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THE INDEPENDENCE PASS TRANSMOUNTAIN DIVERSION PROJECT

*A Story of How Vision, Faith and Work Performed a
Miracle for Crowley County, Colorado*

By FRANK N. BANCROFT, of the Denver Bar

FOR A proper setting to this story about the Independence Pass Transmountain Diversion Project of The Twin Lakes Reservoir and Canal Company, a few facts relating to the early history of Crowley County and of The Twin Lakes Reservoir and Canal Company should be given.

Prior to 1890, what is now Crowley County, Colorado, was the dry, unwatered portion of Otero County, lying north of the Arkansas River, and was known as the "Range," and would have been aptly described by the words of a popular song:

"Oh, give me a home where the buffalo roam,
Where the deer and the antelope play,
Where never is heard a discouraging word,
And the skies are not cloudy all day."

About 1890, T. C. Henry, the promoter and builder of many of the large irrigation canals in Colorado, seeking new dry lands to conquer and convert into wheat and corn fields, discovered that the soil of the tract of land now under the Twin Lakes system, and then under the buffalo grass, was extremely fertile and would yield abundant and varied crops, and could be sold for a profit, if water could be found and brought to the land. With the ardor and energy of an enthusiast, Mr. Henry waved his magic wand and money flowed to him and he, until he was halted by the panic of 1893, and his creditors afterward, built the "Bob Creek Canal," now known as the "Colorado Canal."

The Colorado Canal takes water from the Arkansas River eighteen miles east of Pueblo and is about fifty miles in length, with a width of 45 feet and can carry the 756.28 cubic feet of water per second of time, decreed to it from the Arkansas River as of June 9, 1890.



INDEPENDENCE PASS

View showing East Approach of Auto Road over pass. Twin Lakes Diversion Tunnel No. 1 through Continental Divide is at the immediate left of the pass, "X".

For many years this decreed river water was sufficient to irrigate the crops then being grown under the Colorado Canal, and a prosperous and populous agricultural community was built up around the thriving towns of Olney Springs, Crowley, Ordway and Sugar City on the main line of the Missouri Pacific Railroad; a sugar factory now owned and operated by the National Sugar Manufacturing Company was built at Sugar City to handle the beets grown on lands under the Colorado Canal and in 1911 the State legislature recognized the growth of this community by giving it a separate county government and creating the County of Crowley, with the county seat at Ordway.

By 1913 the farmers under the Colorado Canal realized that the water decreed to this canal from the Arkansas River was not sufficient in quantity nor in regularity of flow to permit them to plant their acres to beets and highly specialized crops. These farmers also wanted to own and operate their own irrigation system, and consequently in 1913 they organized The Twin Lakes Reservoir and Canal Company, and this company purchased the Colorado Canal with its unsold water rights and also purchased the famed Twin Lakes, located on Lake Creek, one of the main tributaries of the Arkansas River, just below Leadville, with a decreed storage capacity of 54,452 acre-feet of water, to supplement the water decreed to the Colorado Canal from the Arkansas River.

Now the farmers under the Twin Lakes system were happy, for they owned their own irrigation system and their decreed water rights from the river, supplemented by their storage rights in Twin Lakes, supplied ample water for their needs, and their crops were so abundant and marketable that within a few years they paid off, with the exception of a few thousand dollars, the entire purchase price of their canal and reservoir system in an amount of almost \$1,000,000.

About 1926 it became apparent to the farmers under the Twin Lakes system that the annual rain and snowfall and resultant floods in the Arkansas River watershed were grow-

ing less year by year, and by 1929 everyone despaired of a return of a normal supply of water. Nature had failed them and if they wanted to survive the effects of the drouth that was increasing from year to year they must act upon the precept that "God helps those who help themselves."

The members of the board of directors of the Twin Lakes Company were all "dirt farmers" and because of their years of residence and experience in Crowley County and of their unusual courage and ability, they were peculiarly fitted to fight the battle that was ahead of them for the preservation of their homes. They vigorously commenced their search for additional water. They investigated every available water supply and personally explored all of the streams tributary, or that could be made tributary, to the Arkansas River, in their search for water east of the Continental Divide, but found nothing that would supply their needs.

