CHAPTER III

1880 - 1889

HISTORY OF THE DENVER WATER SYSTEM
### INDEX

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1880-1889

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CHAPTER III
1880-1889


The decade of the eighties was a boom period in Colorado history.

The remarkable growth of the State was apparent on every hand. Town founding, expansion of farming activities, together with railroad construction, metal and coal mining development, with attendant smelting and general industrial expansion, made this an outstanding era of growth.

The State population doubled in ten years while Denver was tripling its count—a gain of 71,084 people—during the same period. Perhaps the best index of this growth was the increase in railroad mileage from 1570 in 1880 to 4176 in 1890.

For an excellent account of these many and varied significant events, the reader is referred to Vol. 1 of Hafen's, "Colorado and its People".

The new west side water plant and its component parts was written up in detail in the 1880 New Year's edition of the News. It was stated that the location for the new supply was chosen with a view to a higher up elevation and an abundant supply of good water. After describing the canal
and the lake, the article went on to say that the system of pumping by water power was the same as that in use at the Fairmount Works in Philadelphia, and that the pumping capacity was sufficient to supply a population of 100,000 people.

The News congratulated the people of Denver on the near completion of so great an enterprise, which was so essential to their health and comfort.

On March 9, 1880, Colonel Archer exhibited the new works to the members of the City Council and others, the party first visiting the headgate where an elaborate lunch was served.

A reporter for the News commented on the trip in part as follows:

"On arriving at the Lake, the really magnificent work displayed - massive machines, masonry and embankments, challenged the attention and admiration of all. Every provision seems to have been made to guarantee a full supply of any possible demand of the city for pure water for years to come, while, in addition to this, the main item, it was generally conceded that the to be, beautiful Lake Archer and environs, will add much to the beauty and health of the city in future years."

Fire pressure tests from the new west side works were held on April 24, 1880, with satisfactory results. Water diverted at the headgate of the Lake Archer Canal for domestic, power and other purposes was given a priority date of September 10, 1878, by the District Court of Douglas County on December 10, 1883. Appropriations at that time consisted of 14.5 cubic feet a second for domestic purposes and 263.76 cubic feet a second for power and other uses.
On June 16, 1930 the District Court of Douglas County authorized the transfer of 13.22 cubic feet of water a second for domestic use, from the original point of diversion to the intake of Conduit No. 8 with the original priority date of September 10, 1878.

In the decree it was stated that this transfer proceeding was in lieu of all appropriations decreed to Lake Archer Canal under the name of the Denver City Irrigation and Water Company's Canal, Reservoir and Water Works in the decree given by the Court on December 10, 1883. In other words the earlier appropriation of 14.5 cubic feet a second reduced to 13.22 cubic feet for domestic purposes with the power appropriation of 263.76 cubic feet a second being completely nullified.

Completion of these works in 1880 as heretofore noted, caused public attention to be shifted, for the time being, from the previously inadequate and less than satisfactory Holly water supply, to the general unsanitary condition of the city and the questionable methods used by the city council in its attempt to provide the beginning of a sanitary sewer system as authorized by the people in November of 1879.

Partisan politics, conflicts of interest, reported corruption on the part of city officials and an apparent widespread disregard for the interests of the taxpayers in the handling of public funds combined to bring this city administration into disrepute with regrettable loss of prestige and public confidence.

The first serious, although eventually unsuccessful, attempt to provide a true mountain water supply for Denver, was that proposed by The
Denver Water Supply Company. This company, promoted by H. A. W. Tabor, William N. Byers and others was incorporated in 1880, with a capitalization of $1,000,000.

The object of this new water company was to introduce into the city pure mountain water for domestic purposes. It was not proposed to interfere with the rights vested by contract in the existing water utility. The plan was to tap Summit Lake, under the brow of Mount Evans and other Bear Creek sources, and convey the water thus obtained by a system of pipe lines and reservoirs a distance of 43 miles to a reservoir on Cemetery Hill from which point it would distribute water in the Capitol Hill area then not served by the Denver Water Company, or if the city council so desired, the company stated it was prepared to serve the entire city in competition with the Denver City Water Company.

On page 327 of Robert Perkins book, "The First Hundred Years", printed in 1959, we find the following reference to Mr. Byer's interest in this promotion. "Few of his contemporaries took much interest in water even though they saw the city of Denver growing and knew that the prairie sweeping up to the foot of the Rockies was thirsty land subject to vicious drought. Byers, with some foresight, was an exception. As early as the late 1870's, he was looking ahead and exploring for water rights, now more precious than most of the mines ever discovered in Colorado.

In the summer of 1880 he secretly incorporated with his attorney, L. B. France, and the future silver king, H. A. W. Tabor, as the Denver Water Supply Company. He had made reconnaissance on foot and horseback to the summit of Mount Rosalie and the company laid claim to a lake at the
head of Bear Creek which Byers was convinced would meet demands until Denver grows to 500,000 people."

This pioneer newspaper man and influential molder of public opinion during the early days of Denver relinquished control of the Rocky Mountain News on May 4, 1878, thereafter devoting his attention to extensive mining, water and property rights at various locations throughout the state, with but indifferent success in any of them.

Application was made to the City Council on May 19, 1881 for the necessary contract to carry out the objectives named.

After many meetings, much discussion and opposition from the Denver Water Company and its friends, an ordinance was passed and approved on September 15, 1881, giving the Denver Water Supply Company a conditional 20 year right-of-way through the streets and alleys of the city for the purpose of laying pipes therein.

A provision of this ordinance that afterwards had much to do with the lack of success of the company in accomplishing its aims, was the required furnishing of a $50,000 bond to protect the city against any loss that might be suffered by it through any suit or action which might be brought against it on account of the agreement with The Denver Water Company purporting to grant said company the sole and exclusive right to lay pipes for the distribution of water within the city limits.

There is reason to believe also that the general legal situation at the time was such as to make the bonds of the company a poor risk; in any event, the project never got much beyond the "paper" stage of promotional activity, although it was not finally abandoned until some years later.
The summer of 1880 was a hot and dry one, reducing the flow of the South Platte River to such an extent as to make the water turbines at the New West Side Plant inoperative at a time when they were most needed to meet the increased demand placed upon the pipe system by the rapidly growing city.

This emergency situation was met in part by putting the steam driven pumps at the 15th Street Plant back into service, presumably changing the source of supply by tapping the west side of the South Platte River a short distance upstream with a temporary supply line.

In 1889 the West Side and 15th Street Plants were permanently connected by means of a 22-inch wood stave pipe line 1.69 miles in length which enabled the final abandonment of the original tainted wells, with both plants using Lake Archer water.

This 22-inch supply main terminated at the 14th Street Plant in an iron tank 8 feet in diameter and 45 feet high erected in the spring of 1889, with the pumping machinery at that plant reconditioned, new flues installed in the boilers and the whole mechanism overhauled so that regular operation was again resumed there on April 29, 1889.

The following comments on the situation at the beginning of this decade from the annual report of the City Health Officer to the Mayor for 1880 are of interest.
"For many years, the city has received its chief water supply from the wells on 15th Street. During the fall of 1879, there was a great deal of discussion and complaint against the quality of the water furnished. As the Holly Company was then engaged in constructing, at great cost, their new works, citizens were generally inclined to wait patiently, as they were satisfied that the new works were located above all sources of contamination, and that the supply could not be other than satisfactory. During the hot and dry season of this year, the new works failed in their supply and the company was compelled to call in the requisition of their old works. We immediately requested and were cordially supported in our request by Mr. Holme, the efficient secretary of the company, that a large pipe be laid from the further side of the Platte to the old well. This no doubt, improved the supply."

But the location of the works - 15th Street - are unsatisfactory, and the means of contamination of drinking water are so great and at the same time so various, that all manifest conditions of impurity should be excluded without any sort of compromise. We would therefore suggest, in view of the past, that you at once insist that the Holly Water Company shall place engines of sufficient power at their new works,
which will provide an abundant supply at all seasons, and thus avoid any future return of our past troubles." 

The recommendation that steam driven pumps be installed at the West Side plant, resulted in a council committee being appointed on February 10, 1881, to discuss the matter with Colonel Archer.

Although Colonel Archer hotly resented the suggestion that the water was bad and that he was derelict in his duty with respect to not having provided steam driven pumps at the West Side Plant in the first place, he conceded the point, and boilers, pumps and engines capable of handling 5,000,000 gallons of water a day were soon thereafter ordered as indicated by the following letter dated April 8, sent to the Board of Health over the signature of Richard Holme, Cashier of the Water Company.

"In reply to yours of the 7th instant, I would say that we have a contract with the Holly Manufacturing Company of Lockport, New York, to have ready for shipment our engine and pumps in May. The boilers were contracted for in February of F. M. Davis & Co. of this city. It is our intention to have the foundations for the machinery ready on its arrival, so that there will be no delay in the completion of the work. Allow me to say further, that as soon as it became evident to this company that clear water could not always be supplied, during high water in the Platte, steps were promptly taken to remedy the difficulty and there has been no unnecessary delay whatsoever in the matter. It requires time and money"
to make the additions contemplated; the latter we do not consider, the former cannot always be regulated to meet the demands of the public."

After this stand-by installation of steam driven pumps had been completed, late in the fall of 1881, the volume of water available became adequate but its quality was anything but satisfactory. In addition to the accumulation of large quantities of silt and decayed vegetable matter which contaminated the more or less stagnate water in Lake Archer, it was learned early in the summer of 1881 that hundreds of cattle had died higher up on the river and that the decomposing flesh mingling with the water had polluted it to a considerable extent. The further exposure of the fact that sewage from the Denver and Rio Grande shops was finding its way into Lake Archer resulted in much unfavorable newspaper publicity for the city and the water company.

Various chemists were employed by interested parties from time to time to test the water. The conflicting reports received from them during this period of time did little to improve the quality of the water or to enhance the public relations position of the water company. This adverse publicity regarding the quality of Holly water, both before and after the completion of Archer Lake - West Side project - was capitalized upon by enterprising citizens who soon began to peddle drinking water by the gallon, among the more wealthy residents.
The Denver Water News of September '43 printed an interesting interview with Mr. F. C. Timson, a resident of Denver at the time, on this subject. At first this gentleman hauled water from the N. A. Baker spring near what is now the east end of Colfax viaduct, later on in 1883 he used the Titus spring beneath Lake Archer as his source of supply. After Artesian well water became available, Mr. Timson enlarged his operation to require five wagons of 400 gallon capacity each, soon making from $50 to $60 a day clear profit.

The price was $2 per tank, with 2-1/2 gallon bucketful amounts at 5 cents for first floor deliveries or 10 cents when carried to the second floor. His business faded out of the picture in the early nineties after the water company had succeeded somewhat in improving the quality of the water supplied by it.

The News in March and April of 1881 conducted an energetic campaign against the quality of water supplied by the Holly company and made sensational statements about the disease laden water being peddled about town by a Mr. N. B. Knowles who obtained his so-called "spring" water from ditch seepage coming to the surface above the West Side Plant. Investigation showed that this water came from the Davis' Ditch. The News "arranged" for samples of water to be taken by a member of the chemistry department of the University of Colorado, from the Archer water works reservoir, the "Knowles" spring and the Mill Ditch. When questioned by a reporter as to which he considered the best, this chemist replied, "None of them". In fact, my dear sir, I have come to the conclusion that there is no pure water to be found in Denver. (See the Daily News for March 13, 1881.)
One of the direct results of this unhappy situation was the introduction of an ordinance on April 21, 1881 and its passage by the City Council on May 17, of that year which read: "If any person or corporation within the City of Denver shall supply, sell or offer, or exhibit for sale water for drinking or domestic purposes, which is impure, infected, or unwholesome, or water which shall contain such an amount of organic or other matter as to be deleterious to health, if drank or used for ordinary domestic purposes, such person or corporation shall be deemed guilty of a misdemeanor, and shall upon conviction thereof be fined in the sum of $100."

Fire tests were run in January 1882 after the auxiliary steam pumps had been installed at the West Side plant which again proved satisfactory, except at downtown locations served by 3-inch mains. At this time, water company officials suggested that instead of buying steam fire engines then under consideration, the city might well consider spending the necessary money to replace the small mains with pipe of larger diameter, which would thereupon render the Holly system as effective as 16 steamers.

In commenting on a water situation which was anything but satisfactory, particularly with respect to fire protection, the "News" in an editorial published on January 14, 1882 had the following to say: "In fact, the Denver Water Company, sad and fruitless as its record has been in putting out fires, has invariably done more in that regard than the contract calls for, whether strictly interpreted according to its letter or liberally expanded for the purpose of covering weak points in the newspaper treatment of a topic of so paramount importance that misinformation or carelessness on the part of a writer ranks close to crime, and that it tends to sustain and perpetuate one
of the most dangerous delusions this city has ever indulged in. It is the legitimate progeny of free lunches, free puffs prepared for display, careless legislation and a jug handled contract, calling for $20,000 per year from revenues of the city, and giving in return for this money a supply of water for fire purposes but no available pressure at the scene of the flames".

Although not brought to a successful conclusion in the form of a formal lease for five years thereafter or until February 25, 1887, the first step toward the construction of a reservoir on cemetery hill, to provide irrigation for the new city park and fire pressure at points within the city then having none, was taken at a special council meeting held on February 23, 1882. At that time, a resolution was introduced granting free use of 20 acres of city owned land on Cemetery Hill to the Denver City Water Company for the purpose of constructing there a 30 million gallon reservoir, which when completed within 9 months time was to be connected by proper supply and discharge pipes with the then existing water system. This resolution was referred to a special committee who reported favorably thereon at a council meeting held on May 5, 1882. At that time the report was received and filed. Factional and other differences of opinion between the Mayor and members of council caused this item among others, to be passed on to the new city council for handling after it assumed office on November 14, 1882.

The death, on August 26, 1882 at Wagon Wheel Gap, Colorado, of James Archer was as sudden as it was unexpected.
Organizer, majority stockholder and President of the Denver Water utility since its inception, this progressive and shrewd businessman of fixed purpose, always alive to the main point of his business undertakings but never allowing trifles to stand between him and the ultimate purpose in view, was a grand figure in the Denver of his day.

The city owed him much more of credit for the part he took in public improvements than was readily accorded in his lifetime. He was greatly missed by his business associates during the strenuous and lively days that Denver experienced during the remainder of this decade. His biography will be found in the appendix.

Apparently one of the main results of President Archer's death was the consolidation on November 6, 1882 of the Denver City Water Company and the Denver City Irrigation and Water Company into the Denver Water Company.

This company succeeded "to all and singular, the rights, properties, contracts and appurtenances belonging to the two companies named. The object and purpose of the new company being to acquire water rights and all property necessary to the enjoyment and use thereof and to supply the City of Denver and its citizens with water for municipal, domestic, irrigating and other purposes". -------

The Denver Water Company undertook to operate under the provisions of the Denver City Water Company contract dated May 9, 1874, which ran for a period of seventeen years from that date, with options of five and ten
years respectively thereafter for purchase by the city of the water works at its appraised value.

Note: The date of incorporation of the Denver Water Company is given as November 20, 1882, instead of November 6 of that year in the organization chart contained in the Metcalf and Anderson inventory report of 1913.

On December 7, 1882 the city council met in regular session, with the following communication being read: "The Denver Water Company on the fourth instant received a copy of the resolution adopted by the City Council on the 7th of October last, an amended version of the Feb. 23rd. resolution, respecting certain lands therein described for the purpose of a new reservoir, and giving the Water Company the use thereof for that purpose during the continuance of the contract between the City and Water Company. The Water Company will accept the conditions of the resolution and will construct the reservoir and connect the same with the present system of water works on condition, however, that satisfactory arrangements can be made between the City and Water Company for the construction of said reservoir and the present contract for supplying the city with water modified to the satisfaction of all parties concerned!" Signed, Richard Holme, Secretary.

The long illness resulting in the death of President Archer at this critical period in the history of the water utility apparently had much to do with the shifting of initiative regarding needed improvements to the water system from the officials of the water company when it normally rested, to the Mayor and Members of the City Council.
In thus assuming the leadership with respect to the construction of a reservoir on Cemetery Hill and its incorporation into the existing water system, the City voluntarily offered a supplementary contract to the company for its consideration. This action placed the city in a defensive position when negotiations were opened that the company did not hesitate to capitalize upon.

The first offer from the City to the Company was dated December 23, 1882. It listed seven propositions which were to form a basis for such a supplementary contract.

These detailed the items of new mains to be laid, the maintenance of hydrants at company expense, an annual rate of three miles of main to be laid, with replacement of small mains by larger ones in the business district at company expense, the inclusion of a 90 day option for city purchase of the system as provided for in the original contract, the setting of a time limit of one year for the completion of all of the improvements contemplated, with ownership of fire hydrants to remain with the city as heretofore. In consideration for all of these new disputed items, the City offered to increase its annual payments to the company for water service from $20,000 to $32,000 a year. The additional sum of $12,000 a year to be paid by the City to the Company represented 6 percent interest on $200,000 the city's estimated cost of the new work contemplated.

This offer was promptly answered by the submission of a counter proposition dated Dec. 27, 1882. It was signed by R. R. McCormick, Chairman of the Water Company Committee and presented at the regular council meeting of January 4, 1883.
After listing its ideas of what the supplemental contract should provide for, the committee named an additional sum of $20,000 a year instead of $12,000 which was to be paid by the City to the Company as compensation for the required investment in new facilities to be added.

The company was very careful to specify that the existing contract was to remain in full force and effect, except as particularly modified by the proposed supplemental contract. Consideration of this Water Company counter proposition was postponed and made a special feature for a special council meeting to be held on January 11, 1883.

At that time, the Mayor stated that the object of the meeting was to consider the latest proposition to build a water reservoir on city owned land at Cemetery Hill, for fire purposes. Before consideration could be given to this matter however, a motion was made and passed that business be not confined exclusively to the reservoir question.

This left the way clear for the presentation of a letter from the Denver Water Supply Company which asked that a committee be appointed to confer with the Board of Directors of that company with the object of entering into a contract with the city for the furnishing of pure mountain water to the city, at an efficient and uniform pressure for fire purposes. This communication was referred to the Water Committee of the Council with instructions to report at the earliest possible moment.

At the regular council meeting held one week later on Jan. 18, another water proposition was received. This came from the Platte Land Company which stated that it possessed facilities, through its High Line ditch to supply permanently and in ample abundance, a good and pure quality of water at an expense less than could be furnished from any other source.
The Denver Water Supply Company submitted a revised proposition at this meeting, and finally, to further complicate matters, Mister Moses A. Martindale, original inventor and patentee of a certain useful and improved system for irrigating agricultural and other lands and also to furnish pure water to towns and cities cheaply without the use of steam machinery tossed another proposal into the council water hopper. After some discussion all four of the pending propositions were laid over for future consideration.

