
Interdependence in the Mormon Heartland: Mutual Irrigation Companies and Modernization in Utah's Wasatch Oasis, 1870-1930

by Thomas G. Alexander
Brigham Young University

Between 1870 and 1930, mutual irrigation companies in Utah's Great Salt Lake Drainage matured as they coped with the changes associated with a modernizing state. This condition contrasts with the development of these companies between 1847 and 1870, when they faced a different set of challenges as they dammed and diverted streams to furnish irrigation water to pioneer farmers. During the pioneering era, many companies performed admirably in constructing and operating irrigation works. Others failed, generally because they could not solve problems frequently encountered by pioneers in an unfamiliar land, such as inadequate engineering skill, shortage of capital, unskilled labor, faulty environmental knowledge, and poor cooperation.¹

Until 1852 most companies diverted water under customary systems. After 1852 they functioned under a territorial law that granted the county court jurisdiction over streams in their county. The county court, consisting of a probate judge and three selectmen, was the nineteenth century equivalent of the county governments that began to operate after Utah achieved statehood in 1896. After 1896, Utah county governments consisted either of a three member county commission or a mayor and county council.

From the 1870s in the most populous areas of the Great Salt Lake drainage to the first three decades after 1900 in less congested regions, the challenges irrigation companies faced changed from those usually related to pioneering to those we associate with modern life.² After 1870, an increasing number of these companies incorpo-

rated under Utah's general incorporation acts, so that water users functioned both as members and as stockholders. Even after organizing as corporations, most continued to operate as mutual companies in which the stockholders were also the water users.³

By modern life, I mean only partly the definition of modernization that derives from the works of classical theorists such as Karl Marx, Max Weber, and Daniel Bell. Neither do I mean fully the modernization associated with commercial development outlined in Richard Brown's work.⁴ Rather, I take the term "modernization" to mean the set of changes historians associate with life during the Gilded Age, Progressive Era, and 1920s, as the United States emerged into the complex urban and industrial society most people would recognize as modern today. Features we associate with the modernization of America during these years include economic development, especially extensive industrialization; urbanization; and political change, especially bureaucratization.⁵

Some of these changes seem clearly evident in Utah. They included the growth of manufacturing, which companies in the Wasatch Oasis based on the processing of the products of extractive industries, especially of mines and farms. In concert with the rest of the United States, Utah's Wasatch Oasis witnessed the blooming of large businesses and corporations. Manufacturing and commerce increased, as did occupational specialization, market capitalism, and market agriculture. Improvements in transportation—interstate railroads in the nineteenth century, motor transport and interurban electric

and steam railways in early in the twentieth century, and air transportation during the 1920s—facilitated regional and national marketing.

Population growth and urbanization also characterized such changes in Utah. Statistically, the Beehive State urbanized at approximately the same rate as the United States, while the Wasatch Front urbanized faster than any other region in the state. Moreover, as Utah's cities modernized they accelerated improvements such as paved streets, public transportation, parks, and water and sewage systems. City governments and private companies introduced amenities of modernization such as electricity, telephones, radios, typewriters, and garbage collection.

Most importantly, modernization in Utah included considerable social and cultural change. It clearly included the gradual elimination of whatever isolation had previously existed.⁶ Changes in Utah, and especially in the Wasatch Front, characteristic of this period involved accommodation to the business, social, environmental, and political practices of mainstream America.⁷ In the late nineteenth and early twentieth centuries, Utahns in general, and stockholders in mutual irrigation companies in particular, gradually abandoned religious and social exclusivity as they promoted business, political, and social relations with those of other faiths, or of none at all.

Modernization on the Wasatch Front did not include some features scholars have classified as aspects of modernization. In the United States and especially along the Wasatch Front the changes clearly did not include secularization. Most businessmen and farmers on the Wasatch Front were active priesthood holders in the Church of Jesus Christ of Latter-day Saints. Moreover, late nineteenth and early twentieth century American modernization did not include the amenities we associate with the late twentieth and early twenty-first centuries: those ushered in by the introduction of the personal computer, the Internet, and electronic data retrieval

and transfer. Some of these, at least, we would consider post-modern because they may be seen as aspects of a service-oriented economy.⁸

Within this atmosphere of modernization, Utah's mutual irrigation companies flourished. As the irrigation companies constructed systems to deliver water to users, the Utah legislature changed the laws under which these companies operated. In 1865, the legislature authorized the organization of irrigation districts. Passed twenty-two years before California's more famous Wright Act, the Utah law allowed districts to tax users who benefitted from water delivered from a system, rather than taxing all landowners in the district, as the Wright Act stipulated. Utah's legislature repealed the law in 1897, although it allowed the existing districts to remain intact. In 1909 the legislature passed a new irrigation district act. Later legislatures amended the act, in part to facilitate the construction of irrigation works by the United States Bureau of Reclamation.⁹

The legislature changed the law governing the appropriation and management of bodies of water in 1880, vesting exclusive authority over water matters in county selectmen, whom the law designated as county water commissioners.¹⁰ The law authorized selectmen to gauge streams and allocate water to various users. It also required them to conduct administrative rulings on water claims, although parties to disputes could appeal water commissioners' rulings to the district court. The law also recognized primary appropriation rights to the extent of that portion of stream flow reasonably necessary to accomplish the purpose of the appropriation. Users secured such rights by seven years of beneficial use, a provision later reduced to five years. The law also acknowledged secondary rights, often called surplus or high water rights. These usually consisted of the right to use that portion of a stream flow in excess of the primary rights. Such flows generally ran in streams during the spring, during floods, or during years with ab-

normally high precipitation. Most important, the statute converted the ownership of water from a right attached to the land, to a type of personal property that owners might sell or buy as they wished. Moreover, it also specifically authorized irrigation or canal companies to incorporate and to levy assessments on owners' shares for operating expenses, maintenance, and improvements.