One day in August, 1930, after another day of fruitless search for water, several members of the board of directors of the Twin Lakes Company, with their president, John H. Cowden, and their engineer, O. R. Smith, stood on top of Independence Pass, where the auto road crosses the Continental Divide, at an altitude of more than 12,000 feet, and looking back toward the east they decided that it was useless for them to continue their search for water on the eastern slope of the divide. They then turned their faces toward the West and looked down upon the valley of the Roaring Fork, 2,000 feet below them, with its unused waters rushing madly to join the unused waters of the Colorado River at Glenwood Springs, and then, still unused, passing out of the State of Colorado forever. As they raised their eyes from the valley to the encircling magnificent 14,000-foot peaks about them, a vision came to them, and they said to Mr. Smith, pointing to the Roaring Fork valley:

"You must go down there and find water for our needs and you must find a way to bring it over or through this Continental Divide to Twin Lakes and to the Arkansas River."

Mr. Smith immediately went down to the Roaring Fork as directed, and spent the summer of 1930 and the summer and fall of 1931 tramping and surveying lines over the ranges and valleys of the fifty square miles of mountainous area in the watershed of the Roaring Fork and its tributaries lying above an altitude of 10,500 feet. He measured the flow of water in all of the streams and searched for a tunnel site through the narrowest part of the Continental Divide and another tunnel site through Independence Mountain, a spur range between Roaring Fork and its southern tributary, known as Lincoln Gulch, and he came back to Ordway in the winter of 1931 and exultantly reported to the board of directors of the company that he had found abundant water for all of its needs; had found a tunnel site 20,340 feet in length, from Lincoln Gulch through the Continental Divide, to Lake Creek on the eastern slope of the divide, had found a second tunnel site 9,300 feet in length through Independence Mountain from Roaring Fork to Lincoln Gulch, and that in his opinion the entire project could be constructed for approximately \$2,000,000.

Rejoicing in drouth-stricken Crowley County over Mr. Smith's report was great, and the board of directors quickly approved the plan with unshakable faith in their ability to find a way of executing it. But "faith without works is dead," and so the board of directors of this company went to work to find the \$2,000,000 required to bring the water through the Continental Divide.

There was no private capital that could be borrowed for an irrigated project in the year 1932. The Reconstruction Finance Corporation had recently been created to aid worthy projects, so Mr. Cowden and Mr. Francis King Carey, a prominent Baltimore attorney, and president of the National Sugar Manufacturing Company at Sugar City, that owned a large acreage under the Twin Lakes system, requested the board to apply to the Reconstruction Finance Corporation for

a loan, and Mr. Carey was asked to go to Washington as special counsel for the company to see if the Reconstruction Finance Corporation would loan the Twin Lakes Company \$2,000,000 for its Independence Pass Transmountain Diversion Project. Mr. Carey magnanimously consented to go, without any assurance of compensation, and through his acquaintances in Washington he was able to induce Dr. Elwood Mead, Commissioner of the Reclamation Bureau, to visit the Twin Lakes system, and he immediately reported that a supplemental water supply was badly needed and that, in his opinion, the Project was feasible, and he recommended that the Reconstruction Finance Corporation investigate the Project. Dr. Mead's recommendation was strongly seconded by Mr. M. J. Hinderlider, State Engineer of Colorado, and with these recommendations Mr. Carey filed with the Reconstruction Finance Corporation a tentative application for a loan of \$2,000,000, and he was told that his application would be considered if he would return to Colorado and have a formal and detailed application prepared by the Twin Lakes Company and its engineer.

From June to October, 1932, Mr. Smith worked upon the cost estimates and plans of the Project, and Mr. R. J. Tipton, one of the most experienced civil and water engineers in the State, was employed by the Twin Lakes Company to make an analysis of the water shortages of the company and to investigate the diversion project conceived and proposed by Mr. O. R. Smith, the company's engineer, as a possible means of supplying supplemental water to relieve those shortages. By October, 1932, a formal and detailed application with an exhaustive engineering report was completed and was taken to Washington by President Cowden, W. R. Ferguson, secretary of the company, Mr. Smith, Mr. Tipton, Mr. Harry E. Mast, general counsel for the company, and others, and filed with R. F. C.

After the application had been considered by the board

of directors of R. F. C. and "approved for examination," it was sent to the "Clinic" of the Self-Liquidating Division. This "Clinic" was composed of an Engineering, Legal and Financial Division. After a thorough examination, the application was approved by the Engineering and Legal Divisions without loss of its identity, and it was then plunged into the cold bath of the Financial Division, where it remained for a considerable time, subjected to the closest scrutiny, to determine whether the loan, if made, could be repaid during a period of thirty years without suffering to the applicant. The Financial Division finally gave its approval upon the condition that the application be submitted to a major operation—the amputation of the shorter tunnel from the Project and the reduction of the loan to \$1,125,000.