The Denver Water Company presented its position and discussed the other water proposals then before the city council in a letter printed by the Republican on January 25, 1883. After citing statistics on water supply and demand for the year 1882, Mr. Holme, Secretary of the Denver Water Company reminded the public that - "It must be borne in mind that the reservoir came as not a suggestion of the water company, but a demand of the people, which the water company is willing to undertake, providing they can do so without loss to its stockholders. Any benefit to be derived from its construction or use would accrue to the city, not to the water company, as the city has the option to purchase the company's plant within three months after the time the reservoir could be built and connected. The water company sees no prospect of realizing any actual profit to its stockholders until its plant is purchased by the city, as all of its earnings must in the future, as in the past, go into extensions and improvements, so, long as our city continues its rapid growth; therefore, the company throws no obstacles in the way, nor does it offer any objection to the purchase of its property by the city".
After discussing the vexed water questions at several meetings, the city council came up with a statement that, feeling incompetent to pass judgment upon the water supply question it had determined to submit it to a committee of three engineers to be appointed by the Mayor.

On February 8, 1883, the Mayor announced that he had appointed a committee of engineers to investigate the different propositions for furnishing a water supply to the city with instructions to report at the next regular council meeting.

The report of that engineering committee was dated February 28, 1883 and submitted to the City Council at its regular meeting held on March 1 of that year.

After reviewing the several propositions then before the council, this committee, after taking the various arguments and reasons advanced by the interested proponents, said: "We cannot too strongly impress upon the council the importance of the prompt acceptance of the proposition of the Denver City Water Company, as modified." ----

Notwithstanding this recommendation, the Mayor was authorized on March 28, 1883 to execute the contract submitted by the Denver Water Supply Company; the vote being 8 for with 4 against. Nevertheless, Mayor Morris vacated his office without complying with that directive or stating his objection thereto.

With the accidental discovery of artesian water, while boring for coal in the gulch near Federal Boulevard and Ellsworth Avenue on March 9, and a municipal election set for April 3, nothing further was done with respect to the water question by the city fathers until after a new administration had been sworn in on April 12, 1883.
At that meeting a previously appointed special committee reported on the proposition of the Platte Land Company to furnish the city with water as follows: "Your committee to whom was referred the proposition of the Platte Water Company to contract to supply water to the city finds that the new City Charter prohibits this council making any contract involving expenditures of money unless there is money in the treasury appropriated for that purpose." 

"We recommend that as soon as possible after the organization of the new City Council a special meeting be called by the Mayor to pick up this momentous question, as it is of too much importance to delay, and that every means be employed to obtain truthful, unbiased information bearing upon the subject." This report was unanimously adopted by the new city council headed by Mayor John L. Routt.

Apparently the water question was permitted to remain in status quo until December 6, at which time the Mayor wrote to the council saying: "In the year 1874, the City of Denver entered into a contract with the Denver City Water Company, and one of the conditions of that contract was a provision for the purchase of the property at the end of five, ten and seventeen years. Under these conditions, it would seem to be the duty of the council to take immediate action in relation to the matter." I would therefore recommend that you pass a resolution this evening notifying the Denver Water Company that the city is now ready to appoint two appraisers as provided above to execute the terms of this agreement.

A resolution was then offered and adopted, notifying the Denver Water Company according to the terms of the Mayor's communication.
The reply to this notification by the Water Company was read at the Council Meeting of December 29, 1883 suggesting that the council appoint a committee to confer with its officials on the preliminary arrangements to be made. A committee of five Aldermen was thereupon appointed by the Mayor.

In the New Year's edition of the Republican a news item appeared which after giving some statistics of the water company's operations for the year 1883 ending with the following paragraph:

"The discovery of artesian water has caused the company to reduce its schedule of rates on all public buildings and tenement houses, the reduction amounting to about an average of 33 percent, so that the rates for the city are now lower than Kansas City or St. Louis. The company has now its plans and specifications ready for supplying the pipes with artesian water, and is now engaged in sinking wells for that purpose.

"The plans include the building of a reservoir for artesian water exclusively and should the company continue to control the works it will expend at least $100,000 during 1884 in completing its improvements."

A special council meeting was held on January 15, 1884 to consider two reports, one of which was that of the committee appointed to confer with the Denver Water Company regarding an appraisal of its plant as provided for by the 1874 contract.

The water committee report was in two parts, one - a majority report recommending that no steps be taken at the time toward the purchase of the water works, and two - a minority report recommending that appraisers be appointed and the matter be submitted to the people to vote on bonds for
the purchase of the water utility.

The reports were laid over for one week at which time the council adopted the majority report by a vote of 10 to 4, thereby deciding not to take advantage of the option to purchase the plant at the end of ten years as provided for in the water company franchise. The three reasons given for taking this course were, one - the water supply situation had been greatly changed within the past few months by the unexpected discovery at various points within the city of artesian wells; two, the majority felt it would be unwise to go into debt for the purchase of the plant at the time; and three - a large sum of money would be required to make improvements and extensions, which the city in its then poor financial position, could ill afford to take.

As a matter of fact, the council on March 6, 1884 passed a bond ordinance to be submitted to the taxpaying voters at the spring election, proposing to issue $300,000 in bonds for the purpose of meeting a temporary deficiency in general city funds. This bond issue was authorized at the election of April 1, 1884, after Mayor Routt had worked very hard for it. It is of interest to note that R. W. Speer was appointed by the council to the position of City Clerk during the reorganization that took place after this election. According to the "Republican" Mr. Speer, a Democrat, took over, after the democratic aldermen had forcibly ejected the incumbent clerk, Mr. C. F. Leimer, a Republican, from his office. He succeeded in holding it through the efforts of the Acting Mayor and Chief of Police.

With the threat of municipal ownership removed for at least seven years, the water company proceeded to seek additional sources of water
supply in addition to that which might be obtained from artesian wells.

**Mississippi Street Galleries**

In April of 1884 a large force of men and teams was put to work on a 13.31 acre tract of land lying in the river bottom on the west side of the river and extending from West Mississippi to West Louisiana Streets, about 3 miles upstream from the west side pumping plant.

This project, later called the Mississippi Street Galleries, was simply a natural filtration system consisting of horizontal timber wells laid longitudinally and transversely with open points in the gravel beds adjacent to the river. The tops of these wells were located about six feet below low water surface. In all there was some 1,400 lineal feet of well cribs collecting the water from the saturated gravel beds. Delivery of water was made through a 48-inch wood stave pipeline, 3.2 miles long, laid on a grade of 1.6 feet per mile.

This development was planned and executed by Mr. C. P. Allen, Chief Engineer of the Company, and was the originating motive for the evolution of the wooden stave pipe patented by him, and which was extensively used later on in other parts of the Denver water system. The top half of the pipe was built of staves of California redwood, with the lower half of Colorado pine. These were joined at the ends by sheet iron let into a saw-kerf and held together by coated 5/8 inch round rods.

This pipeline terminated in a reservoir of 12,000,000 gallons capacity at the West Side pumping plant, from which the water was pumped into the mains of the city.
The flow of water after construction was completed, varied from 12 million gallons a day in times of low water to 18 million gallons a day at high river levels.

This system of draining water filtered by nature from the gravel beds effected for a time a great improvement in the quality of the water. At the beginning the water was very soft and clear, although with the progress of irrigation and the gradual leaching of the alkalies and salts from the soil as the result of irrigation, steadily deteriorated; until it became hard and unpleasant to the taste. The year following the completion of these works and the receiving reservoir at the pumping plant, saw the growth of algae in the reservoir become so great that it was decided to pave the bottom and sides in order that it might be more readily cleansed and washed out. Fort Collins sandstone, in large blocks, four to twelve inches thick, laid in Portland cement, was employed for this purpose. Subsequently the growth of this troublesome vegetation, which imparts upon decay, a fishy odor and taste to the water increased about two fold and was not stopped until the reservoir was roofed over in the fall of 1887.

The original appropriation of ten cubic feet a second applied to beneficial use for city purposes and diverted from the Mississippi Street galleries into Conduit No. 4 was, when transferred to the Intake of Conduit No. 8, given a priority date of June 30, 1880 by the District Court of Douglas County in its decree dated June 16, 1930.
On March 16, 1885, the water company had a notice printed in the Times of that date stating that from then on the water company's mains would be supplied with clear water from the new system.

This was followed by a report printed in the Times of April 6, 1885 detailing some of the information given out after an inspection trip of the new works had been made on the proceeding date by a committee of nine prominent Denver physicians.

After describing the method used to collect the water by means of underground galleries the article said: "The reservoir at the water works is about 300 feet square, and will in time be surrounded by a substantial fence. The water stands in it at an average depth of 12 feet."

"Into this reservoir are constantly pouring also the contents of five artesian wells." ----

"The Archer Lake, from which we have hitherto obtained the water for our homes, will be abandoned for this purpose, and be used only to furnish the water power which is needed to work the powerful pumps and machinery of the company.

"We feel like getting down from our high stool of criticism and pulling off our hats to the Water Company for the problem they have solved and the efforts they have successfully accomplished to furnish Denver with a water supply that we can confidently recommend to our families, our friends, and all who come as visitors to our city".
This was followed by a Notice to the Public printed in the Times of October 6, 1885, stating that it was necessary to make the new system of water supply entirely perfect, to bottom the new reservoir with stone. Since it would require a month or more to do this, the consumers were told that the old source from the Platte River-Lake Archer would have to be used for the time being.

In the New Year's edition of 1886, the Republican printed a story on water company activities during 1885, which again described the new system, stating that the work of lining the new reservoir with stone had been completed in December. Some interesting statistics regarding main extensions and increased demand over the year 1884 were given. It was stated that there was then a total of forty-five miles of pipe in the system and that a total of nearly 75 gallons per day per capita had been pumped in 1885 to serve an estimated population of 60,000 inhabitants.

**Cherry Creek Project**

The success attained in developing the underflow of the Platte River encouraged the company to attempt a similar development on Cherry Creek.

Experiments were conducted by the Chief Engineer in the spring and summer of 1886 which indicated that an underground flow of good water was available at a point about eight miles up the creek, at an elevation that would permit a gravity flow into a reservoir on Cemetery Hill, with distribution from there into the city mains without the expense of operating pumping machinery.
A subsidiary company was accordingly organized by some of the Directors of the Denver Water Company, and incorporated as the Domestic Water Company on March 24, 1886. This company was prepared to spend $100,000 toward constructing the necessary galleries and a pipeline to convey the water to Capitol Hill.

On April 23, 1887, this auxiliary company entered into a contract with the Board of Trustees of the town of Harmon, in which it was given authority to furnish water to the citizens of Harmon upon certain terms and conditions not now available.

On that same date, it was granted the right to lay and maintain in perpetuity its underground flume pipe, conduit and water main over the streets and alleys of the town leading from the Cherry Creek galleries to the Cemetery Hill reservoir. (See page 736, Franchises and Special Privileges as granted by the City and County of Denver, 1907 Edition).

In an interview on the proposed Cherry Creek project published in the Tribune-Republican on March 31, 1886, Mr. Holme, Secretary of the Water Company is quoted in part as saying:

"The point is this, we must either get the natural pressure or put in additional pumping machinery at the works. This too, must
be done immediately. The city is growing at such an extent and our pipe lines are extending so rapidly that unless we make some move our works will not prove adequate to meet the demands.

The present system of the company in obtaining water from the Platte River has been in operation less than two years. Previous to that time, the supply was obtained from the surface flow of the Platte River. This water was so muddy and at times so scant that the company began experimenting for bettering the quality of the water. Believing that a supply could be obtained beneath the bed of the river, a crib was sunk to bedrock, and galleries built in the shape of a tunnel at right angles to the river. It was found that these galleries rapidly filled with the purest water, which percolated up through the bedrock formation. The main pipeline was laid in the center of the river bed and the galleries connected with it. Seven of these galleries were constructed, but only three of the largest are now in use, the water supply being greater than the demand. The supply from the other Platte River galleries is shut off by gates."
With the bed rock formation of Cherry Creek being similar to that of the Platte, it was considered practically certain that the same system used on the Platte could be made to work successfully on Cherry Creek.

In May and again in July of 1886, the company ran notices to the public restricting water for irrigation use to certain specified hours in each day. In the July notice it was stated that the unprecedented dry, hot weather caused an extraordinary demand upon the pumping capacity such as never before in the history of the company.

The water company went to some pains to point out about this time that while the source of supply had not given out, the trouble was in getting it into the city. The steam power for pumping was inadequate to handle the entire load, and the water power could not be used owing to the low stage of the Platte river.

The Republican in its New Year's edition of January 1, 1887 ran a story headed "The Denver Water Company", saying that Denver water was clear, sparkling, brilliant, cold and refreshing. Also that the demand upon the company during the year 1886 for the extension of main pipes had been unusually large, with five miles being laid, bringing the total up to 50 miles then in use with a larger number of new connections being made in the last year than in any similar period in the company's history.

Owing to the failure of many artesian wells to furnish water under pressure, a large number of reattachments had been made from this source. It was also stated that the enormous waste of water by persons using hoses was a serious difficulty in the water supply of Denver.
Comment was made on the fact that, in order to overcome the lack of pumping capacity, the company was then engaged on a scheme to bring water from Cherry Creek by gravity to a reservoir to be built on Cemetery Hill so that the high points of the city could be supplied without pumping.

At the regular monthly meeting of the Board of Aldermen held on January 6, 1887, a letter from the Denver Water Company was received and read asking for ten acres of land on Cemetery Hill to be used for reservoir purposes. This letter was referred to a joint committee of three Aldermen and two Supervisors for further handling. The committee later reported favorably upon the request and after several meetings, a lease was granted for an annual rental of $500 for a tract of land 10 acres in extent plus an additional area 40 feet square for a water tower. This lease, dated February 25, 1887 is recorded in Book 1, Abstracts of property belonging to the City of Denver. A copy of the lease will be found in the Appendix.

Cherry Creek Galleries

The first Cherry Creek Galleries were built on a trapezoidal shaped tract of land, 54.75 acres in extent in the NW 1/4 of Section 28 Township 4 South, Range 67 West. This site was located to the west of South Ulster Street, between East Jewell and East Iliff Avenues, a distance of about eight miles from the center of the city.
The original collection system consisted of three wells connected with horizontal underground pipe and crib work having an overall length of 1,007 feet.

A fourth well, Numbered One, was located on the pipe line about 438 feet to the north of well number two. Well Number Two formed the junctions between the gallery system to the south and the pipe line leading northwesterly to Cemetery Hill. Well Number One was sunk to tap a body of water beneath the pipe grade line.

Wells No. 1, 3 and 4 were each 10 feet in diameter, constructed of 2-inch by 6 inch rough lumber cased with oak, to within a few feet of the ground surface, where hard burned brick were used to raise them to the surface with a low arched roof cover.

Well No. 2 was 14 feet in diameter, bricked up above high water level. It was protected by an embankment of slag admitting of easy access through a door. This well was 35 feet deep with the other three varying from 20 to 35 feet below the ground surface.

Each well enclosed a second timber perforated well, tapering from 12 inches at the top to 30 inches at the bottom, with the small end rising a few inches above grade and the other end reaching down nearly to bed rock.

These wells were connected with horizontal open joint semi circular cribs, tight on the top and sides, but open at the bottom only when laid in quick sand. The cribbing was laid at depths varying from 13 to 16 feet below the ground surface, in water from 12 to 18 inches in depth. That part of the
collection system, 250 feet in length lying under the creek bed proper consisted of wood stave pipe, containing numerous 2-inch well points. This substitution for the semi circular cribbing used elsewhere, was made because it was thought that, when agitated by high water, the sand in the creek bed might silt up the cribbing, thus choking off the supply of water. Sections of wood stave pipe were also used for 30 feet at the inlet and outlet connections to well number four and for the outlet of well number three. A branch line 162 feet long of crib rock was laid up the creek from well No. 4, for possible extension when needed in the future.

The Cherry Creek collection galleries were enlarged beginning with the fall of 1889 by the addition of 2188 feet of 30 inch cement pipe laid in gravel with open joints. These extensions began at Well No. 2 and after crossing the stream bed twice ended at a manhole 187 feet west from and 460 feet north of the center of section 28, Township 4 South, Range 67 W. (See map dated March 18, 1919, our files)

The first trenching contract for these extensions was dated August 12, 1889. It called for a trench 8 feet wide, on the bottom and 12 feet deep with side slopes of 1-1/2 to 1 for a length of 500 feet with an option for a further 500 feet, at 11 cents a cubic yard, this price being based on the Contractor not being required to work in water.

Six carloads of cement pipe made in Denver were shipped to the site for this work. (See decree of June 16, 1930 for 14.02 cubic feet of water a second of time, as of May 1, 1887 to be taken from the Cherry Creek Galleries into Conduit No. 5. (9 million gallons a day).
Pipe Lines

A wood stave pipe line having an inside diameter of 30 inches, and 5.76 miles in length was also built at this time, connecting to the city distribution system at East 11th Avenue and Humboldt Street. Native Colorado pine lumber was used for staves on the bottom of the pipe where continuous water saturation could be expected, with the balance, where alternating wetting and drying would occur, being of selected California red wood. One half inch round iron bands spaced at intervals along the line depending upon the internal pressure when full, using a factor of safety of three, were used to hold the staves in position. These staves varied from 2 to 3 inches in thickness depending upon the depth of cover.

The total differential in elevation between well No. 2 and the stand pipe was about 14 feet, giving a design discharge capacity at Cemetery Hill of 10 million gallons a day. All pipe lines laid west of the stand pipe inside the city limits were constructed entirely of red wood staves.

Stand Pipe

The first structure to be built on Cemetery Hill was a red wood stand pipe and tank to provide for the surplus overflow and escape of confined air, so as to retain as far as possible the reservoir pressure and prevent water hammer in the large mains leading from the reservoir into the city, which were soon to be connected with the large feeder main from the west side pumping plant.

This appurtenance was of somewhat novel design. A sketch of it was printed on page 333 of the April 28, 1888 issue of Engineering News.
A description of it and other features of the project with illustrations followed on pages 240 to 242 of the September 22, 1888 issue of the same journal.

A large casting with two horizontal and one vertical bell ends to admit the ends of the wooden transmission pipe line formed the base. The four tubes which braced the standpipe provided overflows for surplus water. They were built in three sections, 6 inches interior diameter at the base, 5 inches in the center section and 4 inches at the top. They rested on 8 tons of masonry at each corner, and were tied together with rods and cast iron plates so as to give a safe anchorage.