Between 1880 and 1896 county selectmen, and between 1896 and 1903 county commissions, continued to grant water rights, while state district court rulings determined the extent of such rights. In 1903 the Utah legislature vested the regulation of water rights in the office of state engineer—which it had established in 1897—and in the district courts. A modification of this law in 1919 gave the state engineer the authority make investigations and to grant water rights, although the law retained the right of appeal to the courts.¹¹

Within the growing body of statute law and its accompanying case law, Utah's mutual irrigation companies passed through a pioneering phase from 1847 to 1880, and a phase of modernization between 1870 and 1930. We can see a transitional period during the 1870s in the story of what became one of the most successful mutual companies: the Provo Bench Canal and Irrigation Company. Shortly after its incorporation in 1871, shareholders heaped considerable criticism on the superintendent—a position some companies called the watermaster—for his failure to deepen and enlarge the company's canal and to maintain the works that the company had constructed. D. H. Kinsey defended himself by arguing that conditions beyond his control had thwarted his efforts. The company diverted water from the Provo River to supply farmers in a section of Utah County west of Provo that residents would incorporate as Orem in 1919. The Provo River flows from the western slope of the Uinta Mountains through a number of high valleys on the eastern side of the

Wasatch Mountains and through Provo Canyon into Utah Valley. In Utah Valley, the river empties into Utah Lake. Kinsey said that although he had contracted with Alexander F. McDonald to construct the new works, "nearly one half [of the company members] refused or neglected to pay" their taxes, and he could not pay McDonald for the partial work he had done.¹²

Because the company had also organized as an irrigation district under the 1865 law, it had the authority to tax its water users. Kinsey tried to enforce the tax law by selling the land of the delinquents. This he could do before an 1882 law made such taxes a lien against a delinquent's water right or interest in the canal rather than against real property. Even so, Kinsey failed. He found no buyers, in part because the settlers had no clear titles to their land. The federal government had opened its Salt Lake City land office only two years before, and the General Land Office had not yet granted titles to most of the area's farmers. While dealing unsuccessfully with delinquent taxpayers, Kinsey advanced more than six thousand dollars of his own in money and supplies in order to keep the project going.¹³

The company faced similar problems in maintaining the existing works. In addition to refusing to pay their taxes, many water users also declined to contribute time to improve or maintain the canals. In what seems in retrospect a ridiculous effort to solve the problem of delinquent taxpayers and unwilling workers, the irrigation district trustees voted to levy additional taxes which Kinsey, of course, could not collect. In the absence of either money to pay for labor, supplies, and equipment, or the donated labor of water users, the ditches silted up, and the company could not furnish sufficient water to shareholders. Although water-starved farmers shared the blame for Kinsey's failure to deliver the precious liquid, they nevertheless criticized him as their crops wilted. With his hands tied and the company in dire straits, Kinsey refused to accept reappointment as company su-

perintendent.¹⁴

Overcoming these setbacks, by early 1872, the Provo Bench Canal and Irrigation Company managed to improve the canal and deliver adequate water. The company's remaining problems—such routine matters as repairing headgates and graveling roads—seemed minuscule by comparison. By 1876, the company had apparently developed practices to solve even these problems, and board meetings became sleep-inducing routines of reports and discussions.¹⁵

Later in the nineteenth century and in the early twentieth century, the company addressed modern rather than pioneering problems. In 1889, Provo Bench officers negotiated the purchase and incorporation into their system of the Lake Bottom Irrigation Company, a company that supplied water to farmers west of the Provo Bench near Utah Lake.¹⁶

As early as 1893 the Provo Bench company contemplated the possibility of entering into a suit with Provo City and with other companies to determine the portion of the Provo River owned by each of the users. The somewhat delayed proceedings in the suit—which determined the ownership of virtually all water flowing in the Provo River—began in 1914 in Utah's Fourth Judicial District Court in Provo. Judge C. W. Morse, who presided in the case, issued a decree in the extremely complex suit on 2 May 1921. Morse's decree awarded the Provo Bench Canal and Irrigation Company Class A rights to Provo River water sufficient to irrigate nearly 4,333 acres of land.¹⁷

Disputes over the ownership of water erupted between other companies as well. Irrigation companies in southern Salt Lake County and northern Utah County engaged in a number of controversies over Dry Creek, which flows from the southern slope of the Traverse Mountains in a southwesterly direction toward Utah Lake. At a meeting of the Board of Directors of the Draper Irrigation Company in July 1888, a report by Peter Garff declared that the Dry

Creek Reservoir and Irrigation Company and the Flat Irrigation Company—which competed with each other and with the Draper company for the water of Dry Creek—had been taking more than their share. At the time, the Dry Creek company claimed one-third of the water, the Flat company one-third, and the Draper company one-half. That, of course, exceeded the total flow of the creek, but negotiations in 1892 resolved the discrepancy. In the meantime, however, the directors of the Draper company hired a guard to maintain their rights by making certain that parties representing the other companies did not alter division gates erected on the stream.¹⁸

Stationing the guard did not solve the distribution problem, since by 1892 the Dry Creek company claimed one-half of Dry Creek for the entire irrigating season, while the Draper company claimed two-thirds of the stream after 20 July. Both sides hired attorneys, but instead of going to court as the Provo Bench company did, the Draper company settled the matter by selling its rights to one-sixth of the flow to the Dry Creek company for \$375. This left the Draper company with half of the stream's flow after 20 July.¹⁹

In spite of such disagreements, the companies cooperated in using the stream. For instance, the Draper and Dry Creek companies shared the cost of maintaining a reservoir they had developed by enlarging and damming a small lake at the head of a fork of Dry Creek. Each company appropriated fifty dollars to deepen the reservoir and increase the height of the dam in 1894. After they had completed this work, the companies filed appropriation claims on the additional water their efforts had secured. Draper also worked out amicable arrangements with the Flat company on some matters. In August 1891, during a severe drought, M. Mikkelsen and James Parker of the Flat company secured permission to use the Draper's more convenient canals to convey water to keep their shareholders' corn

and trees alive.²⁰

Companies also faced internal problems in the division of water between their stockholders. In May 1889, one officer of the Draper company, B. F. Terry, charged that someone had changed the head gates so that two-thirds of the flow from Dry Creek poured into the company's Middle Ditch. An equitable distribution would have allowed only sixteen inches of water through that five-foot-wide head gate.²¹

At times the companies had to change the point at which members diverted water from the system onto the shareholders' lands. Sometimes this required the company to switch water from one of its canals to another. In some cases, such changes led to discussions of the volume of water that should flow in a particular canal, often because members who had used a specific flow in the canal noticed that the volume had either diminished or increased. With a diminished flow, they sometimes found it difficult to irrigate the acreage they previously had watered. In 1889, a dispute occurred within the Draper company because two of its users, Joshua Terry and L. H. Smith, had changed their water allocation from one ditch to another and J. M. Stewart had sold part of his water right to Walter J. Green. The latter sale required the company to change the water turns of ten users along ditch to accommodate the new user.²²

Problems connected with the distribution of water proved extremely serious for large companies with complex systems. In 1877, stockholders in the Union and Jordan Ditch Company agreed to install gates they called "divide gates" that automatically allocated portions of the stream to the various units in the system. The company operated a complex system consisting of four main ditches and two additional forks with five ditches on each. The system diverted water from Little Cottonwood Creek, which flowed down Little Cottonwood Canyon to the Jordan River Plain. This water irrigated farms in parts of the area of Salt Lake County now

included in the districts and cities of Union, Midvale, Murray, West Jordan, and Sandy. Managing this system required a watermaster, plus assistant watermasters on each of the main ditches and each of the forks.²³

In spite of the legal water rights that each appropriator owned under the 1880 law, at times some companies treated their systems as though the company itself owned the water and could allocate it according to the will of its stockholders. The Draper company had, in effect, done this when it relinquished the right to part of its water to the Dry Creek company in order to avoid the expense of a lawsuit.

