.

As long as the Turlock board refused to withdraw its endorsement of the Raker bill, Stanislaus County's Congressman Denver Church refused to withdraw his endorsement. He declared, after canvassing his district, that his position was unchanged, to which the *Modesto Morning Herald* editorialized:

Such a statement does not speak very well for the intelligence of Mr. Church and all the canvassing he did was at his ranch in the remote Fresno County foothills where he remained until the hour of his departure East, despite urgent invitations to visit the Water Problems meeting at Merced and also to visit other portions of his district and consult with his constituents. Poor old Denver.

As the Senate debate opened December 2nd, Congressman Church and the Turlock board continued to maintain their position in support of the Hetch Hetchy legislation. Mass protest meetings were held throughout the Turlock district. The Hickman Board of Trade called for the recall of the entire TID Board of Directors.

On December 3rd the U. S. Senate debate continued and a petition containing 20,000 names collected by the *San Francisco Examiner* favoring the Hetch Hetchy Project was presented to the Senate. Senator Works countered by submitting the names of 2,760 Valley water users opposed. Congressman Church still refused to budge in his support.

San Francisco Mayor Rolph, personally leading the city's fight in Washington, D. C., and anticipating that the Turlock district would hold firm, wired the TID for its current stand. Faced with almost unanimous opposition to the Raker bill from the district's farmers, the TID wired back, "Public sentiment has greatly changed in the irrigation districts since the committee was in Washington...The people of these two districts are unquestionably against the bill or any bill permitting water to be taken out of the Valley."

With that, the Turlock district finally released Representative Church from his commitment and the congressman immediately wrote Senator Works that he now was convinced that the Raker bill would result in "the ultimate disaster of irrigation water," adding, "I regret to say that the men who represented the irrigationists were deceived and soon after their arrival home their acts were repudiated."

But for most senators, the original MID-TID support of the Raker bill was uppermost in their minds. *San Francisco Examiner* publisher William Randolph Hearst personally headed a team of that paper's newsmen in the Nation's Capitol. As the final vote approached, a special Washington edition of the *Examiner*, datelined December 2nd, was placed on every senator's desk. Prominent on the front page was the August 13, 1913, telegram in which the Modesto and Turlock Irrigation Districts had endorsed the Raker bill as approved by the House Public Lands Committee called upon their Representatives in Congress to "use their best efforts to pass the bill." No mention was made of the Modesto Irrigation District's subsequent reversal of its support and its vigorous last-ditch campaign nor of the overwhelming opposition by a vast majority of San Joaquin Valley water users. Turlock's repudiation of the act, of course, came two days after the special edition had been printed.

By mutual consent, a deadline of midnight December 6th had been set to end consideration of the bill.

As the hour approached, Senator Vail Pittman of Nevada, the chief spokesman for passage of the bill, had the last words. He charged that 99 per cent of the bill's opponents had never seen the inside of California. That was an obvious reference to the Sierra Club and national preservationist groups who were sitting on the sidelines watching the irrigationists fight the bill they had opposed for so long.

While this was the first and possibly the only time the Modesto Irrigation District and the Sierra Club and its supporters had stood on the same side in a major struggle, neither organization was willing to form an alliance for a common cause.

A postmortem report by the preservationists explained that, although their goals were the same, they could not actively join the water users in the battle because their reasons for opposing the legislation were different.

How well the irrigationists would have welcomed the preservationists' support is not known. Following the earlier Department of Interior hearings, MID representatives thought the preservationists' arguments were "childish" and were surprised at the attention they received. Whether a united front would have been successful will never be known, for at three minutes before midnight on December 6th the Senate voted 43-to-25 for passage of the Raker Act.

Senators agreed, however, that had it not been for the last ditch fight of the water users, the bill would have passed without a dissenting vote.

Upon signing the bill, President Wilson labeled it an excellent demonstration of "conservation for use."

This phrase again showed the influence of Pinchot, who had testified before the House Public Lands Committee: "The fundamental principle of the whole conservation policy is that of use – to take every part of the land and its resources and put it to that use in which it will best serve the most people."

It should be noted that the U. S. Forest Service, which was fathered by Pinchot, today follows a multiple-use concept and refers to the national forests as the "Land of Many Uses." The same concept does not extend, however, to national parks.

In spite of the restrictions upon the city, irrigators generally distrusted San Francisco.

Within less than a month after the bill became law, the Modesto Irrigation District, joined by the San Joaquin Valley Water Problems Association and the Modesto-Turlock Water users Association, brought suit to quiet title to the district's water rights which predated those of San Francisco. Litigation brought by irrigators individually and collectively continued throughout the two decades of Hetch Hetchy Project construction.

San Francisco fought back by attempting to block construction of the Valley districts' proposed Don Pedro Dam. California Water Commission Chairman E. A. Chandler reported to the MID and TID boards in April 1919 that the city was claiming it had priority rights to the water which would be stored in the proposed reservoir.

That fall 152 water users successfully petitioned the Modesto Irrigation District to appoint prominent Modesto attorney W. C. LeHane, a frequent critic of the MID and anti-San Francisco activist, to prosecute suits against the city to force compliance with the Raker Act and to induce Oakland and other east bay cities not to join the Hetch Hetchy Project. The water users believed that if other bay area communities did not join the Hetch Hetchy system, it would be "doubtful if San Francisco alone could bear the expense of taking the Hetch Hetchy water out of the San Joaquin Valley."

LeHane was fired in June 1920 after a majority of the Modesto Irrigation District directors were replaced in a recall election in which local newspapers charged LeHane with being the "boss" of the MID board.

As late as January 1933 when Hetch Hetchy diversions were about to begin, the Modesto and Turlock districts sued San Francisco for adjudication of their water rights in an unsuccessful attempt to block the city from diverting any water from the Tuolumne River.

Several riparian water users on the Tuolumne joined as intervenors in the action, but the case never went to trial.

The case, in which more than 60 documents were filed, was to prove a significant factor in the city's subsequent agreement to cooperate with the Valley districts in the development of the Tuolumne River watershed. As a condition of the so-called "first agreement" between San Francisco and the MID and TID reached February 29, 1940, the case was dropped.

In the meantime, several private holders of water rights downstream from Hetch Hetchy had brought independent suits against San Francisco. In May 1939 the California Supreme Court found that diversions to San Francisco had not harmed them but, in fact, may have been beneficial.

Since the signing of the 1940 agreement, the city and the irrigation districts have worked together in harmony – with little open discord – while San Francisco built Cherry Valley Dam and two powerhouses, and the three entities joined in building New Don Pedro Dam in the 1970s.

The First Don Pedro

One of the basic concepts of California water law is that water appropriated must be put to beneficial use or it may be lost.

Water rights are within the jurisdiction of state law and, while the Raker Act guaranteed that the City of San Francisco would not interfere with minimum flows to the Modesto and Turlock Irrigation Districts, it specifically disclaimed any interference with state water-rights laws.

With the City of San Francisco firmly established on the Tuolumne River watershed, the irrigation districts had to put their water to work or risk defaulting it to the bay city.

While this consequence was present in the minds of some, the overriding demand for the development of new storage facilities on the Tuolumne came, however, from farmers whose water ran out in July and August. This left them at least one full irrigation short of the amount needed to mature tree crops fully. Extra irrigations also would insure additional cuttings of alfalfa.

Although the Modesto district looked briefly at high-mountain reservoir sites in Yosemite National Park, an ideal location existed a short distance upstream from La Grange Dam. About a mile below Don Pedro Bar, the Tuolumne River rushed through a deep, narrow gorge of solid rock. Just above the gorge, two canyons branched out to provide a large natural storage area.

Don Pedro Bar got its name from a don of Spanish descent. Some say he was from Mexico, others claim he was a Chilean. Long before the gold rush reached the area, he is said to have taken seven or more donkey loads – the number increases every time the story is told – of gold out of the area. Tales of a lost Spanish mine, presumed to be one of the richest in the state, go back to the days before the discovery at Coloma touched off the 1849 gold rush.

The gorges of the Tuolumne River, including Don Pedro Bar, Red Mountain Bar and Six Bit Gulch in the 1850s, proved to be one of the richest placer mining areas in the world, yielding uncounted millions for the hundreds who sought their fortunes there.

In a 1922 interview with *Stockton Record* reporter Sheldon Davis, “Uncle Jimmy” Hammond, then a partner in Hammond & Bates Grocery in La Grange, recalled as a child “seeing them uncover the soil at a point just above where the dam is going up and seeing the gold – quantities of it – lying there in a crevice.

“The miners would let us run our fingers through it. Just as if it were so much sand.”

The town of Don Pedro Bar quickly sprang up and in 1860 some 1,500 voters went to the polls there on the day that Abraham Lincoln was elected United States president. There were two streets, a pair of hotels, a “fandango” house, a restaurant, a bakery and even a brewery. There were no churches, but a temperance hall was located in a semi-isolated spot on top of a hill near the school.

The town was destroyed by fire in 1864. With the gold fever dying, the village never was restored. Most of the residents, including many pioneer families still prominent in Stanislaus County, resettled in La Grange. A few Chinese were left to rework the diggings.

By the time the Modesto and Turlock Irrigation Districts built Don Pedro Dam and Reservoir, the only remnants of the once-lively town were a few fire-blackened chimneys, a cemetery with about 30 graves, only seven of which were marked with headstones, and one resident, Lee Bung.

Some claimed Lee, generally called “Bung”, was 110 to 120 years old, which would have made him the oldest man in California. More likely to be about 90, Lee reportedly had come to Don Pedro Bar in 1854 at about the age of 20. He was the last to leave before the waters covered the once gold-rich bars, for the cemetery had been relocated earlier.

The gold of Don Pedro Bar was gone by the mid 1860s, but half a century later other riches far more valuable than the gold were being recognized: water.

In August 1908 the two districts began to talk about the need for additional storage in that vicinity and two years later they joined in a study of water rights above La Grange Dam. First, they looked at the rights of the La Grange Ditch and Mining Company La Grange Water Power Company. Two years later, a couple of inconclusive meetings were held to consider a partnership proposal with the Yosemite Power Company.

On its own initiative the Turlock district investigated the ultimate Don Pedro site and bought the first land for the project. Preliminary studies were completed in 1913 – in which Modesto’s rainfall totaled

only 4.30 inches. It also was the year the City of San Francisco cemented its hold on the upper reaches of the Tuolumne.

In December 1913 plans and specifications prepared by TID Engineer Roy V. Meikle were accepted by the TID board. The directors called for the construction of the reservoir and applied to the U. S. Department of the Interior for the right to use government lands for reservoir purposes above Don Pedro Bar.

While aware of the Turlock district's activities, the Modesto district was not yet willing to join in the venture. Relations between the two partners were strained due to Turlock's refusal earlier that month to support fully Modesto's last-ditch efforts to block the Raker Act in the U. S. Senate.

Although the late historian Paul Christian contended that the Raker Act provided an "adhesive bond" between the districts, the glue was not to stick for a few more years and at least one Modesto recall election.

Apparently acting on its own in 1915, the Modesto district appealed to the House of Representatives Committee on Appropriations for federal assistance to build a dam on the Tuolumne. MID Chief Engineer F. C. Herrmann sought federal funding from the committee at field hearings in Redding. The reception was most cool.

After that, Modesto somewhat reluctantly joined in a December 15, 1915, resolution by which the Modesto and Turlock districts agreed to build a reservoir at Don Pedro "at such future time as satisfactory arrangements could be made."

Modesto was hesitant to accept the engineering and economic feasibility findings of the TID engineers and wanted its own independent confirmation that it was a good project. Christian properly labeled this attitude as "partly caution, partly contrariness."

Matters came to a head in 1918.

While the TID continued preliminary work, Modesto stood on the sidelines watching. By the start of that year, the time had come to make substantial investments in test borings and other field work. Turlock invited Modesto to share the costs of the next phase of feasibility investigations.

With no positive response from its neighboring district, the Turlock board feared the Modesto district might back out then or at some future date. In accordance with an 1890 working agreement, the

Turlock board put Modesto on notice to get in or get out within 60 days. Turlock had purchased the land, applied for U. S. Department of Interior permits and was about to call a bond election.

Turlock not only wanted to know the MID's intentions, but also demanded reimbursement of \$20,000 toward the cost of land which it already had purchased without Modesto's consent.

The Modesto board replied on February 27, 1918, with a formal resolution declaring that the MID had no part in the selection of the site, did not have \$20,000 budgeted to pay for its share of the land bought by the TID, was not sure of the project's feasibility or whether the site selected was the best choice. Without further information, it was not in a position to become involved in investigations which would cost the MID upward of \$100,000.

Again the Modesto board raised the five-year-old issue of the Turlock board's refusal to join Modesto in fighting the Raker Act, contending that the TID had assisted San Francisco "take away" from the Tuolumne River 400,000 gallons per day when it should have been fighting exportation of the water from the San Joaquin Valley. The MID board stated it would continue to "use every means possible" to prevent consummation of the Hetch Hetchy Project.

With that, the Modesto board said it might want into the project later, but not at that time.

And it took the matter one step further. Declaring that it "sympathized" with the Turlock district and its water users, the Modesto board, nevertheless, voted 3-2 – Directors C. A. Hilton and J. S. Tully dissenting – to abrogate that portion of the 1890 MID-TID working agreement which declared that whenever one district gave notice it was proceeding with a project, the other had 60 days in which to become a participant or for all time lose the right to join.

The reaction of both Modesto district farmers and city people was immediate and violent.

The Modesto Chamber of Commerce and Merchants Association petitioned the MID board to rescind its action. Director Allen Talbot, who had voted for the resolution, reported that a March 2nd meeting sponsored by the Farmers Union had attracted hundreds of people who were virtually unanimous in their demands that the MID board reconsider. Newspaper reports said MID directors who tried to explain their position were shouted down.

After a lengthy "informal" discussion between the two boards on March 11th, the Modesto board by a 4-0 vote changed its position on March 18th and agreed to cooperate, accepting completely the TID

proposal. Director Fred W. Way, who originally had opposed joining the TID, was absent. He resigned shortly thereafter. Thus, the 1890 agreement was reinstated with the understanding that in the future neither district would proceed on any aspect of the project without first conferring with the other.

In April 1918 the two boards met and finally agreed without dissent on one thing: The dam should be named Don Pedro.

Once the Department of Interior approved Turlock's application for the use of public lands, the districts joined to proceed with comprehensive feasibility studies.

Based on the strong recommendation of the U. S. Bureau of Reclamation, consulting engineer A. J. Wylie of Boise, Idaho, was hired. Wylie had just completed the federal agency's huge Arrowhead Dam in Idaho, then the largest in the world. In October, Wylie and his associate, Ross White, confirmed all of TID Engineer Meikle's earlier findings, reporting that conditions not only were excellent for the construction of a storage reservoir, but they also would be ideal for the generation of electricity.

According to then current irrigation laws, however, the districts were precluded from the developments of hydroelectric power for any purpose not directly related to irrigation.

Stanislaus County's two representatives in the California Legislature were good friends of irrigation. Modesto attorney Esto Broughton, whose father was to serve as an MID director, took office in January 1919 as one of the first women to serve in the state Assembly. L. L. Dennett had served as the MID's attorney for years before his election to the state Senate.

The districts turned to them for help.

On January 20, 1919, Senator Dennett introduced an act to provide for the development of power by irrigation districts. Six days later Assemblywoman Broughton introduced an identical bill. The districts lobbied hard for passage of the legislation.

The Broughton bill passed the Assembly March 31st. Senator Dennett deferred to the lady, withdrew his bill was approved by the Senate April 16th. Governor William D. Stephens signed the bill into law May 21, 1919.

Three days before the bill was to become effective July 22, 1919, the districts decided to proceed with construction of the dam and the powerhouse.

Once again the Modesto and Turlock Irrigation Districts were leading the field when, without a dissenting vote, a formal decision was made on July 24, 1919, to incorporate generating facilities as part of the project.

At the same time, it was agreed that the two districts would share future project expenses and water and power benefits in strict proportion to the number of acres in each district: 31.54 percent for Modesto and 68.46 percent for Turlock.

This was the first time the division of costs and benefits had been so specific. The cost of La Grange Dam was divided half-and-half. In 1909 when the two districts explored the upper Tuolumne River for storage potentials and two years later in meeting some joint legal costs, they split the costs generally on a one-third/two-thirds basis. When it came to the major expense of building Don Pedro, the Turlock district demanded a breakdown strictly in accordance with the acreage served: 81,183 acres in the MID and 176,210 acres in the TID. After holding out for the less precise split, the MID agreed reluctantly.

The division of costs and benefits was to be challenged in a 1932 lawsuit brought by Modesto attorney W. C. LeHane, but the case never was brought to trial.

The Modesto district agreed to reimburse Turlock for its share of earlier expenses and, in turn, Turlock transferred to Modesto the title to 31.54 percent of the reservoir and dam-site land and water rights it had acquired earlier. The districts subsequently filed for an additional 325,000 acre feet of storage rights for power and irrigation.

From that point on, things moved quickly.

Based on Wylie's recommendations, it was agreed that the structure would be a solid concrete gravity dam 283 feet high, 1,000 feet long and 16 feet wide at the crest and 170 feet wide at the base. A construction budget of \$3,375,000 for the dam was adopted. Modesto would issue \$1,182,700 in bonds to finance its share of the dam and reservoir and \$192,000 for the generating facilities. Turlock's share would be \$2,567,300 for the dam and \$417,000 for the power plant.

On January 12, 1920, a petition containing the names of 1,315 MID residents called for an election on \$2 million worth of bonds to finance the district's share of the Don Pedro Project cost.

Although an agreement provided that either district could construct the power plant independently if the other decided not to enter the energy field, there was no doubt in the minds of either board as to the

value of the generating potential. The Modesto board, in a conservative moment of caution, however, decided to leave the matter up to the voters. The bond election scheduled for February 17th actually had five separate bond issues on one ballot:

For construction of the dam and reservoir, \$1,180,000; for construction of the power plant, \$181,600; for an electrical transmission system, \$298,400; for enlarging the upper main canal, \$150,000, and for drainage works, \$190,000.

Except for the drainage works, all phases were inter-related, for once the reservoir was in operation, the upper main canal and associated works had to be enlarged to handle the increased volumes of water made available to irrigators. Although drainage works were considered an independent issue, some argued that more irrigation would aggravate the water-table problem.

The results were overwhelming. The dam and reservoir bonds were voted 1,827-184. The power plant was approved, 1,715-190; the upper main canal works, 1,746-158; the drainage works, 1,608-269, and the electrical transmission system, 1,646-219.

The only dissent was in Salida's Division 4, represented by Director J. B. Trask, who had been at odds with the TID for some time. There, voters disapproved of the dam, reservoir and generating facilities. They approved, however, of increasing the capacity of the main canal and improving drainage facilities.

With that monumental vote of confidence, the Modesto board once again confirmed its intent to build Don Pedro as a joint project. But the harmony was to be short lived.

At a joint meeting on March 10th, the two boards agree to put TID Engineer Meikle in charge of the project with MID Engineer Percy Jones as his assistant. Wylie would continue as consulting engineer.

A few days later, the fight was on again.

The Modesto board balked, demanding that the three engineers have equal responsibilities. Still miffed that the TID had pushed ahead with the project and then put Modesto directors in the "take it or leave it" situation, the MID board refused to ratify the agreement. A majority of the Modesto directors argued the TID was trying to make them "rubber stamp dummies," which they refused to be.

Later that month a joint meeting which was designed to "consolidate" actions of the two districts was described in press reports as the stormiest encounter yet between the MID and TID Boards of Directors. After that, the MID board refused to attend any more joint meetings.

The voters had different ideas.

At a mass meeting held late in March, nearly 2,000 people demanded that the MID directors meet immediately with their Turlock counterparts and resolve their differences. When MID board members present tried to defend themselves, the reaction was described as “near violent.” Still, the Modesto directors stonewalled.

As the project entered its second month of delay, MID Engineer Jones reported that enough water to fill Don Pedro one-and-a-half times had spilled over the top of La Grange Dam so far that spring.

With \$2 million in bonds already voted and water going to waste, farmers and city residents alike saw no reason for further delay and promptly recalled the three directors who had refused to ratify the March 10th agreement, Trask Talbot and Axel W. Stratton.

Fifteen days after the June 1st recall election, in what the *Modesto Morning Herald* referred to as a “completely harmonious” meeting of the two boards, Meikle was confirmed as project engineer and Jones as assistant. Smooth working relations were established, with agreement that each board would ratify independently any decision reached in joint meetings.

“Harmony and a desire by the members of both boards to cooperate in the construction of Don Pedro Dam was the dominant feature of the meeting and of greatest importance to the residents of both districts,” the Modesto paper declared.

It was time to get down to work.

Bids for construction of the dam were opened February 24, 1921. The engineer’s estimate was \$3,723,598, but the low bid of R. C. Storrie and Company was \$4,098,530. Utah Construction, the only other bidder, had placed the figure at \$4,127,780. Both were rejected as too high and bids were sought a second time.

This time 10 firms submitted 13 bids, all cost-plus proposals. The districts had three alternatives: accept an uncertain cost-plus contract, advertise again in the hope of better bids, or build the project under their own superintendency, be their own contractor in other words.

Although the 1921 water year was to be a normal one, the four preceding years had been substantially below normal. To readvertise probably would delay the project through one more irrigation season. Comments made in later years by Meikle indicated he pressed hard to proceed by “force account”

with expanded district staffs. This decision was made March 10th, with the Turlock board unanimous but the MID board divided. Directors J. W. Guylar, D. W. Morris and H. J. Coffee voted to proceed; E. L. Routh and C. A. Hilton dissented.

And so it was that the two Stanislaus County irrigation districts undertook on their own one of the largest dam-building projects in the world. Engineer D. H. Duncanson was employed at \$1,000 a month as project superintendent and work was ordered to proceed.

The first task facing the districts was building their own railroad. Started in April 1921, a \$209,913 standard-gauge line was built from the gravel bars in the Stanislaus Railway. The gravel trains would use this route to Hetch Hetchy Junction. A new line would carry trains an additional 8.5 miles from there to Don Pedro. This was a trip of 33 miles from gravel pits to the dam-site terminal. By October the railroad was delivering 20 carloads of gravel each day, plus heavy equipment and all other supplies needed for the project.

Workers were on the job in May and on June 25, 1921, Modesto Board Chairman Hilton and TID Director S. A. Hultman simultaneously pressed buttons to explode the first charge of dynamite to officially commence work on the dam proper. Two years later to the day, Hultman presided at the dedication of the completed project.

The summer of 1921 was filled with preliminary work, such as building barracks and family housing, a mess hall, a hospital – the *Herald* boasted that it was “complete with up-to-date Xray” – and a schoolhouse. About half the workers were married with families. When teacher Sophia C. Tucker opened school on November 17th, she had 22 pupils on the roll.

A small community quickly took shape. Don Pedro Bar in those days was a long way from anywhere and social and cultural activities were important. The latter did not include a pool hall, although an application was made by an enterprising businessman to provide one. The suggestion was ignored by the Modesto board.

Prohibition only recently had been voted and sobriety was the rule, but on at least one occasion the kitchen crew used some of the large mess hall pots to experiment with making whiskey. Informal reports indicated they were not too successful.

Modesto's papers carried daily news reports on the progress at Don Pedro, mostly filled with social events such as the report that 150 had turned out for the Halloween ball, with an added comment that, "Many parties help to keep up the interest in Stanislaus' great camp."

Also noteworthy were the days when "smiling, good-natured" stage driver Roy Alverson failed to show up on his regular run from Modesto to the camp. The arrival of the stage always was an occasion.

On October 27, 1921, when the first concrete was poured at the dam, the *Herald* account headlined this construction milestone. The story by the Don Pedro correspondent, however, first told about a surprise birthday party given Mrs. Dallas Duncan with a table "loaded with delicious cakes and the fragrant odor of Java filling the night air."

Actual construction work was under way now. The excavation work was minimal except for the spillway to be constructed on the north side of the dam. Test borings had revealed a riverbed of hard, blue flint rock 200 feet deep. No more than a foot of surface rock had to be cleared before reaching a base stable and solid enough to hold a structure towering more than 25 stories high.

The spillway posed problems, however, because the rock formation was rife with seams filled with clay. The deeper the excavation, the worse it became. A total of 130,000 cubic yards of rock and soil were excavated for the spillway alone, more than four-and-a-half times the amount of excavation required for the rest of the dam.

The problem was how to support a 45-foot deep spillway channel on an extremely steep ledge with poor rock. The solution was to make the spillway lip, which carries the gates, of massive concrete with only enough reinforcing steel to allow for temperature stresses. Grouting down to green rock, 50 or more feet below the surface, and a massive concrete slope wall proved economical and efficient, withstanding extreme flood runoffs over the years.

The dam began to take form by late October with the pouring of the first concrete, an event which the *Morning Herald* glowingly recorded. The results would "stand a noted mark of workmanship for time to come as the greatest efforts ever put forth by our worthy districts of both Turlock and Modesto Irrigation Districts to supply patrons the water that shall make Turlock and Modesto the garden spots of California."

Following a special tour of the project, Howard Bartlett of the *Morning Herald* made a special progress report December 4, 1921:

That the construction of Don Pedro Dam is way ahead of schedule is due to the wonderful organization gathered together by D. H. Duncanson, who has built several of the largest dams in the country. Ross White, resident engineer, is also entitled to a great deal of credit for the fine support and assistance he has given Duncanson.

Those familiar with the sound of a 100-stamp quartz mill will only be able to understand what kind of a noise the concrete mixers, gasoline trains and air drills throw out into the Tuolumne River canyon. Like a town born of an oil boom, the little village and works at Don Pedro has sprung up like an army camp and everything in it, including the workers, carry an air of alertness.

Bartlett reported work was progressing on both sides of the canyon: "practically two dams were being erected," separated by a 15-foot waterway to allow for the rise of the river during high water. At the time, both sides were approximately 35 feet high. The diversion channel, which ultimately was 50 feet tall before it was topped off, was to be closed the summer of 1922 when minimum runoffs could be controlled.

At the time of Bartlett's October report, 500 yards of concrete was being poured each day, but Superintendent Duncanson predicted this soon would increase to at least 1,000 yards a day. By Christmas, another 20 feet would be added to the dam's height.

Excavation for the south wing of the dam had commenced. On the north wing, part of the excavation was completed and Bartlett told of grouting by "powerful concrete guns with air pressure (provided by 300 horsepower compressors) used to shoot concrete down into the ground to fill up any crevices which may be in the foundation."

During Bartlett's tour, Duncanson, who served as superintendent of the La Grange Dam during the latter part of construction, commented on some of the differences between the two:

We had only four men working in the dining room (at La Grange) and here we have 26. The La Grange Dam was built of stone and cement and few people know that only 25 per cent of the dam is stone and 75 cement. Construction was begun in 1889 and was completed in 1893. Small cables were used in those days and were called upon to lift rocks weighing 12 tons and now, with the same cable, we consider such a trick dangerous. Only one man was killed on the La Grange job, and I hope to complete the Don Pedro job without a fatality.