Being placed in an exposed position, the structure was built to withstand a wind pressure of 60 pounds per square foot of surface exposed. Scaled dimensions show that the stand pipe had an inside diameter of 33 inches, and stood 43 feet above the ground line. It supported a surge tank with an outside diameter of 54 inches and a height of 10 feet. It was located at a point on the pipe line, 3984 feet east of the intersection of East Eleventh Avenue and Humboldt Street and about 1675 feet west of the point where the pipe line was later tapped for discharge into Basin No. 1.

Water was first delivered to Cemetery Hill by gravity on July 5, 1887 with a maximum discharge of 9 million gallons a day for the first 4 months, after which it began to decrease so that by the end of the first year of service, it had decreased to about 2 million gallons a day.

The Times on November 14, 1887 commented on this project in part by saying: "The Water Works Company is making rapid progress..."
with the immense reservoir which it is building on the hill back of the old cemetery. It will hold, when completed, 7 million gallons of water, and it occupies a position which commands not only the entire city, but the country all the way out to Montclair.

"The company is also laying a main 20 inches in diameter from the works to 23rd Street and down that street through the city, which is to be connected with the reservoir."

"Those who thought that no water could be obtained from Cherry Creek would have been interested a few days ago in seeing the overflow from the supply pipe near the Hebrew Cemetery. It was necessary to let enough water go to waste there to supply a town of 5,000 people."

**Cemetery Hill, Basin No. 1**

This basin was constructed on land leased from the city on February 25, 1887 as already noted.

Construction work was started in September 1887 under a contract dated September 1, 1887. The price paid for excavation and grading was to be 12 cents a cubic yard, excavation only being paid for, with completion date of November 15, 1887.

A supplemental contract dated November 2, 1887 provided for payment after that date at the rate of 50 cents a cubic yard to compensate the contractor for rock excavation inside the reservoir. The work was completed in January 1888 and water turned in from the Cherry Creek pipe line over an apron, weir box and weir as illustrated on Page 240, Engineering News for September 29, 1888. This device was intended to agitate and aerate the water before entering the reservoir after flowing through so long a conduit.
In April the reservoir was drained for 10 days to allow posts to be set for the roof supports. This roof, including the supporting posts, was of wood construction and cost about $5,000. Estimates had previously been received for an iron trussed roof with corrugated sheet iron covering at a total cost of $44,500 which was greater than the company desired to expend, hence the cheaper wooden roof selection. Construction details of this phase of the work will be found in the Engineering News article referred to above.

Upon completion of the roof and the consequent exclusion of sunlight, all the algae growth that had given so much trouble ceased to exist. It also postponed the original plan to line the reservoir at a cost of about $6,000, since the water in the covered reservoir remained clear without going to that expense.

The following editorial appeared in Engineering News of September 29, 1888. It gives additional information on the subject of vegetable growth in reservoirs.

"In the interesting history of the Denver Water Works new supply, given in this issue by Mr. Fortier, is a note of more than passing interest in connection with the suppression of the growth of vegetable matter in reservoirs.

The Chief Engineer, Mr. Allen, found, as others have found before him, that close paving over the bottom of the reservoir rather increased than diminished the objectionable growth.

He then decided to cover his reservoir, and for financial reasons, adopted a cheap but effective wooden roof. This roof was under construction in June during very hot weather and while a strip 44 feet wide over the
center of the basin was still uncovered and that much of the water yet exposed to the effect of sunlight and heat, algae commenced to appear there in 12 to 14 feet of water. With the completion of the roof, the growth disappeared and the algae have not appeared since, though last summer was the hottest in ten years. This roofing remedy for vegetable growth has been advanced before and its efficiency denied.

But the experience of Mr. Allen would seem to prove conclusively that the sunlight is responsible for the mischief, and that its exclusion will put a stop to the trouble.

The permanent roofing of large reservoirs is an expensive operation in first cost, but the annual cleaning of a large reservoir of vegetable matter also represents the interest on a sum that might pay for a roof or efficient covering, to say nothing of the annoyance and danger to water consumers who are compelled for a time to use bad water.

By the end of the year 1889 the Denver Water Company was getting water from two underground sources. One, from the Mississippi Street galleries pumped into the distribution system by the west side plant, and two, a gravity supply from Cherry Creek via Cemetery Hill. The systems were interconnected by conduit and for the time being, a good quality of water at satisfactory pressures and adequate volume was available to Denver consumers. Mileage of mains and conduits was: 88.18 miles of cast iron pipe, 2 to 20 inches in diameter; 3.39 miles of wood pipe, 12 to 36 inches in diameter, and 10.55 miles of wood conduit, 22 to 48 inches in diameter for a grand total of 102.12 miles. The company had two reservoirs
in service, one of 12 million gallons capacity at the West Side works and one on Cemetery Hill of 7 million gallons capacity.

Independent Public Water Systems

The last four years of this dynamic decade saw the start of three suburban and one city water developments, each one of which eventually became a part of the greater Denver plant and system.

These were, The Beaver Brook Water Company, The Mountain Water Company, The South Denver Water Works and The Citizens Water Company, listed in chronological order with respect to dates of incorporation.

The Beaver Brook Water Company

This company was incorporated on July 9, 1886, for the purpose of supplying the city of Highlands and the inhabitants thereof with water for fire, domestic and other purposes.

The first directors of the company were, Robert H. Porter, M. C. Jackson, A. S. Whitaker, John L. Hallack and Frank P. Arbuckle.

The capital stock was $80,000 with no bonds.

A twenty five year exclusive franchise was given to the company by the trustees of the city of Highlands on July 12, 1886. Construction work was begun on April 4, 1887, and the original plant accepted by the company from the Contractor on August 1st of that year.

In its issue of October 1st, the "Engineering News" stated that water was taken from artesian wells and pumped to a tank elevated 400 feet above the pump. There were 9.5 miles of 2-inch to 6-inch pipe and 51 double fire hydrants of Gaskill make. The annual rental per hydrant was $40, with the cost of the works reported to be $145,000. This figure
was in error, being $100,000 too high. The population of Highlands was then estimated at 7,000. M. C. Jackson was President, A. S. Whitaker, Secretary, and James Bryan, the designer, Superintendent.

The delay in getting this system into actual operation until a year after it was organized is partially explained by the following news item printed in the Times of July 6, 1887. The occasion was an interview given by Richard Holme, Secretary of the Denver Water Company, during which he was asked if it was true that his company had refused to furnish North Denver with water. In reply he said: "The facts are that when we were asked to furnish water to Highlands, we had not the power to elevate to the height of the Highlands. We told the people so, and also informed them that as soon as our Capitol Hill system was completed, we would furnish water. As soon as we were ready to furnish water to North Denver, and the Highlands, we offered to do so, but they went ahead and formed their own company. All we asked in extending our system was that enough customers should guarantee to buy, to pay us a return of 20 percent on the investment".

About this time the overall water situation in the Denver area was a critical one due to drought and consequent low stream flow, with resulting serious conflicts between the city and farmers over city ditch water as well as the inability of The Denver Water Company to adequately meet the demands placed upon it through lack of pumping capacity.

The Times of July 7, 1887, printed a letter complaining about filth in the North Denver Water supply which brought forth the following statement from The Beaver Brook Water Company in its issue of July 12, 1887.
The party that wrote that letter has never been to our works as we do not tap the Platte at any point. Our water is taken at present from eight driven wells, 47 feet deep. The strainer points are three feet long, and being attached to the lower end of these iron tubes, there cannot a drop of water enter these wells in less than 44 feet of the surface, making the water absolutely free from any surface draining. These wells were located above Zang's Brewery on the west side of the South Platte River near 7th and Water Streets.

Our first artesian well is now below the second flow, and will be completed and attached to the cyclorama in a few days. We are not and have not pretended to furnish water for domestic purposes yet, as we are still laying mains and have not flushed our lines to clean them out, and will not be ready for a few days yet.

Attachment for service so far has been solely to accommodate those who wanted to irrigate and for other purposes, not for house use. When the works are completed, we shall respectfully invite the public and those interested to investigate."

On May 20, 1887, the company petitioned the Denver Board of Supervisors for authority to lay water mains and service pipes in the 6th Ward. The Board of Aldermen received this petition on June 9th. After due consideration by committees appointed to report on the petition an ordinance was passed, on June 30, 1887, authorizing the Mayor to make a contract with The Beaver Brook Water Company to supply the 6th Ward
with water. (See page 632, 1907 Book of Franchises and Special Privileges).

This action by the Denver City Council was promptly protested by the Denver Water Company on the ground that it was a breach of that company's contract with the city. Since the protest, dated July 15, 1887 was received after the Beaver Brook ordinance had been passed, at a meeting held July 30, the council placed it on file.

A statement to the effect that the people of Highlands were satisfied with the quality and quantity of the water furnished by The Beaver Brook Water Company was published in "Engineering News" on September 3, 1887.

Nevertheless, the switch from artesian water to water from the new Beaver Brook system for the use of children attending the Boulevard school was vigorously protested in a letter to the Editor of the Republican on October 30, 1887.

Again in December when it was proposed that the City of Highlands purchase the company's plant, the opposition stated, among other things, that the water was not fit to use, and in fact, was used by few except for irrigating purposes.

Apparently, the company's financial position was not too good at the end of the year 1887, since a proposition to sell the plant and its franchise to the City of Highlands for the sum of $55,000 was made at a trustees meeting held on December 5, 1887.

At the time it was alleged that the Mayor of Highlands was a stockholder in the company, with some of the town trustees likewise having a financial interest in it.
In any event, a special election was called by them for January 3, 1888 for the purpose of authorizing the issuance of $65,000 in bonds to run for 15 years at an annual interest rate of 7 percent. $55,000 of this amount was to be used to purchase the water company, and $10,000 to complete the system and erect a water tower and stand pipe to provide pressure for fire protection.

George Augustine, a trustee of Highlands caused a "card" to be published in the News of December 31, 1887 in which he said in part that the Trustees were all hard workers, owned their homes and expected and hoped to continue to live in Highlands. That they were unanimous in a desire to act judiciously and the contemplated purchase by Highlands found favor with them, but that they left the decision with the voters. He further stated that the only fight against the proposed purchase was being made by some of the town's narrow-minded real estate speculators, which he believed the people would not sustain.

On that same day, December 31, 1887, a temporary injunction was obtained by a group of Highlands taxpayers which restrained the town officials from issuing bonds until ordered to do so by the court. In his order District Judge Elliott did not restrain the holding of the election set for January 3, 1888.

After a short, bitter campaign, in which the good faith of the town and company officials was widely questioned, the bond proposal was defeated by a decisive vote, making it unnecessary for the court to act further in the matter.
Soon thereafter, on January 11, 1888, an agreement was presented to the Highlands officials by the company shortening the term of the franchise granted on July 12, 1886 to twenty years from and after December 24, 1886.

This new agreement modified the old one in several important particulars, including a proviso prohibiting assignment or transference of the franchise unless the written consent of the city of Highlands had previously been obtained and a resolution to that effect spread upon the minutes of the city. The substitute agreement was approved by Highlands officials on January 13, 1888, subject to ratification by vote of the people at the annual city election of April 3, 1888. This was done by a majority vote and the franchise as then presented continued in full force and effect for some time thereafter.

In its issue of January 7, 1888, "Engineering News" published the following: "Highlands. The water supply is obtained from several wells and an artesian flowing well. "Wychoff" pipe is laid. The plant cost the company $55,000 and a new pump will be put in for use in case of emergency. The town will purchase the works, erect a standpipe on a neighboring hill, sink another artesian well and make other improvements.

Note: This last statement should begin with - The Company will erect, etc.

Although further details are lacking, the Republican on December 16, 1888 published a news item stating that --"The Beaver Brook Water Co. is now arranging to place in their plant 4 new large engines and pumps

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so that by next spring they can furnish the consumers all the water needed, both for lawn purposes as well as for house use. This was followed a week later by a news item to the effect that "The Beaver Brook Water Company is now furnishing its customers pure artesian water."

The Republican on Sunday, March 31, 1889, printed a story saying that the stockholders of the Beaver Brook Water Company had decided to reorganize and then increase its plant capacity.

In its issue of April 13, 1889, Engineering News reported on this action saying: The stockholders of the Beaver Brook Water Co. have concluded to reorganize the company and greatly increase the capacity of the works. The present issue of $31,000 in bonds will be taken up and $70,000 more will be invested in enlarging the mains, the purchase of larger pumps and the sinking of additional artesian and driven wells. A system of filtered wells, 16 in number, similar to those in Brooklyn, New York, has recently been completed. A large Holly pump has also just been placed. The company was organized in 1886 with a capital stock of $80,000. It secured a franchise. Bonds were placed in the amount of $31,000 and a plant, consisting of 10 miles of water mains, and medium size pumps were put in, which the proprietors believed was sufficient for at least five years; but the town - Highlands - has grown so rapidly that the works are inadequate to meet the demands."

At the reorganization meeting, Mr. H. B. Chamberlin came up with a majority of the capital stock and was elected President of the company with most of the new directors being citizens of Highlands.

The leading issue in the 1889 town election was, according to a
taxpayer who expressed his views in no uncertain terms in a letter to the Republican, "good water". This irate citizen commented on the subject in that issue in part as follows: "The company who now owns the franchise is under bond to furnish artesian water and plenty of it for both domestic and irrigating purposes. Do they do it? Well, ask anyone who resides in Highland how well they fulfill their contract. Their water is pure unadulterated concentrated death and they furnish it in quantities in the summer time barely sufficient for household purposes. Their water is always satisfactory in the winter time for nobody has use for it, but to set up the claim for being able to furnish water in sufficient quantities for all uses through 9 miles of 4-inch wooden pipe logs, is simply preposterous in face of the evidence of competent engineers who say that a 9-inch pipe is scarcely large enough. It is right here where the Senegambian lies hidden in the wood pile. The water company knows it cannot fulfill its contract and seeks to get a Board of Trustees elected who, if they will not saddle the town with this incompetent outfit, will at least refrain from pressing the water company to fulfill its contract."

The Engineering News on October 19, 1889 noted that F. P. Arbuckle, contractor of Denver, was building a large reservoir on Cottage Hill for the company and in its issue of December 14, 1889, stated that, "The Beaver Brook Water Company had nearly completed its pipe laying to supply citizens on the Boulevard - Federal - and Villa Park, with water".
A map showing the mains of the Denver Water Company in use on January 1, 1890 gives main sizes and location in the Highlands with a source of supply at 7th and Water Streets - 3 inch line only - and a 10 inch main crossing the South Platte River on 15th Street, interconnecting the Highlands and Denver systems.

Another map, without date in water department files on the Denver Highlands pipe system shows four artesian wells connected to the system as follows: One, the "Lowell" well located on the east side of Lowell Boulevard, south of West 32nd Avenue; Two, the "Arbuckle" well located east of Federal Boulevard and north of West Lake Place; and Three, the two "Wilson" wells located near the center of the block bounded by West 34th Avenue and 35th Avenues, Alcott and Zuni Streets.

Mr. H. B. Chamberlin, President of this company, after its re-organization in 1889, was the President also of the Chamberlain Investment Company, a large real estate firm. He gave the astronomical laboratory that bears his name to the University of Denver. His biography will be found on Pages 405 and 406 of Volume IV, Hall's History of Colorado.

Mountain Water Company

This suburban water company was incorporated on June 26, 1888 by Frank P. Arbuckle and A. W. Whitaker.

The capital stock of $100,000 was not fully paid up until early in the year 1890.
A twenty year, non exclusive franchise, was given to it by the town of Barnum on September 18, 1889, for the purpose of supplying the town and its inhabitants with water for fire, domestic and other purposes.

Among the numerous obligations assumed by the company was a promise to complete, within the town of Barnum, not less than one mile of main before the first day of November, 1889, and not less than two miles of main before December 1, 1889. It also agreed to have the works in operation and to lay in the limits of the town two more miles of pipe by February 1, 1890, and to be prepared to furnish good and wholesome water to consumers and hydrants within ninety days from the commencement of work, which was to be immediately after the signing of the agreement.

The rates to be charged consumers for water were to correspond with the minimum rate charged by any water company in Denver for like purposes in the corresponding year.

Another obligation the company assumed was that it should not assign or transfer its property and franchise unless the prior consent of the town had been given and a resolution to that effect spread upon its minutes.

This franchise was executed on behalf of the company by Owen E. LeFevre, President and A. S. Whitaker, Secretary. (See pages 737 through 745 in the 1907 edition of Franchises and Special Privileges, City and County of Denver for this and other ordinances affecting the company as passed by various officials of the town of Barnum.)
Biographies of these two officials will be found on pages 494 and 622 respectively in Volume IV, Hall's History of Colorado.

Engineering News for August 31, 1889 commented on the company's affairs as follows: "The Mountain Water Company has secured a franchise covering Barnum and Villa Park, and awarded a contract to F. P. Arbuckle, of Denver, to construct works at a cost of $55,332. The contract calls for a quadruple condensing Holly Pump, 8 miles of cast iron mains and 52 hydrants."

On October 19, 1889 this same publication reported that --"The Mountain Water Company has commenced trenching. Pipe for its new mains has been purchased from the Chattanooga, Tenn. Foundry and Pipe Works. The Deane Steam Pump Company of Holyoke, Mass. will furnish two large pumping engines and two, 100 horsepower boilers. F. P. Arbuckle, of Denver, is the contractor. Also a short news item appeared in the same issue reading as follows: Barnum, Colorado. "The Beaver Brook Water Company has been awarded the contract for furnishing a water supply."

According to W. F. R. Mills, Manager of the Denver Water Plant, in writing later on the evolution of the Denver water system, the Mountain Water Company began the construction of a water supply system in the Town of Barnum in 1888, building a pumping station at the foot of West 7th Avenue, and contracted with the Beaver Brook Company to supply it with water for the town of Highlands. Although the record is not too clear, it seems logical to assume that these two suburban systems, as far as operations went, gradually became integrated. This assumption is supported by the fact that
about the year 1900, an undated pamphlet on "Rates and Rules of the Beaver Brook Water Company and the Mountain Water Company, with information and guidance to consumers" was published. In this booklet the officers of both companies were named, with A. C. Whitaker, M. C. Jackson and R. H. Porter appearing as officers in both organizations. The rates named were said to be those established in Denver and in force upon the contract dates in the Town of Highlands, the Town of Barnum and the Board of County Commissioners.

The office of the two companies was then located at 15th and Larimer Streets, Denver, Colorado.