The records of Union and Jordan Ditch Company stockholders' meetings indicate frequent discussions of individual water rights which led in a number of cases to the formal and explicit reallocation of water among users.²⁴ In 1893, Union and Jordan stockholders undertook an extraordinary reallocation of water rights which, with apparent impunity, completely ignored the right of prior appropriation that Utah's 1880 law probably guaranteed to individual shareholders. In justifying such action in a later dispute over water rights, stockholder William B. Bennett pointed out that Section 13 of the company's bylaws said that whatever was done by a vote of the majority in a regular meeting was binding on the whole. What Bennett did not say was that the company had included the word "lawful" in Section 13. It seems exceedingly doubtful that a vote of the majority could negate an individual right granted by Utah's 1880 prior appropriation law, either by divesting a member of a water right or by transferring a right from one shareholder to another.²⁵ Nevertheless, and quite significantly, the stockholders functioned as though they had the prerogative to reallocate such rights within the company.

The details of this case are revealing. In a meeting on 5 May 1893, stockholders began discussing the needs of various users while considering a problem that had arisen because one por-

tion of the system received too little water and another too much. James Higgins told the stockholders that he had bought land from James Winchester, who in 1893 served as company president and who had previously served as watermaster. Higgins said that when he purchased the land he had neglected to purchase a water right. But he stated that he had worked on the ditch for thirty years—presumably helping to build and repair irrigation works and cleaning weed-choked ditches and laterals. Moreover, he had paid all of the assessments levied by the company over that time.²⁶

During this discussion of water distribution, Winchester himself said that when the company had first established its system, it had furnished him with enough water for a farm of 125 acres. But after the company had installed divide gates to allocate the water according to the established water rights, the system did not furnish enough water to grow his crops. He asked that the company allow him enough water for another forty-five acres beyond the eighty acres already sufficiently irrigated. After Winchester spoke, Albert Glover said that he wanted the company to furnish him with enough additional water to irrigate four more acres.

In resolving their water allocation problems, stockholders agreed to several compromises. They refused to approve Glover's request, but Levi Naylor agreed to transfer enough water from his father William's claim to irrigate two of Glover's acres. The water was rerouted to the ditch serving Glover's fields because Naylor's land had become "too wet," and did not need as much water as it received. This solved at least part of Albert Glover's problem. Then—after a heated discussion of the estimates of the system of water division—stockholders passed a controversial motion offered by John Oborn, agreeing to furnish Higgins with water for an additional fifteen acres and to give Winchester water for an additional forty-five acres.²⁷

In the past, the Union and Jordan Company

had reallocated its water supply on a number of occasions, in each case recording the number of shares held by each stockholder. Each share furnished enough water to irrigate a quarter acre. The company made one such reallocation in 1884, made an interim measurement, and the question of altering the divide gates again arose at the stockholder's meeting in 1895. This discussion followed from a meeting of 24 February 1894, at which stockholders refused to accept a new water allocation, proposed by a committee established for the purpose, because they considered it contrary to the legal division of water within the system.²⁸

Albert Glover pointed out that under the law, the Salt Lake County selectmen, as water commissioners, could have settled water-rights disputes, but had declined to do so. After listening to the discussion for a time, William Bennett urged members to agree over the allocation of water. If they did not, he predicted that they would have "a costly affair on our hands," presumably because the matter would end up in court. Moreover, he predicted—erroneously as it proved—that under the new state constitution, water commissioners would have the power to take "our" water and divide it as they wished. This argument did not satisfy all of those present, and Daniel Jones pointed out that the stockholders had unlawfully granted water rights at a previous meeting. Presumably he meant the meeting of 5 May 1893, which gave the additional water to Higgins and Winchester. Jones also said that such reallocations had caused difficulty down to that time.²⁹

At first Glover maintained that those stockholders with older water rights, presumably under the 1880 law, ought to withdraw from the company and incorporate a new one. But Glover withdrew his motion, even though it had some support, probably in the interest of community unity. He then moved that the company set the gates to correspond with the current acreage allotment, incorporating changes such as those

made in the claims of Winchester and Higgins. This motion carried by a vote of twenty-three to ten. Following that vote, C. Sharp tried to get the company to reset the divide gates to the 1884 measurement, but his motion failed.

Perhaps in part because of the questionable legality of reallocating water rights, and probably because of changing conditions caused by modernization, the company incorporated on 20 June 1895. Barlow Ferguson, a Salt Lake City attorney, served as notary public at the meeting. As part of the 1895 incorporation, Union and Jordan Ditch Company stockholders signed deeds of trust conveying their rights and titles to water in Little Cottonwood Creek to the newly-organized Union and Jordan Irrigation Company. In return for this they received stock in the new company equal to the value of the shares of water they previously owned. Shareholders also signed articles of incorporation and elected a board of directors for the new company. John Oborn and Henry Monteer, a justice of the peace, later contacted the thirty members who had not attended the meeting and secured their signatures on the articles of incorporation.³⁰

Besides allowing the company to settle such problems as extra-legal water reallocations, incorporation helped the members address changes caused by the modernization of Utah's economy. New conditions resulted from the expansion of manufacturing, the installation of city utilities, and the increasing complexity of water distribution.

Market agriculture spread along the Wasatch Front, especially with the growth of cities and the demand for vegetables and fruits to feed the urban population. Most important were the organization and growth of the Utah-Idaho and Amalgamated sugar companies. These companies constructed and operated factories in Utah, Salt Lake, Weber, Box Elder, and Cache counties, and they contracted with farmers to supply sugar beets to their factories. To take advantage of the market for sugar beets, a private com-

pany headed by J. R. Bothwell built an irrigation system to divert water from the Bear River to farms in Box Elder County. The Bothwell company failed, and sold its system to the Utah-Idaho Sugar Company. But most Wasatch Front irrigation companies remained mutual companies. Many farmers in central Salt Lake County began growing sugar beets during the 1890s; indeed, the high school at West Jordan, a district partly served by the Union and Jordan company, adopted "Beetdiggers" as their mascot.³¹

During the 1870s and 1880s, several corporations built ore smelters at Murray, Midvale, and Sandy. These plants required extraordinary volumes of water to recover and refine various metals. By 1895, the Union and Jordan company had contracted with the Mingo Smelter to furnish it one-tenth of the flow of Little Cottonwood Creek at its lowest stage. In 1896 the irrigation company's superintendent agreed to rent additional water to the Mingo Smelter during a period of reduced water flow. This action may have infringed upon the water rights of some members, who objected. But Superintendent Carl O. A. Liljablad explained that he had agreed to rent the water to the smelter in order to prevent it from shutting down and forcing workers from their jobs. Some shareholders groused over Liljablad's action, but they accepted it³²