By December 18th, the *Herald* published what it labeled as the "First Airplane View Ever Published of the Don Pedro Dam Construction," reporting Duncanson had exceeded his estimates. The dam already was 60 feet high and work was 20 days ahead of schedule. Completion by the end of 1922 was possible, which would mean the filling of the reservoir during the winter of 1922-23.

The sluice gates were installed in the base of the dam and nearly 5,000 barrels of cement had been used so far, with orders for 50,000 to 200,000 more barrels to be placed within a week. From 200 to 275

men were employed on the Tuolumne River, with another 75-man camp maintained at the Stanislaus River gravel pits.

Immediately following the optimistic report, heavy rains set in, destroying the hopes of completion in 1922. Work was not to resume again until late January. The rains had caused the railroad tracks to settle and supply trains were stopped for two weeks during repairs. Plant equipment was damaged by the heavy downpour, which raised the level of water to within 5 feet of the lower portion of the dam. That it could “all but be observed.”

By late February the *Stockton Record's* Davis reported work was progressing on schedule again with a realistic completion date set for the early spring of 1923. David described the work of placing 800 yards of concrete a day:

Dropping into the canyon for a maximum distance of 600 feet, the steel concrete chutes are day by day building up the great Don Pedro Dam across the Tuolumne River. Suspended from two-inch cable ways, the larger conduit swings like a gigantic reptile and spits its concrete mixture just where it is required.

He forecast that as the dam got taller and wider, the pouring would increase to 1,200 yards per day. The work crew now was up to 400 men.

Cement was moved directly from boxcars to the mixers. Sacks were unloaded into a pair of two-yard concrete mixers and the empty sacks thrown into a shaker which shook every last particle of cement dust from it, thus saving much cement. Aggregate was hauled 600 feet from bunkers to the mixers by two gasoline-powered narrow gauge trains.

During spring and summer, work went well. By May 22, 1922, seven months after the first pour, a total of 101,000 cubic yards of concrete was in place. It was estimated that the job would take 280,000 cubic yards of concrete. By mid-November water was beginning to back up against the dam. The two irrigation districts stored enough water behind the still unfinished dam to extend the irrigation season until September 15th for the first time in history.

The last concrete was poured March 15, 1923, A total of 296,552 cubic yards of concrete had created a dam 284 feet high, 177 feet thick at the base and 16 feet thick at the crest, which extended 1,040 feet across the Tuolumne River canyon – the highest gravity dam in the world. Behind the dam was formed a reservoir 14 miles long and 3 miles wide with a total storage capacity of 290,400 acre feet, covering 3,180 acres at high water.

The total cost of the dam, not including the powerhouse, which cost an additional \$1,140,340, was \$3,724,000 and the job had been done by the two irrigation districts serving as their own contractors.

Although basically completed, it took until early June for the finishing touches. The official dedication was held on June 25, 1923, two years to the day from the official start of the monumental effort. Fifteen days earlier, the reservoir had filled to capacity. Approximately 1,000 people made the tortuous 40-mile trip to Don Pedro for the dedication and to view the now-filled lake.

Enough water was captured behind the reservoir that year to extend the irrigation season until October 12th. Nearly 62,000 acres were irrigated, nearly 10 times the area watered just a score of years earlier. In 1924 when the rainfall during the water year was less than five inches, the season still lasted until September 27th. After that, October 15th became the normal time to end irrigations.

Only twice since Don Pedro was constructed has irrigation water been cut off in August: 1931 and 1934, two years in the midst of the extended 1928-1934 drought when rainfall was well below Modesto's 95-year annual average of 12.05 inches.

Turlock Director Hultman, who presided at the dedication ceremonies, summed up the celebration by declaring: "We meet today to dedicate the Don Pedro Dam and Powerhouse, the highest dam and the first powerhouse to be constructed and operated by the people of an irrigation district or union of irrigation districts."

Once again the Modesto Irrigation District and the Turlock Irrigation District were leading the way for the rest of the state and nation.

Power – The Decision of a Century

Everyone is for it NOW – distribution of Don Pedro power.

In this single statement *Modesto Morning Herald* summed up a bitter two-year battle over whether to distribute or wholesale the energy generated at Don Pedro Dam Powerhouse. The occasion was the November 11, 1923, arrival of the first “juice” to light homes, businesses and public buildings in Modesto.

The ultimate decision to generate and distribute its own power has been properly labeled by Mathew Fiscalini, who served nearly 29 years as a Modesto Irrigation District director, as “the most important thing that the people of Modesto and Turlock have ever done.”

But it wasn’t easy. It took strong-minded, courageous – at the time some said foolhardy – people to accomplish the feat in the face of powerful opposition from a well-established private utility.

From the outset, it had been assumed electrical generation would be an integral part of the Don Pedro Project. The use of electricity was not new to Stanislaus County. It had been around in a limited way since 1891, although many of the older generation looked upon it as an unnecessary luxury.

In 1893 when La Grange Dam was built, the huge Niagara Falls power project of New York still was in its design stages, yet the *Stanislaus County News* forecast that the man-made La Grange Dam could be “the Niagara Falls of the West” by offering similar energy potentials.

The first formal step for the development of electrical energy came in the spring of 1912 when the Turlock Irrigation District filed for an additional 325,000 acre feet of water specifically for generation purposes. Subsequent agreement between the two districts conveyed 31.54 percent of this right to the MID.

Throughout the preliminary discussions of the Don Pedro Project there was no question but that a powerhouse would be included. On July 18, 1919, six days before a formal decision was made to include generating facilities in the project, consulting engineer A. J. Wiley submitted to the two districts a detailed design, including penstocks buried deep in the concrete dam, for a 15,000 kilowatt power plant. A budget of \$609,000 for the plant’s construction was adopted.

It was to be two years before construction began, however.

During that interim there began a conflict between the Modesto district and the Pacific Gas Electric Company which was to develop into a full scale war lasting 20 years. Although the two utilities now are working together, only a score of years ago "PG&E" was considered a bad word by many old-timers in the region.

The battle was over who was going to distribute the power generated at Don Pedro.

It all started early in 1920 when the irrigation districts sought to acquire from the Sierra & San Francisco Power Company, a subsidiary of PG&E, the old La Grange Ditch and Mining Company property which would be inundated by Don Pedro Reservoir. The private utility replied that it would relinquish the property only if the two districts agreed not to compete in retail distribution of electricity and also sold to PG&E all of the power generated at Don Pedro.

The districts immediately initiated court action to condemn the property. The case was settled in mid-1921, but that lawsuit launched a series of legal battles between the private utility and the Modesto district which were to go on until 1940.

In exchange for the lands flooded, ditches destroyed and all of Sierra & San Francisco Power Company's rights on the Tuolumne River, the districts agreed to provide PG&E with 10 million kilowatt hours of energy in each of the next 25 years. Additionally, water would be furnished the gold dredge at La Grange. At the same time, a contract was signed providing that PG&E would supply the power needed during construction of Don Pedro Dam and Powerhouse.

Work on the powerhouse began in November 1921 when contracts were awarded for the purchase of the turbines, generators, transformers, switchboards and a traveling crane. All of these items, plus the lining for the penstocks, cost \$291,478. Excavation for the powerhouse began that month.

As construction progressed, the Modesto district faced two choices: Retail the power within the district, building its own distribution system at a cost of more than \$1 million, or wholesale the energy to PG&E.

At the time the agreements were reached on the La Grange Ditch and Mining Company property, PG&E undoubtedly believed the MID was inclined to wholesale its share of the electricity to the private utility. The belief was justified, for that, indeed was the thinking of the board. In fact, none of the MID directors questioned that the plans showed only two transmission outlets from the powerhouse: one for

Turlock, which always had insisted it would distribute its own power, and one for PG&E. When the MID subsequently decided to distribute its own electricity, a third outlet had to be added.

As 1922 opened the Modesto district hired San Francisco consulting engineer Louis F. Leurey to survey the comparative costs of wholesaling or retailing the energy. Leurey advocated wholesaling.

In designing the dam and powerhouse, Wiley had estimated that water stored behind Don Pedro Dam would generate 16,000 horsepower of energy during the months of January through September. This would drop to about 5,000 horsepower during the remaining dry months.

Based on this, Leurey estimated that the Don Pedro Project had a potential of 90 million kilowatt hours of energy each year. Of these, 10 million would go to PG&E through the Sierra & San Francisco Power Company, 53 million to the TID and 27 million to the MID. Leurey estimated that consumption for the entire district would vary from 700 to 2,000 kilowatt hours per year. By comparison, the average home today consumes about 750 kilowatt hours per month.

Although the state Legislature in 1919 had allowed irrigation districts to enter into the power business, the MID legal counsel had decided that it could not retail energy outside of its district boundaries without approval of the State Railroad Commission, predecessor of the California Public Utilities Commission.

Since the authority for irrigation districts to enter the power business in competition with private utilities was so new, it was not known how the state regulatory agency would react to an application to go beyond district boundaries. With this uncertainty facing them, MID directors wondered what to do with what appeared to be a tremendous surplus.

Furthermore, Leurey argued that the cost of building a distribution system would be substantial and the district would not be guaranteed any preferential treatment from the City of Modesto or County of Stanislaus in seeking right-of-way for its distribution lines. Leurey maintained that PG&E was serving the area well at the time and to compete with the private utility would result in a devastating price war.

At the time, PG&E had nearly 4,000 meters installed, serving primarily the City of Modesto and nearby residential areas. Rural areas were without electricity, however, as the private utility had neither the inclination nor the energy to serve regions where customers were far apart. It would require at least 100 more miles of distribution lines to reach these people.

An inventory made by the MID in March 1922 placed the value of PG&E's system, including six substations and 130 miles of distribution lines at \$606,400, without considering depreciation. Leurey estimated that if the MID were to take over the system it would cost at least an additional \$135,000 in severance damages and the district would lose a substantial taxpayer.

The cost to build a new system, including transmission lines from Don Pedro, was estimated at more than \$1.4 million. Operating the system with a skeleton staff would cost \$50,000 a year, plus another \$25,000 for standby steam generation for use during the water-short months of October, November and December.

With these facts in mind, the Modesto board invited PG&E to make an offer to purchase the district's share of Don Pedro power. The response was that the private utility would not deal with one district alone, but would purchase for 10 years all the power from both districts, exclusive of that already committed under the Sierra & San Francisco Power Company agreement.

The proposal provided that the two irrigation districts would control water releases to meet PG&E power demands, "subject to irrigation and domestic needs." The company would furnish at cost the electricity required for district-owned drainage and pumping plants.

A month after the proposal was submitted, the Modesto board accepted it, but cut the term of the contract to five years. The board reasoned that the district's drainage and pumping requirements would not exceed a third of the power available and there was no guaranteed retail market, especially since many of the larger energy consumers already had long-term contracts with PG&E.

Furthermore, the board concluded that if the district wholesaled its power, revenue would start coming in immediately while it would be a year or more before it could build and start operating its own retail system.

The only argument in favor of a retail distribution venture fraught with uncertainties was that it would provide jobs and keep the money at home.

On June 14, 1922, the MID Board of Directors voted 4-1 to wholesale the power to the private utility. Directors J. R. Broughton, H. J. Coffee, H. W. Guyler and C. A. Hilton favored wholesaling. Only Director E. L. Routh opposed the proposal.

In making the decision, the board forgot one important thing. Earlier it had set June 21st as the date of a straw vote on the issue of wholesaling vs. retailing. One week after the board's action, the people of the district voted 1,468 to 625 in favor of retailing and supported the issuance of bonds for this purpose by a 1,400-574 majority.

The board still was not convinced.

The Modesto district's engineer, Percy Jones, placed the cost of a new distribution system at \$1,163,000; only \$300,000 in unsold bonds remained. With the district already bonded for \$4 million, the board was reluctant to incur an additional \$1 million indebtedness even though the district for the first time ever had received above-par prices in the sale of Don Pedro construction bonds in January 1922.

Six months after the straw vote, the people took direct action. Guyler, Coffee and Hilton were recalled from office on December 20th. Broughton, however, survived a recall election held one week later.

Even with three advocates of wholesaling Don Pedro power to PG&E replaced by MID distribution supporters, some hesitation to undertake such a monumental task must have remained in the minds of board members. Late in January 1923 a coupon questionnaire was placed in the two daily newspapers asking opinions of whether the district should retail or wholesale the power. Once again the results were overwhelmingly in favor of the district's marketing its own power.

Two straw votes and the recall of three directors finally convinced the MID board. The district then approached PG&E, offering to buy that portion of its distribution system within the boundaries of the MID. The response was negative in a roundabout way. The company claimed it only leased the system from Sierra & San Francisco Power Company and it understood the latter was not willing to dispose of any property.

In a College of the Pacific master's degree thesis submitted in 1946, Robert M. Graham stated that company officials involved had admitted to him that PG&E was willing to sell at the time, but the undisclosed price offered by the Modesto district was too low. Thus, the decision was made to freeze out the MID rather than sell out. A fight which was to last 17 years was on.

Without hesitation, Turlock had proceeded with its own system and on February 20, 1923, agreed to carry Modesto's power to its substation in Empire, from which the MID could serve much of its own area.

April was a turning point for electrical distribution in both districts. Energy first flowed over Turlock's transmission lines April 3rd, the same day Modesto called for bids for distribution system material and moved to build its own transmission lines to its PG&E-served pumping plants to avoid long-term contracts with the company.

The district charged the private utilities had joined to impose an exorbitant price for the Tuolumne River rights needed by the districts for the construction of Don Pedro Dam and Reservoir. Modesto consulting electrical engineer H. A. Storrs contended that the districts had given PG&E 10-million kilowatt hours a year – a \$1 million value over the 25-year term of the agreement – for a dilapidated plant which could generate only 4-million kilowatt hours per year. Furthermore, Storrs argued, the Waterford Irrigation District already had purchased from Sierra & San Francisco Power Company the rights to the water for the months of May through October.

Not only did Turlock flatly refuse to join the rebellion but issued a stinging rebuke of the Modesto district for adopting the resolution and going public with it before consulting the TID. The effort came to naught. The districts began delivering the power to PG&E May 20, 1923.

Meanwhile the retail vs. wholesale debate went on.

Modesto Morning Herald editor Leslie A. Ferris, one of the first to fight for the MID's distribution of its energy, injected the issue into 1923 city council and school board elections. He called for the election of those candidates who had openly supported the public distribution of Don Pedro power.

Editorializing on the morning of the April 10th election, Ferris declared: "To vote for anti-distributionists for the city council at this time is dangerous to this movement."

Even after the recall of a majority of its members on charges that they opposed local distribution, the MID Board of Directors seemed divided on the issue. Director Routh, who 10-months earlier had been the only one to vote against the original move to sell out to PG&E, was accused of vacillating and being dilatory in proceeding with retail distribution. He was recalled April 25th.

In February, Routh and anti-distributionist Broughton had been instrumental in unseating as president of the board Empire Director J. C. Garrison, a strong advocate of retail distribution. This truly was behind Routh's recall, after which Garrison was re-elected president. This, the *Modesto Morning Herald*, said, "undoes the damage done previously by Routh and anti-distributionists."

The new board immediately voted to fire any employee who opposed retail distribution, declaring: “Any unloyalty on the part of any employee to the cause of distribution is a serious menace to the welfare of all taxpayers.”

This time the board meant business.

The installation of transmission lines to 26 MID drainage pumps was started in April. These now would use Don Pedro “juice” to pump groundwater into canals, lowering crop-threatening high water tables in several areas.

In mid-May the Modesto School Board opted for Don Pedro power to heat as well as light the new Modesto Junior College and two grammar schools in California to be heated by electricity and the school trustees’ decision was seen as strong support of the MID’s entry into the power distribution business. Future additions to existing schools also would be heated and lighted by MID power, the school board ruled.

Things were moving too fast for PG&E, which began to fight back by soliciting its customers with long-term contracts at favorable rates. This caused sufficient concern to the district that the MID board issued a statement stating, “Any citizen or concern entering into such obligations would be detrimental to the Modesto Irrigation District and its taxpayers.”

The first MID meter was installed on October 23rd. Six days later MID Electrical Superintendent Webster Johnson threw the switch which fed the power into the district’s pipe yard. There were no ceremonies or crowds, but as the lights in the yard began to glow, Johnson cried out: “We’ve done it! Watch us go!”

Mammer’s Bakery and the Community Market Building received electricity the same day. The next morning MID crews were in the field promising to make from 25 to 50 residential service connections a day.

The City of Modesto contract to provide power for lighting streets and public buildings and for pumping domestic water was signed November 2nd by Mayor Sol Elias, long an MID activist who had a significant role in getting the district going again after the 1901 ouster of anti-irrigationists. The PG&E contract had expired in 1922. Mayor Elias and the city council kept negotiations on a month-to-month basis, meanwhile meeting quietly with irrigation district officials to assist in developing the distribution

system. In response to the city's support, the district gave Modesto a most favorable .015 per kilowatt hour rate for pumping domestic water and for street lighting.

By November 10th, 23 businesses and 61 residences were on the line along with the new junior college and two grammar schools. The Salida Lighting District was being served. Other contracts were being processed.

Formal dedication of the electrical distribution system came as part of the city's November 12th Armistice Day celebration; November 11th fell on a Sunday. Following a Friday night test of lights strung through the streets for celebration, the *Modesto Morning Herald* commented:

It really did seem as if Modesto took on new life – the sense of ownership of power seemed to transmit itself into the very veins of the Modestans who congregated about the streets and rode about in automobiles, apparently anxious to absorb every bit of the first light from Don Pedro Power.

That this sense of “new life” was felt by the individual homeowner was confirmed recently by long-time resident Russell Briggs. Briggs grew up on a McHenry Avenue farm a little over a mile beyond Modesto's city limits which then were at Morris Avenue. Recalling how difficult it was to study his high school lessons by the light from kerosene lamps, he exclaimed:

That was the most memorable event in my life – getting electricity in our home. We didn't have electricity until the MID put a power line in front of our house.

Briggs noted that most people who had not received electricity from the private utility – even though in some cases its power lines were just across the street from their homes – felt that way and that was the reason for the strong vote for the distribution of MID power.

As the distribution system came alive, MID engineers recommended a rate schedule which undercut PG&E by 10 to 25 percent. This proposal was rejected by the directors, who instead gave special consideration to residential service for cooking and heating and to farm and commercial users for pumping or drainage. PG&E rates were matched in other areas.

The board also specified that rates for in-town service would be lower because consumers were closer together and easier to serve. Farmers were expected to consume larger amounts of power than city dwellers because of pumping and farm equipment use and therefore would benefit from a rate scale which decreased as consumption increased. This had been proved by PG&E experience.

With the system working, the time had come for the Modesto board to make good on its earlier commitment to provide electricity for everyone in the district, city and rural alike.

Additional substations and distribution lines needed to cover all rural areas would cost \$357,800. Serving the communities of Empire and Salida would add another \$12,500, with an additional \$275,000 needed to complete the work in Modesto. The MID had invoked the provisions of the Raker Act to require the City of San Francisco to provide standby service from its Hetch Hetchy system. Connecting to the bay city's transmission lines would cost an additional \$50,000. All this would require a new bond issue in the amount of \$500,000.

For a fledgling power agency, this was a lot to ask.

Directors were most receptive, however, when the petitions calling for these additional bonds were filed November 19, 1923, just three weeks after the first service had begun. At the December 14th bond election the affirmative vote was 1,282 to 121.

Construction bids received February 5, 1924, were rejected as too high and the district proceeded to build the substations, transmission and distribution lines with its own crews.

As new lines were installed, business boomed. By the spring of 1924 there were more than 2,500 meters on the line; 12 months later, this had more than doubled to 5,400.

In spite of the David and Goliath situation in opposing PG&E, the Modesto Irrigation District had successfully embarked upon what USDA expert Elwood Mead called "the best cash crop of an irrigation project."

The Modesto district sold its "cash crop" in every way possible, including establishing its own retail store for the sale of electrical home appliances. Additionally, it wholesaled these items at cut rates to furniture and hardware store operators who agreed to promote electrical goods. The MID retail store's profit margin was minimal since the whole purpose was to increase electrical consumption. In 1933 the retail store was closed, however, at the request of depression-hit local merchants suffering from the competition.

Within a year of the start of electrical operations, the district was approaching the maximum dry-season capacity of its share of Don Pedro-generated power, although on an annual basis the district had

power to spare. Thus began a search for additional energy sources, a quest which continues to this day. The acquisition of a 1,250-watt standby steam plant was the first step.

The need was especially critical in 1924, for that was an extremely dry year. That fall, after its own irrigating season had ended, the Waterford Irrigation District gave water to the MID for power generation purposes.

These were interim measures that did not solve a lasting problem.

The Modesto district's energy consumption far exceeded early expectations and by 1927 the demand exceeded its supply of Don Pedro power. There was no alternative but to look to outside sources for additional energy.

The TID could not, however, help its energy-hungry partner in Modesto. Entitled to more than two-thirds of the energy generated at Don Pedro, Turlock had been faced with a different problem: a substantial surplus. In 1924 the Turlock district had solved its surplus problem through long-term contracts selling to San Joaquin Light and Power of Fresno all of its surplus Don Pedro power. This agreement was reached even though the irrigation district was competing with the private utility at the retail level in the southern portion of the TID.

The Modesto district, therefore, in 1928 faced two unpleasant alternatives: 1. Expand its diesel generating capacity, involving a major capital outlay. 2. Go, hat in hand, and ask PG&E for wholesale supplies of energy.

It was a bitter pill to swallow, but the most practical solution was to seek assistance from PG&E. The company refused to help its competitor. The district then turned to the San Joaquin Light and Power Company in Fresno. Again it was rejected.

Directors then covered both bases, advertising for bids on the diesel-powered generating plant and bringing a State Railroad Commission action against both private utility companies, seeking to force them to provide MID's needed additional energy. On the day before a scheduled June 26, 1929, hearing on the matter, San Joaquin Light and Power capitulated and the diesel plant bid opening was canceled.

The contract between the private utility and the MID provided that during the winter months the Fresno-based company would supply needed power, which would be transmitted over TID lines, and

purchase MID's surplus power during the summer. If the Modesto district were to expand to the point where it had no surplus, San Joaquin Light and Power would provide standby service.

The agreement was approved initially by a 3-2 vote of the MID Board of Directors. Opponents were disturbed that the agreement let a private utility get its foot in the door. The arrangement proved most satisfactory, though, and continued in effect until March 1944. Time proved that the Modesto district was able to maintain its independence.

In 1925 a review of the first 16 months of electrical operations revealed that the MID had made an 8.26 percent profit on its power sales, substantially more than anticipated. A rate study found that the district's rates were higher than other publicly-owned utilities, including the neighboring TID.

Faced with a choice of cutting power rates or reducing irrigation taxes, MID directors chose the former course, anticipating the lower rates would lure more customers from PG&E and encourage existing customers to use more energy. Lower power rates would be appreciated most by city dwellers and businesses, whose irrigation taxes were relatively low. Two-thirds of Modesto's commercial firms already were using Don Pedro electricity.

Two predictions made by the MID board at that time were to prove most accurate: The day would come when energy revenues would eliminate the need for irrigation taxes, and low power rates would attract business and industry to the community. This was expected even though the officers and citizens of the district still considered energy a "by-product" and every preference was given to delivering water for irrigation.

In March 1925 a reduced rate schedule was put in force, but it was so favorable that consumption expanded rapidly and the district's electrical distribution net profits soared to 10 percent the following year.

As success continued in both the Modesto and Turlock districts, Don Pedro's generating capacity had to be doubled by adding two 7,500-kilowatt generators. A 1926 election on a \$236,000 bond issue to finance Modesto's share was approved by a 15-to-1 margin. However, the bonds were not sold because the district was able to finance its share of the project from electrical revenues.

Work was started on February 1, 1927. It was not an easy job for work could not interfere with the operation of the existing three generators. Other problems faced by structural contractor T. E. Connolly included the opening of penstocks installed initially in the dam in anticipation of the additional generators.

The tricky part was the removal of penstock plugs from the dam's upper face 170 feet below the surface of the reservoir. The turbines and generators, broken down into 25- and 30-ton pieces, were hauled by 1927 model trucks – not trains this time – 35 miles from Hickman to the powerhouse in only two days by the Los Angeles trucking firm of Allen Brothers, whose trucks also hauled all the cement at 18 tons per load.

The two new generators were placed in operation in July of the following year. Direct transmission lines from Don Pedro to Modesto, also financed from MID electrical profits, were placed in operation the following month. The capacity of these lines was doubled in 1935.

As a result of early expansion of the distribution system and this addition to Don Pedro, all farms within the Modesto district had energy available to them by July 1928, long before the Federal Rural Electrification Administration delivered power to most agricultural areas throughout the nation. The independent-minded Modesto Irrigation District had accomplished this on its own without seeking outside help.

After completing such a major system expansion using only operating revenues, the board again reduced electrical rates and thereby touched off a rate war.

PG&E responded with a rate cut, which the MID sought to have reversed. The district charged the new rates were lower than rates the company charged in other areas. The California Railroad Commission found that to force the company to cancel the reduction would be “a serious and unjustifiable departure from the long and unbroken trend of statutory, judicial and commission precedent both in this state and elsewhere which overwhelmingly sustains the right of a utility to meet in good faith a competitive rate without rendering itself subject to a charge of unlawful local discrimination. To do otherwise would be to deny the right of the utility company to maintain its own existence by meeting the rates of its competitors.”

The 1930 purchase of the Modesto Gas Company by PG&E introduced low-cost natural gas for heating, bringing a new element of direct competition with MID's offering of low-cost electricity for heating. It also increased the company's incentive to carry on the public vs. private utility battle and stay in Modesto.

The struggle between the two utilities drew statewide attention, with newspapers taking sides. The *San Francisco Examiner*, published in PG&E's headquarters city, editorialized in December 1930 that the private utility had “weepingly” explained it had been forced to cut Modesto rates below those in other

communities “because the district aggressively and unfairly reduced its own rates.” Then the *Examiner* editorial writer asked:

What do you make of this, Watson? How does it all fit in with the privately owned utilities’ claim that public ownership is inefficient and feeble and what not? Favorable testimony for an enemy is to be taken seriously. The PG&E, enemy of public ownership, certainly gives testimony favorable to public ownership as it works in Modesto. In that depression year the Modesto district had built a surplus of \$100,000 from power revenues. Here at home, the newspapers were feuding. *The Modesto Evening News* had supported wholesaling the power, a position which caused the *Morning Herald* to label its competitor as the “power company propaganda volcano...belching a willfully and maliciously falsifying wreath of smoke.”

