

Chapter 5

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 1885 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.