Not satisfied with renting water, at least one of the biggest smelters purchased water rights of its own. By 1916, the United States Mining Company, with 420 shares, had become the single largest stockholder in the Union and Jordan Irrigation Company. Edgar M. Ledyard, a company officer, represented the smelting company and voted its shares at Union and Jordan stockholders' meetings. At that time, each share entitled its owner to sufficient water to irrigate a quarter acre of land. In contrast to the large block of stock the smelter owned, Albert Glover owned the most shares held by any farmer, with 223. Most farmers, operating the small, irrigated farms typical along the Wasatch Front, owned fewer

than 100 shares.³³

Urbanization impacted the company as well. As early as February 1903, the Union and Jordan Irrigation Company entered into what eventually became a series of complex exchange agreements with other companies and with Salt Lake and Sandy cities. A 1901 decree and supplemental decrees by Judge C. W. Morse—sitting in the Third Judicial District in Salt Lake County—apportioned the water of the Jordan River, which empties from Utah Lake in Utah County and flows northward through Salt Lake County into the Great Salt Lake. The 1901 decree awarded the bulk of Utah Lake's water flowing in the Jordan River to Salt Lake City and to four canal companies.³⁴

Most important, the decree left the city and the canal companies free to exchange water with, or sell it to, other companies or individuals. The East Jordan Irrigation Company sold water and shares in its canal to companies like the Union and Jordan. Salt Lake City negotiated exchange agreements with the Union and Jordan and other companies to secure potable water from Little Cottonwood and other Wasatch Front canyons, in return for lower-quality irrigation water that flowed from Utah Lake through the Jordan River. In October 1905, the Union and Jordan approved an exchange of Little Cottonwood Creek water for Salt Lake City canal water. As an inducement, Salt Lake City offered the company 25 percent more water than the company transferred to the city, plus a fifteen hundred dollar cash bonus.³⁵

As urban areas modernized during the Progressive Era, a number of smaller cities followed the lead of their larger neighbors and installed drinking water and sewage systems. In 1912 and 1914, the Union and Jordan company agreed to exchange Little Cottonwood water with Sandy and to accept canal water in return so the city could install a drinking water system. Following Salt Lake City's example, Sandy offered the company 25 percent more water than the city re-

ceived in the exchange.³⁶

By 1916, in addition to selling water to Sandy, the Union and Jordan Irrigation Company had itself entered the potable water business. The company worked out arrangements with the cities of Sandy, Murray, and Midvale and the district of Union to cooperate in or secure franchises for installing such systems. Between July and October 1917, the company determined the fees it would charge for extending its potable water system to users' properties, and upon yearly rates for customers. The company later installed water meters in customers' yards.³⁷

As companies such as the Union and Jordan diversified their operations, their affairs became increasingly complex. Purchase agreements transferred stock in the East Jordan Irrigation Company to the Union and Jordan Company, a move for which the Union and Jordan's president voted on behalf of his company at the East Jordan company's annual meeting. In 1915, the Union and Jordan Company sold additional Little Cottonwood water to Sandy and purchased canal water from Salt Lake City. In order to settle accounts in the time between expenditures and receipts, company officers borrowed money from local banks.³⁸

Complex agreements increased the Union and Jordan's entanglements with other companies. Other appropriators, such as the Little Cottonwood Irrigation Company and Sandy City, asserted claims to portions of the flow of Little Cottonwood Creek. Such adverse claims led the companies to hire attorneys to resolve their disputes. After years of struggling to remain independent—and after collaborating, however reluctantly, with the Little Cottonwood Irrigation Company in the construction of a reservoir and canal—Union and Jordan agreed to merge with the Little Cottonwood company by purchasing some of its shares in 1918. Thus, by the 1920s, the Union and Jordan Irrigation Company, besides functioning as an irrigation and potable water supply company, had effectively become

a holding company. It owned and voted shares in such firms as the East Jordan and the Little Cottonwood irrigation companies.³⁹

Due to increased complexity, the substance of the Union and Jordan's operations changed as well. During the late nineteenth and early twentieth centuries, the company's most important meetings had been its stockholders' meetings. There members dealt with such matters as the regulation of divide gates, the volume of water this or that shareholder should receive, the amount to be paid or credited for labor on the company's ditches, and the levies charged against each stockholder's shares. Prominent stockholders vied with one another for election to the board of directors, as they contended over the company's policies and management.

By the early 1920s, the relationship between the board and the stockholders had changed substantially. With the exception of infrequent complaints over receiving insufficient water, stockholders seem to have lost interest in the day-to-day operation of the company, and they increasingly left management to the directors. Clearly, the company's operations had become so complex that most shareholders lacked the time or expertise to fully understand its affairs. Instead of debating and suggesting courses of action at meetings, members became increasingly content to simply ratify the decisions of the board. Stockholders also regularly reelected sitting officers, so the membership of the board of directors remained constant. A group of men who understood the operations of the company tended to monopolize the positions. At the biennial meeting of 27 February 1922, stockholders, for the first time, reelected the sitting board by acclamation.⁴⁰

Just as modernization changed the form and substance of the Union and Jordan Irrigation Company's operations, it presented challenges for some companies that led stockholders to make costly choices. Stockholders in at least one of these mutual companies heaped an almost un-

bearable financial burden upon themselves as they tried to apply the self-help techniques of the pioneers to the construction of a modern, complex, and sophisticated irrigation system. On 11 July 1898, farmers in the towns of Trenton, Amalga, Cornish, and Newton, Utah, and Weston, Idaho, incorporated the West Cache Irrigation Company to supply water from the Bear River and its small tributary, Deep Creek, to nearly fifteen thousand acres in western Cache Valley.

A significant interstate stream, the Bear River rises on the northern slope of Utah's Uinta Mountains. It collects water from tributaries as it flows northward through Utah and western Wyoming before looping into eastern Idaho north of Bear Lake. In Idaho, the river curves in a westerly direction before bending south to flow into Utah through northern Cache Valley. It exits Cache Valley through a low divide west of Newton. From there it flows in a southerly direction along the Great Salt Lake Plain into the lake.