The following year, PG&E adopted another tactic. The *Modesto Tribune* revealed that three major MID customers, General Petroleum, Firestone Tire and Rubber and the Borden Company, had switched to the private utility. Basically, it was the result of a company “tit for tat” move which in effect said, “Use our power or we won’t buy your products.” The company referred to this policy, according to the *Tribune*, as “reciprocity of trade.”

Modesto was not alone in its battles with a private utility.

On April 23, 1931, the now merged *Modesto News-Herald* under McClatchy Newspapers ownership reported that the Federal Power Commission was launching a nationwide investigation of the “power trust.” The paper commented that the probe would be “extremely distasteful” to power companies as it would reveal how federal licensees are operating in intrastate business without state licenses. And that, argued the *News-Herald*, may “strike-dangerously close” to a system by which the rates of the interstate operations are “clouded and veiled in a maze of figures and cross figures.”

PG&E had friends, too.

Legislative efforts were made in Sacramento during the early 1930s to force public utilities to pay property taxes. The private utility was one of the Modesto district’s largest taxpayers, while the MID paid neither state nor county taxes because of its public nature.

The attempt failed, however, as farmers argued before a farmer-dominated Legislature that if they and the utility that provided their water both were taxed, it would be double taxation. The rebuttal that tax-paying farmers with power already experienced the same “double taxation” was passed off with the claim

that private companies were in business to make a profit, while irrigation districts were there to serve the farmers with water at the lowest possible price without a profit.

Locally, at least on PG&E friend took things in his own hands. Former MID Director Laud C. Gates, during a 1954 interview on the occasion of his 80th birthday, recalled one large landowner dug up the MID's new power poles when they were placed in the road right of way near his home.

“He got fined \$250,” noted Gates, who was a combative advocate of public power. “We should have sent him to San Quentin.”

Pressure continued to mount for Modesto to acquire the PG&E distribution system and as 1932 neared an end Director John B. Fiscalini, whose son Mathew later followed his footsteps on the MID board, declared such an action “essential to safeguard the investment the Modesto Irrigation District has made in its own electrical project. Duplication of the two systems as they exist at present and duplication of the overhead charges are a great added expense. Consolidation of the two systems would mean a very real savings.”

The elder Fiscalini, talking to farmers, predicted that consolidation would result in a reduction in irrigation taxes of 90 cents on each \$100 assessed valuation of property. Fiscalini's predictions proved far too conservative as ultimately irrigation taxes were eliminated.

The News-Herald constantly attacked the power company and private utilities in general for “overcharging” consumers. In 1933 the News-Herald compared the average PG&E rate of 5.32 cents per kilowatt hour to public utilities' rates in Seattle, 1.5 cents; Tacoma, 2.3 cents, and Ontario, Canada, 1.5 cents. Some Canadian communities paid less than 1 cent per kilowatt hour.

The low costs also resulted in higher consumption, it was noted. The average private utility consumer used 600 kilowatt hours per year, whereas in Seattle the figure was 1,600, in Ontario 1,800 and in Winnipeg, Canada, a tremendous 4,000 kilowatt hours per year, according to the paper.

On the local front, the newspaper argued the public distribution of power gave stability to the district's bonds. It pointed out that, while the MID and TID were sound fiscally, irrigation districts throughout the state were defaulting. Earlier, holders of bonds in the Merced Irrigation District, which wholesaled its power to PG&E, had stormed that district's offices demanding payment of the interest due, but there was no money.

In the meantime, the Modesto district continued to cut power rates, forcing PG&E to do likewise. Across-the-board reductions were made in October 1932, March 1933, December 1935, February 1937 and April 1938. In July 1939 and November 1940 further commercial rate reductions were ordered.

Still the district was able to turn a profit.

In the first decade of operating the distribution system, electric rates were reduced five times and the charges for electric service to MID customers were among the lowest in the United States. By 1933, electrical sales returned \$530,000. With operating costs of \$311,400, the net revenue was 41 per cent of the gross.

In mid-1934 the MID once again made a formal offer to buy out PG&E. Although the district and the company were close on the value of the physical plant, they were far apart on severance costs. The Railroad Commission was called in to arbitrate and set the total purchase price, including severance, at \$222,000, which the Modesto district promptly offered the company. The offer was rejected and the MID continued to prosper.

In spite of the obvious success of the Modesto district's electrical system, it was to be six more years before PG&E gave in. During those years, the number of MID customers climbed steadily, topping the 10,000 mark in 1938. Capitulation came only after the district initiated formal condemnation proceedings to acquire the private company's distribution system. Before the suit went to trial, PG&E accepted the fact that the struggle was making its own electrical distribution grossly unprofitable. The company was serving only 1,000 customers with annual receipts totaling \$69,000.

PG&E finally agreed to sell. On June 10, 1940, the MID Board of Directors approved a purchase agreement by which the district would withdraw its condemnation suit and pay \$325,000 for the company's system. PG&E agreed to wholesale power to the local district when additional energy was needed, which soon was to be the case.

On August 14, 1940, the same day as the Railroad Commission approved the sale, the Modesto Irrigation District made a down payment of \$50,000 to PG&E. The balance was paid off at the rate of \$3,100 a month plus interest. The final payment was made in June 1944.

The fight was over. By the end of 1940 the MID had 11,974 meters on line. The vision of the early advocates of distributing Don Pedro power had been realized.

Retired Director Mathew Fiscalini's father, John, had served as an MID director during the height of the PG&E battle and was the object of an unsuccessful recall attempt launched by power-distribution foes. The younger Fiscalini recently put the matter into perspective:

Really, the most important thing (during the MID's first century) was that the people voted in Modesto and Turlock to generate our own electrical energy and distribute it ourselves. In Merced to the south and South San Joaquin and Oakdale to the north, their people said, "Let PG&E pay off the bonds." Today they're still paying high taxes and still buying power from PG&E. So, our people living in that era made the most important decision ever made.

Our people living in the Modesto and Turlock Irrigation Districts have had the advantage of the low-cost power all during those years and for all the future.

We always have said that's the main reason why industry has come to Modesto and Turlock. But I think the individual home owners themselves are the ones who get the big benefit. A food processing plant or any plant passes the costs on, whereas the individual cannot pass it on. So, our people are certainly getting the advantage of the thinking of the people in the early 20s.

The Fruits of Victory

Long before the battle for full retail distribution of energy had ended, the Modesto Irrigation District began to harvest the fruits of victory.

Less than four years after MID power first was delivered to Modesto homes, farms and businesses, net profits from the district's electrical sales were being used to retire the bonds which had financed the development of the irrigation and electrical systems.

In 1954 as Stanislaus County's centennial year marked the transformation of a desert into one of the nation's most prosperous farming areas, the final payment was made on more than \$5 million in MID bonds accumulated over nearly three-quarters of a century.

Virtually all of the principal had been paid from power revenues. Electrical profits were first applied to the retirement of irrigation and electrical bonds in 1927 with a \$10,000 transfer. By July 1, 1954, when the final bond redemption payment was made, \$4,817,808 in energy sale profits had been committed to retiring the bonded debt.

Financing the operations of the district has ranged from the initial out-of-pocket contributions by Robert McHenry, its first board president, and others to get things started to the \$18.5-million bond issue floated in 1961 for the construction of New Don Pedro Dam.

In the first 67 years after the MID's formation, voters had approved 14 bond issues to finance the development of irrigation and electrical systems. The first was on December 14, 1887, and \$800,000 issue whose value was almost destroyed by the subsequent battle royal over the very life of the district. After the turn of the century when pro-irrigationists recaptured control of the district, a second issue had to be voted to refinance those original bonds.

Following that, an even-dozen bond issues were approved between 1909 and 1934. The final payments made in 1954 were on a 1914 issue totaling \$610,000, which had financed the first major upgrading of the irrigation system undertaken by the MID after the basic works were completed in 1904.

The district's excellent record of retiring debt by power revenue profits was so successful and well known that when the \$18.5 million bond issue for New Don Pedro went to a vote on November 7, 1961, the voters' approval – 11,231 yes to 328 no – set a record that stands today, a 97 percent majority.

Overwhelming approval also was given the most recent bond issue proposed - \$14.2 million for the second unit of the McClure Generation Station – in a June 5, 1979, election, 5,361 yes to 573 no.

At the same time that retail power revenues were retiring electrical and irrigation system bonds, even larger amounts of the electrical profits were subsidizing irrigation operations and maintenance.

Starting in 1938, power revenues were transferred annually to the irrigation department. Sixteen years later when the district celebrated its freedom from bonded indebtedness, \$5,367,229 from this source had been invested in irrigation development and operation. The policy continues to this day.

The transfer of power revenues permitted a steady reduction of irrigation taxes.

In 1935 the taxes were slashed from \$6.40 per \$100 assessed valuation of property to \$2.76. Three years later, taxes were down to \$2.40 and soon thereafter to \$1.50. This rate prevailed for 16 years throughout World War II and the post war years when other districts were increasing water charges repeatedly. At the same time, assessed valuations of only \$80 per acre had been unchanged since 1915, even though the land was selling for as much as \$1,000 per acre. Thus, irrigators were receiving their annual supplies of water for a bare \$1.20 per acre.

In 1959 irrigation taxes were canceled.

“It was more an *irritation* tax than an irrigation tax,” explained Thomas K. Beard, who early in his 16 years as a director representing the Modesto division led the effort to eliminate the tax. He reasoned:

The amount of money generated by the tax was less than the cost of collecting it. So, it just made good business sense to eliminate an irritation, although the \$1.50 to \$2.50 a year they were taxed probably was the only reminder that the people of the City of Modesto had that they were a part of the MID.

Today the district remains tax free, although in 1976 an irrigation water-user charge was adopted.

In most years since 1961 the investment of electrical profits in irrigation operations has exceeded \$1 million, some years nearly \$2 million.

The retirement of irrigation and electrical bonds and the support of the irrigation operations through power revenues were accomplished while the MID maintained one of the lowest electrical rate schedules in the nation.

A 1957 Federal Power Commission survey revealed that Modestans were using more energy and paying less for it than most other Californians. Electrical rates in the MID were well below state and national levels, even though rates had not changed since the mid-1930s. During that time, the cost of living rose 18 percent in the postwar decade.

Even when San Francisco increased its wholesale charges for Hetch Hetchy power by 33 percent in 1960, the MID was able to hold the line on rates. The first retail electrical rate increase in the 50-year history of the department came in January 1974, based on recommendations of a financial consultant who urged that the revenue from electrical sales be increased. Ironically, after a half century of no increases, the weather forced rate increases in each of the next four years. The prolonged drought forced the MID to turn to expensive PG&E power purchases to meet the local consumer demands.

Rates were reduced once the drought was over and today remain well below state and national averages.

The revenue gains were due entirely to the rapid rise in the number of MID power users and their ever-increasing energy consumption. This growth increased steadily in spite of the great depression. In 1938, for instance, a record-breaking gain was attributed primarily to the installation that year of 408 new electric ranges and 135 new electric water heaters in homes served by the MID.

Throughout the postwar years, energy consumption overall increased 10 percent per year. By 1950, the electrical department was showing a \$1 million-a-year net profit.

As the district reached its debt-free milestone, nearly five times more meters were in place than in the first full year of operation. Each consumer, furthermore, was using seven times more energy. Whereas the average annual consumption on 5,045 meters in 1924 was 1,100 kilowatt hours, 23,047 consumers used 7,700 kilowatt hours each during 1953.

This boom in the use of electrical energy was a measure of pride for the district, something for which it worked diligently. In recent years, however, the emphasis has been reversed as conservation became necessary.

The technological revolution that produced electric clothes washers and dryers, food freezers, dishwashers, television sets, air conditioners, food processors, hair dryers, razors, computers and even toothbrushes contributed greatly to the lifestyle changes of that period.

The fact that MID consumers paid lower energy rates than those served by private utilities and even by most other public agencies meant these useful and convenient electrical “aids” of the 20th Century became affordable here much sooner than elsewhere.

This pattern of expanding electrification likewise put increasing demands on the MID to produce and distribute the accelerated levels of power being used. Meeting this power need has become a priority objective of the district.

Energy purchased from private utilities was expensive, and in the quest for lower-cost sources the MID appealed to its old adversary, the City and County of San Francisco.

An MID offer to buy surplus Hetch Hetchy power was rejected by San Francisco in the mid-1930s. San Francisco had been wholesaling to PG&E the Hetch Hetchy energy not used for its streetcar lines and other municipal purposes since July 1925. Apparently San Francisco considered the giant private utility a more stable customer than the Valley irrigation district, which had fought San Francisco so vigorously over the Hetch Hetchy issue.

The legality of selling Hetch Hetchy power to PG&E was questionable, however.

In 1925 when the city entered into an agreement with the private utility, *the San Francisco Examiner* called it more than questionable. It editorialized that:

It was a wrongful and shameful policy...Hetch Hetchy is the peoples'. They paid for it. Its profits and benefits ought to remain with the people. This transfer of Hetch Hetchy power to PG&E is a subversion of the public grant.

Over the years, San Francisco voters eight times had rejected bond issues to purchase the PG&E distribution system in the city, which was the home of PG&E's headquarters. Under President Franklin D. Roosevelt, Secretary of Interior Harold Ickes began to breathe down San Francisco's neck. Ickes forced two more unsuccessful elections in attempts to win approval of local distribution of Hetch Hetchy power. The “Old Curmudgeon” took an active role in these campaigns.

Construction of the Riverbank aluminum plant on the Hetch Hetchy transmission line by the World War II Defense Plant Corporation temporarily prevented the U. S. Department of Interior from forcing compliance with the Raker Act by attempting to shut down San Francisco's Moccasin Creek power plant.

Secretary Ickes, however, still demanded a plan to dispose of Hetch Hetchy power without selling to PG&E.

Negotiations between the city and the Modesto and Turlock districts were reopened. A scheme was devised by which the irrigation districts would take all surplus Hetch Hetchy power, then sell to PG&E any that they did not need. This caused a furor. Secretary Ickes charged that San Francisco still was trying to circumvent the Raker Act.

Ickes' contention was supported by *The Modesto Bee* and Frank Andrews, a Modesto electrician and hard-working campaigner for the retail distribution of power by the MID. Andrews turned against the district, however, and formed the Modesto Water and Power Users Association when the MID became aligned with San Francisco.

Modesto Irrigation District Chief Engineer Clifford Plummer undertook a personal effort to resolve the issue.

The MID was buying substantial amounts of energy from PG&E and Plummer knew that considerable savings could be achieved through the purchase of Hetch Hetchy power instead. A direct appeal to Undersecretary of Interior Abe Fortas, later to become a U. S. Supreme Court justice, won from Fortas an admission that the MID made a "very compelling case" for its need for energy at costs lower than what it was paying PG&E. Interior Secretary Ickes, however, was unmoved, still insisting that the proposal was illegal and violated the Raker Act.

After Ickes formally rejected the scheme in January 1945, San Francisco asked the federal courts to ratify the proposed contract with the districts as being in "reasonable compliance" with the Raker Act. The courts, instead, issued an injunction against the further sale of Hetch Hetchy power to PG&E. San Francisco had no alternative but to work out a deal with the irrigation districts. The city needed a market and the MID needed a supplier.

PG&E purchases of power from the Turlock district, which at first saw no reason for it to become involved in the negotiations, proved to be a stumbling block to any agreement. The Department of the Interior refused to allow the TID to become a conduit of Hetch Hetchy power to the private utility.

The compromise finally approved by Secretary Ickes and the courts called upon the TID to agree that whenever it received electricity from the Hetch Hetchy system, it would not sell to PG&E more power than it sold in 1944 when the TID was wholesaling only its surplus Don Pedro energy. The TID agreed

reluctantly, but it was not many years before that district found itself using all of its Don Pedro power and TID sales to PG&E ended.

Federal Judge Michael Roche found this arrangement to be in compliance with the Raker Act on July 9, 1945.

A few days later the MID signed a nine-year contract with San Francisco. Because of the need for new substations and interconnecting transmission lines, Hetch Hetchy energy was not received in Modesto until 1946.

The contract was expected to save the MID \$112,000 per year since the cost of Hetch Hetchy power was just half what the district had been paying PG&E. Five years after the agreement was implemented, Plummer reported the district already had saved \$2.5 million.

The agreement was to be the target of a new investigation a decade later when Tuolumne County Water District No. 2, with the assistance of Congressman Clair Engle, sought to take over a Tuolumne River powerhouse site authorized for San Francisco as a part of the original Raker Act development program.

For some years the Tuolumne County water agency had been eyeing power sites on the Tuolumne River. In 1954 Representative Engle introduced legislation to amend the Raker Act to permit the mountain county water district to build a \$20-million power project using San Francisco's still-undeveloped Early Intake site. The reasoning was that San Francisco had "sat" on the site for 40 years without using it and it should be put to work. "Playing dog in the manger with a vengeance" was how Engle described San Francisco's inaction.

The Raker Act had forced cooperative development on the Tuolumne River, which by then included five operating reservoirs. A sixth was under construction and the seventh was in the planning stage.

Noting this, the Valley irrigation districts were quick to object to the takeover. Projections showed that energy generated at all district and San Francisco power plants would be needed to meet future demands.

The irrigation districts also were concerned that the move might push San Francisco into building the Early Intake project ahead of the next scheduled powerhouse, which would use water stored behind the

then under-construction Cherry Valley Dam. The reason for this concern was an agreement that the districts would receive 35 percent of the Cherry Valley-generated power at cost and the balance at minimal profits for the city. No such arrangement applied to the Early Intake powerhouse, so if the mountain water district actions forced a change in schedules, power costs for the Valley districts would be affected adversely.

The fiscal concerns, however, were not stated in the formal declaration issued by the irrigation districts in May 1954:

The introduction of a third agency on the river for the generation of power could hamper the coordinated releases for water supply, power and flood control. With all power plants under one control, certain plants could be idle while the remaining plants operated to meet the load demand. In this manner, Hetch Hetchy Reservoir releases could be discontinued at times to increase Hetch Hetchy storage and other similar adjustments made over the watershed.

Tuolumne County had no firm market for the power to be generated and Engle urged that it be sold to the U. S. Bureau of Reclamation Central Valleys Project. Up to that point, the CVP had not purchased any power. In fact, 47 percent of the energy then being generated at Bureau of Reclamation powerhouses was being sold to PG&E.

At hearings held by the House of Representatives Subcommittee on Irrigation and Reclamation which Democrat Engle chaired, Congressman John Saylor of Pennsylvania, the senior Republican member of the committee, charged that the only reason a powerhouse would be feasible at the location was San Francisco's earlier construction of Hetch Hetchy Reservoir. Saylor called San Francisco's long-range development plan sound and likened Congressman Engle's "dog in the manger" charge similar to a "case where a wise and provident father who when he builds a house puts on an extra bedroom in anticipation of future growth of the family. Then a complete outsider comes along and say, "You're not using that bedroom and I'm going to move in."

At these hearings the Tuolumne agency admitted that its \$75-million power and irrigation development plan would force San Francisco to maintain a constant discharge from Hetch Hetchy and would serve only 12,000 people irrigating 40,000 acres. The mountain district confirmed it had no idea where it would sell the 400 million kilowatts of power generated there and at powerhouses proposed in a

number of other filings. That volume would rival the output of the great Shasta Dam on the Sacramento River.

Engle refused to give up, however, and called in the U. S. General Accounting Office, Congress' independent watchdog agency.

The General Accounting Office investigation was opened in August 1955 and 10 months later Comptroller General Joseph Campbell found San Francisco to be "in reasonable compliance" with the Raker Act. He also declared that all future power development would be required to meet the needs of various public agencies, including the MID and TID.

By the time the report was filed, the voters of San Francisco had approved a \$54 million bond issue to proceed immediately with both power plants. The Cherry Dam Powerhouse, built first, was completed in 1960, with the Canyon facility constructed the following year. The Modesto district once again was assured of an adequate supply of Hetch Hetchy energy.

The alliance of the MID and its partners on the Tuolumne River, Turlock and San Francisco, also proved effective in the mid-20th Century struggles to keep federal and state agencies from moving in on the electrical energy resources of the watershed.

The U. S. Bureau of Reclamation conceived a plan to develop 8.1 billion kilowatt hours of energy a year, enough to serve 5,182,000 homes. The 38 reservoirs involved included one at Jacksonville on the Tuolumne River, first inventoried by the bureau in 1944 as part of an ambitious \$3 billion program to develop the water resources of 17 Western states. The scheme would make supplemental water available to some 2 million acres then under irrigation and provide water to 3 million other acres not being irrigated.

The three partners on the Tuolumne wanted no interference with their own energy and water development and irrigators especially feared that federal involvement would impose the 160-acre limitation on lands receiving Bureau of Reclamation water.

The districts and San Francisco, therefore, opposed the inclusion of the Tuolumne River in any such program, including the Central Valleys Project. The CVP's Delta-Mendota Canal, which ultimately went down the west side of Stanislaus County, bypassed the Modesto and Turlock Districts. The proposed East Side Canal may never be built.

The districts also bluntly told State Water Resources Director Harvey Banks to keep his hands off the Tuolumne River in developing his State Water Plan.

While it prevented the intrusion of federal, state and local governments on the Tuolumne watershed, the Modesto district carried on a major expansion of its electrical transmission and distribution system to meet ever-growing demands for more and more energy.

Continual modernization of the electrical distribution system is essential.

“If you don’t believe it,” comments retiring Chief Executive Officer H. L. Brooks, “experience a power loss during the World Series. You’re in big trouble!” Brooks also recalls the time years ago when a homemaker sued the irrigation district for \$1 for the loss of a cake which was in the oven when there was a power loss.

As it observes its 100th anniversary, the Modesto Irrigation District’s electrical distribution system has 25 substations, more than 18 miles of 115,000-volt transmission lines, 207 miles of 69,000-volt transmission lines and 1,102 miles of distribution lines, of which 266 miles are underground. Electrical lines in all new residential subdivisions now are being placed underground.

Today the electrical distribution system represents a capital investment in plant and equipment of \$117,131,000. More than 74,000 electrical customers being served use nearly 1.5 billion kilowatt hours of energy annually. The gross revenue for the electrical department exceeds \$70 million annually.

The generation and distribution of electrical energy which had been started as a by-product of the district’s irrigation operations has become the dominant function. Not only was the district’s “cash crop” highly profitable, it made the MID less political entity than a commercial enterprise.

This was verified by the California State Supreme Court as early as 1953 in a case brought by Andrews’ Modesto Water and Power Users Association over the purchase of transformers and other electrical equipment. Andrews had protested that these were not purchased through competitive bidding.

The Supreme Court ruled against Andrews’ contention and found that an irrigation district engaged in the generation, transmission and the sale of electrical energy is the operator of a proprietary enterprise and as such did not have to seek competitive bids in purchasing routine equipment. MID Attorney Vernon Gan explained this made the electrical operation “more of a business than a government

entity, free from some of the restrictions ordinarily applicable to an irrigation district” but at the same time “losing some of the immunities with which an irrigation district ordinarily is clothed by law.”

There was no question but that the Modesto Irrigation District had become big business, dealing in retail electrical energy and agricultural water.

Maturity, But Not Retirement

With completion of the original Don Pedro Dam and Reservoir, the Modesto Irrigation District came of age. Maturity did not mean retirement, however.

The half century which followed the 1923 dedication of what then was the world's largest concrete gravity dam was to be filled with new challenges, in many ways as great as those which had plagued early directors.

Throughout the nation and the world there was the great boom and bust cycle. The heyday of the 1920s was ended abruptly by the 1929 crash on Wall Street and the Great Depression that followed. Agriculture always is the first to feel the effects of an economic crisis and the depression of the 1930s struck when farmers in the Modesto Irrigation District had little more than 20 years of experience in the techniques of intensive farming by irrigation. Not only did the district have a substantial debt, but farmers also went heavily into debt in an effort to survive.

That decade was followed by World War II and its demand shortages of manpower, materials and equipment, however, further burdened production on the farm. Following the war, the period of booming growth soon pitched agriculture into a head-on clash with urban sprawl.

The one thing that the district did not have to face, though, was new beginnings.

The MID's infancy was well behind it in 1921 when California Governor William D. Stephens launched a statewide water and power development campaign with the slogan, "Water for every acre and power for every use." With a general awakening throughout the state of irrigation's importance, the 1920s were marked with the formation or expansion of irrigation districts all around Modesto and Turlock as other areas followed in the footsteps of the pathfinders.

The establishment of some new irrigation districts resulted in major conflicts, as on the west side of the San Joaquin Valley where advocates of a Wright Act-type district battled with the still-powerful Miller & Lux Company, which in turn was fighting the Madera Irrigation District over San Joaquin River water rights.

The creation of the Merced Irrigation District was less of a struggle but still not an easy task because of opposition from major corporations and landholders. Miller & Lux, with its own irrigation system, and Southern Pacific, with its railroad rights-of-way, contended their property could not benefit from irrigation by the proposed district. The courts rejected their pleas. In San Joaquin County, especially in the Tracy area, several districts were being formed with little dissent.

It was in this atmosphere that the Modesto board approached the task of providing stability to Modesto's irrigation-dependent agricultural economy while meeting the growing needs for improved productivity. It faced two basic challenges during the period:

1. Protect its independence from intrusion by state and federal governments.
2. Expand and modernize to meet the needs of rapid growth.

In response to "the threat of encroachment from the state and federal agencies," the Modesto Irrigation District with its partner, Turlock, took the second-most important step in the MID's history.

The most important move, of course, was its decision to retail Don Pedro-generated electrical energy. Now came the decision to ally with its long-time adversary, San Francisco, in the cooperative development of the Tuolumne River watershed.

This would utilize the river's full potential and prevent the intrusion of any other party.

On February 29, 1940, the two Valley irrigation districts and San Francisco agreed that any further development would be undertaken only with the consent of the other partners. Although it was only a simple agreement to cooperate, it laid the groundwork for the multi-million dollar development of the Tuolumne for the benefit of all three parties.

As early as the 1930s, the need for additional storage on the Tuolumne watershed was recognized. Thus, it was hardly a decade after the completion of Don Pedro Reservoir that the board was forced to begin thinking about future water needs.

This need was uppermost in the minds of MID directors when state and federal agencies began to covet Tuolumne water. In December 1943 the irrigation districts and San Francisco outlined a \$150 million development program which would increase water and power resources in the watershed by 150 percent.

The first step in this program was to be the construction of the Cherry Valley Dam and Reservoir by San Francisco, primarily to meet its Raker Act water-delivery commitments to the irrigation districts. The Corps of Engineers won congressional authorization to contribute \$5 million to the anticipated \$9 million project cost in lieu of building more expensive, separate flood control storage facilities on the river at Jacksonville. The presence of the Army Engineers on the watershed was accepted by the districts and the city because the corps' sole interest was flood-control and it posed no threat to water rights or the export of water.

While the irrigation districts benefited directly from the additional storage, it did not cost them one cent. In a subsequent agreement reached in June 1949, the Modesto and Turlock districts did provide the federal agency 100,000 acre feet of interim flood-control storage in Don Pedro Reservoir.