The Villa Park addition to the town of Barnum was bounded on the north by West 13th Avenue and Lakewood Gulch, on the south by West 8th Avenue, and extended east and west between Federal Boulevard and King Street.

The developers plans were to convert a portion of the broad channel of Lakewood Gulch into a lake to be stocked with fish and furnished with boats.

In addition to the 6-inch main of the Mountain Water Company, this area was also served by artesian wells. One of these, was shown on Willits 1901 map of Denver located close to the east line of Federal Boulevard about 600 feet south of West 8th Avenue on the Weir property.

Engineering News for March 1, 1890, reported that the Mountain Water Company had received its works from the contractor, F. P. Arbuckle, of Denver after a satisfactory test had been made.
South Denver Water Works

This publicly owned water plant was built to serve an area adjoining the City of Denver on the south, and extending from the Platte River on the west to Colorado Boulevard on the east, and from Alameda Avenue on the north to within a short distance of Little Dry Creek on the south, covering about 9 square miles in all.

It was financed by an initial bond issue of $160,000 to run for 15 years at 6 percent interest, approved by the voters in the autumn of 1888. The bonds were sold at par to Denver brokers.

In its issue of November 17, 1888, the Engineering News published the following letter, dated November 3, 1888, written by James A. Fleming, Mayor of South Denver, to the Editor.

"The Town has voted to issue $160,000 of bonds for water works. Water will be taken by percolation from the Platte River, then pumped direct, and to stand-pipe. The valuation of Town property is $1,500,000. Contracts will be let in 60 days, work began in 90 days, and finished next June. Our present supply is from artesian wells, and our population is 1,500."

The following information was taken from the South Denver "Eye" in its supplement of January 1, 1890.

"The water commissioners appointed by the Board of Trustees, were Messrs. G. B. Coulter, John S. Babcock and Avery Gallup, and to them and their constant watchfulness of the works, saw to it that by the middle of November 1889, as fine a system of water works as there was
west of the Missouri River, considering its size was completed."

"The water supply came from above Petersburg, on the Platte River from wells sunk in beds of gravel down to bed rock where was found a bountiful supply of pure spring water.

"The Gaskill compound pump was furnished by the Holly Manufacturing Company of Lockport, New York. It was capable of pumping 2 million gallons of water a day to an elevation over 100 feet above the works. Twenty miles of 4 inch to 20 inch cast iron pipe was laid. The placing of the pumps and laying of the pipes was awarded by contracts to C. P. Allen of Denver, who completed the work in a manner satisfactory to the water commissioners and town Board."

Note: C. P. Allen was the Chief Engineer of the Denver Water Co., until he resigned about April 1, 1889 to become a Director and Chief Engineer of the Citizens Water Co.

The step by step development of this water system, as built up from incomplete records, is an interesting one for the local historian to follow.

The date upon which the special election was held on the proposition to issue $160,000 in bonds for a water system is not clear. On the one hand, we have the Mayor's letter to Engineering News, dated Nov. 3, 1888 already quoted, and on the other, J. O. Patterson in his history of South Denver, states that this election was held on November 24, 1888. This date seems to be supported by a news item in the Republican of Wednesday, December 5, 1888 in which it was stated that, "at the regular monthly meeting of the Trustees of the Town of South Denver, on Tuesday, December 4, 1888
the official report of the vote on the proposition to issue bonds in the
amount of $160,000 to provide a permanent water supply was made and
placed on file."

This was followed by a news item dated January 4, 1889, stating
that the Town was soon to advertise for bids in putting in a system of
Holly Water Works.

At a meeting of the Town Trustees held on April 16, 1889, the
Clerk was instructed to issue a warrant for $500 to Samuel Brown for a
quit claim deed for ground located at the head of the Town Ditch.

The Republican on April 28, 1889, published a news item with
respect to a novel suit at law then pending in the District Court, Judge
Liddell presiding.

This suit was brought by the Town of South Denver in an attempt
to condemn a strip of land 50 feet wide, being 25 feet on each side of the
center line of the Petersburg ditch for its entire length. In its petition, the
Town alleged that it was building a large system of water works for which the
power house would be built on Lot 6, Block 1 in Petersburg. It was stated
that the Town had purchased 15 acres of ground in the SW 1/4 of the NE 1/4
Section 4, Twp. 55, Range 68 W upon which it proposed to locate its wells
and reservoirs for the storage of water.

This plot of ground was previously occupied by a flour mill owned
by Clark and Failing. It had been operated for many years by water power
furnished by and through the Petersburg ditch, which was also used for
irrigation purposes. The petition further stated that "this ditch was originally
constructed by Peter Magnes, the defendants Joseph and Samuel Brown and
others to the Town unknown. That by various conveyances all the right, title, claim in this ditch owned by all the said parties, with the exception of the respondents, had been purchased, passed to and become vested in the Town of South Denver. Further, that to operate the pumps for the distribution of water throughout the Town of South Denver, it was necessary that the water works be operated by water power, and for this purpose, it would be necessary to enlarge the Petersburg ditch hitherto used to convey water to the mill.

"The Town also alleged that there was nothing incompatible in the use of the ditch for the purpose of conveying water for irrigation and in storing water in its reservoirs and for operating its pumps, and that no vested or prior rights of any of the respondents would be injured or interfered with in any way and that a large part of the ditch flowed through land that did not exceed $200 an acre in value." 

The case was argued by John Hipp for the Town of South Denver with the respondents being represented by Judge Mills. The motion made by Judge Mills that the Town of South Denver had no right to file such a petition, was, after argument, overruled by the court.

In due course, a jury of six men was impaneled, the land viewed, and on June 27, 1889 after a 3-day trial, a verdict for the Town of South Denver was returned, with awards totalling $5,443 made to the defendants for the 4 acres of land taken by the Town so that it could proceed with plans for bettering its water works power supply.

The Petersburg Company's ditch referred to above was originally one and three fourths miles long. It had three priorities awarded to it, for
irrigation of lands, domestic uses and for water power for milling purposes. The first of these was by virtue of construction of November 30, 1861 for 21.6 cubic feet of water a second, the second by first enlargement, dated December 30, 1863 for 5.4 cubic feet a second; and the third by second enlargement dated December 30, 1873 for 27 cubic feet a second, making a total of 54 second feet in all.

Isolated reports on construction progress made toward completion of this system include those noted below.

On June 7, 1889, the Republican reported that: "The water works of the Town of South Denver are rapidly being pushed to completion. It is only three weeks ago that work was begun and already the mains are laid on Broadway from Alameda Avenue south for a distance of three and one half miles. Besides this, there has been laid one-half mile of supply main in Rosedale Addition. When completed, there will be 40 miles of mains in the town running from Alameda Avenue to Sheridan Avenue, (now Hampden Avenue) and from Petersburg to University Park, taking in all the various subdivisions embraced in that area. There are now about 75 men employed. In another week, this force will be doubled and then the pipe will be laid at the rate of one mile a day.

Mr. F.H. Strong, in charge of the work, stated at the time that "the water works of South Denver will be in readiness by August 1st. for the water. The Holly system will be used and the plant will be located just west of Petersburg."

A news item in the Republican for July 15, 1889 stated that: "work is progressing rapidly on the South Denver water works and on August 26,
that newspaper reported: that September 15th would see the completion of a splendid water works. It was stated that the water committee would report that week finally upon the water works.

"The Town has constructed one of the finest systems in the west. A modern stone power house was located near Petersburg. This power house was equipped with the latest approved pumping apparatus and with engines of sufficient power to supply water to a city of 50,000 people.

"The supply is gathered in underground reservoirs which collect the flow from a hundred springs that come out of the banks of the Platte, closely together at this point. The reservoirs will be completed this week, and by September 15th, the water will be turned into the plant. It is designed to make the event one of great rejoicing and it will be celebrated with a meeting and a brilliant display of fireworks. The distributing system includes 21 miles of iron pipe.... 50 fire plugs have been set at the principal corners of the town. The spring water thus obtained is claimed to be very soft and pure, and the cost of its use will be very low to the individual."

On Sunday, December 8, 1889, the Republican noted that a test of the new water works had been made the day before in the presence of a large crowd of guests from Denver. At first the test was not satisfactory by reason of the fact that the supply main had burst near the works under heavy pressure, but that this would be repaired and another test made in a week."
That the citizens of South Denver were proud of their new water system as indicated by the fact that in December of 1889 they sounded out Denver officials as to the possibility of obtaining permission to extend their system north into Denver proper. In presenting the matter to City Engineer McIntyre a committee from that suburb stated that their water was superior to any within a radius of 10 miles of Denver and that they were prepared to discount the rates of the Denver Water Company. Nothing came of this offer since the City Engineer said he could not issue the desired permits, presumably because of the "exclusive" clause in the franchise held at that time by the Denver Water Company.

Rates to be charged consumers attached to the South Denver system were announced in the "Republican" of December 15, 1889. They were one half or less of the amount charged for comparable use in Denver with water for lawns having a frontage of 25 feet, being $3.00 in South Denver compared with $10.00 in Denver.

Citizens Water Company

This was the title of a new corporation which filed its articles of incorporation with the Secretary of State on March 30, 1889.

The incorporators were, David H. Moffat, Erastus F. Hallack, Richard Holme, George W. Kassler, Charles B. Allen and W. B. Mills. The authorized capital stock was $3,000,000 with no bonds. The term of the company's existence was fixed at 20 years.

The objects of the corporation as then set forth were, the "constituting, maintaining and operation of water works for supplying the City of Denver,
and additions thereto, and to the inhabitants thereof, and others in the vicinity with water for domestic use, and sanitary, mechanical and manufacturing purposes, the extinguishment of fires and the sprinkling of door yards and lawns. To appropriate water, water rights, franchises and privileges; to acquire lands necessary for the purposes of the corporation; to lay water mains and pipes for the distribution of water and to acquire rights therefor and also to supply water for all municipalities and the inhabitants thereof, and corporations along the line of the water mains and pipes of the company, or to which the same may be extended with water for the uses and purposes aforesaid in the county of Arapahoe".

The first Board of Directors was made up of the following men, Richard Holme, G. W. Clayton, David H. Moffat, Erastus F. Hallack, Walter S. Cheesman, Charles P. Allen and W. B. Mills.

Mr. Moffat was elected President with Mr. Holme and Mr. Allen serving as General Manager and Chief Engineer respectively.

As will be seen, this new company was composed mostly of the members of the late Board of Directors of the Denver Water Company and its top executives, who sold their stock and severed their connection with that company on March 27, 1889.

To the public, this action was a matter of considerable surprise, the general impression having been created among Denver citizens, that the Denver Water Company had a congenial and efficient body of men directing its affairs.
In an attempt to ascertain the reasons for the sudden rupture in its Board of Directors, a reporter for the Republican interviewed Mr. Mills and Mr. Holme, with their explanations being published on March 28, 1889.

Judge W. B. Mills, who had been President of the Denver Water Company for the past six years and who for several years prior had been Attorney for the company was then reported as having said: "Everything in connection with the affairs of the company has been going along smoothly and satisfactory to us until about six months ago. The outgoing members of the Board had been pretty diligent and energetic in enlarging and improving the system of the company; all being large property owners in the city and interested in having at hand an abundant supply of water for fire and domestic purposes.

"Mrs. Archer, who owns the controlling interest in the stock of the company, was not quite in harmony with the policy pursued by the Board, all of whom, except myself, were among the original promoters of the enterprise and have been in the company's directory since its first organization. About six months ago, there began to be a little friction. The Directors thought that the demands of the city and people required a vigorous and successful prosecution of the work in hand; but somehow Mrs. Archer failed to see the matter in the same light. Time went on and our relations were not as happy as they might have been. We, the Directors, proposed to either buy or sell, for it was evident to us all that we were no longer wanted in the conduct of the affairs of the company. After negotiations, pro and con, the sale was finally reached of all our stock
and it was transferred to Mrs. Archer today, and the gentlemen who had helped to organize the company and who have had the responsibility of its management since its organization resigned their several trusts.

"You see then, these gentlemen felt that they had made this concern; that they had stood by it in all its difficulties when the town was small and the income inadequate to meet the company's expenses, and through all its trials and difficulties, they had become thoroughly conversant with the wants and needs of the city, and had discovered the manner in which good and pure water could be obtained, and proceeded to put their plans in successful operation. They have laid 50 miles of pipe in the last six years, twenty miles of it in the last year.

"We felt that the large and costly buildings erected in the City of Denver deserved a constant and sufficient supply of water in emergency of a fire.

"But, as I said, we were not happy in our relations, so we sold our stock, resigned our positions, and have turned the city over to the tender mercies of the new Directors."

Mr. Holme, who had been both Secretary and President of the company at different times during 12 years past said: "The management of the Denver Water Company has been in the hands of the old Board of Directors, the originators of the company for the past 17 years. The majority of the stock was formerly owned by Colonel Archer, but, at his death in 1882, the stock reverted to his wife, who is residing in Reading, Pennsylvania.

"Six months or so ago, Mrs. Archer evinced some dissatisfaction with the manner in which the affairs of the company were being conducted
by the Board, on the grounds we suppose, that they were inclined to be too liberal in the extension of the system. The lady also intimated to the stockholders that she would like to step in and take charge of affairs in person, and having a majority of the stock, she had a right to do so. The Board of Directors had no desire to be interfered with in their work, which they considered to be in the best interests of the company, and the citizens of Denver. Negotiations which have been pending for the last 5 or 6 months, resulted yesterday, March 27, 1889 - in the sale of stock owned by members of the Board to Mrs. Archer and the Directors resigned their positions. The Company is now under the control and management of Mrs. Archer.

Mr. F. F. McManus, the Secretary of the new Board of Directors appointed by Mrs. Archer was also called upon and interviewed on the above date. He declined to be interviewed except to state that it was a private business transaction and that the water works would be run just as they had been. When interrogated as to whether there would be improvements, he replied that the works would be conducted as they had been, and that there was now a sufficient supply of water.

A news item published in the Republican on March 29, 1889, after stating that the new water company would file its articles of incorporation that day, commented on the change in part as follows: "Mrs. Archer is represented in Denver by Mr. Francis P. McManus, a near relative, Mr. James H. Archer and Mr. Frank S. Archer, her step sons. Possibly through the misapprehension of the great growth of Denver, or possibly by
the desire of the gentlemen closest to Mrs. Archer to have exclusive
management of the now quite profitable water works system, the lady
objected so strenuously to the extensions and enlargement of the system
which the retiring directors deemed necessary that they had no alternative
except to secure absolute control of the property or sell out.

"Mrs. Archer through her representatives refused to sell. The
Directors had, then, to sell. They did not receive quite the par value of the
$400,000 worth of stock, but they did determine that if their ideas in
relation to a more complete and as they deemed, both profitable and
satisfactory system of water supply to Denver, could not be carried out by
the Denver Water Company, owned by Mrs. Archer, they would organize a
company which would accomplish these results."

When again interviewed, Judge Mills said: "We have the money
to build a larger and finer system of water works that Denver might
have obtained several years hence if this change had not occurred and
we shall do it. And we have something besides the money, added Judge
Mills, we have the pluck."

The public explanation that the organization of the Citizens Water
Company, was brought about by a difference of opinion on basic matters
of company policy between the absentee majority stock holder and the local
Board of Directors of the Denver Water Company was but partially correct,
as will be seen later on in this narrative.

With the growth of the city continuing at an unabated rate, it
began to seriously encroach upon the sources of water supply, which, up
to this time had been stubbornly confined by the Denver Water Company and its subsidiaries to nearby streams.

The insistent and growing demand for clean mountain water in ample quantity had by now reached a point where it apparently could no longer be safely denied. Hence, the organization of the Citizens company seems to have come at a most opportune time.

The announced intention of the new water company was to obtain its supply in a manner and from a source in which all danger of impurity and stagnation was obviated.

It proposed to take its water from underground galleries near the mouth of Platte Canyon, and convey it by gravity with sufficient head to serve all parts of the city, including the Highlands and North Denver. Mr. G. P. Allen, who for sixteen years was employed as Chief Engineer for the Denver Water Company, and was given a similar position with the Citizens Water Company upon its organization, was reported on March 31, 1889 as being busily engaged in making surveys and preparing the plans for the new system.

On April 29, 1889, a subsidiary company was incorporated under the name of the Mountain Water Works Construction by Walter S. Cheesman, E. F. Hallack, George W. Clayton, David H. Moffat and W. B. Mills.

The objects of this company were declared to be for the purpose of building and constructing reservoirs, lakes and water works, laying underground cribs, galleries and water mains, pipes and conduits for conducting and distributing water; constructing ditches, canals and flumes.
for carrying water and sinking wells and managing and operating the same. " The life of this company was to be for 20 years with operations extended over Arapahoe, Jefferson, Douglas, Park, Chaffee and Lake Counties.

In order to inform the people of Denver as to the progress being made by the Citizens Water Company in its efforts to bring a bountiful supply of mountain water to the city, Mr. Moffat, President of the Company, wrote to the Editor of the News on June 29, 1889 outlining what had already been done.

He told of the purchase of 320 acres of land at the mouth of Platte Canyon which took in the whole river bed as it emerged from the cannon. Below this land an additional one mile of the river bed had been purchased for the exclusive right to take all of the subterranean water therein. This right also included a reservoir site on which it was planned to construct a high service reservoir to hold at least 40 million gallons of water.

It was from this two miles of river bed that the company expected to secure its high service water supply which would be carried down to the city on the west side of the river in a 30-inch pipe line.

Beginning about 3/4 of a mile below the high service ground, another three miles of river bed was purchased for the exclusive right to take its underground water. This water would be carried by a 48-inch diameter low service pipe line to the city laid on the east side of the river. A low service reservoir site was also purchased. This was located 1 1/4 miles east of Broadway on Alameda Avenue. From this point water was to be delivered to over 5/6 of Denver's inhabitants under adequate pressure.
This left only 1/6 of the population to be supplied from the high service line on the west side of the river.

Exclusive subterranean water rights were also purchased near the head of the city ditch and below the mouth of Plum Creek for emergency purposes to be pumped in case the two upper sources failed to deliver the required amount of water when called upon to do so. Mr. Moffat said that about $50,000 had already been expended and that, regardless of the franchise situation and competition from the Denver Water Company, the Citizens Water Company was in the field to stay.

Further progress on actual construction of the Citizens Water Company plant was reported in the Republican on October 10, 1889. In a news item of that date, it was stated that bids had been opened on the day before for the construction of 20 miles of 36-inch pipe line from Platte Canon to the city.