The West Cache's stockholders agreed to finance and engineer the irrigation works like a modern corporation. Hiring two engineers from Ogden, the company floated forty thousand dollars in twenty-year bonds through the Utah Mortgage and Loan Corporation of Logan. Initial estimates predicted that the canal system would cost about fifty thousand dollars to construct. When Utah Construction Company of Ogden offered to construct the system for eighty thousand dollars, the West Cache's officers decided that they could save money by building it themselves.⁴¹

With local labor and less skilled supervision, however, the West Cache company's construction costs and debt mounted. Borrowing another twenty thousand dollars in 1900, the West Cache Company passed through successive reorganizations in 1910, 1912, and 1923 as it continued to amass additional debt. When finally completed, the main canal cost \$267,000, more than three

and a third times Utah Construction's bid. Laterals and other works cost an additional \$250,000. Debt plagued the company and its shareholders until by 1937 its principal stockholder was the Federal Land Bank of Berkeley, California. The land bank amassed its shares as many West Cache farmers lost their stock through foreclosure during the Great Depression.

The complexity of the operations of these mutual companies grew as the Bureau of Reclamation extended its operations into Utah. As its single project constructed in Utah prior to 1930, the Bureau dammed the Strawberry River. The Strawberry gathers water from the eastern slope of the Wasatch Mountains in Wasatch County. From there, Strawberry River water flows from the Duchesne and Uinta Rivers into the Green River. The Bureau dammed the upper Strawberry River, storing water in Strawberry Reservoir and diverting it from the Colorado Plateau into the Great Basin. From the reservoir, this system diverts water through a tunnel drilled through the Wasatch Mountains into Sixth Water Creek, a tributary of Diamond Fork. From Diamond Fork, the water flows into the Spanish Fork River from which users divert it to irrigate farms, principally in Southern Utah County. The Spanish Fork River originates near the Utah-Wasatch County line in central Utah, flows westward through Spanish Fork Canyon, the Utah Lake Plain, and into Utah Lake. Construction of the project began in 1906, and the Bureau began delivering water to part of the system in 1916. The project eventually served additional users, as the Bureau constructed irrigation works further south in Utah and Juab Counties. As part of the construction agreement, the consumers of Strawberry Valley water signed contracts to repay the federal government for the cost of construction.⁴²

Like many other farmers in southern Utah Valley, some shareholders in the Salem Irrigation and Canal Company contracted for Strawberry Reservoir water. Originally incorporated

in 1878 in Salem, a small town in southern Utah County, the company reincorporated in 1903. The company diverted water from the Spanish Fork River to irrigate farms in Payson and Salem. During the early 20th century, its officers spent much of their time addressing routine matters. These included cleaning ditches and laterals, determining charges to stockholders for operating the system, considering claims for damages caused by the overflow of irrigation ditches, installing "measuring gates" to regulate the flow of water to various members, constructing new irrigation works, and diverting water through the Salem's canals for another company.⁴³

After construction on the Strawberry Valley Project began, however, company shareholders struggled to find the means to acquire new water supplies while maintaining their independence. Like shareholders in other mutual companies that relied on the Spanish Fork River in southern Utah County, many members of the Salem company lacked sufficient water for irrigation throughout the growing season. Unlike the Bear and Provo rivers, the Spanish Fork drains a relatively small area and its flow often dwindles late in the summer. For those reasons, many shareholders wanted to secure additional water from the Strawberry Valley Project. As early as 1906, stockholders of the Salem company thought they might have to dissolve their corporation and affiliate with the Strawberry Water Users' Association in order to enjoy the benefits of the Strawberry Valley Project. They resisted this alternative, though by 1908 they had at least appointed a member to serve on the Strawberry Water Users' Association board.⁴⁴

During the project's construction, the relationship between the Salem company and the Bureau of Reclamation seemed quite cordial. In 1908, for instance, the Bureau worked out an arrangement to close down the company's canals in rotation so the Bureau could install gates, flumes and various structures at its Spanish Fork power plant. Moreover, the company accepted

the Bureau's proposal to install "rating flumes" to measure the amount of water flowing into the Salem company's system.⁴⁵

As the project neared completion, the Salem company sought to secure more water to augment its deficient supply. The company first tried to purchase water from the Bureau, but the project's supervising engineer, J. L. Lytel, indicated that the law did not allow the Bureau to sell.⁴⁶ In 1919, a committee appointed by the Salem company, consisting of Eli F. Taylor, C. E. Loose, and N. C. Christensen, recommended that the company be dissolved and reorganized as an irrigation district. Company officials went as far as to plat the area for an irrigation district, but it appears that they did not actually organize the district or dissolve the corporation.⁴⁷

Instead, individual members contracted with the Bureau of Reclamation for water. In doing so, those who purchased Strawberry River water assumed the usual obligations under the Bureau's repayment contract.⁴⁸ Since the Bureau's customers also watered their crops with Salem company water, the company diverted the Bureau's water through its canal system to supply those shareholders who contracted for the additional water. The Salem company also authorized those shareholders who purchased Strawberry River water to appoint a representative to serve on the board of the Strawberry Water Users' Association. On a number of occasions, Strawberry-River-water-using members of the Salem Irrigation Company met separately to coordinate their interests. In such meetings E. E. Beddoes, president of the Salem Irrigation Company, presided. During these meetings they negotiated such matters as when to ask the Bureau to release Strawberry River water into their system.⁴⁹

Since both the Bureau and the Salem Irrigation Company owned water in the Spanish Fork River, they and the other companies that drew on that watercourse had to coordinate their activities. In 1921, the Bureau worked out an agreement with the Salem company and the Spanish

Fork South Irrigation Company to exchange flood water that flowed early in the year for water that flowed later in the season, and to purchase and operate a radial water gate near the Bureau's power plant. In 1929, the Salem and other companies decided not to protest when the Bureau filed to appropriate water that flowed during the winter from Cold Springs to generate electricity, even though they might have had a legitimate right to the water themselves.⁵⁰

Although the companies could not buy water from the Bureau for delivery over a long period, during some times of short supply the companies did rent Strawberry River water. In 1922 the Salem Irrigation Company, the Spanish Fork South Irrigation Company, the Spanish Fork East Bench Irrigation Company, and the Lakeshore Irrigation Company contracted with the Bureau to rent additional water. Because of a drought, the Salem Irrigation Company purchased more than seven hundred acre feet of surplus water from the Bureau in 1924. Again in 1928, the company rented one hundred acre feet of water.⁵¹

The delivery of Strawberry River water guaranteed southern Utah County's farmers a generally reliable supply for the entire growing season. With adequate water, farmers in the Salem Irrigation Company, like others in southern Utah County, became increasingly secure in market agriculture. The Utah-Idaho Sugar Company had previously constructed a sugar beet plant at Payson. With the additional water, the company installed a larger plant at Spanish Fork, and another company constructed a plant at Springville in 1918. During the 1906 season, farmers planted only nineteen acres of sugar beets in southern Utah County. With the stable water supply, farmers in the same region planted fourteen thousand acres of beets in 1919. Increasingly drawn into a mixed agricultural and manufacturing economy, many farmers grew beets in the summer, harvested them in the fall, worked at one of the factories during the winter, and

fed beet pulp to their livestock. The reliable supply of water also facilitated the planting, harvesting, and packing of truck crops and fruit in southern Utah County, a development that took place elsewhere in the Wasatch Oasis as well.⁵²