That latter agreement detailed the commitments to finance the watershed's ultimate developments to meet all the needs of the irrigation districts and the City of San Francisco. This would commit to beneficial use all of the Tuolumne River's water resources. The plan also provided maximum flood protection on the river.

The key to the entire program was construction of the massive, 1.2 million acre-foot New Don Pedro Reservoir which, according to the arrangement, would be built by the City of San Francisco, with the Corps of Engineers contributing an additional \$3 million for flood-control benefits.

Once completed, the project would be turned over to the Modesto and Turlock Irrigation Districts to own and operate. The only cost to the Valley districts would be the acquisition of the land and rights-of-way.

When the long-range project was completed, San Francisco would have 450,000 acre feet of water available annually to meet its domestic needs. The MID and TID would share 1,090,000 acre feet of water a year to irrigate crops. Each would have three major reservoirs – Hetch Hetchy, Cherry Valley and New Don Pedro – at its disposal to insure that through cooperative operation all future anticipated requirements would be met. The Corps of Engineers would have 340,000 acre feet of flood-control storage, eventually concentrated in New Don Pedro, at its command during high runoff periods.

Except for a small minority contingent, the proposals won strong support from the community, with *Modesto Bee* managing editor Harry Conway editorializing that the agreement “should insure continued prosperity for this section of the Valley.”

The 1949 agreement was consummated just three months before President Harry S. Truman’s interior secretary, Julius Krug, presented Congress a proposed \$2-billion Bureau of Reclamation water resource development program which included federal construction of New Don Pedro and the Upper and Lower Cooperstown Reservoirs on tributaries to the Tuolumne, along with projects on the Stanislaus River.

Once more the Modesto district and its partners poised to preserve the Tuolumne’s water from the clutches of the Bureau of Reclamation’s Central Valley Project.

MID Chief Engineer Clifford Plummer bitterly protested that, before the district had entered into the comprehensive agreement with San Francisco, federal reclamation officials had promised him that the CVP would not make demands on Tuolumne water.

In 1944 the U. S. Bureau of Reclamation had proposed diverting Tuolumne and Stanislaus River water to irrigate 500,000 acres southwest of Fresno. Bureau Regional Engineer E. W. Creim, a former MID engineer, in 1946 had assured some 250 irrigators gathered from throughout the San Joaquin and Sacramento Valleys that their water rights would be respected. The forum was a Stanislaus County Pomona Grange-sponsored conference opposing any interference by the CVP with the vested rights of existing irrigation districts.

When three years later Secretary Krug again tried to move in on the Tuolumne River domain of the Modesto and Turlock Districts, Plummer charged:

This plan would double the acreage these rivers (Stanislaus and Tuolumne) would have to irrigate when we often don’t have enough water for our own land. The moment the Bureau of Reclamation money is used to develop these resources to the limit – as we ourselves now plan to do with the aid of Army flood-control funds – we will lose control of the river, which we cannot afford to do.

Federal water also would cost 10 times what MID farmer then were paying, Plummer warned local irrigators.

In 1950 Regional Director Richard L. Boke wired Congressman Cecil F. White that the U. S. Bureau of Reclamation “has no plan to take over and operate and integrate into the CVP the Turlock-Modesto Irrigation Districts. Never had any such intention and never considered the suggestion.”

The battle against CVP encroachment was won again.

Victory was reaffirmed in December 1953 when Undersecretary of Interior Ralph Tudor praised the cooperative development of the Tuolumne as “an example of the kind of local control the Eisenhower administration desires to see throughout the nation. Such local control means that the users decide the fate of their own resources.”

In 1956 the Modesto district again insisted upon its independence when the California Water Resources Board and its chief, Harvey Banks, were developing still another statewide water program. The Modesto board declared there was no surplus and any interference by the State Water Plan would jeopardize the district’s present operations.

The Modesto Irrigation District directors declared pointedly that the state might as well exclude the Tuolumne River at the outset and avoid a battle. This would “save time and money both for the State of California and the people who have contributed to providing for their own water needs,” the directors declared. They added:

Long years have been spent in working out a plan to use the waters of the Tuolumne River to the best of advantage of the people and we do not feel that any group or agency should upset this program for complete and ultimate control and use of the Tuolumne River.

The California Water Plan was approved in 1959 without any involvement along the east side of the San Joaquin Valley.

The cooperative spirit conveyed by the 1943 and 1949 agreements between San Francisco and the irrigation districts first was expressed in concrete terms even before the construction of Cherry Valley Dam. In 1950 the San Francisco installed drum gates at Hetch Hetchy’s O’Shaughnessy Dam to increase by 20,000 acre feet the storage reserved strictly for use by the irrigation districts.

Cherry Valley Dam, started in 1952, was completed three years later. Its 274,000 acre feet of additional storage provided better and longer irrigation seasons, preventing strict rationing such as had been required in 1947 when Modesto’s irrigation season ended a month and a half earlier. The total capacity of this one reservoir equaled 77 percent of the Modesto district’s annual needs. Of course, the water had to be shared with Turlock.

The modified earth-fill dam built by the Guy F. Atkinson Company created a five-mile long lake two miles wide. Subsequently, a 5,840-foot tunnel was built to connect the new reservoir with the 41-year-

old Lake Eleanor. This assured that the runoff from the two primary tributaries in the Tuolumne River's upper reaches could be captured and put to beneficial use in the fields of the Modesto and Turlock Irrigation Districts.

Cherry Valley Dam, which ultimately cost \$14 million, is 350 feet tall, shaped like a diamond 1,200 feet thick at the base and 2,600 feet across at the top. Five-and-a-half million cubic yards of rock and material were used. The core was of impervious, decomposed granite and the filter sheet of coarse-to-fine rock. The remainder of the dam was granite fill. All material was found locally. The 19-foot wide, 1,600-foot long diversion tunnel later was lined with concrete, reducing the diameter to 16 feet to serve as an outlet tunnel.

The dam was dedicated on October 27, 1955, just before the disastrous Christmas Eve floods in the San Joaquin Valley. A review of flood flows revealed that at the peak of the flood 100,000 second feet of water was pouring into Don Pedro Reservoir. This was 750,000 gallons per second – enough water flowing into the reservoir every 11 seconds to supply the City of Modesto for a full day. With the help of Cherry Valley Dam, Don Pedro was able to control the floodwaters until the flow was down to 42,500 second feet. The Army Engineers' investment in the new dam paid for itself within a month after its completion.

With the Cherry Valley Reservoir operating, Modesto's irrigation situation was improved, but the final solution, New Don Pedro, still was more than a decade away.

Meanwhile, there were other problems to face.

Irrigated acreage in the MID peaked at just under 71,000 acres, then started to decline in 1948. The postwar housing boom, suburban shopping centers and industry began a steady encroachment upon irrigated lands. Asphalt, stores and houses replaced orchards and vineyards. To achieve greater productivity per acre, more water-intensive crops were introduced.

The raising of La Grange Dam 18 inches in 1923 had permitted a better flow in the MID canals, but more efficiencies were required.

Possibly the most important long-range water management program undertaken between the building of the first and second Don Pedro Reservoirs was the Modesto Irrigation District's concerted effort to line with concrete or divert into underground pipelines all of its main canal, laterals and ditches.

When the canal system was constructed, all canals were earthen channels, except in a few places near the head of the main canal where it skirts the bluff of the Tuolumne River. That sector was cut through slate rock, which obviously would not carry water without being sealed. It had to be lined immediately.

For many years, it was felt that any great amount of lining would not be feasible. Yet, open earthen canals proved to be inefficient and wasteful. Weeds and tules clogged them, reducing the flow of water and requiring expensive cleaning each year. Evaporation and seepage stole as much as 30 percent of the slow-moving water before flows reached their destination. Seepage contributed to the rising water-table problem.

The canal-improvement program was only spasmodic in the early years. Engineer Percy Jones reported in November 1921 the completion of more than a mile of lining of the main canal and installation of 24-inch concrete pipe in 400 feet of the Curtis drain.

By 1933 less than 25 miles of canals had been lined or piped, but considerable work was to be done under the depression-fostered federal Public Works Administration, although in many instances the cost of paperwork and supervision ate up much of the advantages of having federal financial assistance.

World War II material shortages slowed progress, but each year a few more miles of canals were lined with concrete. Most of this work was performed primarily to repair bad spots and to eliminate the danger of breaks at specific locations in the earthen ditch banks.

After the war, however, the district launched a 20-year program designed to line or pipe all of its main canal and laterals. By 1955 MID Chief Engineer Plummer announced 93.7 miles of the total network had been piped or lined. This meant 58 percent of the goal had been achieved. In the prosperous years that followed, work was speeded so that 81 percent was finished by 1960. By lining at least six or seven miles of canal each year, the program was completed by the mid-1960s.

Today all 288 miles of the district's main canal, laterals and drains, as well as many of those inherited in the 1977 merger with the Waterford Irrigation District, are lined with concrete or are piped.

Earthen canals in which the flow could not be carried in 42-inch concrete pipes were lined with two to two-and-a-half inch-thick concrete bottoms and sidewalls. Many of the larger canals had to be

rebuilt completely, using specially built backhoes, because the bottoms had washed as much as six feet below the original grades.

Non-reinforced monolithic concrete pipe up to 42 inches in diameter poured in place in the ground is almost as high in quality as precast pipe sections hauled to the site and can be installed at less than half the cost.

A standard trench digger with a modified special finishing bucket leaves a semicircular ditch with a smooth, round bottom, which serves as the form for the lower half of the pipeline. Concrete is poured in the trench around a large float or “boat,” which is rocked back and forth by a man standing on it. In this manner, the lower half of the pipeline is shaped. As soon as the concrete begins to set, round steel forms are placed on it and the top half is poured. On the following morning when the concrete had hardened, the steel forms are stripped out and reused. The pipeline then is covered and the surface graded.

In this fashion, some operators have been able to complete more than 600 lineal feet of 30-to-36-inch pipe in an eight-hour day.

Piping of the smaller ditches not only improved the efficiency of water delivery and permitted farming in the rights-of-way, but it became a virtual necessity with the disappearance of the horse from the farms.

Charles Crawford, for many year Modesto’s irrigation engineer, notes it is practically impossible to maintain small ditches without horses. Although weeds can be removed by spray or burning, ditches which are not plowed become almost impossible to maintain due to depredations by gophers. An open ditch cannot be plowed effectively with a tractor.

Along with the TID, the MID was one of the first irrigation districts to embark upon and complete a program to eliminate inefficient earthen ditches. The benefits have been many, including the unexpected advantage of preventing bank damage by muskrats. Not native to California, muskrats which were introduced in the mid-19th Century to establish a fur industry, have migrated throughout the Valley, causing great damage to irrigation facilities.

Lined canals are more efficient, but also more deadly for people who find them attractive for swimming. The water flow is faster and stronger. Steep, slippery concrete sides make escape more difficult, impossible for some. People continued to swim in the canals even though as early as 1950

Stanislaus County Health Officer Dr. George O'Brien and Modesto City Health Officer Mark Landquist launched a campaign declaring canals unsafe because of pollution and other dangers.

“Several times each summer we find someone using the canal for a septic tank,” warned Dr. O'Brien.

As more canals were lined, pressure mounted to put those running through residential areas underground.

The 1951 drowning of a 5-year-old Sonora girl – the second canal drowning in 15 years – caused formation of a canal safety league to seek feasible solutions to the danger. Discussed were rerouting, covering or piping, fencing, patrolling, alarms, screening, steps and handholds. Earlier on its own initiative the district had explored replacing open canals with underground pipes, but took no action because the multi-million dollar cost was beyond its means.

In 1954 the MID Board of Directors did offer to match locally-raised funds for the underground piping of any lateral 2 along Encina Avenue and El Vista School in east Modesto.

Later the same year a Forward Modesto Committee subsequently renewed the canal-safety appeal. A 20-year canal piping program was recommended. The district maintained, however, that this should be done through local improvement districts. Directors contended that to finance such a massive undertaking with the district's general funds would impose an unfair financial burden on rural residents. Although reports of the discussion did not indicate the issue was mentioned, the canals were in place first and residential areas were developed around them.

Early in 1964 a new study estimated the cost of piping all canals in the residential areas at \$8 million, which the district felt was prohibitive at that time. Investigations into fencing canals revealed more hazards than protections. Fences would be more of an obstacle for adult rescuers than for nimble children.

Educational programs inspired by the Canal Safety League and Forward Modesto Committee since have become a significant activity of the district, however.

For many years when canals were being filled for the first time each spring, the district issued warnings about their hazards. In 1964 the first water-safety pamphlet was prepared, urging safety in all

waters, including swimming pools, rivers and lakes as well as canals. These were sent out with monthly statements to MID electrical customers and distributed through the schools.

Designed around a symbolic frog named Splasher, a formal safety program devised by MID Administrative Assistant Paul Grenbeaux took form in 1970. Aimed directly at the younger children, pre-school through third grade, a booklet contains stories, songs and coloring pages emphasizing water safety in general, not just related to canals. Four versions of the publication are rotated so youngsters see a new booklet each year.

Today, 25,000 copies of the book are distributed through pre-school and elementary school classes. The book also is available without charge to the general public. Since 1977 the MID has joined The *Modesto Bee* in cosponsoring a special YMCA Ester vacation program at which more than 500 non-swimmers from the age of 4 to 12 learn to swim each year.

The irrigation district is responsible for the development and maintenance of the main canal and laterals. Distribution ditches feeding off the laterals to serve individual farms are and always have been the responsibility of the irrigators. A court attempt to force the district to provide ditches to serve every individual farm failed.

Irrigators immediately adjacent to laterals were able to draw directly from them but those some distance away had a problem. Once again, dirt ditches proved inadequate. Cooperative efforts were required to improve them.

At the request of the Modesto and Turlock Irrigation Districts, Stanislaus County's State Senator J. C. Garrison, an east Empire area farmer and former MID director, drafted and won passage of the 1927 California Irrigation Improvement Districts Act. This allows a group of farmers to organize under the umbrella of the parent irrigation district to share the costs of building and improving the distribution systems.

Under the program as it functions in the Modesto Irrigation District, the ditch system is surveyed and engineered by the district's irrigation staff. The district does the contracting and provides project inspection. Property owners are responsible only for construction costs as the district absorbs all other expenses. Repayment is over a 10-year period at a reasonable interest rate, which in 1986 was 7 percent.

The MID is responsible for all maintenance during the 10-year repayment period. Although the improvement district agreement did not provide for it, the district continued to perform all maintenance work until 1986. At that time, the district began to require maintenance expenses to be borne by irrigators, as agreements had stated all along. The policy change was based on the belief that the former practice was unfair to those not in improvement districts who had to maintain their own ditches. The MID still performs without charge the maintenance work required during the 10-year pay-back period, however.

Not surprisingly, Senator Garrison and members of his family and neighbors were the first to petition for the creation of an improvement district. Although the petition was filed September 4, 1928, no improvement work was done until 1937.

It wasn't until the Great Depression that the program gained momentum. The first project completed under the program was the Shepherd Improvement District off Lateral 5 west of Modesto. The work was done in 1931.

Crawford, who as chief irrigation engineer for the district supervised the development and operation of many of the successful improvement districts, feels the system was especially valuable in replacing old dirt ditches. He notes that the program "provided a practical, efficient way in which people could get together to save water, insure more efficient delivery and reduce maintenance costs substantially."

Today 240 active improvement districts serve about 50 percent of the total MID irrigated acreage. One hundred sixty-six miles of distribution ditches have been put underground in pipelines through the improvement district program.

The growth of the Modesto district is reflected in its annual gross revenues, which totaled about \$250,000 in 1920, swelled to nearly \$1 million a decade later and currently exceed \$70 million.

Growth meant more people, more responsibilities, more new and sophisticated equipment.

Since 1912 the district offices had been located in the 800 block of 11th Street. By mid-century the building was hopelessly overcrowded. In August 1956 the MID moved into a new \$827,000 headquarters building designed specifically to meet these rapidly expanding requirements. Located at 11th and M Streets, the new building emphasized customer service and convenience, simplicity, appropriateness,

flexibility, and service to the public. Directors made the building's auditorium available to community organizations for public meetings.

These qualities earned the MID headquarters the Northern California American Institute of Architect's 1957 award of merit for institutional buildings, the best of 140 competitors.

When the current headquarters building was opened, it was said to have been designed "for at least a century of use," but with provisions to add on to the south sometime "decades in the future." Thirty years later the district had purchased the balance of the block bounded by 10th, L, 11th and M Streets and work to expand it is under way in the MID's centennial year of 1987.

Much of the growth in district activities was due, of course, to the rapid increase in the number of power consumers and the dramatic increase in the use of electricity generally.

While the board of directors remained grower oriented, it found itself involved in new business, industrial and administrative practices.

As the division boundaries changed to give Modesto's urban area its own director, business and professional people appeared on the policy-making body. Employee relations, payrolls and other management problems became increasingly important. Engineering in both water and electrical departments became more complex. Technicians and professionals in specialized fields were hired.

The days when a man could be repairing a ditch bank one day and helping out with payrolls the next were gone. The Modesto Irrigation District truly had become big business. Administrative and engineering functions of the district were adjusted to meet these needs.

Through these years of transition, the MID Board of Directors displayed the traditional day-to-day conservatism of farmers, but showed themselves to be as visionary as the original founders of the Modesto Irrigation District. They quickly learned to work with other local, state and federal agencies while protecting the district from being gobbled up by programs devised by these agencies.

Directors assumed leadership roles in statewide organizations of irrigation districts. The Association of California Water Agencies, formerly known as the Irrigation Districts Association, was organized in 1910 at a Modesto City Hall meeting of representatives of the Modesto, Turlock, Oakdale,

South San Joaquin and Alta (Fresno County) Irrigation Districts. Today the ACWA has more than 300 members representing virtually all California irrigated lands.

Modesto dairyman and Division 5 Director Milton L. Kidd was president of the association from 1943 to 1948 during those critical years of debate over the Central Valleys Project and formation of Governor Earl Warren's State Water Plan. In his capacity as IDA president, Kidd played a major role in the battle to protect the interests of local districts, becoming adept at hurling verbal brickbats at the U. S. Bureau of Reclamation.

MID Directors Matt Fiscalini and John Kidd, a nephew of Milton Kidd, also served as ACWA presidents, Fiscalini in 1965-1966 and the younger Kidd in 1978-1979.

Not all the problems MID directors faced in mid-20th Century were major but many proved troublesome.

Storm drainage, for instance, became an issue between the MID and the City of Modesto. For years, the canal system was not suitable as a permanent solution for handling the city's runoff of storm water.

"Storm drainage of urban areas must handle the runoff occurring from a storm in a short period of time," explained Chief Engineer Plummer. "Since many of our intense storms occur after canals are filled with irrigation water, much damage would occur while waiting for the canals to be controlled to the point where the water could be discharged. This would result in the flooding of bottomlands, damaging of crops, require new rights-of-way, and complicate regular winter maintenance and construction."

A couple of limited uses were permitted initially: One in Empire where the community put up funds to build a spillway into the Tuolumne River and the other on Tully Road north of Highway 99 to solve a local drainage problem on an interim basis until a permanent solution could be achieved by the city.

Although the city has expanded its dry-well drainage system, these cannot cope with the heavy runoff of an above-average storm. Several limited agreements between the district and the city now allow the pumping of excess standing water into nearby laterals.

Recreation also became a part of the district's concerns as Modesto Reservoir, previously known as Dallas-Warner, developed into a major boating and outdoor activity area. The land around the reservoir

had been leased to cattlemen for grazing, but the district decided to forego that revenue and turn over the land to Stanislaus County for development of appropriate recreation facilities.

A 1958 survey found that most of those using the reservoir were family groups. Power and sail boating and water skiing were the leading activities, with fishing close behind. Most families were from San Joaquin County, with Alameda County visitors second in volume of users. Less than 20 percent of the users were from Stanislaus County. The reservoir also drew heavily from the San Francisco Bay and Peninsula areas.

History shows that the '40s, '50s and '60s were a critical period in the MID during which its directors had to defend against outside raids on the Tuolumne River and arrange with a former water-rights adversary, the City and County of San Francisco, to develop fully the river's watershed, thus providing for the district's future needs.

The times and the pressures required courage and durability of the district's directors serving the irrigators and electrical consumers whose lives and fortunes had come to depend upon the MID's successes in water and power resource management.

Had less visionary men made less demanding decisions in those times, the MID would not have been able to grow and meet challenging requirements placed upon it, nor would the people and entities dependent upon the Modesto Irrigation District have prospered as they did.

Paradise Valley, indeed, did prosper in its transition from a rural agricultural producing area into one of the world's largest food processing centers.

The achievements of these years were tremendous, but they were to be followed by still another spectacular accomplishment; construction of the massive New Don Pedro Dam and Reservoir which would insure that the MID's water requirements would be met for all time.

Fish vs. People

Midway in the Modesto and Turlock Irrigation District's long and frustrating struggle to win a Federal Power Commission license for the construction of New Don Pedro Dam and Reservoir, and exasperated *Modesto Bee* managing editor Ray Nish protested in a front-page editorial that "fish vs. people" had become the basic issue, "though camouflaged in figures of water releases demanded against those proposed and the number of fish estimated as against those counted."

It all had started out quietly enough.

The three entities on the Tuolumne River, the Modesto and Turlock Irrigation Districts and the City of San Francisco, long had known additional storage capacity was needed to make full beneficial use of the river's flow. This had to be done or they stood to lose the rights to water needed in the future.

When the river partners began to implement the idea, however, their timing proved to be wrong.

Serious planning for the massive water and power project began about the same time that state and federal agencies initiated major efforts to revitalize salmon fisheries. In Congress a modest proposal to aid California's salmon runs was taken over by the House of Representatives Merchant Marine and Fisheries Committee and blown into a nationwide program to enhance conditions for anadromous fish, such as salmon which migrate from the sea to fresh water to spawn.

The clash of the two objectives – capturing and putting to work all of the water resources of the Tuolumne on the hand and rebuilding the river's dying salmon fishery on the other – created cliff-hanger situations in which delays of a few hours would have killed entirely the \$115 million project. Yet, the New Don Pedro Project seemed to have almost as many lives as a cat.

Although there undoubtedly had been talk of building a New Don Pedro earlier, the first official report came in 1931 when the California Division of Water Resources discussed its feasibility. Certainly by that time farmers and officials of the Modesto Irrigation District were aware of the need for additional storage. Normal rainfall had been recorded in only one year since completion of "old" Don Pedro Dam.

New Don Pedro remained on the “back burner” for another decade, however, until the U. S. Army Corps of Engineers looked to the Tuolumne for additional flood control and the City of San Francisco was being pressed to develop resources authorized under the Raker Act.

Formal agreement to proceed with the project was reached by the three local agencies in November 1943. Three months later the Corps of Engineers recommended to Congress that a flood control contribution be made to the districts’ multipurpose water and power project in lieu of building the proposed 300,000 acre-foot, single-purpose federal flood control dam at Jacksonville. Congress concurred with this recommendation in December 1944.

In 1945 the California Legislature authorized construction of the project. Everything seemed “Go” for a 1,200,000 acre-foot reservoir.

Preliminary steps were under way in 1947 as mapping the Tuolumne River canyon to select the best site began. For a decade Modesto and Turlock district staffs proceeded with project planning, slowly but without interruption.

In 1951 when application for project water rights was made, the California Division of Fish and Game was notified routinely. No objections were raised.

Two years later, aerial mapping proved the maximum storage potential was 2,030,000 acre feet. With this amount of water, normal irrigation could be maintained through dry cycles such as experienced between 1922 and 1935 even if 340,000 acre feet of storage capacity were reserved for flood control. The state Department of Water Resources issued the water rights in 1953.

“We, of course, felt this was the go-ahead sign and proceeded with engineering and design studies, exploratory work to determine the best site for the dam,” MID Engineer Clifford Plummer later commented. “There were several possible locations and we spent hundreds of thousands of dollars in engineering and exploratory work.”

In June 1955 geologist Roger Rhoades identified five potential dam sites downstream from Don Pedro Dam. After two more years of mapping, he recommended the use of a site where he had bored a 767-foot exploratory shaft. This was the location ultimately selected.

The project’s survival was not without threats during this decade.

Local sportsmen mounted opposition to the project because they feared that construction of a dam could have an adverse effect on salmon fishing. Since the California Department of Fish and Game had not expressed concern or any other reaction when the state approved the project's water rights in 1951, the districts continued preliminary planning of the dam.

San Francisco was pushing ahead on a \$200 million expansion of the Hetch Hetchy system and New Don Pedro was crucial to that effort. In the Valley Plummer began to advocate increasing the reservoir storage capacity to the maximum 2,030,000 acre feet. As Modesto and other cities grew, Plummer argued prophetically, the day could come when they might have to draw upon the reservoir for domestic water supplies.

Stanislaus County Supervisor Robert Adams told a state Senate interim committee that by the year 2050 the county's water needs would be half again as much as that available even after New Don Pedro and other planned projects were built.

Army Engineers offered an additional \$5 million contribution to the project if 600,000 acre feet could be set aside for flood-control storage in the larger dam. The extra financial assistance was tempting, but studies revealed that annual losses in power revenues would exceed \$200,000 if the corps' allocation was increased. The districts declined the offer.

The pace was stepped up dramatically in November 1958 with the hiring of the Bechtel Corporation to make preliminary engineering studies and determine the most economical size and type of construction: rock fill, arch or gravity concrete.

Bechtel made hydrologic and geologic studies at five sites between Don Pedro and La Grange and in July 1959 recommended construction of an earth-and-rock fill structure storing 2,030,000 acre feet at the site on which the dam ultimately was built. The price tag then was estimated at \$90 million. This project phase was approved and final design work began.

It was then agreed that San Francisco would pay approximately half the project cost and the Valley irrigation districts the balance. As New Don Pedro Project Coordinator Charles Crawford explains:

San Francisco's contribution was based primarily on the right of the city to release water to the districts when it can be stored in New Don Pedro in advance of the time when releases from San Francisco's upper works normally would be required under the Raker Act. San Francisco, in turn, would be permitted to intercept or divert equivalent

quantities of natural stream flow later in the year when it otherwise would have to be passed on to the districts. Once received from the Hetch Hetchy system, the water became the property of the districts.

This arrangement was one of the hurdles which the districts had to overcome in subsequent Federal Power Commission and federal court entanglements.

Indications of possible trouble ahead again surfaced in March 1960. Sportsmen's groups protested San Francisco's proposed pipeline from O'Shaughnessy Dam downstream 12 miles to a powerhouse at Early Intake, the head of the Hetch Hetchy aqueduct to the bay area. This, sportsmen claimed, would dry up a prized trout-fishing section of the upper Tuolumne River.

At the same time, San Francisco was fighting the State of California, claiming the State Water Plan reneged on a promise not to infringe upon the city's domestic water market in bay area counties.