The trenching work was awarded to Joseph A. Osner, who planned on putting a large force of men and teams at work in order that as much as possible of the excavation could be completed before cold weather set in. As fast as the ditch was opened the pipe layers of the company followed in the hope that the entire job could be finished by the spring of 1890. Work was also to begin on the reservoirs in November so that the Company would be in a position to supply water early in the summer of 1890.
Franchise Negotiations

A new city administration came into office on April 9, 1889 with Wolfe Londoner as Mayor heading a straight Republican Ticket of elected officials.

This administration followed that of Mayor William Scott Lee, also controlled by Republicans but with three democratic Aldermen.

In commenting on utility affairs in this period of the city's life, King, in his "History of the Government of Denver", said:--

"The councils of 1889 and thereafter especially were wantonly reckless of the public weal and became mere registries where the public utility companies recorded such franchises as seemed best to further their ends. Not during all the period - 1877-1892 - was there any attempt made to glean public advantages from franchise seeking corporations; and after 1889, social responsibility seems wholly wanting in all the public utility activities of the city's aldermen.

"All franchises granted after 1889, were without exception, specifically limited to twenty; years. Before another decade had passed, every inhabitant of the city, save per chance the owners of the privileges, knew the social hardships that a perpetual franchise can inflict."

How true this was with respect to the Denver water utility is clearly shown by what occurred following the entrance into this field by The Citizens Water Company.

The city administration soon found itself in the middle, so to speak, of a bitter, legal, financial and political struggle for control of the Denver
water privilege, as waged by The Denver Water Company and its successor companies on the one hand and by The Citizen Water Company on the other.

In his retiring address delivered on April 9, 1889, Mayor Lee said in part: "It is to be regretted that years ago the city did not construct its own water works. The contract by which the city is now furnished with water for fire and domestic purposes expires in May 1891. It is of the greatest importance for the newly elected city officials to immediately commence some action in the matter. Two years hence, the city will be at the mercy of the Denver Water Company, unless some arrangements are made in the meantime to avert it. It is, without doubt, the expectation of the Denver Water Company to sell their plant to the city two years hence, for a much larger sum than the plant has actually cost. In addition to this, their supply is limited and wholly inadequate to the growing demands of the city. I need not, therefore, reiterate the necessity of the incoming administration grappling with the water question at once, as it is almost impossible to over estimate its importance to this community."

The Denver Water Company was reorganized and new officers elected on April 16, 1889.

Dennis Sullivan was elected President, James Archer, Vice President, F. T. McManus, Secretary and J. A. Thatcher, Treasurer. The other Directors were: J. B. Grant, Edward Eddy, Henry M. Porter, Frank Archer, W. H. James, William J. Fay, Richmond L. Jones and John H. Pullen. In reporting this event the Republican on April 17th said: Recently Governor Grant, Edward Eddy, J. A. Thatcher, Dennis Sullivan, W. H. James and Henry M. Porter bought into the water works company securing an important
interest and hence the reorganization and election of officers as above
named. This, the net result of the forced sale by D. H. Moffat and his
First National Bank associates of their minority interest in the Denver
Water Company was to have that interest purchased within two weeks by
Dennis Sullivan and some of his close friends, who at the time, were officers
or Directors of the Denver National Bank.

In an interview with a Republican Reporter, Mr. Sullivan in answer
to questions said: "Our policy is to give good service and good water in
sufficient quantity to supply the demands of the city." "We will enlarge and
perfect a plant and will expend a large sum of money this year on this work."

In reply to the question - will the water supply be increased - Mr.
Sullivan said yes, but would not go into details as to what the enlargement
would consist of, or its probable cost.

On May 31, 1889, President Dennis Sullivan of the Denver Water
Company wrote to the City Council as follows: "Gentlemen - The present
management of the Denver Water Company, having lately assumed direction
of the affairs of the company, find the properties of the corporation in a
deplorable condition, requiring the expenditure of very large amounts of
money in addition to the works thereof, and of particular in adding to the
sources of water supply. In order to enable us conveniently to provide the
means necessary, it is highly desirable that our relations to the City of
Denver should be more definitely ascertained than at present. Having
reference to matters of public knowledge, we suppose it to be improbable
that the city will, at the expiration of the present contract, which will occur
in May 1891, be in condition to purchase the properties of the company.

At the same time, the existence of this limitation upon the franchise of
the company and potentially upon its existence, does, and must, until
terminated, disable the company from procuring the very large sums of
money necessary for its purposes. We therefore request that the city will
extend the contract now existing with the water company for the further term
of 20 years, with the modifications suggested in an ordinance, draft of which
is hereby submitted."

The petition was referred by the Board of Aldermen to its water
committee. At the same meeting, a bill was introduced calling for an
ordinance which would authorize the contract as requested. This bill was
referred to the Judiciary committee.

A joint meeting of the Boards of Supervisors and Aldermen was held
on June 3, 1889 for the purpose of considering the water question.

At this time the claims of the Citizens Water Company were presented
with its advocates asking that it be permitted to submit full data on how that
company proposed to solve the water problem before taking action on the
petition of the Denver Water Company.

About an hour was devoted to listening to representatives of the
rival water companies, after which the city council decided to discuss the
matter in executive session.

The Board of Aldermen met again on June 6, 1889 at which time a
long letter dated June 5 was read from President Sullivan scolding the
Citizens Water Company for opening the matter of the city's water supply to
speculative contention and wrangling, by offering a bonus of three years
gratituous water for public purposes as the price of a franchise.

After setting forth in some detail what it considered its legal and
moral rights to be, the letter ended with the following paragraph:

"The city must deal with the living and the present, and the Denver
Water Company is now, and will always be ready and willing to go hand in
hand with the city and its citizens in extending and enlarging the water supply
and in every way answering the purpose of this company's creation and
existence without asking any other than fair terms and just consideration;
but we will not engage nor involve the City of Denver in an unseenly contention
with an embryo water company without rights or honest existence, and there­
fore respectively withdraw for the present the ordinance heretofor submitted.

The communication was received and placed on file by an unanimous
vote.

Later on in the evening, a petition, together with a bill for an
ordinance granting a 20 year non-exclusive franchise to the Citizens Water
Company was presented, which, after discussion, was referred to the
Judiciary Committee.

The Denver Water Company then took its problem to the public
by asking the Republican to publish two letters dated June 9th and June
11th, explaining its position and relations with the city as it saw them.

Among other things, it was stated that, "The only premises on which
we will discuss the matter are that there are but two parties to the controversy,
namely the Denver Water Company and the City of Denver. There is no other
party and no rival companies. The Citizens Company so-called, organized
for the sole purpose of harassing us, has suffered a premature collapse and its aspirations have been transferred from the Council chambers to the tribunals of the law. It is not a factor in this treaty and if the City authorities choose to pass any ordinance concerning it, we must be consistent with our legal rights and obligations, decline to renew our present contract or make a new one with the city.

"When the present contract was made, the company was already within the City’s gates by consent of the authorities, and the only consideration for consenting to those restrictions and limitations was that the City should not permit any other person or company to lay pipes within its limits for the term of 17 years, which term will not expire until May 9, 1891. If the city shall permit any Company so to do, it will be a breach of the contract and entitle the Denver Water Company to damages from the city for whatsoever loss it may sustain. It is obvious, therefore, that the ordinance we submitted was of necessity withdrawn, as we could not appear, by contesting, to sanction any violation of our contract."

"As soon as the ordinance of the so-called Citizens Water Company shall have been dismissed by the City Council, we shall resume our negotiations with the hope and expectation of reaching a satisfactory agreement with substantial unanimity."

The arguments advanced by the Denver Water Company about this time seemed to prevail with the Board of Aldermen, since, at a meeting held by that Board on June 20, 1889, the judiciary committee to which the Citizens Water Company proposed franchise had previously been referred,
recommended that the ordinance not be passed, which recommendation was accepted by a nearly unanimous vote. Following this action, a resolution waiving for three years the city's option to purchase the Denver Water Company's plant as provided for in its franchise, was sprung upon the Board without having passed through the hands of the Clerk until he was requested to read it in open Council. Although a desperate effort was made to delay action upon it, the resolution prevailed by a vote of 5 to 4, President Cooper casting the deciding vote. The resolution had not been referred to City Attorney Shafroth, who, when asked about it, said that the hasty action by the Board of Aldermen certainly raised some ground for suspicion. He also stated that it would be properly referred to and critically investigated by the Board of Supervisors.

Corporation Counsel March, also thought that the hasty action by the Aldermen in passing such a resolution was rather extraordinary, and gave rise to a suggestion that there was something behind it all that did not appear upon the surface.

In commenting upon this suspicious action by the Board of Aldermen, the News on June 22, 1889 stated that many people, including the Mayor, thought that there was some "boodle" involved and said that it was charged that the adoption of the resolution cost the Denver Water Company $25,000.

In its issue of June 22, 1889, the News printed a two column article, stating that public opinion was adverse to the action taken by the Board of Aldermen, quoting among others, Mr. D. H. Moffat who had been interviewed.
on the situation as he saw it. He said - "That his company, the Citizens Water Company, would continue the work already inaugurated and bring water from the Flatte to the city limits, regardless of the resolution. We will also come into the city if a franchise is granted and if not, will stop at the city limits. The refusal of the Aldermen to give us entry was upon the part of some members, merely an objection to certain portions of our proposed contract. These defects will be remedied and we will use every endeavor to get the privilege of furnishing Denver with pure water".

When asked his opinion of the resolution he said: "I think it is an outrage, a most extraordinary proceeding and an insult to the intelligence of the community."

As a result of an aroused public opinion and the issuance of a temporary injunction, against it and the Denver Water Company, the Board of Aldermen, at a special meeting held on June 24, 1889 reconsidered the obnoxious resolution passed on June 20, and laid it on the table by a vote of 5 to 4 with President Cooper reversing his former position and again casting the deciding vote. This move forstalled action by the Board of Supervisors and, according to the News, averted an impending defeat.

On July 2, 1889, President Cooper of the Board of Aldermen submitted his resignation which was accepted. On July 6, Alderman Conway was chosen as the presiding officer of that Board.

The temporary injunction obtained by the Citizens Water Company against the City of Denver, which suspended operation of the above resolution on June 22nd, was made permanent on September 12, by Judge Liddell.
Consequently, no further attempts were made by the Denver Water company to alter the status quo until early in the year 1890, as will be seen later.

One of the most important meetings ever held by the Board of Alderman on water matters occurred on October 17, 1889. At this meeting, Aldermanic Bill No. 65 granting the right to The Citizens Water Company to lay its mains and pipes through the streets and Avenues of the City, was favorably reported upon as amended by the committee to whom it had been referred. Mr. Thomas M. Patterson, Attorney, representing the Denver Water Company asked for a hearing before action should be taken, which was granted.

He then made a lengthy argument against the passage of the Ordinance, saying among other things, that it involved the gravest question of law and ethics. He maintained that passage of the Ordinance would be a gross violation of faith upon the part of the City, and a gross injustice to its people. After reviewing the history of the existing contract between the City and the Denver Water Company, which had been entered into at the time he was City Attorney, he became eloquent, and referred to the Citizens Water Company as a strong and powerful corporation representing political power that claimed it could make and unmake Mayors, Aldermen and Sheriffs under threat of political defeat if its demands were not granted.

He quoted from a copy of the Denver Times of the day before saying that the article in question was the most dastardly attempt ever made in the City to intimidate the Board of Aldermen.
After Mr. Patterson had concluded his argument against the ordinance then under consideration, Judge G. D. Symes, acting on behalf of the Citizens Water Company, stated that he agreed with Mr. Patterson that the ordinance was the most important matter ever to come before the council for the simple reason that the city was suffering from the lack of water, and the people were demanding a greater water supply so that eastern capitalists would be encouraged to place more money in Denver for investment. He also stated that the Holly system was totally inadequate for the wants of the city, since it was laid out for a village and could not supply the city as it had grown to be.

He disagreed with Mr. Patterson, saying that no first class lawyer would put his reputation at stake by affirming that there was any such thing as an "exclusive" right in connection with city affairs!

When a vote was called for, the ordinance as amended by the committee, was adopted by a vote of 6 to 2, with one member absent.

On November 1st, at a meeting of the Board of Supervisors, Aldermanic Bill No. 65 was introduced and referred to the committee on water.

At this same meeting, a communication was received from the Denver Water Company protesting against the granting of a franchise to a rival company, and requesting that the city council take immediate steps toward the purchase of its plant.

After several informal, but closed meetings with various interested parties, the Board of Supervisors met on November 16, 1889 and passed the bill granting a franchise to the Citizens Water Company by suspending
the rules and placing the bill upon final passage. The vote was unanimous in its favor.

However, it soon developed that, either by accident or design, the law had not been complied with in all particulars, when this Ordinance was passed by the Board of Supervisors. After much consultation between the legal staff of the City and that of the Citizens Water Company, the Board met on November 22, reconsidered its previous action and approved the engrossed bill as then resubmitted.

(See page 642, Franchises and Privileges as granted by The City and County of Denver, 1907 Edition).

PLATTE WATER COMPANY

City Ditch

The State Legislature, at its 1881 session, passed two Acts, which immediately became key components of Colorado Water Law.

The first one of these created the office of State Engineer; designated three water diversions; and gave him general supervision over the water companies of different water districts in the State.

The second Act was entitled: "To make further provisions for settling the priority of rights to the use of water for irrigation, in the District and Supreme Courts, and for making record of such priorities, and for payment of costs and expenses incident thereto."

Section One of this Act reads in part as follows:

"In order that all parties may be protected in their lawful rights to the use of water for irrigation, every person, association or corporation
owning or claiming any interest in any ditch, canal or reservoir, within any water district, shall, on or before the first day of June, A. D. 1881, file with the clerk of the District Court having jurisdiction of priority of right to the use of water for irrigation in such water district, a statement of claim, under oath, entitled of the proper court."

These Acts were approved by Governor Pitkin on March 5th and February 23rd, 1881 respectively.

The necessary statement of claim was filed by the Platte Water Company with the clerk of the district court at Castle Rock, and testimony heard by Hugh Taylor, Referee for Irrigation District No. 8, on Monday July 24, 1882.

Witnesses testifying at that time were: Mayor Robert Morris, City Attorney; Stallcup, City Engineer E. H. Kellogg, for the City and Richard Sopris, Fred Salomon, William M. Bliss, J. T. Smith for the original corporation with E. S. Nettleton, a prominent hydraulic engineer, appearing on behalf of unnamed interested parties.

Mayor Morris and City Attorney Stallcup, claimed that the statute of 1881 could not affect the City Ditch, because in 1859, the legislature of Kansas had granted all the water privileges between the mouth of Platte Canyon and the Mouth of Cherry Creek, as well as the last six miles of Cherry Creek, to the old Capitol Hydraulic Company which was in turn succeeded by the Platte Water Company.

This claim was successfully contested at the hearing by the Northern Colorado Irrigation Company, resulting in the Platte Water Company taking an appeal to the Supreme Court some time after Judge Helm had entered
his decrees.

The testimony given at this hearing on the carrying capacity of the City Ditch conflicted greatly. The Mayor, basing his statement on information given to him by City Engineer Kellogg, claimed the ditch had a carrying capacity of 265 cubic feet a second, while Mr. Nettleton stated that he had made many measurements between the headgate and the first lateral when the ditch was filled to capacity, and found that 67.5 cubic feet a second was the maximum amount of water it would carry.

Referee Taylor's report was filed in the District Court at Castle Rock on January 15, 1883.

The decree awarded to the Platte Water Company by that court in accordance with the referee's findings, a copy of which will be found in the Appendix, provided briefly that: 1 - "As much water be allowed to flow into its ditch from the Platte River for the irrigation of lands along the South Platte River and the City of Denver in three priorities as follows: - "Priority number 1, by construction; priority number 75 by first enlargement, and priority number 130 by second enlargement.

For priority number 1, as much water as will flow in said ditch on a grade or fall of four and one half feet to themile, with width on bottom of ten feet, width on top thirteen feet with depth of water flow of eighteen inches; the appropriation of the water taking effect, and the said priority dating from November 28, 1860. (Later computed at 30 second feet).

For priority number 75, so much additional water as would amount to 43 cubic feet of water per second of time, said appropriation taking effect
on and dating from November 1, 1873. (13 second feet)

For priority number 130, so much additional water as would amount to 85.95 cubic feet of water per second of time, said appropriation taking effect on and dating from March 7, 1882. (42.95 second feet)

It will be noted in the decree that the court stated: "The right of said Platte Water Company under said alleged grant from the Legislature of the Territory of Kansas not being considered or determined by this decree".

On December 10, 1883, District Judge Harrison heard the application of the Platte Water Company as appellant against the Northern Colorado Irrigation Company for appeal from the decree and judgment in his court to the Supreme Court, the finding being:

"The Court doth find that said statement for appeal is in accordance with the statements of claim filed herein before the taking of testimony herein by the said the Platte Water Company and the said the Northern Colorado Irrigation Company respectively and that the same is in accordance with the law and the court doth accordingly approve the same and doth order and adjudge that the appeal for said the Platte Water Company's irrigation ditch by said The Platte Water Company as appellant as against the said the Northern Colorado Irrigation Canal and its owner the said The Northern Colorado Irrigation Company as appellee, be allowed upon filing a good and sufficient bond in the sum of $500 with sureties conditioned and approved according to law."

The appeal was filed in the Supreme Court on February 13, 1885.
The judgment of the lower court was affirmed there, Justice Elliott delivering
the opinion of the court saying:

"This case is a special statutory proceeding for a particular purpose. Appellant (a private corporation) and not the City of Denver, is the party to the record. Appellant has never exercised the exclusive right to the use of the waters of the South Platte river, nor has such right ever in any manner been recognized by appellee, or by any party in the premises.

"It will be observed that we indicate no opinion either as to the right of appellant as an appropriator of water for purposes other than irrigation, nor as to the rights of the city of Denver as a consumer of water for any purpose.

"We are of the opinion that the district court of Douglas County did not err in the matters complained of by appellant, and its decision in that behalf is accordingly affirmed. (See Volume XII Colorado Reports, April term 1889.)

Payments for the purchase of the City Ditch were completed on May 25, 1882, the total cost then being $82,564.14, of which sum $22,564.14 represented interest paid at a rate of ten percent per annum on deferred payments of principal extending over a seven year period of time.

A meeting of the Board of Directors was called at once, with one after another resigning, followed immediately thereafter by the election of city officials in their place.