Clearly conditions in the southern Utah Valley changed enormously between 1870 and 1930, as they had throughout the entire Great Salt Lake drainage. As conditions changed, the mutual irrigation companies of the Wasatch Oasis underwent enormous changes as well. Drawn into an increasingly complex society and economy, the companies slowly modernized to take advantage of new conditions. The most radical changes undoubtedly took place in the operations of the Union and Jordan Ditch Company, which became fully involved in smelter operations and in installing urban drinking water systems in central Salt Lake County. By the early twentieth century, the Union and Jordan owned shares in other companies, becoming a holding company as well as an operating company. Firms like the Union and Jordan, the Draper, the Dry Creek, and the Salem found it expedient to exchange water and to work together to deliver water and construct irrigation works. A number of them, like the Provo Bench Company and the canal companies in Salt Lake County, engaged in suits to confirm their rights to appropriate water from larger streams with heavy demands, like the Provo and Jordan rivers.

At the same time, the companies bore the costs of modernization. Stockholders in the West Cache Canal Company mired themselves in almost unimaginable debt partly because they miscalculated the cost of constructing their system. Some appropriators undoubtedly lost water rights because they acquiesced in decisions made in the companies, while others gained such rights.

As conditions changed, the companies became more interdependent. The Union and Jordan mortgaged its independence by buying stock in other companies and engaging in exchange agreements with Salt Lake City and Sandy. In-

creasingly, companies in southern Utah County, like the Salem Irrigation and Canal Company, became involved in affairs far beyond the Wasatch Front. The Bureau of Reclamation—which built irrigation works throughout the West after the passage of the Newlands Reclamation Act in 1902—constructed the Strawberry Valley Project. Shareholders in the Salem company, who had previously suffered during the growing season for lack of water, now had sufficient water for extensive commercial agricultural operations. As the price for an assured water supply, members of the company, and at times the company itself, entered into cooperative and rental agreements that amplified their interdependence.

Perhaps most important were the compromises that irrigation company stockholders made in order to maintain harmony in their organizations and to deliver water to those who needed it. Watermaster Carl O. A. Liljablad rented water belonging to someone else to the Mingo Smelter. Significantly, stockholders in the Union and Jordan Company who apparently lost water, such as Albert Glover and C. Sharp, and those like James Higgins and James Winchester who got new supplies, all agreed to abide by the vote of the majority. Daniel Jones was undoubtedly right in his belief that the company had acted illegally by reallocating the water even by majority vote. Stock in a mutual water company represented the right to use a specific volume of water for a specified time. But the water belonged to individual stockholders under the 1880 law. Stockholders might sell or transfer their rights, but such rights were not infinitely convertible. Companies with shareholders' permission might use their water to generate electricity, concentrate or smelt lead, or irrigate subsistence or market crops. Although owners of such rights could hypothecate their stock as collateral for loans, it seems unlikely that stockholders of one of the Wasatch Front's mutual water companies would find themselves disposed to do so in order to finance ventures outside

the region.

These mutual companies operated in an increasingly complex, market oriented, and rapidly urbanizing environment. Whether they grew sugar beets in West Jordan, Amalga, or Salem, fruit trees in Payson or Orem, or truck crops in Union or Sandy, most farmers depended upon market sales of their products. Urbanization and industrialization led companies to divert their water for smelting, to exchange water for municipal uses, and to deliver it to urban consumers. Like human beings everywhere, shareholders adapted and survived under rapidly changing conditions.

Clearly sixty years of modernization wrought enormous changes on the mutual irrigation com-

panies of the Wasatch Front. These companies could no longer consider themselves independent of the interests of those who lived around them, if, indeed, they ever were. An increasingly industrial, commercial, and urbanized Wasatch Front effected the lives of company shareholders far beyond what they could have dreamed in 1870. As farmers and business people, they depended upon each other, on government agencies, and on markets for the commodities and amenities from farms, smelters, and urban systems that the water they had appropriated helped to provide. ■

The author thanks Alex Smith and Sharon Carver for their help on the research for this manuscript.

Notes:

1. This is a study of irrigation companies in the valleys of the Great Salt Lake drainage from 1870 to 1930. In this manuscript I have called the valleys stretching from the northern reaches of Mount Nebo in Utah County on the south, through Cache Valley on the north, the Wasatch Oasis. This is not strictly accurate because the eastern portion of Cache Valley fronts on the Bear River Range. Nevertheless, for convenience, I have used the terms Wasatch Front, Wasatch Oasis, and Great Salt Lake Drainage interchangeably, since I would argue that all of central and northern Utah constitutes an economic region with similar characteristics.

For a consideration of the development of irrigation companies in the Great Salt Lake Drainage during the period between 1847 and 1880 see Thomas G. Alexander, "Irrigating the Mormon Heartland: The Operation of the Irrigation Companies in Wasatch Oasis Communities, 1847-1880" (Unpublished paper delivered to a symposium on rural and water history in Reno, Nevada, 2 June 2001), copy in the author's possession. The best history of irrigation in Utah is George Thomas, *The Development of Institutions Under Irrigation: With Special Reference to Early Utah Conditions*, The Rural Science Series, (L. H. Bailey, ed.) (New York: Macmillan, 1902).

The major studies of the development of irrigated agriculture in Utah are: John Wesley Powell, *Lands of the Arid Region of the United States with a More Detailed*

Account of the Lands of Utah 2nd ed. (Washington, D. C.: USGPO, 1879); *Idem*. "Institutions for the Arid Lands," *Century* 40 (May 1890): 111-16; Charles Hillman Brough, *Irrigation in Utah* Johns Hopkins University Studies in Historical and Political Science, Extra Vol. 19 (Herbert B. Adams, ed. (Baltimore: Johns Hopkins, 1898); Thomas, *The Development of Institutions Under Irrigation*; Wells A. Hutchins, *Mutual Irrigation Companies in Utah*, Bulletin 199, (Logan, UT: Utah Agricultural Experiment Station, 1927); George L. Strebel, "Irrigation as a Factor in Western History, 1847-1890," (Ph.D. dissertation, University of California, Berkeley, 1965); Thomas G. Alexander, "John Wesley Powell, the Irrigation Survey, and the Inauguration of the Second Phase of Irrigation Development in Utah," *Utah Historical Quarterly* 37 (Spring 1969): 190-206; Leonard J. Arrington and Dean May, "'A Different Mode of Life': Irrigation and Society in Nineteenth-Century Utah," *Agricultural History* 49 (January 1975): 3-20; George D. Clyde, "History of Irrigation in Utah," *Utah Historical Quarterly* 27 (January 1959): 27-36; A. F. Doremus, "Irrigation in Utah," in *Official Proceedings of the Eleventh National Irrigation Congress Held at Ogden, Utah, September 15-18, 1903* (Ogden, Utah, 1904), 269-72; Leonard J. Arrington, *Great Basin Kingdom: An Economic History of the Latter-day Saints, 1830-1900* (Cambridge, MA: Harvard University Press, 1958); Robert C. Dunbar, *Forging New Rights in Western Waters*