These early skirmishes, however, failed to reveal the full scope and intensity of the battle that lay ahead.

At year's end the San Francisco Public Utilities Commission, which has jurisdiction over the Hetch Hetchy system, funded preliminary studies and called for a \$100 million bond issue to finance the dam and other Hetch Hetchy improvements.

The roof was to fall in later in 1961 as these and other plans advanced.

Aerial mapping in January confirmed that the selected site would provide storage capacity of 2,030,000 acre feet. By May 1961 core drilling at the chosen site was about one-third completed. Bechtel was proceeding with design work under a \$3.7 million contract for the design and supervision of New Don Pedro's construction.

It was proposed that most of the 16 million cubic yards of material to be placed in the dam would come from 750 acres of river bottomland piled high with gold dredge tailings. These had been an eyesore on the landscape since the 19th Century. Their removal from the Tuolumne River flood plain, the districts felt, would be an environmental plus, both from scenic and fishery considerations.

Anticipating Fish and Game Department interest in spite of the lack of reaction in 1951 when water rights were issued, and to insure that the use of the tailings would have no adverse impact on the fishery, the districts submitted a preliminary report to the state agency.

At that point, the state made its first demands for water releases to enhance salmon spawning runs.

Noting that initial requests were for the release of 200,000 acre feet of water annually, MID Director Milton Kidd commented that state fish and game people “haven’t been timid” in asking fish releases equal to half of the 1961 irrigation supply. Kidd maintained it should be the obligation of the federal government to supply enough water to keep the rivers such as the Tuolumne, Stanislaus and San Joaquin from going dry. He suggested the use of water from the U. S. Bureau Reclamation’s proposed East Side Canal for this purpose.

Negotiations were undertaken in an attempt to avoid additional delays which would result from formal state fish and game intervention in forthcoming Federal Power Commission proceedings.

With the water rights issued by the state Department of Water Resources and with State Districts Securities Commission approval in hand, the districts on May 1st applied for a Federal Power Commission power project license. The application was an inch-and-a-half thick document containing nearly 50 pages of maps, drawings and tabulations.

Although negotiations were continuing on the fish releases, the state agency did intervene. Formal FPC hearings on the license were postponed in the hope that the districts and state would reach a mutually satisfactory agreement.

Subsequently, U. S. Secretary of Interior Stewart Udall also filed notice of intervention and asked the power commission to wait until federal and state fish and wildlife agencies had completed their investigations of salmon resources. Charging that the districts’ plan “do not reflect any provisions for the maintenance and protection of the king salmon run,” California Attorney General Stanley Mosk joined in the request for a year’s delay to allow the State Fish and Game Department to prepare its evidence about the adverse effects of the project. This in spite of the fact the Fish and Game Department had known about the project for 10 years.

Speaking for both districts, TID Engineer Roy V. Meikle told FPC that a delay in the issuance of the license until 1962 would be “catastrophic” because “ever-working inflation” would force new cost estimates and bond issues. Inflation, he contended, could possibly kill the project by making it not feasible economically. This threat was to be raised over and over as the battle waged for the next four years.

For MID officials the bottom line was that when the irrigation districts, including Waterford, and the City of San Francisco take their allotted water from the river, “There just isn’t any left.”

While sympathizing with the attempt to improve the salmon run, MID Engineer Plummer further questioned whether a local area should have to pay the whole bill since the fishing industry had state and national dimensions. Anyway, Plummer argued, the project would enhance the fishery automatically: With more water stored, more water would be released downstream, even during dry years.

Meanwhile, opposition mounted from sportsmen's groups throughout the state, including the Associated Sportsmen of California, California Wildlife Federation and the Aquatic Resources Committee.

At the request of the Hunting and Fishing Club of Central California, Congressman John J. McFall urged the House of Representatives Special Subcommittee on Assigned Power and Land, chaired by Sacramento Congressman John Moss, to hold hearings on the New Don Pedro Project. Senator Clair Engle, who earlier had tangled with the City of San Francisco over the enforcement of Raker Act provisions, also took up the matter with the FPC.

The districts had set November 7, 1961, as the date for their bond elections to finance New Don Pedro. Less than a month before the balloting, Stanley Simidian, representing the Hunting and Fishing Improvement Club of Central California and the Associated Sportsmen, told the Modesto City Council those groups would oppose the bonds unless guaranteed water releases demanded by state and federal agencies were accepted by the irrigation districts within the next few days.

As a last-minute suggestion, Congressman McFall urged that the FPC license be issued with the fishery question to be resolved during construction. His proposal caused a violent reaction from sportsmen. The FPC responded that in all probability Udall's request for a delay and a mid-1962 hearing would be approved.

The November 7, 1961, bond elections resulted in record-breaking affirmative votes. In Modesto 97.2 percent of the voters favored the project and the bonds, 11,231 to 328. Turlock's percentage was slightly higher, 97.8 percent or 5,754 to 126. Three years of drought had made the need for additional storage all too obvious. In San Francisco the vote was 11-to-1 in favor of the Hetch Hetchy bonds.

The fish and game cloud still hung over the project, however.

The day after the election, U. S. Senator Thomas Kuchel of California warned the districts to seek agreement with the state Fish and Game Department if they wished to avoid a hearing and more long delays in construction. MID Engineer Plummer told the senator, "It's been the state fish and game strategy

to wait until the last minute before they object. Then, the department feels the districts are so involved that they cannot back out. If fish and game requests were granted, we would have to stop irrigating in July.”

Bechtel reported that if the state’s demands were met, the project would not be feasible economically because electrical energy revenue losses would reduce the capital value of the project by more than \$15 million.

Furthermore, Bechtel noted: “Overshadowing this financial loss is the loss of water yield of 139,000 to 157,000 acre feet of irrigation supply...to an amount less than that historically diverted and used.”

In substance, the question was asked, “Why build a dam and end up with less water?”

The conference with Senator Kuchel signaled the renewal of full-scale efforts by the irrigation districts to overcome fish and game opposition. Construction already was at least a year behind schedule. Bechtel was cutting back on design work because it could proceed no further until the fishery issue was resolved.

Although the MID had a long history of surviving controversy, the next four years were to be the most frustrating of battles as delay after delay steadily forced project costs up against its fiscal limits.

In addition to the issue of whether there was enough water to enhance spawning salmon, the districts challenged the authority of state and federal agencies to force the districts to “give away” to fish their basic water rights.

Plummer charged the state was “trying to create a perfect set of conditions for the salmon in the Tuolumne River which they’ve never had.”

Local irrigators had vested interests in the water through many years of use.

Furthermore, there weren’t that many salmon running up the Tuolumne.

While state fish and game spokesmen were demanding flows below New Don Pedro sufficient to support a run of 65,000 salmon, historically the average run was 28,000. That excluded the two years in which the San Joaquin River above its confluence with the Tuolumne had been dried up during construction of the federal Friant Dam. Salmon counts in recent years had declined to a low of 500 or less.

In the meantime, Harlan Trott of the *Christian Science Monitor* commented on February 13, 1962, that there was “as much politics as fish” in the fight as far as the state was concerned. Trott speculated that

water released from New Don Pedro for salmon spawning would reach the intake pumps of the new South Bay Aqueduct of the state's Feather River Project, adding:

Custodians of San Francisco's water system are concerned about spending \$45 million for its share of New Don Pedro if it means releasing a substantial volume of fish water that will flow into the state's South Bay spigots after the fish are through playing with it.

In June 1962 the Stockton City Council endorsed the releases demanded by the state as a means of reducing river pollution caused by Stockton cannery wastes in the summer and to help clean up the San Joaquin-Sacramento Delta by flushing out the San Joaquin River.

When Governor Edmund G. Brown endorsed an interim solution proposed by Resources Director William Warne, the hopes of MID directors, soared, although they agreed it would be a "calculated risk." The proposal became the basis for a detailed, 12-page agreement between the districts and Warne's Department of Fish and Game that was approved on June 5, 1962.

The agreement provided that in normal years releases would total 105,000 acre feet and in dry years they would drop to only 54,500 acre feet. The situation would be reviewed after 20 years.

During the interim it was agreed the districts would support the Bureau of Reclamation's proposed East Side Canal Project, which would carry water from still-unbuilt Auburn Dam down the east side of the San Joaquin Valley. It was anticipated that East Side Canal water could be used to enhance the fishery if the districts could not meet the demands.

The agreement, Plummer told the Stanislaus County Board of Supervisors, would provide fishery conditions far superior to those which existed before or after any dams were built on the Tuolumne. This would be especially true, he said, since use of the dredge tailings between La Grange and Waterford would leave better gravel beds for spawning fish.

While certain that they could win an FPC fight, the districts wanted to compromise in order to build New Don Pedro as quickly as possible.

The agreement won the approval of most Stanislaus County groups, but was condemned as a "giveaway" by the California Wildlife Federation, Associated Sportsmen of California, Aquatic Resources Committee, Salmon Unlimited and Golden Gate Sportsfishers. They were unhappy about the lack of summer releases when the river frequently went dry and because releases were guaranteed only for 20 years.

When the proposal was submitted to the California Fish and Game Commission for ratification, it was rejected on a 3-2 vote as the direct result of considerable pressure from commercial and sports fishing organizations. While a majority of commission members thought there should be further negotiations, Plummer said, “We don’t have anything left to negotiate. We’ve given everything we could give.”

This decision forced the issue into a full-scale Federal Power Commission hearing procedure and meant another delay of at least a year. It was estimated that delays were costing the project sponsors \$3 million a year in increased construction costs.

A bitter Abner Crowell, president of the Turlock Irrigation District board, declared, “They tell me the love life of a salmon is accomplished best in about 12 inches of water. They won’t spawn if it is too deep or too shallow, too hot or too cold. This agreement – which the state commission turned down, mind you – would guarantee an even amount of water during spawning season and at ideal temperatures during normal years of runoff. This is something Mother Nature herself doesn’t do!”

Under the headline “Are Federal Dams Built for Recreation or Reclamation?” a California Farmer magazine article subsequently reported a new trend of several dam projects being delayed by recreation and fish and wildlife mitigation disputes.

The partners on the Tuolumne River watershed were caught in a new era.

New state fish and game proposals were rejected by the districts, with Crowell declaring that they would put negotiations back to their starting point. He asked, “Where were they (Fish and Game Department) from 1951 until now?”

The Federal Power Commission scheduled hearings for October 16, 1962, in San Francisco. MID critic Frank Andrews had tried vainly to have them postponed until after the November election.

The opponents lined up against the MID, TID and San Francisco.

First, the Banta-Carbona and West Stanislaus Irrigation Districts and the El Solyo Water District intervened, contending that, unless operated with due regard to quality and quantity of their downstream water supplies, the project could “seriously jeopardize” their rights.

Tuolumne County demanded that road relocation and recreation development and operation guarantees be placed in the license. The California Wildlife Federation announced the alliance of 123 sportsmen’s groups to insure the protection of fish and wildlife resources.

Finally, the California attorney general, representing the state Department of Fish and Game, and the U. S. Department of Interior demanded that stringent fish and wildlife provisions be included in a license.

The October hearing was presided over by Examiner Francis I. Hall, who was described as looking and talking like a “young Sam Rayburn,” the speaker who ruled the U. S. House of Representatives for years. In opening the sessions which were to last two weeks, Hall said it was the FPC’s responsibility to dovetail power, irrigation, flood control, recreation and fish conservation interests for the benefit of each.

The testimony of 24 witnesses filled 2,100 pages of transcript. Two hundred twenty-three exhibits were presented.

All the arguments which had dominated the previous couple of years were heard again. Reporter Martin Smith, who covered the hearings for *The Modesto Bee*, observed, however, that the role of the U. S. Department of Interior at first was a little vague. It wasn’t until the third day that the federal agency made its objectives known: The release of 148,000 acre feet of water annually, 2,500 more than the state agencies were asking at the time.

Hearing Examiner Hall criticized the federal agency for its eleventh-hour involvement, although adequate notice had been give.

Challenging the federal and state figures as to the numbers of salmon migrating and spawning in the river, the districts’ expert witnesses indicated a third of the requested water releases would suffice. University of Washington Professor Milo Bell, consultant to the International Pacific Fisheries Commission and other Pacific Coast organizations, was the MID’s lead witness.

The Department of the Interior injected a new element into the debate: San Francisco’s involvement in the project. The department contended the city should be a party to the license even though the dam would be owned and operated jointly by the Modesto and Turlock Irrigation Districts.

The state and federal efforts to obtain financial data from San Francisco and to force the city to become a party to the license were rejected. Hall did insist, however, that before any license was issued, a firm agreement had to be reached between the city and the irrigation districts on the joint financing of the project. In subsequent years, negotiations attempting to reach this agreement almost proved fatal to the project.

Although the hearings were over, the debates went on.

Assemblyman John G. Veneman of Modesto accused sportsmen of “trying to improve on Mother Nature,” estimating that at the rate of \$3 million a year in increased construction costs the 500 salmon counted in the river in 1961 were worth \$550 a pound.

As the year 1963 opened, Interior Secretary Udall still was demanding “more tangible information” about the involvement of the districts’ “silent partner,” San Francisco. He contended that the project would have “a substantial effect” on the entire federal Central Valleys Project and the state’s Feather River Project.

The districts countered that the fish and game agencies were, in effect, requesting modification of a state-granted water right. If the FPC could do this, they contended, “there will not be a water right. If the FPC could do this, they contended, “there will not be a water right anywhere in the country, let alone California, which will be secure.”

At this point, Bechtel put all of its design work “on the shelf,” where it was to stay for three years. Bechtel engineers had gone as far as they could without knowing what releases would be required or, for that matter, whether or not the project ever would be built. Releases demanded by fishing interests could make New Don Pedro economically impractical.

Early in 1963 FPC Attorney Daniel Goldstein, who had represented the power commission in the hearings, suggested the release of 123,000 acre feet of water during fall, winter and early spring, a figure which would be renegotiated after 20 years of operation. This amount was about half way between the 146,000 acre feet wanted by the state and federal agencies and the districts’ earlier-proposed offering of 105,000 acre feet.

On June 4, 1963, FPC Examiner Hall submitted a 74-page opinion recommending issuance of the license, but again insisting upon prior agreement between San Francisco and the irrigation districts as to the allocation of project costs. Hall also called for adequate plans for road relocation and recreation development and operation.

Hall did not recommend any firm figures for water releases to enhance the fishery, declaring:

Not only may the commission not reduce (the districts’) irrigation supply available in the critically dry years below that available from the existing Don Pedro project, but in the examiner’s view it ought not to unduly interfere

with the central purpose of the project to provide the districts with a more dependable supply during the critical dry years.

Hall noted that, “issues relating to San Francisco’s rights, obligations, etc., under the Raker Act lurk in the record.” He accused the city of seeking to divert all the water it stores in the Tuolumne River headwaters, a right which it did not possess. The city, however, immediately indicated it could live with the examiner's recommendations.

The Modesto and Turlock districts were not so sure. Their hesitation was labeled as “Yankee trading” by San Francisco Examiner columnist Russ Cone. And once the license was issued, there were to be three more years of “Yankee trading.” Only this time, it was between San Francisco and the districts as they battled out the division of costs.

State and federal agencies formally protested Examiner Hall’s recommendations as providing too little water for too little time. They demanded firm water-release requirements be established for the full 50-year life of the license, forcing the issue to a full hearing by the Federal Power Commission. This hearing was not held until December 5, 1963.

And thus another year of delay passed. Under the original construction timetables, the dam would have been nearly completed by this time.

At the hearings before the full FPC, Robert McCarty, the districts’ Washington, D. C., attorney, argued that the water releases sought by state and federal agencies were sufficient to supply a city of 800,000 population or to irrigate 31,000 acres of productive farm land. Otherwise, the arguments on both sides were about the same as those advanced at the 1962 hearing.

The Federal Power Commission license which finally was issued on March 10, 1964, stipulated that:

- The districts must release 123,000 acre feet of water in normal years and 64,000 acre feet in dry years for the fishery during the first 20 years of the 50-year life of the license, and
- Construction could not start until the districts and San Francisco submit to the commission a firm agreement fixing the amount each would contribute to the cost of the project.

The project’s cost now was estimated to be \$96 million. Bonds totaling \$98 million had been approved by the voters two-and-a-half years earlier when cost estimates were considerably lower. The margin of cost and funds available was narrowing.

Again, no one was happy with the decision.

A rehearing was requested by all three parties, the districts, state and federal agencies. The state argued that the fish releases were inadequate and joined Interior Secretary Udall in urging that San Francisco should be a participant. The Interior Department added a new contention that there was no conclusive evidence that New Don Pedro was the most economical place for San Francisco to obtain additional storage capacity.

The districts charged that the FPC had said it could not interfere with irrigation water rights but then set up a schedule of fishery releases which did just that.

The rehearing requests were denied.

The Modesto and Turlock Irrigation Districts resigned themselves to living with the license, especially since the FPC had declared that in critically-dry years the commission would consider emergency modifications of the license.

Acceptance was not in the minds of state and federal fish and game agencies, however.

They took the matter into the federal court of appeals on July 6, 1964. With the time for filing Court Appeals about to expire, the irrigation districts did not want to be left out of the debate. They were forced to file counter-actions later the same day.

Four days later, Assemblyman Veneman asked Governor Brown and Hugo Fisher, California Resources Agency administrator, to review the fish and game agency's decision to appeal the license.

Noting that the 1963 salmon count in the river was only 100, Veneman told the state officials, "If we don't build the dam pretty soon and get some water down the river there won't be any salmon anyway in a few years." The Democratic governor did not accede to the Republican assemblyman's request.

Nearly a year later the federal court heard the case. Once again the state and federal fishery agencies made San Francisco the target of their primary attack. They asked the courts to force the FPC to require the city to join the districts as applicants for the license. This would mean that the proceedings would have to start all over again, resulting in delays of another three or four years.

Meanwhile, as the state fish and game people fought the project, Governor Brown on May 11, 1965, signed into law an allocation of \$7 million for recreation and enhancement of fish and wildlife at New Don Pedro. (The grant subsequently was increased to \$8.6 million.) State Fish and Game

Department Director Walter T. Shannon had opposed the grant, claiming that, since the districts “steadfastly refused to agree to maintain flows it is doubtful that any enhancement downstream of the reservoir can be justified.” The California Legislature had approved the Davis-Grunsky Act appropriation without a dissenting vote, however.

A week later a three-judge Court of Appeals panel upheld the FPC ruling, but the end still was not near.

State and federal agencies appealed to the full 9th Circuit Court and subsequently to the U. S. Supreme Court.

When these appeals were filed, the MID and TID renewed their assertions that the FPC ruling would give that commission authority to take away irrigation and municipal water rights issued under state law and reallocate the water for salmon fisheries. Since state law always had prevailed on water rights, the districts contended that by upholding the FPC decision, the federal courts had written new water rights law.

The Court of Appeals said that since the districts wished to use public lands for reservoir purposes, the FPC was well within its rights to impose conditions on the flows to be released from that reservoir.

The U. S. Supreme Court ended the long legal struggle over the FPC decision on December 6, 1965, when it refused to review the decision of the lower courts. Thus, the Federal Power Commission license became the final word.

Quick action by the districts to reach project cost-allocation agreements with San Francisco was imperative. The FPC license gave them only 60 days following the final court decision in which to come to terms and accept the license. That deadline subsequently was extended to June 1, 1966.

The Modesto Irrigation District accepted the restrictions but, whether it was “Yankee trading” or not, the Turlock Irrigation District immediately raised serious doubts. A *Turlock Daily Journal* headline on December 18th said “TID Coy Over Acceptance Of Pedro License.” President Crowell said, “we have to analyze this very, very carefully.”

Holding firmly to the position that the FPC license impaired state-granted water rights, the Turlock district had taken a second look at the project’s economic feasibility and began to explore gas turbine generators as an alternative energy source. The Turlock directors set at \$28.2 million the maximum contribution they would make to New Don Pedro and dug in their heels.

The MID feared federal construction on the river, which MID Director Kidd declared would result in the districts being forced to change their irrigation practices. Turlock disagreed and maintained it had to protect its basic water right by not giving in to Uncle Sam.

The *Turlock Daily Journal* attacked the MID and Plummer for “throwing up a smoke screen” when he said the federal government would charge irrigators \$3.50 per acre foot for water. This was the basic rate for Central Valleys Project irrigation water.

On January 19, 1966, the Turlock paper called upon TID directors not to proceed with the dam. A month later, the *Journal* asked in an editorial headline, “Are We Being Euchred?” If the federal government can order water released for fisheries, the editorial reasoned, it could order water released for any other political purpose. These could be determined by politics, which were “run by the whims of the moment and they are not very stable.”

As things stood, San Francisco, desperate for additional storage, was most anxious to proceed and Turlock most reluctant. Modesto, in the middle, tried to bring the two sides together to resolve the matter. San Francisco and Modesto shared strong feelings about not having the federal government build on the watershed. As MID Engineer Plummer put it:

We would rather the districts build the dam because we have a lot of problems with federal government acreage limitations, the setting of power rates and all these things. It's better to operate your own business and have control over it. Otherwise, we might be told what to do from Washington.

TID Engineer Meikle, on the other hand, said losing control of water rights by giving in to FPC fish release demands was “unthinkable.” He also indicated the TID had all the water it needed and buying Pacific Gas & Electric Company power would be cheaper than paying too much for New Don Pedro.

When it looked as if the TID might back away from New Don Pedro, the question of who would pay the more than \$1 million already invested in the project became another sore point among the three partners. The TID insisted that, if one partner vetoed the project, all three would share the responsibility and costs. San Francisco insisted that the agency that pulled out should carry the entire burden. With time running out, this was resolved at Modesto's suggestion that the issue be left to litigation if the project died.

In the end San Francisco's hunger for additional storage forced it to give in to the districts. The city accepted a larger share of the costs and agreed to supply some of the water needed for fishery releases.

With new estimates boosting the project's total cost to \$105,486,100, San Francisco agreed to put up \$48,423,538. Modesto's share was placed at \$15,881,658 and Turlock's contribution was fixed at \$28,216,904. The state had allocated \$7.5 million for recreation and the Army Engineers \$5.4 million for flood control.

Acceptance of the Federal Power Commission license was filed in Washington, D. C. at 11:25 AM on May 31, 1966, just one day before passage of the FPC's deadline.

Although the immediate fishery problems had been resolved, they were to return again and again to haunt the Modesto and Turlock Irrigation Districts. Fifteen years later as they reached the end of their 100th year of operation, the districts found themselves still involved in discussions and negotiations concerning the ongoing salmon fishery studies.

Bechtel took the project design "off the shelf" and immediately returned to work. Although five years of study and design had been invested in the project before work had been halted, a great deal was left to be done before final plans and specifications could be completed.

Design of an earth-fill dam is more complicated than that of a concrete structure because it uses materials which have not been made by man; thus their properties are unknown factors at the outset. One of the first steps was to explore the dredge tailings which would be the basic material for the dam. This Bechtel did in 1958, making further studies in 1961, 1963 and 1967.

Placement of the rock was a critical factor in design.

"You don't just dump it in and run over it a couple of times," explains Carl Taylor, who was Bechtel's resident engineer on the job. "Sixteen million yards of dirt and rock you just don't shove down the hole."

Each layer had to be no more than six inches high and then compacted thoroughly.

The dam was to be founded on base rock with three zones within the structure itself. A centrally-located core of silty clay was to be its heart. This would be bordered both upstream and downstream with transition zones of carefully-washed gravel. These in turn would be covered with shells of coarse gravel and cobbles from the gold dredge tailings. More than 12 million cubic yards of material would go into the shells.

A tremendous amount of study was made to assure the dam's safety. An earthen dam is not waterproof; rather, water flows through it. It is crucial to the dam's strength that the flow occurs in a completely-controlled manner. Testing done some years after the completion of New Don Pedro revealed that design estimates were most accurate.

The final design required detailed engineering consideration of such diverse things as mining shafts and wind-driven waves, stability of the rock, and potential floods.

In reviewing the project design, Bechtel engineers cited only two unique aspects of the project. First, the dredge tailings providing the basic supply of material were situated only nine miles from the dam, which was rated as a very short haul. Second, the outlet-works slide gates had to operate with the pressure of 580 feet of water on them. The highest previous recorded pressure on slide gates was 360 feet of head.

New Don Pedro was designed so that a flood which might occur once in 1,000 or 10,000 years could be controlled. Although the water might reach within five feet of the top of the dam, the flood flows would be channeled into spillways capable of handling 472,500 cubic feet per second, several times more than the greatest Tuolumne River flood on record, 1955. In that year 175,000 second feet of floodwaters would have raged down the river were it not for irrigation district and San Francisco dams on the river.

Every conceivable problem was analyzed during design. Taylor explained:

We don't want unpleasant surprises during construction.

The New Don Pedro design was subjected to the most intensive and the most sophisticated analysis of earthquake effects of any dam ever built at that time or had been planned for the immediate future. We ran a complete dynamic analysis on this structure using the latest techniques. Then it was reviewed by people in the field and the University of California. Both came back and said that to their knowledge nothing like this had ever been done before.

New Don Pedro will survive the greatest credible earthquake that can occur in this region.

Earthen dams are more sensitive to the site and thus more tolerant to seismic movement. Consequently, they can be built where a concrete dam cannot be constructed safely. Self-sealing action is built into the dam design through the installation of various zones or layers of material from the clay core, which is compacted by the weight of the 585-foot high dam, to the transition zone filters and drains of carefully-washed gravels, and on to the shell of rocks and boulders. If seismic movement causes a crack, the dam will tend to seal itself, whereas, Taylor notes, "If a concrete dam cracks, it's cracked and that's all there is to it."

More than 200 instrumentation devices located throughout the dam monitor any movement or other activity. In 15 years there have been no surprises in the monitoring.

The final design called for a dam 585 feet high creating a lake 26 miles long, with a surface area of 12,960 acres and 159 miles of shoreline. The structure would be 1,900 feet across the 40-foot wide crest and 2,800 feet thick at the base, covering in square yards the equivalent of 14 football fields.

More than 16 million cubic yards of material would have to be hauled to the site and placed before the job were done. Visualize a city block which is 300 by 400 feet in size. It would take a box covering a full city block and 3,600 feet high to hold 16 million yards.

The outdoor powerhouse with three generators, each operated by a 77,700-horsepower turbine and together capable of producing more than 600 million kilowatt hours per year of non-polluting, hydroelectric energy, was to be located at the downstream toe of the dam.

With preparation of final plans and specifications, design work was completed and the districts advertised for bids on the general contract May 3, 1967. The bids would determine once and for all whether the project would proceed. The contract price had to come within the limits of the funds available and the economic feasibility.

The successful bid of Guy F. Atkinson Company was most favorable and on June 30, 1967, an irreversible commitment to proceed was made. On that day, firm assurances were given to the California Districts Securities Commission that the project would be built. With this required commitment, the commission approved the sale of the MID, TID and San Francisco bonds.

