Gunnison Bend Reservoir

Roger Walker

In the fall of 1859, a group of men residing in the Fillmore area were instructed by LDS Church Authorities to explore the possibility of a settlement on the Sevier River. A site was selected in the vicinity of the present community of Deseret. This was probably the most useable site, and maybe the only practical place where a community could be started within the season.

The Sevier River enters into the Pahvant Valley above Leamington and meanders southwest across the bench lands formed by Lake Bonneville. Over centuries of time the river had eroded a broad flood plain through the old Bonneville Lake benches. In some places the flood plain is more than one-half mile wide and 120 feet below the bench land. Just below Deseret the gradient flattened to the extent that the river channel in some places was higher than the land surface a short distance removed, a natural phenomenon occurring in river deltas. The project required a site where water could be diverted by small brush and rock dams, and where the soil when irrigated would raise adequate crops. The pioneers were fairly knowledgeable about soils. The native growth gave them some indication of a viable site for irrigation. The soils a mile or two downstream from Deseret where water could easily be diverted were extremely saline and supported only salt grass and other extremely salt resistant plants. Just northwest of Oasis the river had changed it's course. The old channel which meandered southwest several miles, was of fairly recent origin, and traversed a ridge of loamy soil. At the selected site (one-half mile northwest of the present Oasis town) water could be diverted into the old channel, to serve as a distribution canal, by raising the water level, more than ten feet and excavating a section to connect with the old channel. Early in the year of 1860, the project settlers commenced excavating a canal to connect the old channel with the river. It was bitter cold and fires had to be built to thaw the frozen ground which was hand loaded into wheel barrows to accomplish the excavation. The first diversion structure to serve the several take-off ditches was placed in the old channel approximately three miles south of the present town of Deseret. The scour hole scars, at least one old take-off ditch, rock rip-rap, and other land marks are still discernable. The old river channel with a water supply was close to the center of the town, making possible the quick and easy erection of Old Fort Deseret. The fort constructed in 1865, was erected with adobe blocks consisting of mud mixed with straw. A large part still stands.

Even in a relatively dry year, the peak run-off of the Sevier River at Deseret would approximate 1,000 cfs because there were limited diversions and no reservoirs to diminish the flow in the snow melt season. In normal years the flows probably were as much as 3,000 cfs, consequently over the next several years, every high water period saw the dam washed out. Brush and rocks were just not adequate to contain the energy within these large volumes of water. Replacing the dam was a simple procedure of hauling more rock from the Black Ridge close by, but required considerable effort and was with the hope the repairs could be made in time to save the crops. As a consequence survival from year to year was uncertain. Some historians attributed the Deseret pioneers persistence to rebuild as plain stubbornness to conquer or else. Donald Worster states in *Rivers of Empire*:

> "After each washout, they heard a sermon from the leadership, telling them the world was going to pieces and they must save it. In the failure of their dams God was testing them for mettle and determination; they must not fail Him."

The Deseret pioneers didn't need any sermon to identify the reasons the dams washed out. They were strong competent pioneers capable of solving the challenges. These is a much more logical explanation as to why they made such an effort to rebuild the dams. First, they couldn't move the farms or the old manifold channel serving as an irrigation delivery system. Second, to attempt to construct a canal to intersect the main river channel so that the water could be delivered to the lands above the flood plain would have required the existing dam to reliably serve until a new system could be constructed, as eventually was the case. To bring the water to the existing farms by tapping the river channel required a canal of four to six miles long. The colonizers had selected the most favorable site and proceeded with the most practical method of diverting the water considering the resource available. The pioneers logic might have been flawed, however, with absolutely no previous river flow information on which to base decisions, their achievements were remarkable. The run-off of 1868, brought their resources down to where they had to temporally abandon the project.