The Directors who resigned were: F. Z. Saloman, Amos Steck, John W. Smith, A. Jacobs, D. Witter, H. Z. Saloman and Peter Magnes. F. Z. Salomon was President, D. Witter, Treasurer and W. D. Todd, Secretary.
The newly elected officers and Directors were: Mayor Richard Morris, President; City Attorney Stallcup, Vice President; City Treasurer, W. M. Bliss, Treasurer. W. D. Todd of the old board of directors retained his office until the affairs of the company could be fully settled. Other directors then elected were, Aldermen R. Y. Force, W. W. McLellan, W. W. Whipple and E. L. Fox.

A special meeting of the city council was held on August 26, 1882, for the purpose of receiving a report from a committee previously selected to confer with the officials of the Platte Water Company. The recommendation of that committee, was to recognize the existence of the newly organized company, pay it $10,000 a year rental for the use of the ditch, with the city assuming the repair and maintenance thereof, as well as to pay Contractor Williams for enlarging the ditch. The city was to account to the water company for all water received and in return it was to receive the annual dividend paid by the company which would be ear marked for ditch improvements and enlargement.

The recommended agreement, a matter of form only, as the city and its officials owned all of the 5,000 shares of stock, was approved by the city council and ratified by the Platte Water Company.

The agreement as drawn, following this recommendation, was dated May 25, 1882 and was to run until May 25, 1887. On January 17, 1887, at a called meeting of the officers and directors of the Platte Water Company, the above agreement was authorized to be extended for a further period of five years after May 25, 1887 under the same terms and provisions therein provided,
except that the rental was reduced from $10,000 to $5,000 a year, if the City of Denver should accept the proposition within 30 days.

With the three year contract for ditch operation given to William Toovey on February 20, 1879 soon to expire, the City Council began early in January 1882 to consider bids for a new five year contract to carry on this important municipal function.

Competition was keen and not particularly ethical, with partisan politics involved to such an extent that it was not until some weeks later that the various factions within the city administration were able to agree on an award. Subsequently, on March 3, 1882, a contract was awarded to Joseph Williams, who agreed to operate and maintain that portion of the ditch lying between its headgate and the city limits for $5,000 a year over a period of 5 years, as well as to enlarge the carrying capacity of the ditch by 200 inches each year of the contract.

The annual inspection trip of the ditch was made by members of the city council and others on April 5, 1882, at which time it was reported by the News that the work all along the line was well advanced, with new flumes across Dry and Plum Creeks. The increased capacity just below the headgate inches when all work was completed to be 6,000 (156.25 cubic feet a second). Water was then expected to be running to the city by the middle of the month.

Soon thereafter, and continuing for many months, the News began, by a series of news items and occasional editorials, to expose what it called fraud, corruption and misconduct being practiced by the city administration, with the principal charges levelled at the manner in which the city ditch was controlled and operated.
On July 4 of that year, the News attempted to explain, editorially, the situation as it then was, saying: "The facts regarding the contract for the repair and enlargement of the city ditch are easily understood. Contractor Williams offered to do the work for five years at $5,000 a year, agreeing to enlarge the capacity by 200 inches each year. This would give the ditch a capacity—at the city limits—of 2400 inches at the close of his contract. As soon as this contract was agreed upon, Williams and his friends went to work with the council and the Mayor to secure extra compensation amounting to $10,000 on condition he would immediately increase the capacity of the ditch to 2400 inches—62.5 cubic feet a second—to be measured at the point of delivery to the city.

"This remarkable job was slid through the council and approved by the Mayor as only contractor Williams can slide a job through.

"Before the ink was fairly dry, Williams obtained the certificate of the City Engineer that the stipulated enlargement had been made and the water committee and Mayor Morris gave Williams a warrant upon the city treasury for $10,000.

"It is almost needless to say that Williams drew the money at once. He has also drawn $1,666.66 of his first $5,000 under the original contract. It is a notorious fact that the ditch is not now carrying 2400 inches of water or any considerable fraction of that amount. It never did carry—delivery to the city—2400 inches of water. What recourse has the city against Contractor Williams? Is he good for the money he has been unjustly and inexcusably given? What excuse has Mayor Morris, Engineer Kellogg and Aldermen Force, Fox and Rector for their conduct in giving him $10,000 before he had
earned it? These are pertinent and most important questions and they must be answered.

It is to be remembered that, whether or not Contractor Williams ever actually completed the ditch enlargement contracted for on March 3rd, the District Court at Castle Rock later entered a decree for a second enlargement of 42.95 cubic feet a second, with a priority date of March 7, 1882, indicating that the work had at least been started by that time.

The campaign of criticism carried on by the News during the summer of 1882, resulted, either directly or indirectly, in three significant proceedings being instituted by the Mayor and the City Council.

The first one of these had to do with the raising of funds from employees to purchase gifts for men under whom they worked. A special council committee appointed to investigate charges of this character reported to the city council on July 21 as follows: "Our inquiry shows that large sums of money were collected from the employees of the Water Department for the alleged purpose of raising funds to present the Water Commissioner, Mr. Blakely, with a horse and buggy, and Alderman Force with a gold watch, under the guise of voluntary contributions, but which we were forced to consider, when reviewing the parties involved as employers and employees, that these employees no doubt considered themselves under obligation to contribute to these objects or run the risk of losing their jobs!"

Thereupon the committee recommended that Mr. Charles Blakely,
Water Commissioner be removed from office since he was not a fit and proper person to hold that position. The committee also said: "We regard the action of Alderman Force as Head of the Water Department in permitting these collections to be made and in accepting a watch as a present from employees of the department under his charge, as highly censurable and prejudicial to the interest of the city. We further recommend that the council order an investigation of his connection with this matter or to take such further action as it deems proper.

A committee consisting of three councilmen and three prominent citizens was then appointed by the Mayor to investigate the charges against Alderman Force.

After a sincere but ineffectual attempt to get at the bottom of the matter, the committee reported on August 10, in brief as follows: 'That it had, in compliance with the expressed request and desire of Alderman Force used diligent exertion to obtain testimony of the facts that had been alleged to exist, but had met with repeated and constant discouragements and obstacles. Men had come to the committee and made position statements of fraud, corruption and bribery both on the part of Alderman Force and other members of the City council who would either refuse to testify before the committee, or when called made different statements under oath from those made to it before. Further, that there had also been a lukewarm apathy, if not active opposition, on the part of the Aldermen which had rendered the work of the committee doubly difficult.
After further comments, the committee reported that they had consulted the city attorney for the purpose of obtaining a draft of specific charges, but was informed by him that no good could be obtained thereby, that no expulsion from the council could be obtained.

The committee thereupon concluded that, if the council really wanted a thorough and competent investigation made, it would be necessary to employ a disinterested attorney who would devote his attention to the subject without fear or favor, with the committee given the power to compel the attendance of witnesses.

The report was discussed at the council meeting of August 10, and the City Attorney permitted to speak upon it. He stated some of the statements credited to him were unfair, saying that he did not tell the committee that an Alderman could not be expelled.

After a heated discussion, a motion to adopt the report of the committee was passed with Alderman Gove casting the only negative vote. After being told that the committee could call in an attorney, and that the Mayor had the power to subpoena witnesses and compel their attendance, the meeting adjourned.

At the same council meeting, Mayor Morris had earlier reported, that, since Contractor Williams had not complied with his ditch contract to deliver 2400 inches of water to the city for irrigation purposes, he was retaining the $1,666.66 due Williams on July 1st under his contract, although it had been allowed by the council. He also advised council that he presumed
the Williams contract sureties would be liable under their bond for the sum of $10,000 already erroneously paid to that Contractor. As a matter of further information, the Mayor and City Clerk also withheld the payment of $1,666.66 due Williams under contract provisions on October 1, 1882.

On December 8, 1882, the Mayor and City Clerk were served with a writ, issued by District Judge V. A. Elliott, ordering them to issue a warrant in favor of Joseph Williams for $3,333.32 - the amount mentioned above as having withheld - or show cause to the contrary not later than December 21, 1882.

On that date an answer to the writ was filed as ordered. It was a voluminous document, reciting the facts as the City saw them and concluded by claiming that Williams did not enlarge the city ditch, that City Engineer Kellogg and the water committee of the council on April 26, were well aware of that fact, and made a report to the council for the purpose of fraudulently procuring from the city a warrant for $10,000 then drawn in favor of Contractor Williams. The answer maintained that the charge was true that Williams obtained $10,000 from the city by fraudulent means and that he still retained it and refused to perform his contract or return any money to the city. Therefore, the defendants withheld Williams warrant because of the fraud he had perpetrated on the city.

Available records no not show the manner in which this contested payment was disposed of, although a news item on a council meeting held June 7, 1883 stated that the matter was still in court.
Later on in the summer investigations initiated by the Mayor and City Council were made by both council and citizens' committees of irregularities reported to exist in the engineering department as well as within the council itself.

The City Engineer and his assistant were tried by the council on specific charges arising from their handling of the Williams City Ditch and sewer contracts. They were found guilty on October 16, 1882 of dereliction of duty by not protecting the city to the full extent of their ability. The Assistant City Engineer was discharged as of November 23, 1882. The City Engineer, Mr. E. H. Kellogg was permitted to retain his office until the city administration was reorganized as a result of the election held on November 7, 1882. At that time, Mr. Kellogg was replaced by Mr. H. C. Lowrie, designer of the Denver Sanitary system, who served in that position with credit until his retirement in April 1889.

The demand for irrigation water from the city ditch reached its all time peak in this decade. For instance, Mayor Sopris, on November 10, 1880 in delivering his annual address at a council reorganization meeting said: that the city had over 200 miles of streets within its limits, fringed and ornamented by more than 150,000 shade trees, sustained by 1400 inches of water brought into the city during six months of the year and distributed through more than 400 miles of ditches and gutters.

Some seven years later on February 17, 1888, the News in an editorial headed "Stop this Nonsense", criticized Mayor Lee for the arbitrary position taken by him in his quarrel with water commissioner Miller saying: "There should be at least 50 men at work on the ditches today."
but because the Mayor does not like the water commissioner, he refuses to give him authority to employ more than 10. To attempt to repair 2500 miles of ditches with 10 men is assinine". That the position taken by the Mayor on this matter on a plea for the need of rigid economy in city affairs should govern, was not popular, is shown by the fact that, at a meeting held on February 25, 1888, a bill was passed with two dissenting votes, taking the management of the water department out of the hands of the Mayor and placing it in the hands of the Water Commissioner.

The failure to meet the fast growing demand for ditch water at critical times, could not always be blamed on the carrying capacity of the city ditch. Here again city officials were faced with uncontrolled water diversion from the ditch at points between the head gate and the city far in excess of contract amounts; by periods of extremely low run off in the Platte River, and by storms and man made breaks in the ditch itself, which when taken together, created frequent and protracted interruptions of service at times when most needed, all to the detriment of the city as a whole.

However, it must be conceded that, even under these conditions, the operation of this ditch, both without and within the city, where "water police" appointed on a political patronage basis, distributed the available water under the direction of a partisan council committee on irrigation, the Mayor, or a Water Commissioner as circumstances seemed to dictate, from time to time, could not result in anything but a highly inefficient type of operation.

The city council was reorganized after a municipal election held on April 3, 1883 with nine instead of six wards.
Mayor Morris was succeeded on April 12th by John L. Routt, with Alderman Force no longer a member of council.

Water was turned in to all of the ditches on April 12th, with the Water Commissioner reporting that the length of ditches cleaned out in the city under his superintendence totaled nearly 1,200 miles, fifty men on an average having been employed for that purpose. He predicted that there would be no water trouble during the year with Contractor Williams having done a thorough job on his part of the work.

A council committee thereupon recommended on June 19th, that the withheld claim of $1,666.66 due Contractor Williams on April 1st be allowed on condition he complete the work of enlargement called for by his 1882 contract on or before April 1, 1884, to the satisfaction of the City Engineer and the Committee on Irrigation.

Another dispute soon arose over the Contractor's refusal to enlarge and maintain the five mile section of ditch lying between the measuring box on Walker's farm, where 600 inches was diverted to West Denver, and the city limits, which on February 11, 1883 changed the ditch entry into the city from a point near East 10th Avenue and Grant Street, to East 6th Avenue and Franklin Street.

This new difficulty was referred by the Aldermen to the City Attorney on December 8, 1883 with power to act.

The City Attorney, however, took the matter back to the council advising it orally on December 28, 1883 and again in a written opinion read at a meeting held on April 10, 1884, that in his opinion, it was incumbent upon Mr. Williams, under the terms of his contract to keep the Platte Ditch
from the measuring box on Walker's ranch to the city limits in such order and repair that it would deliver 1900 inches of water there, that being the balance due the city after deducting the 600 inches delivered for West Denver. After hearing the written opinion read, it was received and filed with Contractor Williams refusing, through his attorneys, to accept the city attorney's interpretation of the contract in a statement presented on April 21, 1884, which also was received and filed.

According to the annual report of City Engineer Lowrie, the year 1885 was a typical one, with ditch operations exposed to the usual vicissitudes of washouts due to heavy summer storms, lack of water due to drought, the theft of water by farmers located along the line of the ditch above the city, and lack of stability of a number of structures which were constant liabilities, breaking as they did on the occasion of most every storm. However, he stated that after the early season, the supply had been generally good.

The summer months of June, July and August for the years 1885, 1887 and 1888 were notable, not only for subnormal precipitation in the Denver area, but also for mean temperatures, noticeably above average, which brought restrictions on the use of water for irrigation within the area served by the pipe system as already noted, and serious operating and legal problems for the owners and distributors of ditch water as well.

The Williams contract of March 3, 1882 covering the operation and maintenance of the City Ditch expired with the end of the 1886 irrigating season.

Opposition to the contract method of handling the ditch came out in the open at a meeting of the Board of Aldermen on January 12, 1887, with
another method then being proposed by a group of Aldermen.

One Alderman, in speaking of it with a Times Reporter, who asked what the plan was, said: "Why hiring a Superintendent at a salary of $1,500 per annum and giving him charge of the ditch, its water rentals and repairs". One or two Aldermen favor the old costly contract scheme, but their game was blocked by the passage of an appropriation of only $2,000 by the council for running the ditch for the ensuing year.

The Reporter then asked if you pay $1500 salary to a Superintendent, that will leave but $500 appropriation for repairs. "That's all right, was the answer, but the Superintendent will be required to collect all rentals for use of the water and those rentals will pay for repairs, unless a series of gigantic washouts should occur, in which event the water fund would be called upon to meet the deficiency. I want to tell you right here, and you know it to be a fact, that not over one half of the rentals were collected the past two years, and favoritism prevailed. Some users had to pay fully, while others got their water for nothing. If the rentals be faithfully collected, they will pay for every expense and afford a profit margin besides. There will be no more five year contracts, you may rest assured, if we can help it."

After the Supervisors refused to go along with the Aldermen in awarding a new five year contract to Joseph Williams for $34,000 a resolution was passed by the Board of Aldermen and approved by the Board of Supervisors on March 12, 1887, authorizing the Mayor to instruct the Water Commissioner to employ the necessary number of men and teams to clean out and put the city ditch in repair ready to convey water to the city limits. This was done
in the three or more weeks remaining before the municipal election of
April 5, 1887 was held.

The city council was reorganized on April 12, 1887 with incoming
Mayor Lee telling Mayor Bates that he had been informed, that under his
direction it had cost only $600 to clean out the city ditch and to put it in as
good shape as it had ever been, when under the previous contract arrange­
ment the cost had usually amounted to several thousands of dollars.

The News, in an editorial published on May 11, 1887, commented on
the city ditch saying: "In the Platte ditch, the city of Denver has a valuable
piece of property, which will increase in usefulness from year to year as
the land under it is placed in cultivation and the owners of the land get used
to the fact that the water in this ditch is not free. The city distributes,
mostly in the outside district of the city proper, 2,000 inches per day, which
is of incalculable value to the property beyond the reach of the Holly water
system."

In an effort to control and secure full payment for city ditch water
used by farmers and others located along the line of the ditch, outside the
city limits, a resolution was adopted by the city council in May 1887, re­
quiring all persons desiring to purchase water from the city and taken
from the Platte Water Company ditch to make application for such water by the
first of June 1887, later extended to July 1, 1887, and thereafter to make such
application by the first of May with no applications to be considered or
allowed after those dates.

That the condition of the city ditch was not what he had been lead to
believe, soon became evident to Mayor Lee.
At a meeting held with the Water Commissioner and the Supervisors late in May, the group was told that the penny wise policy adopted by the previous administration in the guise of economy had been an extremely foolish one.

The Mayor said that had he known of the actual condition of the ditch earlier he would have appointed a Superintendent to look after it instead of employing Mr. Abe Haworth, formerly Mr. Williams' assistant, to take charge of ditch operations.

He was informed that such an appointment would afford no relief, as the ditch was in such condition that it could not carry the water it was supposed to carry. When in good condition the ditch had a carrying capacity of 4800 inches, but at this time the Mayor was told that less than one half that amount was entering the head gate with a scant 1,000 inches available to the city, when twice that amount was needed. Complaints averaging about 100 a day were, even that early in the season, being received from property owners whose trees were dying from lack of water.

By July 1887, low stream flow in most of the eastern slope streams, including the South Platte, caused the State Engineer to drastically cut diversions into the city ditch.

In an attempt to give everyone some water, Mr. Haworth, with the consent of city officials, gave the farmers water during the day and then transferred it to the city during the night.

A month later, in an interview with a Times Reporter, the Mayor said that the cost of maintaining the ditch so far that year had been about $3,000 and that there was a possibility it might cost $5,000 more before
the season was over. He also said that the ditch had been so poorly
looked after in the past that it needed a thorough overhauling and repairing.

He likened it to an old harness which had been patched and repaired
until it was almost impossible to make it stick together any longer. He
further stated that the council had been told that the ditch should be repaired
and improvements made during the coming winter that might cost as much
as $10,000.

Water was also scarce, with much complaint from people living on
the north side, who got their irrigation water from the Rocky Mountain
Ditch, which had its intake on Clear Creek, which was unusually low due
to lack of snow during the preceding winter and spring and very little
summer rain.

A proposition to care for the city ditch for the ensuing five seasons
was received by the city council from Joseph Williams on October 13, 1887
and referred to the committee on water.

This unsuccessful irrigation season ended with the closing down
of the city ditch on October 25, 1887.

The water committee of the city council reported on the proposal
of Joseph Williams as above noted, on November 12, recommending that the
City Engineer be instructed to make estimates as to what it would cost to
take care of the ditch, and requested that the City Treasurer advertise for
bids, with an award to be made to the lowest bidder.

At a Board of Supervisors meeting held on November 30, a
resolution of the Platte Water Company was introduced asking that an appropropriation of $10,000 be made for it to enlarge and put the ditch in good
shape for the 1888 season. The communication was received and placed on file.