After a quarter century of planning, sparring, fighting and dreaming, New Don Pedro Dam and Reservoir would become a reality.

The Dirt Begins to Fly

The first time John Goodier saw the Tuolumne River canyon in which his company was to build New Don Pedro Dam, he figured it would be “a tough nut to crack.”

“In construction and particularly at Guy F. Atkinson we like the tough ones. That’s where we make our living and the tougher they are, the better we like it,” Goodier said, noting his firm had built some of the world’s largest dams.

Goodier, who was Atkinson’s project superintendent on the job in 1967, explained the main problems were the river, which he described as “violent,” the terrain, and the heat, which was so severe that cement workers had to mix concrete with ice instead of water to keep it cool enough to work.

The dam was to be located in a V-shaped gorge with side slopes of up to 40 per cent. Access to the bottom of the gorge would be “very, very difficult.” During early core exploration and surveys in 1961 the only access to much of the canyon was achieved by filling a hundred-year old canal perched on the side of the hill. Barely a Jeep’s width, the outer wall built by Chinese laborers proved just as solid and secure as it had been a century earlier.

Later, after Goodier had become vice president and chief engineer of Guy F. Atkinson Company, he summarized his view of the project:

It was an interesting job for a contractor. We started building access roads to the dam site. We did everything. It had many construction features to it: two tunnels, a shaft, a powerhouse, a switchyard, a dam and a spillway – all in one job. When we left the job, it was 100 percent complete. You like to watch a project like this develop. The terrain was rugged, but it was a nice area to live in and it was a very good assignment.

Guy F. Atkinson had been awarded a \$49,693,960 prime construction contract - \$3.7 million under Bechtel’s engineering estimate – on August 22, 1967. This figure set the total project cost at less than the \$105 million estimate made May 23, 1966, when the Modesto and Turlock Irrigation Districts and the City of San Francisco formally entered into the “fourth agreement” to proceed on New Don Pedro.

The day after bids were opened, June 22, 1967, Atkinson started mobilizing equipment in anticipation of receiving the contract.

Formal notice to proceed had to await the California Districts Securities Commission's approval of the sale of the bonds which would fund the project. This came June 30th. Also needed was the issuance of a California Division of Dam Safety license, granted on July 6th. The Bank of America purchased the Modesto and Turlock Irrigation Districts' bonds totaling \$46.5 million on August 1st at 4.12 percent interest. San Francisco's \$45 million in bonds were purchased the same day by a group of Eastern banks for 3.8 per cent interest.

More than a month before the formal award of contract and issuance of the notice to proceed, the contractor and issuance of the notice to proceed, the contractor began construction of the access road to the upstream portal of the Tuolumne River diversion tunnel. Atkinson shared the districts' desire to expedite work after years of waiting for the Federal Power Commission license to be issued.

The irrigation districts did not discourage this enthusiasm. On their own part, eight months before the project was to proceed, they awarded contracts for the manufacture of powerhouse turbines, generators and other equipment. Turbines and generators are not "on the shelf" inventory items and must be built to individual specifications.

Contracts were awarded to three Japanese firms – Mitsubishi, \$1,304,878, for the turbines; Mitsui, \$1,163,530, for the generators, and Hitachi, \$213,820, for the crane – on the basis that the manufacturers would proceed only with working drawings. They were not to build the equipment until notified that the project would proceed. A \$310,352 transformer contract was signed with Savigliano of Italy on the same basis. Had the project not gone ahead, the districts were liable for the \$90,000 cost of working-drawings. The four bids were \$1.4 million below engineers' estimates.

In this way, the districts got a full year's jump on completion of the project.

By the time the formal notice to proceed was issued on August 22nd, Atkinson had gathered much of its equipment, ordered massive earth movers, established a field office, built a trailer camp for construction workers and their families, started clearing the dam site, begun work on the spillway high on the north bank of the Tuolumne and was building access roads.

From June 1967 until June 21, 1971, when the last of Atkinson's forces left the field, the canyon was a beehive of noise and activity, except for one brief moment September 16, 1968. Work was halted at that time in tribute to company founder Guy F. Atkinson, 93, who died four days earlier. Since starting his

construction business in 1901, Atkinson had built a variety of projects, including Mangla Dam in West Pakistan, the world's largest hydroelectric project, more than 10 times the size of New Don Pedro; Grand Coulee Dam on the Columbia River, the largest concrete dam in the world; Trinity Dam, a Bureau of Reclamation project in Northern California, and Hetch Hetchy's Cherry Valley Dam.

In a separate contract, the districts awarded Trico Contractors of Merced the task of clearing the reservoir site, which ultimately meant cleaning 6,300 acres of land at a cost of more than \$888,000. Trico went to work October 3rd.

MID Board President Thomas Beard, TID Board President E. L. Tomlinson and San Francisco Public Utilities Chairman Thomas White shared the honors as they set off a dynamite blast to mark the ceremonial start of the project.

Memorialized at the ceremony were three men active in moving the project ahead but who had not lived to see its start: James Smith, MID board president at the time of his death in 1966; Abner Crowell, who served for many years as TID board president prior to his death a short time earlier, and Robert Kirkwood, manager of San Francisco utilities from 1959 to 1964.

Irrigation Engineer Charles Crawford, who had been with the Modesto Irrigation District for 39 years, was named project coordinator, representing the three partners on the river. Charles S. Rippon, a veteran U. S. Bureau of Reclamation engineer, was named assistant.

Before work could be started on the dam proper, a diversion tunnel had to be built and the 1,267-acre dam site cleared.

Excavation of the 3,415-foot long, 30-foot diameter tunnel was started at the upstream end on September 27, 1967. The bore was 32.5 in diameter, providing room for 2.5 feet of concrete lining. Work was stepped up to three shifts daily, six days a week, upon completion of a bridge across a river on October 12th. Drilling from the downstream end began on January 11, 1968.

With crews working from both ends and driving an average of 29.7 lineal feet a day, the tunnel was "holed through" in perfect alignment of March 13th and was ready for lining on April 15th. In less than seven months the drilling teams had blasted and hauled out of the tunnel 106,934 cubic yards of rock and earth.

As a safety precaution, Bechtel's designers insisted upon overhead steel mesh to protect miners from loose rock, walnut sized or smaller. The safety net was resisted at first by the independent-minded miners, who were used to prying off loose rock themselves. After the first 500 feet of boring, they accepted the safety measure as expediting work. While earplugs for miners also were required, many refused to wear them. Deafness was the trademark of old-time tunnel workers.

A revolutionary 40-foot long retractable form made in the shape of the full diameter of the tunnel and operated on a 92-foot long steel-beam traveler applied the concrete lining. The rig even had special vibrators for tamping and compacting the mixed cement. With pour rates of 70 yards per hour, 20.8 feet of lining was completed each day.

The long concrete and steel-lined tunnel was completed in August and on September 5th TID Chief Engineer Roy V. Meikle set off a blast of 1,200 pounds of explosives to blow away a rock plug. The huge tunnel was ready for the river.

The following day, releases from "old" Don Pedro were halted and a 40-foot high, 160-foot long coffer dam was thrown across the river. Diversions of the water was started September 7th.

While the diversion tunnel was being bored, the work of exposing the foundation rock for the dam proceeded so that construction could commence as soon as the river was diverted. Rock that could not be moved by the immense power of a D-9 Caterpillar dozer was considered stable.

Nine days after the river was diverted, the first load of dredge tailings which were to form the outer shell of the upstream side of New Don Pedro was placed. Fire hoses were used to sluice the material down around the dam's bedrock foundation.

Thus, New Don Pedro began its steady rise toward its ultimate height of 585 feet.

Near disaster struck on January 26, 1969, when floodwaters surged over the "old" Don Pedro spillway, unleashing more than 41,000 cubic feet of water per second, more than three times the capacity of the diversion tunnel. The top 15 feet of the 40-foot coffer dam and the project's bridges were washed out. The streambed was covered with 35 feet of water, which left in its wake 15 feet of silt in the previously cleaned core area.

"We lost the bridges about midnight," Goodier recalled. "It was pouring down rain and it was dark. Up river, it really was roaring. There's nothing more dynamic than an angry river."

A full month behind schedule because of the flood, the contractor was running against a deadline which if unmet would mean the loss of a construction season. That in turn would mean a year's delay in completion. There was nothing to do but to clean up and rebuild. The deadline was made with a week to spare. Work was back on schedule by mid-summer.

Atkinson met every deadline on raising the dam. The company cut one deadline close, a single day. Goodier explained, "We did work the previous Saturday and could have worked a couple of Sundays but we didn't like to work weekends. Not only because of the added overtime, but in that hot canyon working seven days affected the men's work efficiency throughout the subsequent week."

With the river diverted, virtually no excavation was needed under the center of the dam. The river's hard bedrock was "broomed and washed" absolutely clean. Cracks and holes were filled with "dental concrete," so-called because it was used in much the same manner as when a dentist fills a tooth. Some of these cavities were rather large, though. Consolidation grouting extended 25 feet below the dam's impervious core and concrete curtain grouting was placed 200 feet under the center of the streambed. On February 27, 1969, the first of the impervious material which was to form the dam's core was placed. Ultimately the core was to be 280 feet wide.

Averaging 18 inches a day, the dam rose higher and higher for the next 15 months. Tower floodlights turned night into day and permitted three work shifts to maintain the rapid pace.

A fleet of 40 specially-built 125-ton trucks hauled materials which had been unearthed by the turn-of-the-century gold dredges. Nicknamed "belly dumps," these earth movers were mechanical marvels, the biggest trucks in the world at the time.

Powered by 750-horsepower V-16 diesel engines, they ran back and forth along a private 60-foot wide, 13-mile long specially-built haul road, delivering 75 yards of material to the dam every two or three minutes. Computer analysis had established that the most efficient highway grade was a constant 2.93 percent. The highway and the trucks' automatic transmissions were built accordingly.

Each truck cost about \$165,000, as did each of four huge scoop rigs built especially to load them. Each truck carried 400 gallons of fuel, which lasted about 15 hours. When the fuel gauge indicated 25 gallons were left, the driver would radio ahead to the fuel depot to be ready for him. As he approached the

“pit stop,” he drove through an automatic truck washer. In five to 15 minutes, the earth mover would be fueled, checked, washed, serviced and back on the road.

Washing was essential at each fueling because on the dirt roads the buildup of mud would reach 5,000 pounds if trucks were not washed regularly.

The rigs operated around the clock from 8 AM Mondays to 8 PM Saturdays, stopping only for a half-hour lunch period on each shift. At the change in shifts, the new driver would meet his assigned truck at “Checkpoint Charlie,” take his lunch and two-gallon water jug supplied by the contractor, mount his rig and “hit the road.” Routine maintenance was performed on weekends. In 15 months, the rigs were idled only 65 shifts due to bad weather.

Dust was a constant problem as the huge trucks plowed uphill at 15 miles an hour and sped down empty at 45. Roads had to be watered constantly.

The one-on-the-job fatality during the project was Modestan Emzy Herman Hoepfner, 30, who was killed when thrown from his 6,000-gallon water truck as it plunged off a 65-foot embankment on the powerhouse access road.

In their 24-hour-a-day parade up and down the canyon wall month after month, the giant earth movers were involved in but three accidents. In each case, the behemoths backed over parked pickup trucks, flattening them.

The 6-foot, 4-inch diameter tires proved to be the weakest link in maintenance of the earth movers. They were so huge they had to be made by hand and never were quite perfect. They kept separating, especially in hot weather. Each tire cost \$5,000.

Keeping the tires cool was as important as settling the dust. On much of the haul road, automatic sprinklers were installed along each side of the road, timed electrically so they would kick on a fifth of the system at a time for 10-minute intervals. These and the world’s biggest road graders kept the road smooth and dust-free.

They also provided some amusement at the expense of guests of the handful of supervisory personnel who were allowed on the haul road.

“Driving down the road in the middle of August with the temperature at 105, the sprinklers would come on,” Goodier explained. “The driver, of course, would be near the middle of the road, but the

passenger, who had his window down, would be near the edge and wouldn't know what hit him when that cold water just shot right out of the side of the road.”

Rainbird sprinklers at 60-foot intervals saved approximately \$100,000 compared with the cost of water trucks.

Silty sand mixed with clay found near La Grange was used for the core of the dam.

Tailings which had been worked over only once by the dredges contained enough “fines” – sand and small gravel – so that they were suitable for transition materials. Tailings which twice had been used in the dredges' quest for gold were coarse enough for the shells, which also contained material excavated from tunnels, spillways and abutments. It is the thick layers of coarse rock, called shells, on each side of the dam that give the structure its strength.

Two years after work began, there were 500 men on the job. The project as a whole was 53 percent complete and the dam, now 280 feet high, was 40 percent finished. The spillways were nearly completed.

Sonora Union Democrat reporter Mark Kautz referred to the “Towering Temples on the Tuolumne” in comparing the awesome works of man in building the mammoth project with mysterious Stonehenge and the Egyptian pyramids of ancient times.

On May 28, 1970, Modestan George Koetsky wheeled his 125-ton earth mover across the dam with TID Chief Engineer Meikle riding “shotgun,” to deliver the last load of material. “Topping out” ceremonies marked the completion of the dam proper. More than 250,000 trips had been made to deliver the 16,314,000 yards of material required by the dam and dikes.

The structure has three ways of controlling flood flows. One, and possibly two, of these probably never will be needed.

Internal gates installed in the diversion tunnel allow the release of 7,370 cubic feet per second of water, in addition to the 4,100 second feet maximum flow that can be released through the powerhouse turbines and 3,100 second feet through a hollow jet valve.

When these gates were installed in March 1971, Crawford expressed the hope that most if not all floods would be controlled through the power releases and the diversion tunnel gates. When flows hit 9,500 second feet at La Grange, minor downstream flooding does occur.

The controlled spillway, construction of which began August 29, 1967, just one week after Atkinson was issued a notice to proceed, was completed December 10, 1969, five months before the dam was "topped out." This spillway was designed to handle flood flows of up to 172,000 cubic feet of water per second. Although the Army Engineers indicated flows of this magnitude might be expected once every 44 years, this volume of floodwater approximates that of the worst flood in recorded history. The Tuolumne River flood of December 1955 would have attained this magnitude had there been no dams on the river. As it was, existing dams checked the flow below La Grange to less than a fourth of that.

Three steel, radial spillway gates, each 45 feet wide, 30 feet tall and weighing 135,000 pounds, were manufactured in Japan by Kurimoto Iron Works at a cost of \$233,750. They are installed at the head of a 136.5-foot rectangular, reinforced concrete discharge chute anchored horizontally and vertically by 20- and 30-foot-long rock bolts.

The last concrete had been poured on the emergency spillway near the crest of the dam on January 19, 1969. The massive concrete structure, 995 feet long and 26.4 feet wide, is anchored to bedrock by hundreds of 10- and 20-foot-long rock bolts. Designed to handle 300,000 cubic feet of runoff, the emergency spillway will be needed only in the most dramatic of floods, if ever.

Crawford commented, "If the flood for which the emergency spillway is designed ever happens, the Valley will be something else. With all the rivers in flood, the Valley will be a lake again."

Although "topping out" marked completion of the dam itself, final cleanup still was a year away. Water could not be stored behind the structure until two important tasks had been completed: clearing the reservoir site and relocating roads and highways.

Reservoir clearing was started on October 3, 1967. Before it was finished on March 31, 1971, nearly 7,000 acres of land had been stripped of trees, brush, stumps, utility poles, driftwood, fences, buildings, anything that would float. Everything had been burned and the ashes buried. Only patches of brush designated by California Division of Fish and Game representatives were left to encourage the propagation of fish. Trico Contractors also had to remove an abandoned Hetch Hetchy Railroad bridge to improve boating safety. Anything man-made was hauled away or buried.

Old mine shafts were located. Concrete seals were placed in the bottom of the shafts, which then were filled with dirt. Thick concrete caps were placed on entrances to the shafts. The reservoir must be as water tight as the dam.

To clear steep hillsides, especially in the vicinity of the Hetch Hetchy Aqueduct siphon at Red Mountain Bar, the ingenious Trico workers adopted the “yo-yo” system. One huge dozer was stationed firmly at the top of the hill and a second dozer was winched up and down the steep incline to do the actual clearing.

While spectacular to watch, the “yo-yo” proved not too hazardous. Only once did a “Cat” at the end of the line come loose. The huge tractor rolled over six times on the way down the steep hill, but the driver, protected by roll bars, walked away, shaken but virtually unscathed.

When the job was finished, the reservoir not only was cleared but also had a 160-mile fire-break-two-dozer blades wide around the entire site at elevation 830 feet above sea level.

Started before, 1960, the discussions on the relocation of roads were to drag on until the last minute, involving exhaustive negotiations with Tuolumne County and the California Division of Highways. In 1962 the MID found itself involved in a dispute as to whether the Highways 49-120 route should be rebuilt on the north or south side of the new reservoir.

A majority of Tuolumne County residents favored the north routing, but a vocal majority, sparked by people in the Wards Ferry area, preferred the south side. Because the southern route would be more expensive, require an extra bridge and mean a longer drive for Northern Californians headed for Yosemite, the districts argued for the northern route, but they lost. CalTrans insisted the southern route would be more convenient for its future plans to relocate the Highway 120 route to Yosemite.

One of Crawford’s first actions after being appointed project coordinator in 1967 was to meet with the Highway 120 Association in Tuolumne County to discuss rerouting the Mother Lode highway, which ran through Jacksonville, and the acquisition of the town. This historic community dated from 1848, when Colonel Alden Apollo Moore Jackson, a miner turned merchant, set up a supply and amusement center in a tent for the miners along nearby Moccasin and Woods Creeks.

In August 1967 Tuolumne County signed a freeway agreement with the state providing for the relocation of the Highways 49-120 route in the Chinese Camp and Jacksonville areas. The county had held

up the agreement for two years to insure that funds for the \$2.5 million, 8-mile realignment were not charged against the county's annual allocation of \$1 million in state highway funds.

After seven years of discussions, the districts and the California State Division of Highways reached agreement in March 1968, allowing the state to proceed with relocations and providing for payment by the project. The districts paid only for the replacement of highways "in kind," with any improvements financed by the state. The districts also agreed to pay "extraordinary" maintenance costs which the state might face on the new routes during the first three years of operation. Implementation of this provision was never required.

Bridges were a jinx for the project.

Weak steel was discovered in the Jacksonville Bridge after the failure of a Sacramento area bridge which had been built with steel from the same supplier. Replacement of the steel delayed construction for four months. The realigned route was not opened until April 1971, less than two weeks before the water backing up behind New Don Pedro Dam flooded the old bridge.

The districts paid contractor Peter Kewitt & Son an additional \$55,000 to go to a 10-hour seven-day-week schedule to complete work early enough to catch the spring river runoff in a slightly below-normal water season. This move saved for storage an additional 390,000 acre feet of water.

Among the other historic landmarks which would be inundated by the reservoir was the Wards Ferry Bridge 12 miles east of Sonora. The original span dated to 1878 when citizens personally donated the funds to build it. It was destroyed by fire 13 years later to hide the robbery and murder of two bridge tenders. Six years later, Tuolumne County replaced it with a 173-foot steel span.

It wasn't until December 1968 that the districts agreed to construct a new bridge at Wards Ferry. This was part of a lengthy compact between the mountain county and the two Valley irrigation districts which also included the construction of a bridge at Stevens Bar, relocation of River Road and provision of five turnarounds on roads which would dead-end at the reservoir's edge.

A 10-ton crane overturned after work finally got under way on the Wards Ferry Bridge in January 1971 and damaged the nearly completed deck. This accident forced considerable reconstruction and the bridge, one of the last to be completed, was not opened to the traffic until August 1972.

In the meantime, on May 18, 1971, the tired old Wards Ferry Bridge collapsed while the contractor was blasting near the right abutment of the new span.

Major problems were experienced also in the construction of the 1,441-foot Stevens Bar Bridge on the Jacksonville-Stent Road near Moccasin Creek. Continuous slides in the steep cuts on the bridge approaches caused the loss of 73 work days.

The Moccasin Bridge suffered less serious problems with cracking bearing pads. Difficulties were overcome and the route was opened November 25, 1970, but not until the districts had agreed to accept the responsibility for extraordinary maintenance for a period of five years. No serious problems developed during that period, however. Careful monitoring over a 10-year period showed this problem had not weakened the structure.

The new dam was ready to store water on November 2, 1970, and the portals of the old Don Pedro Dam were opened for the last time to release water downstream.

Water edged up the face of New Don Pedro Dam rapidly at first, reaching the 250-foot mark within 24 hours. As the water then rose more slowly but steadily, it climbed the upstream face of the old concrete dam which in 1923 had been the tallest such structure in the world.

Old Don Pedro disappeared under the surface of Don Pedro Lake on April 12, 1970, and was not visible again for six-and-a-half years. It reappeared in 1977 when the reservoir level was drawn down during the drought.

The water lapped over the historic town of Jacksonville in June 1970. Ultimately, the community, lively in the gold rush days, would be under 200 feet of water. The John Terry family, the last to depart, was typical of those forced to move, waiting until the last possible minute.

Land acquisition is never an easy task in large public works projects. New Don Pedro was no exception.

Old-time residents fought the districts all the way. For instance, John Turner, who operated the Taco House restaurant on an unpatented mining claim at Moccasin, called irrigation district representatives "worse than rattlesnakes." Claiming he knew because as a youth he was a professional snake hunter in Mexico and Guatemala, the 73-year-old Turner said rattlers warn before they struck. Crawford, identifying

himself “as one of the rattlesnakes,” countered by noting that Turner, who did not own the land on which he operated his restaurant, had known about the project for five years.

Land acquisition condemnation trials and negotiations were to continue long after the reservoir was completed.

A critical element of the entire project, especially as far as paying for it is concerned, is the hydroelectric generating facilities. Called for was an outdoor powerhouse with three generators capable of producing an average output of 638 million kilowatt hours of electricity annually.

Excavation of the 2,890-foot long power tunnel tapering in diameter from 18.5 feet at the upstream end to 16 feet downstream began on April 1, 1968. It was completed in 51 weeks, the most difficult part being the downstream section. Approximately one-third of the tunnel is flat, then for over a quarter of its length, it drops 81 feet on a uniform slope. The pressure of the water it carries builds as the tunnel turns down to a 50 percent slope, plunging 154.2 feet in a short 222-foot section. It then levels out for 50 feet before entering the turbines.

The flat section of the tunnel has concrete walls and the balance is lined with steel.

At the eastern end of the dam near its upstream face, 300 feet below the maximum surface level of the reservoir, a 21-by-12-foot steel gate operating on a dozen 33-inch diameter wheels provides for emergency closure. The 81-ton gate was fabricated by Voest of Austria. It was so large that it caused major problems getting through German railroad tunnels to reach the seaport from which it was to be shipped to Stockton and then carried by rail and truck to the New Don Pedro Dam site. The gate was installed on July 23, 1970.

The same month the three 61-ton transformers built in Italy were received at the Port of Stockton, the heaviest electrical equipment ever imported by this country.

At the other end of the tunnel, there were problems. The huge manifolds which divided the water into a six-foot diameter flood-control outlet and three 8-foot diameter tubes to feed the turbines were 99 days late on delivery. Furthermore, the flood-control outlet as improperly designed so it had to be rebuilt on the spot.

The manifold, consisting of three “Ys” serving the turbines, the flood-control outlet and connections, weighed 400 tons. The units were shipped to Oakdale, where they were stress-relieved in gas-fired ovens. Most of the welds had to be redone.

Each section then was trucked 30 miles to the site for final assembly. The largest section of the manifold, weighing nearly 200 tons, proved most troublesome.

Not far out of Oakdale, the driver of the special rig hauling the steel monster approached a power line which he feared was too low to clear. When he applied the brakes, the load shifted and crumpled the trailer.

After a considerable struggle, the massive “Y” was loaded onto another trailer. About two-thirds of a mile down the road, the truck hit a soft spot in the paving. The trailer wheels sank up to the bed. Another struggle.

Finally, the load reached the project haul road which was built to support heavy weights, but the difference in grade between the access road and the haul road was such that the long trailer hung up in the middle. Had it not been so heavy, it would have worked like a teeter-totter. After much head scratching and conversation by the crews, the two biggest pieces of equipment were hooked to the truck tractor and the whole load was dragged off the ridge. For a moment it was feared that the huge earth moving tractors would pull the truck apart before moving the stranded trailer.

The tunnel and all its equipment were operational by August 1970.

Meanwhile, the construction of the powerhouse proceeded, with the excavation starting July 15, 1968. The first concrete for the foundation was poured on April 14, 1969. The powerhouse, 99 feet wide and 171 feet long, nearly fills the Tuolumne River canyon; only the switchyard separates it from the downstream toe of the dam.

Because of the weight of the turbines and generators, a tremendous amount of reinforcement steel was enclosed in the structure.

Goodier recalled that on summer days the builders had problems with independent-minded iron workers hired to place the reinforcing steel into the concrete foundations. One morning, the superintendent fired two “re-bar” workers for drinking beer on the job. Going upstream to play in the river, they found a

raft and opted for a joy ride. Suddenly, they found themselves in fast water at the mouth of the 30-foot diameter diversion tunnel, which was running about half full.

“Talk about white water. That was real white water,” Goodier said. “The raft hit a center pier at the mouth of the tunnel and the partially intoxicated rod-busters were knocked off, but when the raft got around the pier they were able to grab hold of it and hang on for dear life.”

There was little doubt they would have drowned had they not caught the raft; a body will sink quickly in the foam of white water because it is so full of air. They survived the fast two-thirds of a mile swim through the tunnel, but Goodier surmised that was the wildest ride the pair ever had. They were last seen headed for home on a dead run, probably quite sober.

Non-movable parts of the turbines were installed during the first-stage pouring of concrete, which was completed in September 1970. Turbines were embedded further during the second-stage concrete pouring, at which time the generator floor also was constructed.

Next, the generators were put in place, followed by more than two weeks of operational testing. With the water rising rapidly behind the new dam, the first generator was pressed into power production on December 11, 1970, well ahead of schedule. This was done mainly to lower the water level of the reservoir because of the anxiety that the growing lake would flood the still-unfinished Jacksonville bridge and other roads whose relocation had not been completed.

The second generator was placed on the line of February 2, 1971, and the third on March 10, 1971. The powerhouse was in full operation, serving both districts.

Modesto's share of the energy would meet about a quarter of its needs. Turlock was more fortunate in that it had about 75 per cent of its power requirements met by New Don Pedro. In the years to come, the Modesto Irrigation District was to be faced with the need to search far and wide for more energy to serve a growing population.

Formal dedication ceremonies were held May 22, 1971, when some 3,000 people heard San Francisco Mayor Joseph Alioto declare:

We have harnessed a great river to serve man. There is a vision, imagination, a sense of beauty about it. Environment and development will never meet, but a delicate balance of the two has been achieved at Don Pedro Dam.