In 1874 a group was again sent from Fillmore to Deseret to establish a permanent settlement. When they arrived they found a company of non-Mormons from Tintic led by C. Gilbert Webb already on the Oasis site. The Webb

group had repaired the original dam and was occupying some of the old abandoned cabins or shelters. C. Gilbert Webb was obviously invigorated with new ideas. He was familiar with the experiences of the first group of settlers. Webb knew it was necessary to somehow dissipate the energy in the flood flows. The Gunnison Bend Company plans were to build a diversion dam far enough upstream to serve the Oasis-Deseret lands without the necessity of high back-up. In repairing the old dam, the Webb group were the beneficiaries of the previous eight years of rock hauling. They were reclaiming some of the original irrigated acreage which ultimately would be served by the new "Gunnison Bend project". The proposed dam site had very unusual physical characteristics. The Sevier River flowed south to a point, then turned north, then west, then south and then back to the east. Gunnison Bend had two large parallel flood plains with an island or large peninsula in between. Between where the river had turned back to the north and its easterly flowing channel was a very narrow neck of bench land. The Sevier River in a flowing course of two and one-half miles was only 150 feet from coming together at the beginning and the end of the course. By cutting the narrow neck of land and establishing a bypass control, the high unmanageable flows could be routed in below the diversion, allowing only the desired amount of water to enter the canal some two and one-half miles of channel length downstream and more than one half mile west of the control point. The scheme thus did not require a back-up of water to enter the canal and was only for the purpose to bypass the uncontrollable flows. They had repaired the old dam and were reclaiming some of the original irrigated acreage. Construction supplies were obtained and considerable work was done on the new project. The Gunnison Bend Company had mortgaged the Oasis diversion works and claimed lands to construct the Gunnison Bend project. Unable to pay, the mortgage was foreclosed by Chauncey Webb. The settlers now farming the area, formed the Deseret Water Company in July 1879, to organize and raise $5,000 to pay off the indebtedness of the Gunnison Bend Company by purchase at a Sheriff's Sale, April 14, 1880. This transaction refutes any allegations that the project was church or publicly owned. The Deseret Irrigation company was incorporated, February 20, 1886, to implement the plans to divert from the Gunnison Bend site.

In the second attempt to tame the Sevier River at Deseret the settlers had more resources, know how, and determination. The Webb dam, the last dam at the Oasis site, consisted of cribs constructed by enclosing a space with inter-locking cedar logs to from a large crib to be filled with lava rock. By now immense quantities of rock had been hauled to stabilize this short section of the Sevier river. Truly now their efforts could be said to be "built on a rock". The diversion dam and works might have been nearly fool proof but the Sevier, on at least one occasion, simply cut a new channel around the section. These rocks were hauled from the Black Ridge some five or six miles to the southwest. The rocks making up the Black Ridge are mostly honey-combed lava. Several of the Deseret Irrigation Company officials testified at an arbitration hearing in 1891 that; "the dam never left them, the users left the dam to use the new canal and if the dam had been maintained it would still be in use." Strange as it may seem some of these officials of the water company in 1891 could not remember accurately when the old dam failed, only that it became inoperable sometime between 1887 and 1890. The floods of 1983 exposed several of the early attempts to divert to the Oasis site. The rock cribs were nearly intact and the river channel at this point was solidly locked in with rock for more than 100 feet downstream of the cribs.

Even though some work may have been done on the Gunnison Bend site before the demise of the Gunnison Bend Company in 1879, naming the overflow section "Cropper Cut" indicates that some of the original pioneers were a part of the initial effort in the construction at Gunnison Bend. On September 8, 1891, Jesse W. Fox billed the Deseret Irrigation Company $100 for the survey work on the new canal. Jesse W. Fox located and surveyed the new canal probably in 1885. Fox had not billed the company at the time because they had lost their crops. He could only remember it was in 1885, or 1886. Water was delivered down the "Low Line" canal in 1889. The new canal was designed to tap by gravity flow the bottom of the river channel at a point that was known as Packs Bottom.