- (Lincoln: University of Nebraska Press, 1983); William Ellsworth Smythe, *The Conquest of Arid America* (New York: Macmillan, 1900); Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon Books, 1985); and Donald J. Pisani, *To Reclaim a Divided West: Water, Law, and Public Policy, 1848-1902* (Albuquerque: University of New Mexico Press, 1992).
2. I am using the terms "modern" and "modernization" here in a slightly different sense than the sociological term "modernization." For the literature on this subject see: Richard D. Brown, *Modernization: the Transformation of American Life, 1600-1865* (New York: Hill and Wang, 1976) which is the classic study of modernization in the United States; Ronald Inglehart, *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies* (Princeton: Princeton University Press, 1997); and Robert H. Wiebe, *The Search for Order, 1877-1920* (New York: Hill and Wang, 1967). On conditions in Utah see Leonard J. Arrington and Thomas G. Alexander, *A Dependent Commonwealth: Utah's Economy from Statehood to the Great Depression* ed. Dean L. May, Charles Redd Monographs in Western History, No. 4 (Provo, UT: Brigham Young University Press, 1974).
 3. Hutchins, *Mutual Irrigation Companies in Utah*.
 4. See: Karl Marx, *Das Kapital: A Critique of Political Economy*, (Frederick Engels, ed., condensed by Serge L. Levinsky), (Washington, D. C.: Regnery Gateway, 1996); Max Weber, *From Max Weber: Essays in Sociology* (H. H. Gerth and C. Wright Mills, eds.), (New York: Oxford, 1968); *idem.*, *The Protestant Ethic and the Spirit of Capitalism* ed Talcott Parsons, intro by Anthony Giddens (London: HarperCollins, 1991); Daniel Bell, *The Cultural Contradictions of Capitalism* (New York: Basic Books, 1967); *idem.*, *The Coming of Post-industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1973). See also Brown, *Modernization*.
 5. Inglehart, *Modernization and Postmodernization*, 5.
 6. Readers should understand that historians tend to dispute the question of isolation in Utah during the nineteenth century. My own view is that most have tended to overemphasize the level of isolation by dating the decline of isolation to the coming of the railroad. Before the railroad came, Utah lay on the principal overland wagon and stagecoach routes, and numerous people passed through and visited the territory, especially the Wasatch Front area, well before the railroad arrived in 1869.
 7. On this point see Thomas G. Alexander, "Stewardship and Enterprise: The LDS Church and Wasatch Oasis Environment, 1847-1930," *Western Historical Quarterly* 25 (Autumn, 1994): 340-364.
 8. It goes without saying that Utah's modernization also excludes other aspects of postmodernism, such as the concept that virtually all ideas are culturally constructed. See Inglehart, *Modernization and Postmodernization*, 12-14.
 9. Thomas, *Development of Institutions*, 117-137. On the Wright Act see Pisani, *To Reclaim a Divided West*, 103-04. In this paper I will use the term Bureau of Reclamation even though the organization was first named the United States Reclamation Service.
 10. For the substance of the 1880 act see Thomas, *Development of Institutions*, 138-145.
 11. Thomas, *Development of Institutions*, 193-202, 274-285.
 12. Minutes, 21 Aug. 1871, Provo Bench Canal and Irrigation Company Records, 1863-1976, Utah History Information Center, Utah State Historical Society, Salt Lake City, UT. (Hereafter: Provo Collection, USHS)
 13. On the opening of a land office in Utah see Thomas G. Alexander, *A Clash of Interests: Interior Department and Mountain West, 1863-1896* (Provo, UT: Brigham Young University Press, 1977), 26-27; and Thomas, *Development of Institutions*, 40.
- D. H. Kinsey to Board of Trustees of the Provo Company, 11 Aug. 1871, Provo Company Collection, USHS. A law of 1882 changed the irrigation district act to make company taxes a claim against the water right and the interest of the taxpayer in the canal rather than against real property. Hutchins, *Mutual Irrigation Companies in Utah*, 20.
14. Kinsey to Board, 11 Aug. 1871, Provo Collection, USHS.
 15. Board Minutes, 19 Apr. 1872 and 15 Apr. 1876, Provo Collection, USHS.
 16. Minutes of Meetings of the Trustees of the Provo Bench Canal and Irrigation Company (hereafter: Minutes of Provo Trustees), 31 May, 25 June 1889, Provo Collection, USHS.
 17. Minutes of Provo Trustees, 11 Oct. 1893, Provo Collection, USHS. *Provo Reservoir Company v. Provo City, et. al.* Civil Suit No. 2888 (2 May 1921), Copy in the State of Utah Water Rights Records, on line at <http://nrwrt1.nr.state.ut.us/adjdinfo/decrinfo/provo.htm>.
 18. Minutes of the Meeting of the Board of Directors, 7 July 1888, Draper Irrigation Company Papers (hereafter: Draper Papers), USHS.
 19. Minutes of Joint Meeting of the Draper Irrigation Co. and the Dry Creek Reservoir and Irrigation Co., 20 Feb. 1893, Draper Papers, USHS.
 20. Joint Meetings of the Directors of the Draper Irrigation Company and the Dry Creek Reservoir & Irrigation Company, 20 and 24 Aug. and 14 Sept. 1894, Draper