MID Board President Mathew Fiscalini, the master of ceremonies, noted that twice within a half century people had gathered on the spot to dedicate a great dam, first in 1923 and then in 1971.

When all the bills were paid, the New Don Pedro Dam and Powerhouse project had cost \$115,697,000.

Millions of dollars in bond funds not yet needed for progress payments to contractors were invested in various ways. In one instance, several thousand dollars in interest was earned in a single day because district officials hurried down a Sacramento street from the Department of Beaches and Parks with a multi-million dollar check in order to deposit it before the banks closed.

The \$8,293,000 earned by investing the bond money reduced the total amount each agency paid toward the project's total cost. In the end, San Francisco paid out \$47,380,000, the TID \$32,071,000 and the MID \$14,865,000, for a total of \$94,316,000. The \$8,293,000 earned interest plus the Davis-Grunsky \$7,623,000 and the Army Engineers \$5,464,000 paid the balance of the total \$115,696,000 cost of the project.

The construction of New Don Pedro rivals the monumental undertakings of the Modesto Irrigation District's creation a century ago, the building of old Don Pedro 65 years ago and the decision a half century ago to enter the retail power business. Each required courage, vision and determination.

In many ways, however, the completion of New Don Pedro marked the end of an era and the start of a new period filled with the challenges of obtaining new power sources, domestic water supplies and recreation management in a computerized environment undreamed of in 1887.

Continued courage, vision and determination have been demanded of those who are and will continue to meet these challenges successfully.

Recreation, the ‘Frosting on the Cake’

Even before the completion of New Don Pedro Dam, the Modesto Irrigation District entered the recreation field somewhat reluctantly. In designing the project, Bechtel engineers described recreation development as “frosting on the cake.” Before the work was completed, the districts had put far more frosting on the cake than was anticipated initially.

The Federal Power Commission, the State of California and common sense ruled that recreation demands upon reservoir the size of Don Pedro Lake would be tremendous. After all, California’s fifth largest reservoir was to extend 26 miles upstream, have a surface area of 13,000 acres and a shoreline of 160 miles. With a population of 600,000 living within 50 miles of lake and 6.3 million within 150 miles, 400,000 visitors were expected annually. Adequate provisions had to be made to meet this demand.

Although required to develop recreation resources as part of its basic construction project, the districts initially wanted no part of operating the facility when it was completed.

The California Department of Water Resources was willing to fund much of the recreation development, but the state Department of Parks and Recreation made it clear at the outset that it wanted no part of operating the project. Although it had established a state park at Turlock’s regulating reservoir, the agency claimed the New Don Pedro site did not warrant similar consideration because it had neither native landscape nor historical importance. Furthermore, it contended there were enough recreational opportunities at other Central Sierra foothill reservoirs.

In the fall of 1967 when construction of New Don Pedro got under way, project sponsors were inclined to meet the minimum requirements of the FPC license. They also were firm in their determination to get some other agency to operate the facilities. This had been done at Modesto Reservoir, where the Stanislaus County Parks Department had developed and now maintains recreation facilities. Turlock’s Owens Reservoir had become Turlock Lake State Park.

Even after the California Water Commission approved an initial \$7 million grant for basic recreation development, a majority of MID directors were not enthusiastic about entering the recreation field, despite editorial pressure from *The Modesto Bee* to do so. Thomas K. Beard, MID board president at

the time who became a positive force in subsequent development of recreation facilities, recalls, “There were a lot of people worked up about the district going into the recreation business.”

The turning point came when San Francisco Public Utilities Manager James K. Carr arranged a tour of Northern California recreation projects. Irrigation district directors saw what could be accomplished at places such as the National Park Service’s Whiskeytown Reservoir and the U. S. Forest Service’s Shasta Lake, and what should not be done at Napa County’s Lake Berryessa. As undersecretary of interior under Presidents John F. Kennedy and Lyndon B. Johnson, Carr had played a major role in the development of the Shasta-Trinity-Whiskeytown National Recreation Area, working closely with the legislative father of the project, Northern California Congressman Harold T. (Bizz) Johnson.

Those making the tour returned determined to do a first-class job at Don Pedro Lake. Over their “nervous stage,” MID directors urged increasing the design capacity by an additional 100,000 visitors per year and, with their partner, went to work to achieve a goal of providing excellent recreation facilities. Before they were done, \$7 million was invested in the effort.

The Don Pedro Recreation Agency, comprised of representatives of the three Tuolumne River partners – the Modesto and Turlock Irrigation Districts and the City of San Francisco, was created to oversee the development and operation until a suitable agency could be found to take over.

A retired veteran of 37 years of experience in recreation and conservation management with the U. S. Forest Service, George S. James was hired as recreation agency manager. As a federal forester, James had been regional director of all national forests in the northeastern quarter of the United States, ranging from Minnesota and Missouri to New England.

MID President Beard summarized the district’s determination to provide excellent recreation opportunities with the comment, “We always thought of water and power as the main purpose of this (New Don Pedro_ project, but recreation has become a third equally important use.”

Beard’s philosophy was endorsed enthusiastically by fellow MID Directors Mathew Fiscalini and Milton Kidd, who played crucial roles in the decision to develop more than the minimum required. The latter was described by recreation area manager James as a “ball of fire when it came to recreation development.”

Kidd, who had served as an MID director for 35 years including three terms as president, died suddenly on February 5, 1971, while in San Francisco for joint meetings on the New Don Pedro Project and did not live to see the realization of his dream of the recreation area achieving statewide acclaim.

Eulogized as a “man of the people,” Kidd had served on the MID Board of Directors longer than any other person. Not only was he a forceful supporter of developing the best possible recreation facilities, he also had taken an active role in all aspects of the New Don Pedro Project and other modernization programs of the rapidly-expanding Modesto district’s operations through a challenging three-and-a-half decades of service.

He was succeeded on the district’s board of directors by his nephew, John E. Kidd, who shared his enthusiasm for recreation and represented the MID on the joint agency that implemented the Don Pedro Lake recreation program.

One of the first steps to expand the recreation opportunities was the purchase of additional land to provide better boat-launching ramps and other facilities. Construction contracts were awarded. All buildings were of pole-type construction with rough-sawn redwood to blend into the environment. All utilities were placed underground. The districts and San Francisco set about creating, in James’ words, “a hospitable environment.”

A private Lake Don Pedro Corporation, headed by Emory Bonnier of Turlock, was formed and became the successful bidder for concession operations at the west end of the lake. The concessionaire returns to the districts and San Francisco 4.5 percent of its gross earnings, which currently top the \$2 million mark annually. Twice expanded, the marina now has 234 slips for motor and sail boats, a houseboat dock for 66 boats and moorings for an additional 129 houseboats. The concession operations also include a restaurant and related marina, grocery and visitor services.

By the time the recreation area was dedicated formally on May 7, 1972, Don Pedro Lake already was enjoying considerable use by boaters, water skiers, fishermen, swimmers, campers and picnickers. In spite of low-water levels during the summer of 1972, the reservoir park facilities continued “to pack them in.”

Meanwhile, the search for a permanent operator continued.

Tuolumne County, the Federal Bureau of Land Management, National Park Service, U. S. Forest Service and the Federal Bureau of Outdoor Recreation all expressed interest in managing the facilities.

As early as 1967 Tuolumne County Supervisor Ralph Thiel campaigned to have his county take over the management. He claimed Tuolumne County was responsible for the inclusion of recreation requirements in the FPC license and should take advantage of it.

Modesto directors and their partners were concerned, however, about the adequacy of Tuolumne County's resources to handle such a massive undertaking. This concern was increased by visits to Lake Berryessa, where Napa County had contracted the entire operation to a concessionaire in a manner similar to what Tuolumne County was planning. Lake Berryessa's recreation operations were considered distressing.

Not everyone in Tuolumne County favored county involvement. The county Farm Bureau urged the board of supervisors to "stick to government" and not get involved in ventures such as this. Ultimately, Tuolumne County modified its demand that the county operate the park. The county continued to insist, however, that no federal agency should take over.

This became a moot point when all federal agencies subsequently declined to participate. The last to abandon the idea was the Federal Bureau of Land Management, which manages the publicly owned foothill lands in the vicinity of the reservoir. The desire was there, but congressional appropriations were not.

The districts and San Francisco came to the realization in 1979 that they were left with the responsibility of not only developing recreation facilities but also of operating and maintaining them.

Although it was a decision made largely by default, hindsight has proved it to be most wise.

Once the decision was made, the determination that the recreation area would be operated and maintained at the highest standards of quality was reaffirmed. The districts also insisted that it be self sufficient once necessary improvements had been made.

Until this time recreation area managers had been employed on an interim basis, part of their responsibility being to find another operating agency.

Recognizing that they were in the recreation business for keeps, the Don Pedro Lake Recreation Agency in April 1980 hired Carl Rust, a retired U. S. Forest Service recreation and resources specialist. He was given the task of achieving the two goals: modernization and self sufficiency.

Both have been achieved under Rust's management.

Today the districts take great pride in the operation of what is rated as one of the best recreation areas in the West. State and federal recreation agencies point to Don Pedro Lake as the prime example of how it should be done.

That the public has responded is shown by visitor figures for 1986. Visits to recreation areas such as Yosemite National Park, the Stanislaus National Forest and nearby Exchequer Reservoir were on the decline. Don Pedro Lake, however, is attracting more people, currently hovering at or above the maximum design capacity of 500,000 visitor days of use annually. On Memorial Day 1986 there were 10,000 people at the lake. The total visitor-day use for the three-day weekend was 30,000. There were 3,000 boats on the lake at times that weekend. In the fall of 1986 reservations for 1987 were running well ahead of past records.

Today Don Pedro Lake offers 550 tent and recreation vehicle campsites, complete with hot water showers. About half of these are at Fleming Meadow at the eastern end of the dam. Also located there are the largest boat launching area, picnic areas, a white sand-lined swimming lagoon with filtered water and an extensive marina, restaurant and grocery facilities.

The Blue Oak Recreation Area on the west end of the dam, formerly called Mexican Gulch, has campgrounds, a picnic area and boat-launching facilities. Moccasin Point 18 miles up the lake has camping and picnic areas, and a marina and concession services operated by the R. D. Meeker family.

Two hundred seventy-four houseboats, including two rental fleets, are moored at the Fleming Meadow and Moccasin marina. Fishing is good. Swimming, power boating, sailing are excellent. Campgrounds and picnic areas are clean and restaurants and other concession services well received.

The districts and the city have insisted upon maintaining high standards of cleanliness and sanitation throughout the area's history. Directors emphasized the importance of family-type recreation and as a result Don Pedro is described as "everybody's lake."

The recreation opportunities at the popular reservoir are among the best in the state, disproving completely the California Beaches and Parks Department's earlier contention that there had been enough water-oriented recreation opportunities in Central California.

While Modesto Irrigation District directors and their partners in New Don Pedro's operation were learning the ropes about recreation management, they still were involved in the fishery problems.

In 1965 when the United States Supreme Court let stand a lower court decision upholding the validity of the Federal Power Commission's New Don Pedro license requirements, on issue was the required releases from New Don Pedro to sustain the salmon fishery. When state Davis-Grunsky funds were sought to help finance solving the fishery problems as well as the Don Pedro Lake recreation development, the state required, in addition to the water releases, the improvement and maintenance of some 2 million square feet of gravel-spawning beds along a 17.2 mile downstream stretch of the Tuolumne River between La Grange and Waterford.

Involved were the areas from which contractors had taken gold dredge tailings for use in building New Don Pedro Dam. In many areas the districts had not acquired title to the property, buying only the tailings. When the areas were to be reworked for spawning beds, the property owners objected. Ultimately the purchases were not required.

While the state fish and game emphasis at the time was on improved spawning beds, the districts in November 1970 voluntarily increased releases from New Don Pedro to aid in the fall salmon-spawning run in the river.

In September 1971 the districts, following fish and game specifications, were forced to complete the first-stage spawning bed rehabilitation of 1 million square feet in an area where the districts did hold title to the land. Spawning beds described as "plush" were created, but the fish didn't especially care for them. Initial on-the-scene reports indicated that most of the more than 20,000 salmon which came up the river that fall spurned the man-made beds and found natural beds.

Although subsequent Fish and Game Department reports claimed that 60 percent of the run had used 18 percent of the beds, the state agency changed its mind. The districts, after all the fuss, now were not required to rehabilitate the remainder of the designated gravel beds. Fishery experts decided once again

that the key to improved spawning would be found in the controlled releases of water, not man-made spawning beds. Thus, \$1 million in Davis-Grunsky funds earmarked for this purpose was withdrawn.

Although state fish and game biologists were to change directions several times, constant reservoir releases favorable to spawning were maintained, even though on many occasions water had to be diverted through both the MID and TID main canals and dumped back into the river below the spawning areas.

Fluctuations in the salmon run have been recorded, but in the fall of 1985 more than 40,000 fish swam up the Tuolumne to spawn. In the opinion of long-time La Grange resident Bill Keeler, an ardent fisherman who has watched the salmon run for 75 years, 1985 was the best he has seen, before or after construction of New Don Pedro.

Under the provisions of the Federal Power Commission license and subsequent cooperative agreements between the districts and the state and federal agencies, a program to monitor and evaluate the salmon fishery will continue until 1993 at a cost to the irrigation districts of several hundreds of thousands of dollars. The study that was initiated shortly after the issuance of the FPC license was delayed due to changing philosophies within the state and federal fish and game agencies.

After negotiating with the fish and game agencies in 1986, MID Chief Executive Officer H. L. Brooks, said the current release schedule of between 100 and 385 cubic feet per second between October 1st and the end of April each year and no less than 3 second feet of water the remainder of the year appears satisfactory.

Brooks warned, however, that the districts must diligently protect their water supplies in considering any future water-release flow agreements.

The results of this study undoubtedly will provide further information on the enhancement of fisheries in other areas. Thus, in agreeing to finance the research, the Modesto and Turlock districts once again are proving themselves pathfinders in efforts which will benefit the rest of the state and nation.

The local dispute had statewide implications in another direction.

As a result of protests by the riverside property owner, California Attorney General Evelle J. Younger ruled that the Tuolumne River proper was open for boating, fishing, hunting and recreation purposes, much to the objections of the property owners. Historically, property owners had prevented such intrusions, some by erecting fences across the river.

The ruling, confirmed and broadened in subsequent years by case law resulting from court actions, now has statewide implications as to the accessibility of rivers bordered by private property.

A New Era, New Challenges

With the completion of New Don Pedro Dam, the Modesto irrigation District entered a new era full of challenges undreamed of a score of years earlier. District officials found themselves in a computer age filled with new and uncharted fields of activities and responsibilities.

A century ago, the district's founding fathers whose sole objective was to provide water to extend irrigation seasons, could not have envisioned the complexities which their district faces today. Current concerns range from providing recreation facilities to domestic water delivery, energy conservation, canal beautification, sponsoring learn to swim classes and water-safety education.

New departments for personnel management, data control, fiscal control, administration, resource development and energy conservation all have been established as the district became big business with an annual budget of exceeding \$115 million and assets of \$526 million.

These changes made in the last 20 years have been as dramatic as two earlier critical stages in the development of the MID: its initial creation and its decision to generate and distribute electrical energy.

These recent changes were more evolutionary than revolutionary, however. Thus, they have not been accompanied by the vitriolic disputes which marked those earlier periods. The district's record of success has projected a feeling of confidence and stability to its citizens.

As the community and the utility grew in size, the amount of individual contact has declined. For most people, the only contact with the MID, other than pleasant summer outings at Don Pedro Lake, has been their power bills. As a result of a constant search for new efficient and economical sources of energy and a vigorous effort to encourage conservation, MID electrical rates have remained substantially lower than the average rates paid throughout the nation.

The growing demand for electrical energy, its sources, its transmission and its delivery to the homes, businesses and farms of the MID dominated the thinking of the board of directors and staff from the completion of New Don Pedro until the mid 1980s.

Modesto's share of the energy generated in the new powerhouse provides less than 25 percent of the amount needed to meet the needs of the rapidly-growing metropolitan area. The other 75 percent now comes from outside sources, primarily through purchases from San Francisco's Hetch Hetchy system and the Pacific Gas & Electric Company. Escalating prices of energy from these sources and the insecurity of renewable contracts caused the start of an effort to make the district more energy independent.

Every possible source – nuclear, solar, geothermal, coal-fired plants, gas turbines, the old favorite hydro, co-generation, biomass, even windmills – was explored.

For more than a decade, starting at a time when even the Sierra Club's Tuolumne River Conference advocated the development of nuclear power as preferable to additional hydro projects on the Tuolumne, the MID considered various proposals for nuclear generation.

The Sierra Club in July 1970 issued a "crisis report" calling for the development of a nuclear plant in the Cooperstown area of Tuolumne County in Lieu of further hydroelectric development by the City of San Francisco. The Sierra Club wanted the Modesto and Turlock Irrigation Districts, not San Francisco, to build and operate the plant.

Two years later retiring MID Chief Engineer Jess Grigsby filed a final report in which he advocated several major changes for the Modesto district, including a strong plea for the establishment of a nuclear plant in the Cooperstown area. Board President Thomas K. Beard urged the district to "protect itself in the power field" by developing a nuclear generating plant in cooperation with other agencies.

In 1974 the MID, TID and PG & E actively pursued the idea as a joint venture; preliminary investigations indicated it would be feasible. Additional studies by Arthur D. Little, Inc., a financial and engineering consulting firm, in 1975 found nuclear power the most economically-advantageous alternative source of energy, declaring:

No commercial technology has received anything comparable in the attention, effort, and money spent to minimize the hazards it presents. And no commercial technology has a better safety record....and demonstrable benefits of nuclear power far outweigh the potential risks.

Further studies demonstrated in 1976 that the district's share of a single nuclear plant plus its existing hydro generation would meet the community's needs for the foreseeable future. Severe restraints imposed by the State of California on nuclear plant proposals stifled this source of energy in 1977 and the local project was abandoned.

The idea did not go away, however.

There followed a flurry of activity in the quest for new energy sources. Consumption in the district continued to increase at a rate of 8 to 10 per cent a year. Not only did the population grow, but the individual use of electricity also kept climbing. New energy sources had to be found.

Shortly after becoming the district's general manager in October 1980, H. L. "Les" Brooks recognized the need for greater concentration on long-range power resource development. Accordingly, Chief Electrical Engineer Charles S. Viss was named assistant general manager for power resources, separated from the day-to-day operations of the MID's electrical division which was placed under the direction of Vincent Bradford.

The change was part of a general reorganization through which Brooks, who before his promotion had been district secretary-treasurer, sought to strengthen the application of business techniques and practices to the district's operation. The post of controller, established in 1974, was combined with that of MID treasurer and upgraded to assistant general manager for finance. Broadened responsibilities in the field of purchasing, material management, accounting, and data processing through the district's extensive computer system were assigned to the new position.

The newly-created power resources division quickly evolved into the focal point for power resources planning, both on the part of the district alone and in association with other power agencies.

The first of several alliances formed by the MID in its quest for new energy sources was the M-S-R Public Power Agency, composed of the Modesto district and the Cities of Santa Clara and Redding.

One of several power projects considered by M-S-R was participation in the Palo Verde Nuclear Project in Arizona. Santa Clara subsequently decided not to participate in this project. The MID and City of Redding, however, entered into negotiations with Arizona's Salt River Project and the Arizona Public Service Agency for a share of the energy to be generated at the Palo Verde Nuclear Generating Station under construction near Phoenix. A \$1 million refundable deposit was made. With a \$350 million bond issue involved, estimates of the cost to the districts over a 30-year period totaled \$1.5 billion. Compared to power purchased from PG & E, MID officials figured this would be a good deal.

The reaction to nuclear energy caused an immediate uproar in Redding, While things were somewhat quieter in Modesto, elections on whether to proceed with the purchase were set in both places.

In April 1982, Redding voters rejected the proposal by a 2-to-1 margin. Two months later Modestans followed suit, voting against the purchase 15,063 to 12,795.

The Modesto district's second venture into an exotic energy field was far more successful than its nuclear power efforts and may, in the final analysis, involve an investment which dwarfs the \$115 million cost of New Don Pedro. In an age of environmental concerns, geothermal steam offers great potential as a source of energy. The pressure of steam coming from two miles below the earth's surface is constant, not dependent upon the vagaries of nature – drought, storms, winter snowpacks and river runoffs.

At the same time the Palo Verde nuclear power source was being investigated, the MID, as part of the M-S-R group and in league with the Sacramento Municipal Utility District, formed a new joint-action agency called the Central California Power Agency No.1 and turned to geothermal steam as a new source of energy.

Construction of the Coldwater Creek Geothermal Generating Plant by the Central California Power Agency No. 1 is under way on 3,200 acres in Lake and Sonoma Counties with proven geothermal steam production. Two generators will be on the line in 1988, at which time the MID will receive 52 megawatts of energy. This source alone will offer the district as much energy as it now receives from New Don Pedro.

In a separate geothermal effort in the same general Geysers area, M-S-R turned up a dry hole but a second well proved operational. The Central California Power Agency No. 1 prospects were far superior, however. As a result, the M-S-R field presently is being leased to an independent party for development, with the royalties to be paid to the agencies rather than the delivery of energy.

Meanwhile, the three M-S-R partners bought an interest in still another source of energy, the recently completed coal-fired San Juan Generating Station operated by the Public Service Company of New Mexico at Farmington, NM. This project also involves acquiring additional transmission services and ultimately will provide the Modesto district with another 69 megawatts of power.

Coupled with anticipated supplies from San Francisco's Hetch Hetchy system, the Pacific Northwest and the Federal Western Area Power Agency, plus existing hydro power – including the recently completed 2.5 megawatt mini-hydro plant at the base of New Hogan Dam on the Calaveras River – these major new sources should insure an adequate energy supply into the mid-1990s.

As the MID looks to more and more remote sources of energy, the problem of power transmission becomes crucial. One of the first steps taken to insure more dependable supplies of electricity, especially in the event of power outages, was joint MID-TID construction in 1975 of a 230,000-volt intertie transmission line to connect their systems with PG& E's main north-south transmission lines at the foot of the Coast Range west of Interstate Highway 5.

Meanwhile, the Modesto Irrigation District has joined forces with many other agencies working on several fronts to meet the challenge.

As a member of the Transmission Agency of Northern California, commonly referred to as TANC, the Modesto district is negotiating to build a 500,000-volt transmission line from Central California to the Pacific Northwest to tap surplus Bonneville Power Administration power from the Columbia River and other Pacific Northwest resources. United in this massive joint effort are 15 publicly-owned power agencies, the State of California, the federal Western Area Power Administration and three investor owned utilities.

Climate causes the Pacific Northwest's greatest power demand to occur in the winter while Central California's greatest demands are in the summer. Thus, the ability to exchange power seasonally between the Northwest and California over a connecting grid will permit more efficient use of generation resources in both regions.

Additionally, the three Northern California partners in the San Juan Generating Plant are working with federal agencies, the Salt River Project and Southern California power utilities to develop transmission lines to serve its members from the New Mexico plant.

While design, planning and negotiations are under way on these three major projects, the Modesto district, in association with other agencies is negotiating "wheeling" contracts with PG &E whereby the MID's geothermal-generated energy would be delivered to Modesto via the private utility's transmission lines.

The Modesto Irrigation District's strength was built on hydroelectric power. That source of energy still is very much in the minds of its directors, engineers and administrators, although further development on the Tuolumne River as far as the delivery of irrigation water and maintaining flood control are concerned. There still remain, however, hydroelectric generation sites with strong potential.

One such project was the proposed Clavey-Wards Ferry hydro plant, which could have yielded 400 megawatts. The MID and TID were well into the second year of a comprehensive feasibility and environmental study of the site when in September 1984 President Ronald Reagan signed legislation establishing that section of the Tuolumne as a wild and scenic river.

The Turlock district has continued to study potential hydro development in the region, but Modesto has delayed participation in these studies. It is anticipated the day will come, however, when further hydroelectric development will be appropriate.

Still another complete turnaround has occurred within the MID during the past two decades.

In the 1960s and before, the district was proud of its constant 8 to 10 percent annual growth in electrical consumption. But in the 1970s, especially during the period of severe drought, it became too much of a good thing.

The drought of 1976-77 forced the district to purchase from other sources twice its normal amounts of outside energy. This meant that, as the relatively inexpensive Hetch Hetchy supply was exhausted, the MID was forced to buy more expensive power from PG & E. Purchases of outside power totaled \$26 million in 1977 alone, more than double normal figures. At the same time, indications surfaced that rates under new Hetch Hetchy power contracts being negotiated were not going to be as favorable in the past. As much as two-thirds of the energy used in the district is provided by this source.

The conservation of energy became a major challenge.

On hot summer afternoons the peak demands for air conditioning and cooling units require great quantities of energy. In the Modesto district this sends power purchase costs skyrocketing.

There are two ways to supply this demand: conservation and standby gas-turbine generators.

During 1976 and 1977 when California suffered the driest two-year rainfall period in its recorded history, the levels of New Don Pedro and Hetch Hetchy Reservoirs dropped drastically, curbing power generation. A concerted conservation program was made necessary by the once-in-200-year drought. Aimed primarily at homeowners who voluntarily reduced air conditioning use during specified hours, the program was well received in its trial year, 1977.

As a result of this initial success, the MID Board of Directors determined that energy conservation was to be a permanent part of its operations. At first a part-time, somewhat temporary activity in response to the drought, conservation became a full-time function.

During the years to follow, the district called upon a variety of advisory groups, including the chamber of commerce and building industry associations, to assist in developing voluntary programs which were sweetened with financial incentives.

In 1983 a “Shave The Energy Peak” STEP program was implemented to control electric loads during hot summer days when air conditioning consumed vast amounts of power. Home and commercial audits were instituted and assistance in building energy-efficient homes was offered. In May 1985 the conservation functions were upgraded to become the responsibility of a separate Energy Management Department.

The MID directors’ heightened concern over the levels of energy consumption recorded in the past decade is reflected in this recently adopted policy statement:

The Modesto Irrigation District’s energy management objective is to encourage conservation and to promote the efficient use of electrical energy.

Thus, another transition, from a position of pride in growth to one of pride in conservation, has been completed.

The district also followed up on the other alternative, installing the McClure gas-turbine generators in 1980 and 1981. The two units, generating 56 megawatts each, are used to provide standby peaking power at periods of high demand.

As the Modesto Irrigation District’s first century came to a close, still another complete cycle had been made in the distribution of water.

At the outset, the district was interested primarily in the delivery of water. As the need for additional storage demanded the construction of Don Pedro Dam in 1923, the generation of electrical energy became the “by-product” which for decades dominated the district’s actions.

Today as adequate energy supplies appear to be in sight, the district once again is turning its attention to the basic issue of delivering water.