For a number of years the Webb dam at the Oasis site diverted into the north ditch known as the Petersen ditch which served the south Hinckley area which included Rufus Pack's farm. At this time this area was considered a part of Deseret. Yearly maintenance and damage repair was a substantial burden for all the irrigators. The Petersen ditch to Pack's farm and others in south Hinckley had less than three feet of fall and was difficult to maintain. The new canal, as envisioned by the Gunnison Bend Company, had universal support of the pioneers. Payment for the labor to excavate the low canal was in water stock in proportion to the individual effort. The 1889 Gunnison Bend project consisted of the "Cropper Cut" overflow to prevent high water problems and a small diversion dam two and one-half miles downstream to put the water into what is now known as the Deseret Low Line Canal. A headgate control on the canal was not needed because the river channel gradient was steeper by the elevation difference between the bench land served and the river channel elevation at Deseret. The water when not needed was dumped back into the main river channel.

When a Ward was first organized in the "second settlement," Joseph S. Black was chosen as the first Bishop. Because of his calling he had many contacts with the Mormon Church Authorities. Black truly had the pioneering spirit. His enthusiasm sold several church authorities on the proposition that down in this isolated section there was an opportunity for investment. It has been alledge by some that because of the remoteness of the

area, U.S. Marshals could be detected approaching when still many miles away. Wilford Woodruff, George Q. Cannon, Abraham H. Cannon, Angus M. Cannon, Joseph F. Smith, Alfred Solomon, Brigham Y. Hampton, C.H. Wilckens, Andrew Jensen, and others formed the Deseret and Salt Lake Agriculture and Manufacturing Canal Company, July 2, 1989. Abraham H. Cannon was elected President, William V. Black, Vice President, Andrew Jensen, Secretary, Alfred Solomon, Treasurer, Charles H. Wilckens and Joseph S. Black, directors. Over a period of time the group took up several thousand acres of Desert Entry land and proceeded to develop a water supply. This enterprise was at first called the "Church Farms" and later "Zarahemla". Almost immediately propositions began to go "to and from" the two groups. The Deseret Irrigation Company seemed rejuvenated with enthusiasm to have as partners prominent men with borrowing power so that development could continue. The first proposals didn't give much to the Deseret and Salt Lake Agriculture and Manufacturing Company, except the honor of being a part of an outstanding project.

The bench land adjacent to the river three-fourths of a mile upstream from the Gunnison Bend Deseret diversion is some fifteen feet above the river channel. The plans proposed by the Deseret Irrigation Company and the Deseret and Salt Lake Agricultural and Manufacturing Canal Company called for a low levee north to south levee sufficient to raise the water level, not to exceed five and one-half feet above the bottom of Deseret's canal and a canal cut through the high bend westerly until the lower lands to the west could be delivered a gravity flow of water. The Deseret Irrigation Company agreed to place a headgate control in their canal and the Deseret and Salt Lake Agricultural and Manufacturing Canal Company was not to raise the water level more than three feet. Consequently, in 1889 work was commenced on the project. This project later became the Abraham Irrigation Company, so named in honor of Abraham H. Cannon. Few of the original promoters came to live and farm at Abraham. The Blacks contracted to do the labor for some owners of the Deseret Entry lands. The Deseret Irrigation Company because of their mutual interest joined in and supervised the effort. On June 26, 1891, an agreement was consummated between the two parties which specified the two companies were owners in common of the main Abraham Canal. The Abraham Canal was deep, wide and level for approximately one and one-fourth miles. The parties to the agreement spelled out reservoir rights to the water controlled by the dike and included the Abraham Canal. Deseret reserved a first priority right to sufficient water to fill the Low Line Canal being twenty-four feet wide to depth of two feet six inches which was the historic canal capacity and at one time requested a right to use the entire capacity of the Abraham Canal. This proposal was promptly tabled. All water above the two feet six inches was to be divided three-fifths, Deseret and two-fifths, Deseret and Salt Lake Agricultural and Manufacturing Canal Company. A dam at the end of this canal was known as the Abraham Dam. The Deseret and Salt Lake Agricultural and Manufacturing Canal Company had the burden of constructing and maintaining the additional height at the Deseret diversion as well as building a dam at the end of the Abraham Canal reservoir. Charlie Haun had land under the Abraham system and evidently became involved in the construction of the two dams. In recounting problems continuing at the Gunnison Bend more than one writer refers to moving upstream about two and one-half miles. By-passing the high flows would be the most critical, and most difficult problem associated with the Gunnison Bend diversion. However, the leak described as causing a lowering of the water levels to the detriment of the Abraham company could only mean that the problem was at the one diversion dam serving both canals. On site evidence shows that the pilings and slag was a replacement structure some 150 feet west of the old diversion dam. The Deseret and Abraham diversions served without further trouble for approximately ten years at a water level not exceeding five and one-half feet. One year when no water was available for the Abraham Company, Eric Hogan had planted the last of his precious seed and seemed about to lose his crop when providence (or something) caused the Abraham dam to wash out. The water went on out the Abraham Canal giving everyone a free irrigation thus saving the crops. The Hogan crop saved was located north and west of the Abraham townsite.