This request by the Platte Water Company brought forth an editorial in the Times of December 2, 1887 which, by reason of its informative nature is quoted in full below.

"Before any money is appropriated by the city government to the Platte Water Company, it would be well for the public to discover by what right.

A handful of ex-city officials have continued to perpetuate themselves as officers of the Platte Water Company. As we understand the matter, every share of stock in the company belongs to the City of Denver, but for purposes of satisfying some legal fiction, some years since, 4 or 5 of the shares were nominally transferred to certain city officials with the understanding that they should transfer these shares to their successors in office in order that the Platte Water Company might be kept alive in form without disturbing its ownership or control, which is vested in the city.

"But for some reason, original office holders forgot or neglected to transfer their shares when they went out of office, and now we see a queer spectacle of the city frequently being officered and directed by a lot of speculative citizens who have no official position and who are not responsible to anybody for what they may do. It is true, that at the late meeting of the Board, the Mayor was chosen President, but he is the only city official now in that body; whereas, the original intention was to have the Board composed wholly of city officials. If the city must spend $10,000 on the improvement of its ditch during the coming year, why should not the improvement be made
under the direct supervision of the city authorities, rather than through the medium of the Board?

In his message accompanying the proposed appropriation ordinance for 1888, Mayor Lee stated that the estimated income from the city ditch for the ensuing year was $3,000 and that the total appropriation for the benefit of the water department should be $52,000.

It is of interest to note that on December 22, 1887, the Grand Jury reported to District Judge Stone on custody of the Platte Water Company stock as follows:

"Whereas, it has come to our knowledge that the stock of the Platte Water Company amounting to a par value of $50,000 is not in the hands of the City Treasurer who is the proper custodian of the personal property of the city, now therefore be it resolved, that it is our opinion that the Mayor of the city should at once see that it is so placed, and we request that a copy of this resolution be sent to the Mayor by the Clerk of this Court."

The State Legislature, at its Sixth General Assembly, held in the early months of 1887 passed a number of important Acts concerning Irrigation. One of these was an Act, approved on April 4, 1887, authorizing the Governor to appoint a superintendent of irrigation for each of the water divisions in the State. This Act gave such superintendents the authority to make regulations not specified in the Act itself which would secure the equal and fair distribution of water, in accordance with the rights of priority of appropriation as might, in his judgment, be needed in his particular division.

The Act provided for appeal, by any person, ditch company or ditch owner who deemed himself injured or discriminated against by any order.
or regulation of a Superintendent of Irrigation, to the State Engineer, who, after a hearing was given the power to suspend, amend or confirm, the order as he deemed best in the circumstances.

The annual factional strife over city ditch operation for the year 1888 began at a council meeting held on February 11th. At that time, the long standing controversy between the Mayor, the Water Commissioner and opposition members of the Board of Aldermen, again erupted. Also Joseph Williams renewed his offer to put the ditch in thorough repair and care for it, for 5 years at a total cost of $34,000.

At the next meeting of the Board of Aldermen held on February 15, the report of the Water Committee on the Williams offer was submitted, with its chairman saying that the city had been better supplied with water under the contract system than any other and recommended that the City Treasurer be authorized to advertise for bids to repair and care for the ditch for a period of 5 years. This recommendation was not received with favor by some of the Aldermen who spoke slightingly of the way Contractors usually did their work, inferring that contractors in general were dishonest. However, the committee report was finally adopted; the City Engineer instructed to prepare plans and specifications, and the City Treasurer ordered to advertise for bids.

The dispute between the Mayor and the Water Commissioner over city ditch affairs ended, for the time being, with the City Council passing a bill on February 25th which took the management of the Water Department
out of the hands of the Mayor and placing it in the hands of the water committee of the council.

At this time also, it is to be noted that changes in the alignment of the ditch and putting it in conduit in the Capitol Hill area began. Again, it was at this meeting that the city engineer advised the council that the plans and specifications for repairing the ditch had been completed.

The original hand written copy of these specifications is to be found in water department files.

The title page of this interesting document reads as follows:
"Advertisement, Instruction, General Description and Specifications for the repair and operating of the Platte ditch from March 1, 1888 to November 1, 1892."

Part I, Section 1 reads as follows:
"By the tenth day of April, A. D. 1888, the ditch shall be thoroughly cleaned from end to end, of all weeds, sand bars, and drifts, all slides caves and all obstructions to the flow of water (except the bent of piling under a railway bridge crossing the same) to the following bottom widths in earth.

"From the headgate down to the crossing of the Denver and Rio Grande railway just above Littleton, the minimum bottom width shall be twelve feet; thence down to Big Dry flume the minimum bottom width shall be ten feet and from thence to the city limits, excepting in deep through cutting, the minimum bottom width shall be nine feet."

After giving specification details for the balance of Part I, Farts II and III, section 1 of Part IV continues: "The contractor having made the
foregoing described general repairs shall yearly thereafter until the
first day of November 1892 clean out, repair, renew, maintain and
operate the ditch and its appurtenances furnishing therefore at his own
proper cost and expense all material, labor and expense necessary and
incidental to the work of maintaining and operating the said ditch and all
its appurtenances and continuously supplying between the fifteenth day of
April to the first day of November each year the quantity of water hereinto-
fore specified in Section Four of Part I hereof.

This section Four calls for delivery of a maximum amount of 2,000
inches of water to ranchers located above the old measuring box on the south
side of Cherry Creek-Shackelton Place - and a daily minimum of 35 cubic
feet of water continuously below that measuring box. Also 9 cubic feet of
water per second was to be delivered through the west Denver measuring box,
with 24 cubic feet at the north terminus of the ditch at the city limits.
Apparently the 35 cubic feet of water to be delivered was to be divided among
users as follows: 9 cubic feet to west Denver, 2 cubic feet to ranchers be-
tween the measuring box on the main ditch and the city limits, and 24 cubic
feet to East Denver at the city limits. At this time the ditch entered the
city at East 6th Avenue and Franklin Street.

The total ditch capacity thus called for, 87 cubic feet a second,
not counting evaporation and seepage was therefore slightly in excess of the
total decreed to the ditch - 85.95 cubic feet a second.

Eight bids were received and opened on February 28, 1888, with
Joseph Williams being low at $31,000.

At a Supervisors meeting held on March 2, 1888, an award was made
to W. E. Eaker at $28,350. There was one bid lower than the Eaker bid, but investigation seemed to develop the fact that it was a "straw" one of no validity. It also developed that Mr. Eaker was in partnership with Joseph Williams, he having previously been employed by Williams on ditch work. At a special meeting, held on March 6th, by the Board of Aldermen, at which time the discussion became quite hot, the action of the Board of Supervisors in awarding the ditch contract to Mr. Eaker, was sustained by a vote of 5 to 4. The Eaker bond was approved by both Boards on March 12th, with Joseph Williams in control of ditch operations for another five years.

City Ditch troubles were many during the last two years of this period with the emphasis changing somewhat from operating and personnel matters to differences of opinion with County and State Officials over rates and priority rulings.

Late in April 1888 a group of farmers petitioned the Board of County Commissioners to have the rate charged by the city for water delivered to market gardeners with all contracts reduced from $3.00 to $2.50 an inch or the same as that charged for contract water. They also asked that the city be required to place their supply boxes in such position as to assure them full statutory inch measurement at all seasons of the year, particularly in times of lower water supply.

After hearing a great deal of testimony the plea of the gardeners was granted by the Board of County Commissioners on May 1st, who decreed that the rate for two years should be $2.50 an inch to all persons using water from the ditch between the head gate and the city limits, and that the city
should, of even more importance, observe the requirements of the statutory inch in its water measurements.

Much of the testimony offered by the city was of interest, none more so than that by Mayor Lee who is reported to have said: "When he entered upon the duties of his office he had the impression that Joe Williams had handled the city ditch very extravagantly. He determined to take charge of the matter himself and thought he would establish a reputation as a reformer. But he found after a few years experience that he had a bad job on his hands. If the farmers would purchase the ditch at its real value and operate it, he believed it would pay the city to use the water from that ditch and pay for it at the rate of $10.00 an inch."

About this time the old conflict of authority between the Mayor and the Water Commissioner again broke out, with the Board of Supervisors passing a resolution placing the entire charge of the city ditch in the hands of the water committee thus making the Water Commissioner absolute master of the situation, free from interference by the Mayor.

The Republican, in its issue of May 20, 1888 commented on the sources from which irrigation water was obtained at the time, saying:

"The greater part of the city is supplied with irrigating water from the City Ditch, which is taken from the Platte, 28 miles above. On March 6th, the contract was let to Joseph Williams to place the ditch in repair from the point where it leaves the river to the corporation line, to maintain it in such condition and to keep water running through it for 5 years for $34,000-$28,350.

"When the water enters the city, it passes under control of the Water Committee of the City Council, of which Walter Conway is
Chairman and Nicholas Miller, the Water Commissioner. Outside the city limits a lateral ditch supplies the water which flows to West Denver. North Denver is supplied by an entirely different system. That water flows from Higgin's Lake through the Town of Highlands. Capitol Hill is also supplied from a different source, which is the High Line or English Ditch, which is taken from the Platte at a point above the City Ditch. The most populous portion of the city is that which is supplied from the City Ditch and it is this portion which has suffered most through misfortune or inefficiency and miscalculation, or a combination of circumstances which have deprived it - this spring - of the irrigation which the people have a right to expect."

The reasons for delay in providing irrigation water until early in June from the City Ditch were: one, the refusal of the City Council to award Williams a contract until late in the spring; two, a break in the main ditch caused by a bunch of horses crossing it in one place; and three, the slowness with which the Water Commissioner got the City Ditch system ready, due in part to ditch alterations in the city itself, together with the general charge of too much red tape, according to Chairman Conway.

The North Denver trouble was due to a break in the ditch there, which caused the authorities of Highland to threaten the arrest of the Denver Water Commissioner and his men if they should turn the water on before a flume about one half mile in length had been completed.
Mayor Lee, glad that he had been relieved of city ditch responsibility, stated that everyone was doing the best he could, but that all departments had difficulty in meeting constantly increasing demands made upon it without sufficient funds with which to work.

He said everybody should be glad that the town was growing so fast and not complain because everything was not in the apple pie order everyone would like to have it.

Mr. J. S. Greene upon becoming State Engineer on April 19, 1887 immediately took steps leading to uniformity of action on the part of Superintendents and Commissioners in the performance of their duties in connection with the distribution of water taken from the natural streams of the State.

His first formal action was to prepare and have printed an edition of 500 pamphlets entitled, "Laws and Regulations relative to the distribution of water in Colorado by Superintendents of Irrigation and Water Commissioners".

This pamphlet was dated June 1, 1887. The introductory letter sent out with it to the Superintendents and Water Commissioners closed with the following statement: "Upon me falls the general supervision in this matter and acting as such general supervisor, I have issued such regulations as hereinafter appear. If I find upon trial that any of them are undesirable, and that others are required, changes or additions will be made, of which you will be duly notified."
A number of letters of instruction dealing with matters of administration, the measurement of water in streams and ditches, the procedure to be followed in the filing of maps and statements and related items followed in rapid succession, so that by the end of the year 1888, the earlier less than satisfactory functioning of this office had been replaced with workable and practical methods of operation made possible by the 1887 legislature which brought order out of near chaos, in the control of the waters of the State. (See Fourth Biennial Report of the State Engineer for the years 1887-1888, transmitted to the Governor on December 1, 1888).

On page 91 of the above report, Mr. Greene commented on "Water for Domestic Use", as follows:

"Perhaps the most serious questions in connection with the distribution of water, which this department has ever been called upon to meet, were those connected with the apportionment to the ditches, of water for domestic purposes. When, in the early part of 1888, a very limited supply of water for the season was foreseen, from the reports concerning the extremely light snowfall in the mountains, kindly made by residents near the summits of the ranges, in response to requests from this office, it was evident that the department would be forced to adopt a policy in this matter. The possible positions open to the department, and the reasons for adopting the one chosen, are set forth in a letter to superintendents of irrigation and water commissioners, which is found herein following."
"Lest there might be reasons which had been overlooked, that could be presented, showing that the position it was believed preferable to take was unwise, it was decided that the orders relative to the distribution of water for domestic purposes be issued first by the superintendent of irrigation of that division in which the greatest concern in reference to the subject was observable, thus giving an opportunity to those feeling themselves injured by the order, to appeal the matter to the State Engineer, and affording that officer, in case of an appeal, further opportunity of considering the arguments for and against the position, before the issuing of a general order relative thereto, and addressed to the Water Commissioners throughout the State.

"Following is Order No. 1, addressed to the Water Commissioners of Water Division No. 1 in which the headwaters of the South Platte River were located - issued from this office in Denver on April 20, 1888 by Mr. Timothy O'Connell, superintendent of irrigation of that division,

"Water Commissioners in Water Division No. 1 are hereby instructed to distribute no water to any ditch in their districts for domestic use, unless the decree of the District Court governing them in this matter shall set forth that the ditch in question is entitled to water for that purpose. Water Commissioners in Water Division No. 1 will notify any person, ditch company or ditch owner feeling himself aggrieved, injured or discriminated against by this order that he has the right to appeal from the same to the State Engineer by filing with the State Engineer a copy of the order complained of and a statement of the manner in which the same injuriously affects the
petitioner's interest."

With the interpretations thus placed upon the decrees being at once called in question, the following order was issued by Mr. O'Connell on April 26th.

"Order No. 2. (relative to water for domestic use)

"After mature consideration of the decrees of the District Courts governing the appropriations of water in the water districts of Water Division No. 1, in some of which there are apparently, at least, conflicts between the"decretal order" and subsequent 'orders of the decree', Water Commissioners in water Division No. 1 are hereby instructed: That no claim of priority of any person, association or corporation to water for domestic use on account of any ditch, canal or reservoir, shall be regarded by any water commissioner in distributing water in times of scarcity, until a certificate, under seal of the proper court, and setting forth the date or dates and amount or amounts of appropriation adjudged in favor of such ditch for domestic use, shall have been issued to the claimant and presented to the water commissioner".

"The result of these steps is indicated in the following letter to Superintendents of Irrigation and Water Commissioners in relation to the distribution of Water for Domestic Use.

Denver, August 22, 1888"

Gentlemen: You are, of course, familiar with the provisions of the constitution of the State relative to the diverting of waters of the
natural streams for domestic use, and with the constant claims thereunder set up to water for that purpose.

"In this connection your attention is called to the following facts: There is no law directly requiring you to distribute water for domestic use; there has been no legislative declaration of the meaning, nor judicial construction of the term domestic use; and the legislature has failed to enact laws providing for the adjudicating and settling of questions connected with the right to the use of water for that purpose, consequently neither the dates nor the amounts of appropriations for that purpose have been determined.

"You are aware that, in the spring of this year, it developed upon this department to take one of two positions; either to assume the power of determining the amount of water to be allowed to the various ditches for domestic use, and distribute thereto the amount so determined upon or to insist upon distributing the waters of the streams for irrigation only.

"The latter alternative was chosen through a desire to avoid so great a responsibility as the first position would have involved, and for the following reasons: It was believed that thereby the matter could be the more readily brought before the courts and their guidance secured; it was strictly in conformity with the laws directly setting forth your duties; and it tended more effectively to the promotion of the general welfare, and this because canals constructed for irrigation are not adapted to carrying without great waste, the quantity of water required to supply the needs for
domestic purposes solely of the people under them.

"You remember that, in conformity with this position, orders were issued to the water commissioners of Division No. 1, vertically directing them to distribute no water for domestic use solely. Almost immediately thereafter several ditch companies, not entitled to water for irrigation, set up their necessities to water for domestic use, and sued out injunctions to have the water of the stream allowed to flow into their ditches for that use: Thereupon the court granted a temporary injunction and commanded the water commissioner to allow so much water as was necessary for domestic use to run from the stream into the plaintiff's ditches.

The readiness with which injunctions were granted, compelled this department to direct the commissioners to hold the orders relative to the distribution of water for domestic use in abeyance until further notice.

The test cases which had thus been secured, coming up for hearing, the court decided that, as a matter of law, the right to divert water for domestic use is a preferred right, and that the method of diverting the water is not material. Subsequently, and recently, several of these cases having been brought again before the court, this time for a hearing upon their merits, and it having been shown that a very great waste of water, which means a very great loss of wealth to the people of the State, was occasioned by supplying water for domestic use solely through irrigation ditches, the court so modified its former commands as to grant water for domestic purposes solely, for a portion of each week only. The assumption being that water
needed for domestic purposes during the balance of the week could be stored at the time the water was furnished. The inference to be drawn from these decisions and from the commands of the court to the water commissioner is that this department should allow to the various ditches, so demanding it water for domestic use to the extent of the necessities of the parties using water therefrom for that purpose; which, pending further decisions or legislative action, will be done.

"This involves on our part, until decided by higher authority, a determination of the meaning of the term "domestic use", and a determination of the amount of water for that use to be allowed to the various ditches, and of the length of time during each week in which water shall be so allowed thereto, except as to those ditches relative to which injunction orders have been issued.

"It is evident that there should be, as nearly as possible, uniformity in the distribution of water for domestic use throughout the State, and that this department should carefully avoid in this matter the establishment of precedents which may in time become customs, and complicate unnecessarily our irrigation laws, or prejudice the agricultural interests of the State. Therefore, I have prepared this letter of instructions and suggestions, which, with the utmost conservation, follows the guidance of the court. And I put a rigorous interpretation, for your guidance, upon the term "domestic use", and have decided, until further light is afforded, and so far as my authority goes, that "water for domestic use" shall mean the water which is needed for the usual household purposes and the use of domestic animals, and shall not embrace irrigation to any extent whatever."
Owing to scarcity of water in the South Platte, the State Engineer began, late in June, to hold city ditch and High Line Canal diversions to their earliest priorities, which immediately brought a vigorous protest from Denver officials.

Mr. E. S. Nettleton, former state engineer, was employed by the city to intercede in its behalf. A conference was held with Mr. Greene on July 6, 1888. After some discussion, Mr. Greene asked the city officials then present to submit their complaint in writing, which when received, would be referred to the Attorney General for consideration. He also suggested that it might be well to take the matter to the courts by asking for an injunction against him.

In his complaint to the State Engineer dated July 7, Mr. Lowrie, the City Engineer reviewed the situation as he then saw it, saying that only about 35 cubic feet a second was being allowed to enter the City Ditch headgate, with but 6 or 7 feet of this amount actually reaching Denver. Mr. Lowrie, surprisingly enough, stated that he had never heard of a City Ditch decree until the day before and that cutting the diversion back to the original priority of about 30 cubic feet a second was manifestly unfair. He claimed that city ditch water was used only for domestic purposes, and that the return flow amounted to at least 90 percent of that diverted. He claimed also that the use of water from the ditch to flush gutters was of the highest importance to the health of the entire community.