- Papers, USHS. Minutes of Draper Irrigation Company Meeting, 10 Aug. 1891, Draper Papers, USHS.
21. Minutes of Draper Irrigation Company Directors' Meeting, 7 May 1889, Draper Papers, USHS.
 22. Minutes of Directors' Meeting, 7 May 1889, Draper Papers, USHS.
 23. "Record of the Union and Jordan Irrigation Ditch, James Winchester, Head Water Master, 1877" (hereafter: Union and Jordan, 1877). Stockholders' Meeting, Union and Jordan Irrigation Ditch Company, 1877, 13-14, and Rules and Regulations of the Union and Jordan Irrigating Ditch, 1877, Union and Jordan Irrigation Ditch Company Records (hereafter: Union and Jordan Records), Archives Department, Merrill Library, Utah State University, Logan, UT (hereafter: USU) Note: Although the book is labeled "1877" it actually contains minutes of the stockholder's meetings from 1877 through 1895.
 24. For instance: Stockholders' Meeting, 18, 22, and 29 Mar. 1895, Union and Jordan 1877, Union and Jordan Records, USU.
 25. Stockholders' Meeting, 18 Mar. 1895, p. 25, Union and Jordan, 1877, Union and Jordan Records, USU.
 26. Stockholders' Meeting 5 May 1893, p. 18-19, Union and Jordan, 1877, Union and Jordan Records, USU.
 27. Stockholders' Meeting, 5 May 1893, p. 19, Union and Jordan, 1877, Union and Jordan Records, USU.
 28. Stockholders' Meeting, 24 Feb. 1894, p. 20; and 29 Mar. 1895, p. 28-29, Union and Jordan, 1877, Union and Jordan Records, USU.
 29. Stockholders' Meeting, 29 Mar. 1895, p. 28-29, Union and Jordan, 1877, Union and Jordan Records, USU.
 30. Book with the following on the outside: "Stockholder Mtng Minutes—1895-1916." Inside the title reads: "The Union & Jordan Irrigation Company, 1895, Stockholders Record," (hereafter: "Stockholders"), 1-2, Union and Jordan Records, USU.
 31. On the development of beet sugar in Utah, on the Bothwell company, and on its subsequent sale to the Utah-Idaho Sugar Company, see Leonard J. Arrington, *Beet Sugar in the West: A History of the Utah-Idaho Sugar Company, 1891-1966* (Seattle: University of Washington Press, 1966). On the Amalgamated Sugar Company, see J. R. Backman, *Story of the Amalgamated Sugar Company, 1897-1961* (Caldwell, ID: Caxton Printers, 1962).
 32. "Stockholders," p. 5, and Meeting of 24 Feb. 1996, p. 11, Union and Jordan Records, USU.
 33. Stockholders' Meeting, 26 June 1916, p. 3-6, Book entitled: "Stockholder Meeting Minutes, June 26, 1916 to 1928, Directors Meeting Minutes, June 30, 1916 to [blank]," (Hereafter: "Minutes"), Union and Jordan Records, USU.
 34. Meeting of 23 Feb. 1903, concerning the exchange of water from Little Cottonwood Creek with the Despain Ditch for water in the East Jordan Canal. Stockholders, p. 42, Union and Jordan Records, USU. *Salt Lake City, et. al. v. Salt Lake Water & Electrical Power Co., et. al* Civil Suits No. 2861, 3449, and 3459, Decree of 15 July 1901, copy in <http://nrwrt1.nr.state.ut.us/cgi-bin/docview.exe?Folder=DECREE000001>.
 35. Meetings of 28 Sept., 12 and 19 Oct. 1905, "Stockholders," p. 47-49, Union and Jordan Records, USU.
 36. Meetings of 26 Feb. 1912, 6 Mar. 1914, "Stockholders," p. 65, 77, Union and Jordan Records, USU.
 37. "Stockholders," 97-99, 105; Stockholders' Meeting, 28 Feb. 1916, Board Meetings, 24 May 1916. Stockholders' Meetings 26 June 1916, 6 and 17 Feb., 16 and 28 Mar., and 22 May 1917, p. 1-15, 22-25; Board Meetings of 30 June, 16 July, 26 and 27 Sept. and 13 Oct. 1916, and 17 Feb. 1917, "Minutes," Union and Jordan Records, USU.
 38. Meeting of 3 Apr. 1914 and Board Meeting of 1 May 1915, "Stockholders," p. 80 and 90, Union and Jordan Records, USU.
 39. "Stockholders," p. 5, and Meeting of 24 Feb. 1896, p. 10-11. In 1896, as an emergency measure, the company agreed to rent additional water to the smelter. "Minutes," 33, and 39-40, Board Meeting of 2 Mar. 1918, Stockholders' Meeting of 25 Feb. 1918, Union and Jordan Records, USU.
 40. "Minutes," Biennial meeting of 27 February 1922, Union and Jordan Records, USU.
 41. This story is based on: A. J. Simmonds, "Water for the Big Range," *Utah Historical Quarterly* 39 (Summer 1971): 224-237.
A company organized by the Eccles and Wattis families, Utah Construction later became one of the Six Companies that the Bureau of Reclamation hired to construct Hoover Dam. The company achieved considerable success, which continued after it moved its headquarters to San Francisco and adopted the name Utah International. The best history of Utah International is an unpublished manuscript written by Sterling Sessions, copy in the possession of the manuscript's author.
 42. On the Strawberry Valley Project see Thomas G. Alexander, "An Investment in Progress: Utah's First Federal Reclamation Project, the Strawberry Valley Project," *Utah Historical Quarterly* 39 (September 1971): 286-304.
 43. "Articles of Incorporation of the Salem Irrigation and Canal Company, March 19, 1903," Salem Irrigation and

- Canal Company Papers, 1866-1979, Manuscripts and Archives Department, Harold B. Lee Library, Brigham Young University, Provo, UT (hereafter: Salem Company, BYU). Board Meeting Minutes, 26 Feb. 23 Apr. 22 June, 2 Oct. and 10 Nov. 1904, 15 June 1909, and 22 Sept. 1917, Salem Irrigation & Canal Co. Record Book [1900-1931] (hereafter: "Record Book"), Salem company, BYU.
- 44 Stockholders' Meeting, 10 Feb. 1906; Board Meeting Minutes, 18 Apr. 1908, "Record Book," Salem company, BYU.
- 45 Board Meeting Minutes, 12 Oct. 1908, 27 Mar. 4 May 1909, "Record Book," Salem company, BYU.
- 46 Board Meeting Minutes, dated 28 Dec. 1915 (but probably 1914), 16 Jan. 1915, 13 July 1918, "Record Book," Salem company, BYU.
- 47 Board Meeting Minutes, 9 Aug. 27 Dec. 1919, "Record Book," Salem company, BYU.
- 48 "Report of Committee to the Stockholders of the Salem Irrigation and Canal Company," and Resolution of the Stockholders of the company, p. 170-71, Salem Irrigation Company Minutes, 1919, BYU.
- 49 Stockholders' Meeting Minutes, 21 Feb. 1920, and Strawberry Water Users Meetings, 21 June 1920, 29 May 1925, "Record Book," Salem company, BYU.
- 50 Board Meetings of 5 February, 7 Mar., 19 Apr., and 6 Dec. 1929, and 10 Mar. 1931, "Record Book," Salem company, BYU.
- 51 Board Meetings, 15 Mar. 1921, 6 May 1922, 20 May, 22 Aug., and 1 Dec. 1924, and 5 Sept. 1928, "Record Book," Salem company, BYU.
- 52 Alexander, "An Investment in Progress," 301.