The reservoir and diverting works remained this way for nearly ten years. With the new canal system it was possible to increase the irrigated acreage in Deseret, Hinckley, and nearby to approximately 20,000 acres. Arrington, *Taming the Turbulent Sevier*, says the dam was moved eight miles upstream. It would be totally impracticable if not impossible for the Abraham or Deseret land to receive water from a point eight miles upstream. The original Delta-Melville diversion, a totally unrelated project was eight miles upstream. Worster called this construction Sevier Bridge dam which actually is some sixty miles upstream.

In 1895 the two companies agreed to enlarge the Gunnison Bend Reservoir by raising the levee another ten feet. Heavy negotiation extended over at least two years for the two companies to reach agreement. One of the "final" proposals by Deseret was for Deseret and Salt Lake Agricultural and Manufacturing Canal Company to build a substantial dam at the "Cropper Cut" to be deemed safe after a years operation and then Deseret would allow the Deseret and Salt Lake Agricultural and Manufacturing Canal Company one-third of the waters with two-thirds to Deseret; Deseret to retain their first priority to a full canal. The final contract required the Deseret and Salt Lake Agricultural and Manufacturing Company to build a substantial dam that would raise the water level above the bottom of the Deseret Canal ten feet. The reservoir was to capture the unappropriated water of the Sevier River. For the consideration that the Deseret and Salt Lake Agricultural and Manufacturing Company pay all costs and

guarantee a safe dam the Deseret Irrigation Company agreed to divide all the water, including their primary rights, three-sevenths Abraham, four-sevenths Deseret. The contract was entered into October 2, 1897, by and between Deseret and Salt Lake Agricultural and Manufacturing Canal Company, a corporation, and the Deseret Irrigation Company. In 1902, the two irrigation companies agreed to raise the dam another three feet, the costs to be born by the three-sevenths, four-sevenths split. The ownership in the reservoir and to the direct flow rights for distribution from Gunnison Bend Reservoir still is four-sevenths Deseret, three-sevenths Abraham. This was the physical situation existing when a series of dry years resulted in no water at all to mature the crops in west Millard County.

Maybe the most significant event of all that occurred was the results of the litigation caused by the drought of late 1890's. The Deseret Irrigation Company and the Leamington Irrigation Company filed suit in the District Court at Fillmore, Utah, against all the users up to the West View diversion in Sevier County, alleging Deseret, et. al., and Leamington Irrigation Company's were first in time and therefore entitled to have the water turned down to them. The District Court threw the case out on grounds they lacked jurisdiction because the alleged violations had taken place across a county line. The violations actually had occurred across two county lines, Sevier and Sanpete. This ruling was appealed to the Utah Supreme Court which on February 26. 1898 ruled that *"where an act committed in one county caused injury to realty in another, suit might be brought in either, and not necessarily only in that county in which the resulting injury occurs."* This ruling made it clear that the broader authority of the State was needed to control the use of water.