The Project thus reduced in size was approved by R. F. C. and steps were immediately taken to prepare plans and specifications in order to secure competitive bids for the construction of the first unit of the Project. On July 12, 1933, bids were opened and the contract for the construction of the first unit of the Project, consisting of Tunnel No. 1, Lincoln Gulch Diversion Dam and New York Collection Canal, was awarded to Platt Rogers, Inc., a well known local contractor of Pueblo. In November, 1933, work was started on Tunnel No. 1, and 408 working days later on it was holed through. February, 1935, the crews from the two headings met in mid-tunnel and in the presence of a distinguished company of visitors celebrated "Holing Through" day in true western style.

While work was in progress on Tunnel No. 1, Mr. Couch, a member of the R. F. C. board, Mr. W. E. Swift, its engineer, Mr. Morton Macartney, chief of the Self-Liquidating Division of R. F. C., and later Mr. Emil Schram, now a member of the R. F. C. board, visited the Project and caught the spirit of the vision and faith of the Twin Lakes people to such a degree that upon their return to Washington they recommended to the R. F. C. board that the loan be increased to

\$2,000,000 so that the entire project could be constructed as originally planned. The additional loan was approved and its supervision was transferred from the Self-Liquidating Division of R. F. C., where it started, to the Drainage, Levee and Irrigation Division of R. F. C., Emil Schram, then chief, present chief Frank J. Keenan.

Competitive bids for the second unit of the Project, consisting of Tunnel No. 2, two diversion dams and two connection canals, were asked for and the contract was awarded to S. S. Magoffin Company, Inc., a tunnel contractor of experience in the West, Frank R. Purvis, superintendent in charge.

Work was commenced on Tunnel No. 2 in October, 1935, and it was "holed through" on October 12, 1936, in 325 working days from one heading. All work on Unit No. 2 was finished on February 17, 1937, which completed the Project.

In order to secure additional carrying capacity in Tunnel No. 1 and protect the walls from the action of water, the R. F. C. made an additional loan of \$200,000 (which made an aggregate loan of \$2,200,000) to line 6,930 additional feet of Tunnel No. 1, making in all 12,410 feet of lining in Tunnel No. 1; the remaining 7,930 feet of unlined tunnel needs no lining. The contract for this lining was awarded to S. S. Magoffin Company, Inc., and work proceeded along with the work on the second unit and was finished on November 25, 1936.

The success of the Project has been demonstrated by the fruits already gathered from the completion of the first unit in 1935, for more than 20,000 acre-feet of western slope water passed through Tunnel No. 1 in the irrigation season of 1935, in time to overcome the long drouth and save the crops for that year, and more than 25,000 acre-feet of western slope water passed through the tunnel up to September 1, 1936, which made a good crop for that year. With Tunnel No. 2 now completed, ready to carry the waters from Lost Man

Creek and Roaring Fork proper from the very first runoff from those streams in this year 1937, it is confidently expected that the diversion of western slope water for the season of 1937 and subsequent years will be double that for the year 1936, and that the water shortage under the Twin Lakes system will be a thing of the past.

This Project, like a diamond, has many faces or facets of interest to many groups of people.

It has been especially interesting to the engineers, as it was the first large water diversion project from the Colorado River Basin. It called for exact engineering skill and knowledge in locating the two portals of the tunnels, and day by day, almost hour by hour, directing the course and alignment of the tunnels so that the two headings would meet, and meet exactly, as they did, and not pass each other in the night, nor stray from their true course in the dark, silent depths of the mountain, in the 3.8 miles of Tunnel No. 1, and the 9,300 feet of Tunnel No. 2; in designing and supervising the erection of large rock-filled, steel faced dams to withstand mountain torrents, and in supervising and checking the work of several hundred men, day and night, summer and winter, in sunshine and in winter storms, on the surface and below the surface of the earth, and all at an altitude of 10,500 feet, for four successive years.

The Project was interesting to the contractors, for all the factors entering into their problem, such as securing men, housing them, breaking them in, keeping them contented, replacing those who left; of safeguarding the comfort and lives of those men, crowded and huddled together in the scant space at the breast of the tunnel, operating four electrical drills with their deafening, ear-splitting roar; of securing supplies and working materials at all seasons of the year in all kinds of weather, over all kinds of roads, and of organizing and controlling men, crews and shifts of men so that the work could be done with a profit over the contract price that was

made in advance for every unit or kind of work or material entering into the job, were, in the main, new and unknown factors, because of the unusual and untried conditions that surrounded the work in a rough, remote, mountainous country, above 10,500 feet in altitude, blocked by deep snows for the winter months.