A century ago, the prime objective of the MID was the delivery of water to farmers, a goal achieved efficiently with much of its irrigation system automated. Today the MID is focusing on a new

aspect of water delivery: the treatment and supply of domestic and industrial water to greater Modesto users.

The City of Modesto and Del Este Water Company, which serves many urban areas, depend solely upon pumping water from wells. Not only are they watching the water tables decline, but they also are finding more and more contaminants, primarily nitrates and salts, in their water. Some wells have been shut down for this reason.

Studies are under way between MID, the City of Modesto and Del Este to determine the best method for delivering treated Tuolumne River water for domestic consumption in greater Modesto. There seems to be no doubt that the MID will be involved as the principal agency in the operation. The question is “How?”

As the Modesto Irrigation District enters its second century of operation, the answer to this question dominated its thinking and planning. Decisions as to where to divert flows for domestic use, whether the water should be treated before or after delivery to the city and the private water company, charges, etc., likely will be made in the year the MID celebrates its 100th birthday.

Surprisingly, the shift from agricultural deliveries to domestic and industrial supplies will have little impact upon the total amount of water used within the district. Kennan Beard, president of Del Este Water Company who served four years as an MID director before retiring at the end of 1985, explains:

The old rule of thumb is that an acre of ground takes about the same amount of water, whether it's in agriculture, homes or industry.

However, if you build streets and houses and cover up the soil you don't get the percolation that you do from agricultural irrigation or rainwater. In fact, I wouldn't be surprised but that the vast majority of water we pump in this area isn't percolated irrigation water.

Thus, as more and more farmland becomes covered with asphalt, homes and shopping malls, there will be a significant impact upon the water-table levels.

The most critical water issue looming on the horizon, causing immediate concern as the MID starts a new century of public service is the protection of its water rights. Depending on how it is resolved, this issue could determine the course of the district during its next 100 years.

Robert A. Beck, MID board president in the district's centennial year, warns that the State of California covets the water now used by the Valley districts for irrigation, warning:

The state is looking hard at the Tuolumne River for water to use elsewhere and it intends to get it. Their current requests for releases downstream would equal the total amount of water used for MID crops for an entire year. For the foreseeable future, protecting the district's long-standing water rights will be the major challenge facing the district.

Taking its cue from the California Supreme Court ruled that Los Angeles' water rights had been granted years ago "subject to the public trust."

Some water law authorities interpret the decision as meaning that if, for instance, the "public trust" warrants additional releases from Don Pedro Lake to enhance bass fishing in the Tuolumne River, or the aesthetic beauty for downstream parks or whatever, the state board could force the district to give up the water for these purposes without compensation of any type – without respect for the amount of blood, sweat and cash that have been invested in the project over the century.

Irrigation officials maintain that such an action would violate federal constitutional protections against the taking of property without just compensation.

If it adheres to this philosophy – that when the public interest demands it, long-established water rights could be restricted or reassigned – the role of the California Water Resources Control Board would take on an entirely new dimension of authority with much greater power. The board originally was established to perform the limited role of issuing rights to water that is not being applied to useful and beneficial purposes or that is otherwise not appropriated.

No vested water right will be restricted or removed without a monumental struggle, however.

Meanwhile, the California Constitution provides that water rights holders must put these waters to reasonable, beneficial use. Wasteful uses cannot be protected by water rights.

Use it or lose it!

For the good of the entire community, farmer and city dweller alike, it is essential for the future success of the MID that its water continue to be put to productive, beneficial use as acres of homes and shopping centers replace acres of farmlands.

Life was much simpler 100 years ago as the founding directors had only to think of putting the water on the land. Today as the Modesto Irrigation District looks ahead, problems are much more complex: Electrical energy comes from a variety of sources, water resource demands are broadening, state

and federal governments are involved in all levels of operation, and historically-held water rights may be in jeopardy.

The MID's first century was devoted to establishment and growth and the second century must be dedicated to retaining the achievements of the past is the way MID Board President Beck evaluates the situation as the district begins its second 100 years.

Foresight of the type displayed by those who fought to create and keep the district alive, careful planning and probably more judicial and legislative battles of the type that have marked the Modesto Irrigation District's history will be required to maintain the MID's legacy of independence and progress.

What the Future Holds

What is past is prologue.

In these five words of his carved in granite at the entrance to the National Archives Building in Washington, D.C., William Shakespeare captured the essence of the study of any people, nation or institution. Certainly, they apply to the Modesto Irrigation District as it enters its second century of operation.

The experiences, the struggles and the achievements of the past are the foundation upon which the future will be built.

The MID, conceived in the dream of greening an area already known as Paradise Valley and maturing through the battles of its infancy and its formative years, has become a strong, vital force in the economic structure and well-being of the Modesto community. It should continue to be so in the years ahead.

This institution did not just appear suddenly. It was born out of the dedication, courage and faith of strong-minded men and women – not only the McHenrys, the Beards, the Carvers, the Woottens, the Cresseys and others mentioned specifically, but also a great many people in all walks of life who worked together in contributing their labors to turn the dream into reality.

But what of the future?

Gazing into a crystal ball is an extremely speculative thing at best.

Looking back 100 years, who among the visionary organizers of the Modesto Irrigation District could have dreamed that their district would become one of the nation's most efficiently operated electric utilities with an annual budget in excess of \$115 million and a total capital investment of more than \$526 million?

The nation's first electrical generating plant was put in operation only eight years before the Modesto district was formed. Who could have dreamed that some day electricity would be generated by oil, coal, nuclear, geothermal and wind power as well as falling water and transmitted thousands of miles?

Who among the founders could have dreamed their district would operate one of California's finest recreation areas around a lake which is almost as long as the distance from Modesto to La Grange?

Could any of those progressive farmers who fought so hard to bring water to their lands have thought that some day the MID would be serving more urban homes, businesses and industries than farms?

And those farsighted people who dreamed of turning Paradise Valley into a true agricultural paradise, could they have envisioned an agricultural economy returning two-thirds of a billion dollars to Stanislaus County annually from dairy products, poultry, peaches, walnuts, tomatoes, turkeys, almonds, rice, field crops and other commodities?

Thus, it is doubtful, even with today's computerized technology, our professional planners and all the data banks they can tap, that we can forecast exactly what will happen between now and the year 2087.

Still, it's always fascinating to try.

In exploring the future with many persons closely associated with the MID at present and in the past, one common thread prevails. By 2087 the central corridor from Turlock through Ceres and Modesto to Salida will be one large metropolitan area receiving its domestic and industrial water from existing irrigation districts.

Another common thread holds that the stability of the Modesto Irrigation District will keep it firmly in the water and power business for another century or more.

These forecasters do not agree, however, as to the nature of the district.

Some say the MID will maintain its independence. Others foresee that there will be only one public utility district serving the entire area from the foothills on the east to the San Joaquin River on the west, from the Stanislaus River to the Merced River. The Modesto, Turlock and Oakdale Irrigation Districts, in this view, would be forced to unite as a single entity in order to achieve maximum efficiency, survive the pressures of centralized state and federal governments, protect their water rights and fend off the appetites of private utilities.

Whether it will be an enlarged district or an independent MID serving within its current boundaries, there is little question that this agency will be the purveyor of all water, domestic and agricultural. Primary consumption will be domestic water as agriculture will be forced by urbanization to retreat to more remote areas. Crystalball gazers disagree, however, on whether the district will wholesale domestic water to distribution agencies or will be the distributor as well as the source of supply.

Additional storage facilities will be required to meet irrigation needs as the volume of water used for domestic purposes exceeds that used for agriculture.

The operation of the irrigation distribution system and all domestic water services will be automated. Water deliveries, whether domestic or agricultural, will be metered automatically and the price based on the actual cost of service. Ditchtenders will be a thing of the past.

Canals and laterals throughout the system below the Modesto Reservoir will be piped, and possibly even the upper main canal will be placed underground. Their landscaped rights-of-ways will be accessible to the public for jogging, bicycling and recreational pursuits.

Flood irrigation undoubtedly will give way to sprinkler, drip or other methods which use smaller amounts of water. This transition will allow expansion of irrigation to the foothills where lands will be placed under more intensive cultivation. Others forecast the switch to row crops in the Valley, farmed in a manufacturing-type setting of hydroponic hothouses. In any case, conservation of agricultural water will be enforced.

Anticipating a major fight over water rights and control of the Tuolumne River watershed, some observers fear the district will be left only nominal control. They see the State of California attempting to monitor and distribute the waters of the Tuolumne and all other watersheds in the state. They see the State of California attempting to monitor and distribute the waters of the Tuolumne and all other watersheds in the state. They wonder if 100 years from now, a statewide master plan might control the amounts of water consumed and the distribution of surpluses to areas more arid than Stanislaus County.

Others, looking to the fierce independence of the district throughout its first century, contend it will successfully ward off future intrusions by state and federal agencies as it has in the past.

Although current pressures appear to be minimizing the value of individual water rights, some believe these rights in the Modesto Irrigation District, where the land owns the water, will become more valuable than the land itself.

With the completion of transmission lines to the Pacific Northwest, Canada and the Pacific Southwest, electrical operations will continue in much the same manner as today, but with great technological refinements. Much of California's energy will be generated by hydroelectric plants in Canada. Modesto's central location in the intertie system, will make the MID a major force in the distribution of wholesale power throughout Central California.

The increased use of sophisticated computers will result in innovative rate structures which will encourage off-peak use, with peak use monitored carefully for maximum efficiency. Meter reading will be done by remote control. Traditional meter readers will go the way of the ditchtenders.

Anticipating that the use of fossil fuels for the generation of electricity will become a thing of the past – prohibitive in cost and prohibited to maintain air quality – new sources of energy will be developed. Scientists today dream of satellite power stations generating solar energy and of power harnessed from ocean tides. Before the MID completes its second century there will be even more exotic sources of energy not even mentioned in today's wildest science-fiction tales.

Among the innovations in the electrical field foreseen are such "off the wall" concepts as the transmission of power without the use of wires. This would open up whole new horizons.

It is expected, however, that the Modesto Irrigation District will continue to keep pace, as it has in the past and must do if it is to survive.

This possibly will be achieved through a consortium of independent public-power agencies. Failure to keep pace could result only in the independent district being swallowed up by private enterprise, to operate merely as working divisions of a great corporation.

Politically, there will be changes, according to those looking into the future.

Coalitions of special-interest groups will seek to elect their own representatives and gain control of the MID Board of Directors. At the same time, limits may be imposed on the length of tenure on the board, possibly four terms. Women will become more active not only as elected directors but also will be visible as top engineering and management executives.

One forecaster says increased interest in district activities will force the board to alternate its meetings between afternoons and evenings to permit greater public participation. These meetings will be broadcast over cable television.

Such are the complexities which will face the Modesto Irrigation District Boards of Directors and staff during the next century.

A keen sense of identity with the pioneering spirit of those believers and builders that nurtured the irrigation district into existence has motivated the district's leaders and inspired its family of employees over the first 100 years.

This cooperative spirit and loyalty are easily discernable in the long service of many "MID" people. Most top management officials have grown up with the district, experiencing and responding to the types of challenges that moved its early leaders to success.

For instance, during its first century only five people served as secretary to the board and to the district. W. W. Granger, appointed in 1888, was succeeded at the turn of the century by C. S. Abbott who held the post until his death in 1940. Larry E. Bither next was secretary. When George R. Stoddard, who had been MID treasurer since 1894, retired in 1943, Bither became secretary-treasurer. He filled both posts until his retirement in 1959. When his successor, H. L. "Les" Brooks became chief executive officer in 1980, Joan Wishon was named district secretary, a position she holds today.

Brooks, retiring this year, started work with the district 41 years ago as a surveyor's assistant. He soon became assistant to Secretary-Treasurer Bither. Through their close association with the district's board of directors, both Bither and Brooks played significant roles in the development of non-engineering administrative and management programs during the years that the senior MID executive was the chief engineer. Brooks became the first non-engineer named as chief executive officer.

Among the engineers, Charles Crawford first went to work for the district in 1928. For many years the district's irrigation engineer, Crawford was New Don Pedro Project coordinator for the MID, TID and City of San Francisco when he retired a year ago. He still works at least one day a week on a voluntary basis.

The late Clifford Plummer served the district for 30 years before his 1966 retirement. He became the district's first chief engineer with the consolidation of electrical and irrigation functions under a single

head in 1943. In this capacity he guided much of the district's mid-century irrigation and electrical expansion.

His successors were engineers who moved up through the electrical department. Jess Grigsby started working for the MID in 1925 stenciling power poles on Saturdays while he was in high school. He became a full-time draftsman in 1930 and was chief engineer from 1966 to 1972. Mervin N. Bennett, who became the district's first chief administrative officer, had been with the district for nearly 40 years, including eight as its top executive, before retiring in 1980. Charles S. Viss, who retires this year as assistant general manager for power resources, joined the MID electric meter department in 1954.

Employees with records of 25 or more years of service are not uncommon. Pride in service and workmanship is a standard reflected by MID employees. Their long service records and job dedication strengthens the insituation and benefits MID power consumers.

But what is the prospect of these foundations of commitment to public service? If much of the district's strength rests upon the motivation and stability of its employees, what will be the impact of this highly mobile age of specialization and high technology?

Most MID observers believe it will be minimal. The district has survived greater risks, challenges and crisis.

The great majority of the district's more than 300 employees will continue to be local residents with strong loyalty to the district and the community. Specialists brought in from other areas generally elect to stay rather than move onto larger cities.

Furthermore, the Modesto Irrigation District is a public agency with an elected governing board. Directors will continue to be established farmers, businesspeople and community leaders with strong commitments to the region providing a continuity of service to sustain the traditions of the Modesto Irrigation District.

Directors holding office as the district begins its second 100 years typify the individuals who have led and are expected to continue to lead the district:

Robert A. Beck, DVM, Division 1. First elected in 1979, Dr. Beck represents the southeast area of the district, including Empire and Waterford. A retired veterinarian, Dr. Beck has farmed extensively a

variety of crops, including rice. Currently, he is devoting all of his time to the irrigation district and other community activities. He is President of the MID Board of Directors in its centennial year.

Charles Billington, Division 2. Taking office in December 1985, Billington represents the central Modesto area. He is the owner of a metal fabrication and related products company specializing in food processing, auto racing and steel supply products. Billington is active in community, professional and athletic associations.

Jeffrey P. Cowan, Division 3. Representing the northeastern section of the district since 1981, Cowan is president and general manager of a local floor covering company. The family business was started here in 1950 by his father. A long-time resident of Modesto, he is active in community and professional organizations.

William Lyons, Jr., Division 4. Taking office in December, 1985, Lyons represents the northwest and Salida area. A Modesto native, Lyons manages diversified farming cattle and agribusiness investment operations. Lyons is a leader in Stanislaus county cattle, professional and community organizations.

John E. Kidd, Division 5. A lifelong resident of the area, Kidd has represented the southwest area since 1971. He has served as president of the statewide Association of California Water Agencies. Operator of a registered Holstein dairy, he is active in agricultural and community affairs.

These are the men who face the decisions about power resources and energy transmission, domestic water delivery and other matters of concern in the immediate future.

Through a vision and determination comparable to that exhibited in 1887 by the MID's founders, directors serving as the second century opens are working to meet the immediate challenges of the next 15 to 25 years while wondering what lies ahead beyond that.

The first 100 years of the Modesto Irrigation District were full of challenges and excitement. The events of the next century will be just as dynamic and demanding.

Appendix

Modesto Irrigation District

Directors

Division 1 – J. W. Davison (1887), G. D. Wootten (1888-1895), D. G. Kerr (1895-1896), B. P. Hogin (1897-1899), T. K. Beard (1899 & 1901-1907), W. H. Brezee (1907), W. H. Frazine (1908-1913), J. S. Tully (1913-1919), Axel W. Stratton (1919-1920), J. W. Guylar (1920-1922), J. C. Garrison (1922-1927), Axel W. Stratton (1927-1937), W. R. Mensinger (1937-1939), J. L. Ebie (1939-1950), M. Luther Huff (1950-1958), Richard E. Penney (1959-1979), Robert A. Beck (1979-Present).

Division 2 – G. H. Gatlin (1887-1888), E. R. Crawford (1888), George Perley (1889-1890), F. A. Cressey, Sr., (1890-1893), Isaac Perkins (1893), J. S. Alexander (1894-1895), S. McAllister (1895-1897), John Adams (1897-1901), W. R. High (1901-1909), J. S. Wootten (1909-1913), F. A. Cressey, Sr. (1904-1917), F. R. Way (1918-1919), D. W. Morris (1920-1921), J. R. Broughton (1922-1925), Norman S. West (1926-1927), J. S. West (1928-1937), E. R. Hawke (1938-1941), W. T. Scoon (1942-1957), Thomas K. Beard (1958-1972), Lowell Clark (1973-1981), Kennan H. Beard (1981-1985), Charles J. Billington (1986-Present).

Division 3 - Robert McHenry (1887-1889), A. S. Fulkerth (1890), A. G. Carver (1891), Willis Bledsoe (1892-1893), A. S. Fulkerth (1894), C. A. Stonesifer (1895), F. C. Davis (1896-1909), George F. Covell (1909-1913), Allen Talbot (1914-1920), H. J. Coffee (1921-1922), H. H. Sturgill (1923-1930), Gerrit Veneman (1931-1953), Gerrit Van Konyenburg (1954-1959), James W. Smith (1960-1966), Norton Coleman (1967-1981), Jeffery P. Cowan (1982-Present).

Division 4 – A. G. Carver (1887-1889), R. J. McKimmon (1890-1895), Samuel Gates (1896-1897), C. C. Baker (1898-1908), J. L. Freeman (1909), T. J. Crispin (1910-1911), J. B. Trask (1912-1920), E. L. Routh

(1921-1923), N. L. Rose (1924-1925), T. F. Kiernan (1925-1929), J. B. Fiscalini (1930-1938), Luther Thompson (1939-1957), Mathew Fiscalini (1957-1985), William J. Lyons, Jr. (1986-Present).

Division 5 – W. H. Finley (1887-1895), W. W. Carter (1896-1897), L. A. Finney (1898-1907), S. C. Gibson (1908-1911), R. E. Gilman (1812), B. F. Anderson (1913), L. C. Cates (1914-1915), C. A. Hilton (1916-1922), O. E. Lambert (1923-1927), H. G. Jacobsen (1928-1935), Milton Kidd (1936-1971), John E. Kidd (1971-Present).

Waterford Irrigation

District Directors

J. L. Prouty (1913-1928), A. E. Ketcham (1913-1929 and 1933-1956), Al Gatzman (1913), J. M. Finley (1914-1920), E. F. Perry (1921-1926), E. L. Whitney (1927-1942), William H. Rushing (1930-1932), Guy Laughlin (1929-1948), M. F. Bradshaw (1943-1952), J. W. Quesenberry (1950-1968), I. F. Bashor (1953-1973), Iver E. Erickson (1957-1977), Robert H. Schmidt (1969-1977), Foster A. Jones (1974-1977).

Key Dates In History

1887	Wright Irrigation Act Signed	1971	New Don Pedro Dam Completed
1893	La Grange Dam Completed	1977	Energy Conservation Program Initiated
1903	MID Canal System Completed	1978	Modesto and Waterford Districts Merged
1904	First Irrigation	1980	Gas Turbine Power Plant Completed
1911	Modesto Reservoir Completed	1982	Geothermal Exploration Began
1913	Raker Act Enacted by Congress	1983	28.8 percent of New Mexico Coal Plant Purchased
1923	Don Pedro Dam Completed	1985	Coldwater Geothermal Plant, Construction Begins
1923	Retail Distribution of Power Began	1986	New Hogan Dam Mini-Hydro Plant Completed
1940	MID, TID, San Francisco Enter Cooperative Agreement	1987	Modesto Irrigation District Centennial
1955	San Francisco's Cherry Valley Dam Completed		

Appendix

Modesto Irrigation District

Vital Statistics

Established	July 23, 1887
Waterford I.D. Merger	January 1, 1978
Assets	\$526,000,000
Headquarters	1231 Eleventh Street (Post Office Box 4060) Modesto, California 95352

Board of Directors

Division 1	Robert A. Beck, DVM
Division 2	Charles Billington
Division 3	Jeffrey P. Cowan
Division 4	William Lyons, Jr.
Division 5	John E. Kidd

Officers

Chief Executive Officer	H. L. "Les" Brooks
Chief Operations Officer	Vincent G. Bradford
Chief Finance Officer	Norman B. Moseley
Asst. General Manager, Power Resources	Charles S. Viss
General Counsel	Warren F. Grant
Assessor-Collector & Secretary to MID Board	Joan Wishon

Electrical Department

Consumers	72,012
Electric Service Area	160 square miles
Average Residential Consumption	750 KWH per month
Substations	198 miles
Transmission Lines	198 miles
Distribution Lines	1,095 miles

Irrigation Department

Area of District	103,745 acres
Irrigated Acres	61,300
Irrigators	3,300
Water Delivered Annually (avg.)	200,000 acre feet
Canals & Laterals	211 miles
Drainage Canals	80 miles
Irrigation & Drainage Pumps	96
Water Charge	\$5.50 per acre per year

Water and Power Facilities

Don Pedro Lake & Powerhouse

Completed	1971
Purpose	Irrigation, Flood Control, Power
Maximum Capacity	2,030,000 acre feet
Height of Dam	580 feet
Length of Crest	1,900 feet

Thickness at Base	2,800 feet
Powerhouse Capacity	155,000 kilowatts

Modesto Reservoir

Completed	1911
Purpose	Canal Regulation & Storage
Storage Capacity	28,000 acre feet
Construction	Seven earthen dikes

La Grange Dam

Completed	1893
Purpose	Diversion
Height	130 feet
Length of Crest	301 feet
Thickness at Base	83 feet

Stone Drop Mini Hydro Plant

Completed	1983
Purpose	Peaking Power 230 KWH

McClure Gas Turbine Generators

Completed	1981
Purpose	Peaking Power 112,000 kilowatts

Recreation Facilities

Don Pedro Lake

Campsites	550 units
Boat Launching Ramps	3

Marinas	2
Picnic Areas	3 Areas, 47 units
Visitor Day of Use	500,000

Modesto Reservoir

Campsites	62 units
Boat Launching Ramps	2
Marina	1
Picnic Area	45 units
Visitor Days of Use	350,000

The Last Word

The Last Word

Compiling a history of the Modesto Irrigation District has been a most enjoyable and fascinating experience.

The MID's Board of Directors serving in this centennial year must be commended for undertaking to record the history of the district and for the creation of an outstanding citizens committee headed by Dr. Robert Beck to insure appropriate recognition of the centennial. I am proud of my role in this celebration.

It has been with great pleasure that I have renewed old friendships with people such as Bob Beck, Charlie Crawford, Les Brooks, Joan Wishon, Matt Fiscalini and others I knew three decades ago when I covered the MID for *The Modesto Bee*. I am sure it was going along on inspection trips with Charlie and the late Cliff Plummer to monitor the progress of Cherry Valley Dam and the early exploratory work on New Don Pedro Dam that first sparked my older son's interest in engineering. He now has followed in their footsteps as a civil engineer. And, it was surprising to me that Dr. Beck was able to recall, after 30 years, my cats and dogs which he treated so well.

Going back over the mid-century years brought back warm memories of fine people such as Cliff Plummer, Jim Carr, Larry Bither, Milt Kidd and others who contributed so much to the successful growth of the district but did not live to see it achieve its centennial. Furthermore, it has been fascinating to learn of the relationship to the area of people such as Grizzly Adams, Joaquin Murietta, John C. Fremont and General Vallejo and to be reintroduced to the contributions of the McHenrys, the Beards, the Carvers, the Broughtons and all the others who worked so hard to make the MID a success.

All in all, it has been a most satisfying experience.

Like the Modesto Irrigation District itself, however, this history is not the work of just one person. It resulted from the efforts of many. It would take another book to mention all who helped, however, and I hope they recognize the value of their contributions and approve of the results of our mutual efforts. There are some whose help in digging out the facts I do wish to acknowledge personally: MID Secretary Joan Wishon, MID Information Officer Maree Hawkins, McHenry Museum Curator Heidi Warner,

Congressman Tony Coelho and his staff, Senator Ken Maddy and especially Heidi Arno on his staff and former Waterford Irrigation District Manager Cecil Hensley.

Of special importance were the interviews with those people who shared their personal knowledge of the region and the MID. My deepest appreciation goes to those people – John Kidd, Matt Fiscali, Kennan Beard, Tom Beard, Les Brooks, Charlie Crawford, Charles Viss, Merv Bennett, Heidi Warner, Franklin Beard, Russell Briggs, Donald Jaynes, Jeannette Maino, Bob Beck and Herb Florcken. I should add that Crawford's memory for details backed up by a wonderful collection of data and photographs was especially valuable.

In tracing the history of the MID and Stanislaus County, I found many valuable sources. Sol Elias' *Stories of Stanislaus*, George Tinkham's *History of Stanislaus County*, Helen Hohenthal's *Streams in a Thirsty Land*, C. H. Huffman's biographical history of the area, Frank C. Latta's *Handbook of the Yokuts Indians*, and Jack Brotherton's *Annals of Stanislaus County* all may be obtained at the McHenry Museum and are interesting and entertaining reading. Other lively books on the San Joaquin Valley include Wallace Smith's *Garden of the Sun*, Holway Jones' *John Muir and the Sierra Club*, published by the Sierra Club, and Roy W. Taylor's *Hetch Hetchy*. Jones and Taylor present excellent accounts of the Hetch Hetchy battle from opposite views.

Specially important reference sources available in the community include the newspaper files of the McHenry Museum, which also has a fine collection of old court documents and historic photographs, many of which were donated by historian Herb Florcken; *The Modesto Bee* which recently observed the 100 years of daily newspapers in Modesto; the Stanislaus County Library, and the archives of the Modesto Irrigation District, which include the work of the late Paul Christian and his interview. Heartfelt appreciation should be given to *The Modesto Bee* and the *San Francisco Chronicle* who were most cooperative.

The fine art work of Kathleen Jenner gracing the title page and the bottom of this final page are worthy of special recognition.

Special thanks go to my good friend Jim Snyder of Yosemite whose knowledge of Hetch Hetchy and the Yosemite back country is equaled by none. In the early days of this venture, Jim and my long-time friend and former colleague on *The Bee* Ray Nish fired me up when it was needed most.

Most of all, I would like to acknowledge the untiring efforts and encouragement of Lois and Ray Nish, without whose research, interviews, editing and counseling this book would never have been completed.

As the last word, I hope that those who have helped so much in this venture and those who during the past 100 years converted the land of the Modesto Irrigation District from a dry, dusty cattle country into one of the richest agricultural areas in the nation, approve of the results. It has been an honor to have the opportunity to recount the efforts of those far-sighted, determined, and courageous people who truly greened Paradise Valley.

Dwight H. Barnes

March 7, 1987