The Salt Lake group found that getting a return on their investments were far into the future, if ever. The dimensions of an acre were determined by the English as the amount of land a yoke of Oxen could plow in one day. The lake bottom clays of Abraham required four horses pulling a single bottom to plow one acre in a days time. It required considerable time and resources just to grow enough feed for the number of horses needed in the farming operation. The absentee landlords evidently were paying a substantial local labor force to construct canals, dams and diversion structures. In addition they were receiving only a meager landlord's share of crops raised on un-level, highly alkaline soils. As Andrew Jensen put it *"in due course of time, however, most of the original land owners and shareholders sold out to more permanent settlers, myself included, with considerable financial loss."*

Even though the Abraham project struggled, Deseret with the employment provided by the construction projects prospered. The Deseret area became a prime example of success, which fact was extensively used in selling the Delta Carey Act Project.

The wet years on the Sevier River commencing in 1907, brought a great amount of water developmental activity. Promotional literature and salesmen abound. The State of Utah, promoting Hatchtown and Piute, led the way. One newspaper advertisement place by the State of Utah asked "Have you ever noticed the air of freedom, and the real joy and happiness which are associated with farm life?" Utah's Governor made this pitch in Philadelphia:

> To the man in the East who is dissatisfied with his work or living conditions Utah offers a chance to lead an independent life under favorable conditions far from the congested tenement districts of large cities...I believe the Western states should all have publicity departments, which would let the world know how they are prospering."

A Delta brochure stated "the farmer has the most independent life of any class. He is the most contented, worries the least, lives the best ---

> "How must the farmer of Indiana, Illinois, Ohio, Iowa, Minnesota, Nebraska, Kansas, or Missouri-glad of a $25 per acre profits-view a statement of profits over $250 per acre? Profits sure as death and taxes-returns ten times as large, from labor one-tenth as great. Yet it is done-every season-IN UTAH."

The Deseret and Salt Lake Agricultural and Manufacturing Canal Company people knew all about the profits, clean air, worries, and the real joy and happiness associated with farm life. They seized the opportunity to quit as buyers to join the sellers. On January 26, 1907, several, Thomas H. Fitzgerald, Howel P. Myton, David M. Landreth, Wm D. Livingston, James A. Melville, Thomas C. Callister, and Porter B. Fitzgerald formed a corporation to be named 'The Abraham Company'. "To acquire, buy, sell and own, control, change, regulate, and distribute to it and among the persons entitled thereto the waters of the Sevier River, and such other springs, streams, and wells as may be developed adjacent to the same, and particularly that irrigation system upon said River known as the Gunnison Bend Reservoir and the Abraham Canal system;" The incorporation was for about 7% of the land and water. This action was followed by deeds and resolutions for nearly all the remaining assets of land and water rights. The Irrigated Lands Company was formed to exploit the land rush and get the original investors off the hook.

> "That the system of the Abraham Irrigation Company, upon which the expenses of operation and maintenance be borne in common by the stockholders shall extend to such point or points on each quarter section under said system from which all of such quarter section can receive water, and that the Irrigated Lands Company be notified that this company expects the Irrigated Lands Company to complete this company's system to all such point or points in consideration of said Irrigated Lands Company having received the entire issue of this company's stock."

In spite of the allegations made by the various authors that the source of the funds to build the Deseret and Abraham systems was Church or State it is clear who furnished the cash. Fitzgerald Bros and Landreth were owed approximately $50,000. The proceeds from the sales of the Abraham land and water rights were to go; first to Melville, Cannon and Callister - $10,460; second the Utah Banking Company - $28,000; and thirdly the Irrigated Lands Company was to assume the liability of Melville, Cannon and Callister to finish the "Cropper cut" dam a liability of $22,475.

The Deseret and Salt Lake Agricultural and Manufacturing Canal Company group individually lost considerable money. To that extent as individuals they financed Gunnison Bend Reservoir and the Abraham Canal system. It is obvious that the Church or State did not advance funds to build these projects. (*Dudley's statement) The remaining costs were remittance paid by the individual settlers when they purchased the land and water. Many non-Mormons from other states were enticed to the area by the euphoric promotional advertisements. Several families were farming in the Abraham area, however, converting to the land promotion scheme brought most of the people to the Abraham area. By 1911, more than one hundred stock holders were listed.