The Project was interesting to the hard rock miners of Leadville, Aspen and neighboring mining camps, who kept close watch upon the work in the tunnels, as these tunnels passed through mining claims that had been worked in early days. No veins were found. The miner now knows where he need not look for mineral values.

The Project was also of interest to the United States Mining and Geological Departments. Before the tunnels were commenced, Mr. J. W. Vanderbilt, of the U. S. Geological Survey, carefully examined and made a favorable geological report upon the tunnel sites selected by Mr. Smith, and foretold with remarkable accuracy the character of the various rocks that would be encountered, and where changes would occur. Mr. Chas. Henderson, chief of the U. S. Bureau of Mines, located in Denver, was a frequent and interested visitor at the Project.

The Project was of interest to the Reconstruction Finance Corporation and to the chiefs of the two divisions and its engineers, for it was a new, novel and highly romantic venture, coupled with immediate and permanent relief to deserving drouth-stricken farmers who had faith in themselves and in their ability to repay the loan.

The Project was of interest to the legal profession, as many legal obstacles and hurdles were removed or jumped during the progress of the work. The well known principle that one who makes a filing in the office of the State Engineer for the appropriation of water acquires no rights under his filing unless he prosecutes and completes his work with due diligence and applies the water to beneficial use within a reasonable time was invoked.

The equally well known principle that the only proceeding supplied by our statutes for determining the question of what constitutes due diligence, reasonable time and beneficial use as between conflicting claimants, is the general adjudication proceeding authorizing decrees of court establishing relative priorities as between claimants, was invoked.

For the first time the right to divert water from the Colorado River Basin to the eastern slope of the Continental Divide under the Colorado River Compact was made an issue between western slope users and eastern slope users. The issue was settled by a recognition of the legal right to so divert under the compact and the practical side of the issue was adjusted by an agreement permitting western slope users to make filings for additional appropriations of water, and securing decrees therefor, ahead of the filings of the Twin Lakes Company. This agreement has been kept by all parties to it, and it has been embodied in a recent decree of the District Court at Glenwood Springs, in a general adjudication proceeding that gives the Twin Lakes Company the right to make its transmountain diversion from Roaring Fork and its tributaries.

For the first time the right to divert water from the Colorado River Basin to the eastern slope of the Continental Divide, under the Colorado River Compact, for use in Colorado, before Colorado, Wyoming, Utah and New Mexico (the four states comprising the Upper Basin States) had entered into a compact that established their relative rights and obligations under the Colorado River Compact, was raised by Wyoming and the Twin Lakes Project was blocked in Washington. After briefs were filed by both states with the Secretary of the Interior, Wyoming and its senators withdrew their objection to the Twin Lakes diversion.

The Project was and is still of interest to the farming communities on the eastern slope of the Continental Divide, as it was the pioneer project to divert water in any considerable quantity through the Continental Divide from the Colo-

rado River Basin and the first major test of the value of the Colorado River Compact to eastern slope farmers: Many communities on the eastern slope need and must have supplemental water supplies and there is no place to obtain these supplies except from the Colorado River Basin.

But above all, the Project is of interest to the farmers and stockholders of the Twin Lakes Company in Crowley County, Colorado, who have for more than five years courageously and unanimously supported the Twin Lakes' board and its officers in their battle to complete the diversion project and secure western slope water that has not only saved their crops for the years 1935 and 1936, but has assured them, their children, and their children's children after them, of an ample water supply for all time to come.

The success of the Project was due entirely to the cooperative and helpful spirit that actuated every representative of the Twin Lakes Company, and it was their teamwork alone that accomplished the results. The board of directors throughout the Project were: John H. Cowden, president; James G. Close, vice-president; Ben A. Johnson, treasurer; W. J. Trainor, and Clyde Ford. O. R. Smith, chief engineer of the Project, has served during the entire period of construction, unselfishly and efficiently. Wm. R. Ferguson, through whose hands the entire \$2,200,000 of the loan has passed and been accounted for with credit to himself and to the company, is the secretary of the company. Harry E. Mast, of Ordway, Colorado, is general attorney for the company. Mr. Francis King Carey was the special counsel of the company in Washington and Mr. Wm. Bond and others were local counsel in Denver. Words of special appreciation should be extended to Mr. Herbert S. Crocker, ex-president of the American Engineering Society, representing the R. F. C. as supervising engineer of the Project until a short time ago, when Mr. R. J. Tipton was appointed as his successor, and both have added their skill and sympathetic encouragement at all times.

It has been a pleasure to the writer of this story to have been associated with all of the above gentlemen.