Shortly after the Irrigated Lands Company was formed to sell most of the land and all of the water rights under the system, the Irrigated Lands Company was required to enlarge the Abraham canal. The enlargement was possible because there was no perched water table at the time. Had the Delta Carey Act project came before the Abraham project a water table resulting from irrigation would have made it almost impossible to excavate and widen this large canal. At the annual meeting February 2, 1909, a total of 10,661 shares were represented by eight individuals. By 1911 there were more than one hundred stock holders representing shares.

By 1907 the Gunnison Bend system was completed to the conditions that existed for the next seventy-five years. Many exciting events have occurred at the Gunnison Bend reservoir since 1907. On June-1909, the newly constructed Delta-Melville Diversion Dam located eight miles upstream burst during the night of June 14, 1909. The natural flow in the river probably exceeded 1,500 cfs. This flow together with the impounded water arrived at Gunnison Bend early in the morning. Gunnison Bend Reservoir filled to over topping and then the Cropper Cut dam gave way. The regenerated flood was thus much larger than the flood entering Gunnison Bend. Accounts of the time indicate the flood wave was several feet above the bench land along side the river flood plain. Some buildings in Deseret were completely washed away. The most notable being the saloon. It is said that one of the patrons, perched on a chicken coop to get out of harms way, saw the saloon going by and cried out, "Oh my God, I'm ruined!"

Very few details are recorded about the flood, or even about a subsequent flood. Evidently legal action was to be taken and the bare facts were all that was going to be admitted to. The following year in May 1910, the newly constructed Delta-Melville spillway and dam gave way again. This time the flow of the river above would have been the irrigation demand of more than 800 cfs with a full diversion dam pond. The only documented damage to Gunnison Bend was to the spillway. This writer attempted to reconcile the differences of the flood events of 1909, 1910, and 1983. One important piece of information came out. One old timer from Deseret stated the only information he knew of was that his Dad remembered being called out to remove the spillway stop logs. If the stop logs are more than two or three feet below the water surface the only solution was to blast them out. The old construction plans of the Gunnison Bend spillway show that the concrete piers supporting the stop logs were fifteen inches wide. In 1983, because the old spillway would not bypass the flows that legend indicated had been previously bypassed, the piers were measured to determine how much more water could be bypassed by removing the four concrete piers. The piers were found to be thirty two inches wide. This fact, and the necessity of blasting the deeper stop logs in 1983, does give the probable solution taken in 1910. Draining the water out of Gunnison Bend Reservoir ahead of the coming flood wave resulted in less damage below. The experiences of the past also helped in the management of the 1983 flood.

How does the 1983 flood compare with the previous disasters? The flows in the river above DMAD were more than three times as much water as any previously recorded peaks. DMAD was enlarged in 1960 to hold six times the quantity of water as did the old Delta-Melville diversion pond. The old Delta-Melville spillway, almost identical to the two that previously failed, failed in its purpose of being a drop structure causing the abrupt failure of the DMAD spillway. In spite of nine times more water in the river below DMAD than in previous flood events the breaching of the Cropper Cut prevented the build-up of another flood surge, limiting the water levels downstream to considerably less than would have been the case if the Gunnison Bend had been allowed to suddenly burst.

Because she is at the end of the river, Gunnison Bend will someday experience more exciting events. The reservoirs along the Sevier River were built to conserve water, not to act as flood control devices. The irrigators need the reservoirs to be full. When the next 10,000 year flood comes. All the reservoirs will be full. The operators will all become concerned and start lowering their reservoir, thus adding to the flows. Gunnison Bend can easily handle all and more than has come in the past, but possibly sometime in the future the directors and all available resources will be out there twenty-four hours a day just west of Delta trying to get all that water on down the river.