At a city council meeting held on July 7, 1888, a resolution was passed authorizing the Mayor to call upon the State Engineer with a demand
for water to be used for domestic purposes, with the City Attorney, who had already seen Mr. Greene, advising that if such a demand was made, Mr. Greene would do all he could to meet it.

As a buyer of water from the High Line Canal, the Superintendent of that company was called upon by city officials to comply with its contract about this time without success, since all the water allowed the company by the State Engineer disappeared from the ditch before reaching the city lateral.

Although the State Engineer did all he could to help the city out, even to the extent of permitting water to be diverted through the High Line Canal under the guise of water for domestic use, the situation remained anything but satisfactory for the entire season, with even the 1860 priority water of the city ditch amounting to 30 cubic feet a second not being available much of the time.

Floods in August resulting in ditch breaks further complicated the situation with Water Commissioner Miller and Contractor Williams coming in for much undeserved criticism.

An editorial in the Republican of September 14, 1888 seems worth reproducing at this point. It read as follows:

"It is clear to every intelligent person familiar with the fact that Denver has wholly outgrown the capacity of the city ditch, and it would be suicidal folly for us to let another season pass without taking steps to insure an ample and certain water supply for the future. The city has increased in population more than 20 fold since the city ditch was built with a channel no larger now than it was 15 years ago. What is needed is a reservoir
located on the high ground west of the Platte, ten or twelve miles above Denver from which a pipe line will supply the city with an unfailing and sufficient amount of water for irrigation and if necessary, for fire purposes.

The irrigation season of 1888 ended on a sour note, with a man made break in the city ditch, near the intersection of East 17th Avenue and Logan Street occurring on October 5th.

An emergency appropriation totaling $7,500 was introduced by Supervisor Latimer on October 11 to be used for repair purposes, was not passed, due to a row over patronage, until November 8, 1888.

In commenting editorially on Saturday, November 10, the Republican said: "A row over patronage took place in the Board of Aldermen Thursday evening and several of the members of that body told a good deal of disagreeable truth about each other in discussing the emergency appropriation of $7,500 for the water department."

"There is no doubt that the water department has been badly mismanaged during the present year, and there is no reason to hope that the new appropriation just ordered in plain violation of the spirit and letter of the City Charter will be honestly or wisely spent."

State Engineer Greene, was succeeded in office by Mr. J. P. Maxwell on April 10, 1889, while the State Legislature was in session.

Several Acts respecting irrigation became law during that session, all of which implemented or added to existing Statutes governing the administration and use of water for irrigation and other purposes.

The year 1889 opened with an unusual deficiency in the waters of
the South Platte River. Precipitation in Denver, however, was more than 5 inches above that for the preceding year, with an increased amount and better distribution over the critical summer months.

The municipal election of April 2, 1889 resulted in the election of a Republican Ticket with Wolfe Londoner succeeding William Scott Lee as Mayor, at the reorganization meeting of April 9th.

The town ditches were soon thereafter ordered by the Mayor to be put in shape to receive irrigation water delivered by the various ditches for that purpose.

The subnormal runoff of that spring, however, caused the State Engineer, acting under the authority given him, as interpreted by the Supreme Court, to shut down the High Line Canal as early as April 25th, which brought vigorous complaints from citizens whose property was located under the laterals of that ditch, but above the territory within the city served by the city ditch.

In commenting on the situation, the Republican on April 26th said:

As is well known, the State Engineer had first set out to give preference to water used for irrigation purposes, and when such a use was put in jeopardy by scarcity, the use of it for domestic purposes was cut off. The courts were called in and reversed the order, giving preference to domestic uses. The definition of what domestic use was being given as "household" purposes, including water for drinking, washing, bathing, culinary purposes and the like; water for such domestic animals as are used and kept about the home, such as work animals and cows kept to supply their owners.
and their families with dairy products; and such other uses not being either agricultural or mechanical and directly tend to secure and promote the healthfulness and comfort of the home”.

As already noted, the Supreme Court had limited water diversions to those decrees established by the District Court of Douglas County for the city ditch, which by May 5th was stated to have resulted in the State Engineer cutting diversions into that ditch so that the city was then getting 20 percent less water than it had received during the driest part of the 1888 season. It was then feared that the result would be the destruction of trees within the city involving a loss of many hundreds of thousands of dollars.

The year closed with considerable discussion by the officers of the Platte Water Company over propositions of various kinds to straighten the course of the city ditch within the city at the same time putting it underground in pipe of indeterminate size.

Of the numerous decisions rendered in this decade by the State Supreme Court on water matters, the following are noted here as being of especial interest to Denver water consumers.


Colorado Reports, Volume VI, page 442 decided during the December 1882 term.

Common law doctrine of riparian rights held to be inapplicable in Colorado where conditions make it imperative that the doctrine of priority of right should govern.
2. **Wheeler vs. Northern Colorado Irrigation Co.**

Colorado Reports, Volume X, page 582, decided during the December 1887 term.

Royalty charge, demanded in addition to annual rental charge for carrying water to user, declared unconstitutional.

3. **Platte Water Company vs. Northern Colorado Irrigation Co.**

Colorado Reports, Volume XII, Page 525, decided during the April 1889 term.

Platte Water Company charter right to the exclusive flow of the South Platte River disregarded and the decrees awarded to the Platte Water Company by the Douglas County District Court in 1883 affirmed.

4. **Farmers High Line Canal and Reservoir Co. et al vs. Southworth**

Colorado Reports, Volume XII, page 111, Decided during the April 1889 term.

Constitutionality of Section 4 of the Act to regulate the use of water for irrigation, etc. Session Laws of 1879 upheld.
The Northern Colorado Irrigation Company
High Line Canal

The Certificate of Incorporation of this company was filed with
the Secretary of State at 9:00 A. M. December 23, 1879.

The life of the company was stated to be for twenty years unless
sooner dissolved according to law.

The capital stock was declared to be five hundred thousand dollars,
divided into five thousand shares of $100 each.

James Duff, Hugh Butler and Thomas P. Dunbar, were named to
act as Trustees for the first year of the company's existence.

The objects and purposes for which the company was formed were:

"To acquire and become the owners of the right to appropriate and
take from the Platte River at the point or place hereinafter mentioned, a
sufficient supply of water for the purpose of filing and supplying the
canal hereinafter mentioned and described, and to build, construct, use,
operate and maintain the said canal, and to enlarge and extend the same
from time to time as in the opinion of said company may be necessary or
expedient and that for the purposes for which said canal is to be built,
widened and extended, are for the purposes of irrigation, transportation of
passengers and merchandise in and over the same, and for the purpose
of supplying water for domestic, milling, agricultural and irrigation purposes;
and also the right to acquire by purchase or otherwise all other ditch or
irrigating rights which may be of use or value to said company, and also
to acquire such other property, real and personal by purchase, donations,
or otherwise as may at any time be deemed necessary or expedient by said company for the uses and purposes for which said company is organized."

The point of diversion and the general course of the Canal which it was proposed to build was described as follows:

"Beginning at a point on the right bank of the Platte River near the section line between sections 33 and 34 in Township 6 South, Range 69 West, said point being near the constructed line of the Denver and South Park Railway, and about a mile and a quarter, more or less, above the station of said Railway Company located at the mouth of the Platte Canon, thence in a north-easterly direction through the following named Townships, To wit:

Township 6 South of Range 69 West; Township 6 South of Range 68 West;
Township 5 South of Range 68 West; Township 5 South of Range 67 West;
Township 4 South of Range 67 West; Township 4 South of Range 66 West; Township 3 South of Range 66 West; Township 3 South of Range 65 West to Box Elder or Running Creek, a Tributary of the Platte River; with the right to construct laterals and reservoirs connected with or appurtenant to said canal, with the right to erect, construct, and maintain all necessary dams, dykes, flumes, or tunnels in, across or from said Platte River or any other stream or body of water for the purposes aforesaid."

Also: "To sell and supply on such terms and conditions as the board of trustees, or a majority of them may prescribe, water from said canal, or from any of the lakes, ponds, reservoirs and lateral ditches appertaining thereto, for any purpose for which water may be used as aforesaid."
Again: "The principal operations of said Company shall be carried on in the Counties of Douglas, Arapahoe and Weld in the State of Colorado."

Construction of the High Line Canal was completed sometime before November 30, 1883, with a decree awarded to it in proceedings before the District Court of Douglas County as follows:

1. On December 10, 1883 a provisional decree was awarded for 1184 cubic feet of water a second with priority number III, dated as of January 18, 1879.

At that time the length of the projected ditch was stated to be 80 miles, of which length a distance of 55 miles had been completed with water allowed to flow in it for a distance of 20 miles. It was further stated that the sum of $481,461.08 had been expended on it, with $100,000 being the additional amount required to complete.

2. On December 1, 1884, the company again presented its case to the court claiming that the canal had been completed with due diligence on or before November 30, 1883 at a total cost of about $650,000; that water had been and there was being used through the canal for irrigation purposes, and requested the court to make the provisional decree final, which request was thereupon granted. (A photostat copy of this decree, taken from original records in the State Engineer's office is in water department files.)

All but 600 cubic feet of water a second originally decreed to this ditch was declared to have been abandoned in a decision handed down by the Colorado Supreme Court on November 5, 1923. (See Colorado Reports, Volume 74, page 159. Northern Colorado Irrigation Company v. Burlington

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A short resume' of events leading up to the formation of this company, and the construction of the "High Line" canal that followed, appears to be in order at this point.

President Grant visited Denver and the Central City region in April 1872, at which time he was given much information on the political and economic situation as it then existed in the Territory.

In his message to Congress the next year, he recommended the passage of an Act for the admission of Colorado as a State in the Union and also recommended the encouragement of a canal for the purpose of irrigating the arid belt of public land lying between the eastern slope of the Rocky Mountains and the Missouri River.

The first corporation to be organized for the purpose of constructing a canal to irrigate some of these lands in the Denver area seems to have been that of the Denver Canal and Irrigation Company which filed its Articles of Incorporation with the Secretary of State on November 21, 1877. The object of this company was stated to be the irrigation of lands lying under it, to float boats for the carriage of freight and to reclaim waste lands. Apparently the project, under this name, never got beyond the organizational stage.

Although the construction of such a canal, taking water from the Platte River a short distance into the canyon, was the subject of much discussion during the late 1870's, it was not until the "Times" in its issue of January 30, 1878 gave publicity to the fact that real efforts were being made to carry such a project through to a successful conclusion.

This news item in part was: "Many inquiries have been made concerning the High Line Canal in which so many of our people have a direct interest.
Nothing further will be known regarding the project until the English stockholders are heard from. The parties now here, representing the English Stockholders, have no authority to accept any propositions differing from those originally made, and therefore the supplementary contract insisted upon by Governor Evans to protect the interest of Denver Pacific bondholders had to be sent to England for approval.

The next news item appeared in the News of November 1, 1879 which stated that "pleasure was taken in announcing that the long projected High Line Irrigating Canal was then likely to be constructed, the English capitalists, represented here by Mr. Duff, having closed a contract with the Kansas Pacific and Denver Pacific Railway Companies for all of their unsold lands tributary to the Platte, for a distance of some 60 odd miles below Denver."

It appears, from scattered bits of information, that Jay Gould, having gained control in 1879 of these railway lines and the land grants connected with them lost no time in contacting Mr. Duff and Mr. Barclay, Vice Presidents of the Colorado Mortgage and Investment Company for the purpose of getting their associates in Scotland and England, owners of the Platte Land Company, Limited, interested in developing, through irrigation, some 100,000 acres of such lands lying in the Platte Valley east of the river and below Denver. Consequently, as here recorded, the Northern Colorado Irrigation Company was organized as a subsidiary of the Platte Land Company, Limited, to actually build the canal.

In the book, Colorado Pioneers in Picture and Story, Mrs. Hill, the author quotes from Judge Stone's article on the English Company the following...
interesting statement:

"The first large ditch or canal in Colorado to furnish water for irrigating purposes was constructed by a company of Scotch and English capitalists known as the English Company and the example and success of this enterprising company gave the first impetus to land irrigation on a large scale that brought to agriculture in the State a wealth far surpassing that of all its gold and silver mines.

"The agents of the English Company came here in the latter part of the '70's and established the Colorado Loan and Mortgage Company.

"These men soon perceived the profitable character of agriculture in irrigated lands, and the need of money for proper development. They loaned broadcast from the Platte to the Arkansas valleys to enable the farmers to extend ditches, purchase agricultural implements, teams and livestock - thus farming grew a pace.

"The Company next conceived the plan of constructing a large ditch. In the early '80's, they built what came to be popularly known as the "High Line Ditch", which brought water down from the Platte Canyon, conveying it across Plum Creek by a high flume aqueduct crossing in like manner Cherry Creek and on over the highlands to the south and east of Denver beyond Montclair and Aurora. This was the first large irrigating ditch constructed for the purpose of conveying water for sale of the water right to land owners having no ownership title to the ditch itself. ---

"The English Company also built the Windsor Hotel, the Barclay Block and the Mansions Building, costing altogether about one million dollars."
"From this condensed sketch it will be seen that the English Company was one of the first great builders of the city of Denver and the State."

The description of the High Line Canal that follows has been taken from the booklet issued by the Denver Society of Civil Engineers and used in connection with the annual convention of the American Society of Civil Engineers held in Denver early in July 1886.

"Construction was commenced early in the spring of 1880 and continued without cessation until 1883. At that time the main line was completed for a distance of 70 miles, with a 15 mile branch leaving the main canal at a point 51 miles from its source.

"For 46 miles of this length, the canal is 40 feet wide on the bottom and 7 feet deep with a grade of 21 inches to the mile. For the remainder of the length on the main branch the width varies from 35 to 20 feet, the depth from 7 to 4 1/2 feet. The grade is uniformly 32 inches to the mile.

"On the first 5 miles of the branch canal, the dimensions vary greatly, the grade being very steep. For the remainder of the distance, the dimensions are from 20 to 15 feet in width and from 5 to 4 1/2 feet in depth with a uniform grade of 3 1/2 feet per mile. The engineering features of the canal are the dam at the river, the tunnel at the head of the canal, the flume in the canyon and the large flumes crossing various creeks in its course. The main dam is constructed of timber, 120 feet long and 14 feet high.

"At the western end of the dam is a spacious wasteway 24 feet wide over the walls, with the full depth built entirely of masonry, the gates and fittings being of iron. The headgates proper at the mouth of the tunnel are 25 feet wide and 12 feet high, with 5 openings, the gates being operated by screws."
The tunnel is 600 feet long, 20 feet wide and 12 feet high with a grade of 5.28 feet per mile.

Starting from the lower end of the tunnel and continuing for a distance of 2,700 feet is a flume resting on a bench cut out of the rock. The bench was cut 36 feet wide. The flume resting on it is 28 feet wide and 7 feet deep with a grade of 5.28 feet per mile. The flumes crossing Plum Creek and Cherry Creek are probably the longest in the state, being respectively 918 and 810 feet long. They are 36 feet wide and 7 feet deep. There is a total length of 3,123 lineal feet of flumes on the canal, excluding 216 feet of dams and wasteways. The total cost of the construction was nearly $650,000 dollars, being greater than that of any other canal in the state. The appropriation of water for the canal is 1,184 cubic feet of water per second.

"On the basis that the duty of water in Colorado is 1.44 cubic feet per second to every 80 acres, this would be sufficient to irrigate over 60,000 acres, but in consideration of the great loss from seepage, evaporation and other causes in the carriage of such a body of water over such a distance, it is not likely that the area of cultivation will exceed between 40,000 and 50,000 acres, unless great economy is observed in the use of water. At the present time some 20,000 acres have been brought under cultivation."

As earlier noted, the Platte Land Company offered in January 1883, to supply a good and pure quality of water in ample abundance to Denver to meet all its needs, at the time the city was debating the subject of its future water supply and considering possible sources of supply other than
that then furnished by the Denver Water Company.

This offer was to deliver Platte River water to a city constructed reservoir located upon Cemetery Hill or other suitable point between the cemetery and the nearest point to the Canal. The amount charged was to be at the rate of $30 a million gallons, with a daily minimum delivery of 2 million gallons for a period of five years.

This proposal was modified in April for a ten or twenty year contract period, the cost of the water to be $25 a million gallons for domestic water and $15 a million gallons for irrigation water to be delivered to a city constructed lateral for distribution to citizens whose property was located above the territory served by the City Ditch.

Although the proposal for furnishing domestic water was soon thereafter rejected, a water committee of citizens living above the city ditch petitioned the City Council on May 8, 1884 to make a contract with the Northern Colorado Irrigation Company, and presented a proposed contract with that petition, which called for 40 million gallons of water a season at a rate of $600 a year. The contract was to run for 10 years.

One week later, a contract was approved by the City Council to run for ten years, the price to be $15 a million gallons with not less than 40 or more than 100 million gallons of water to be furnished during 6 months of each year.

The lateral then built by the city to carry this water began at a point on the High Line Canal in Fairmount Cemetery and ran in a northwesterly direction a distance of about five and one half miles, terminating on York Street near East Eleventh Avenue.

(See Rollandet's 1885 map of Denver for details on the meandering
The irrigating season of 1885 seems to have been an uneventful one as far as this canal was concerned, with the Board of Supervisors authorizing on June 10, 1886, payment for water received from the High Line Ditch without opposition.

Within a month however, the unprecedented dry, hot weather not only caused the Denver Water Company to adopt strict sprinkling restrictions for its customers, but serious shortages of irrigation water supplied by the canal and the city ditch, developed as a result of State Engineer Nettleton's enforcement of their respective priorities as he interpreted them.

The more or less arbitrary procedure adopted by the water commissioner in transferring water from one ditch to another, giving preference to the needs of the farmers over those of the city for "domestic" as well as other purposes caused much dissatisfaction among all users, including farmers, with the "English Company" being accused of being a monopoly and unjustly taking more water from the river than it was entitled to under its relatively late decree.

When interviewed on the subject, Mr. Nettleton was quoted as saying on July 19, that, the farmers from the Littleton area had just called upon him, complaining about not getting their share of the water. The rains had just come temporarily relieving the situation which Mr. Nettleton thought would quiet things down and that in a day or so they would be ashamed of ever having complained. He then said, that it was a good thing the matter had come up since it showed the weakness in the existing laws, and ended with the comment that now the question will be soon attended to which would be a good thing to have settled.
A critical situation again developed in July of 1887, with a short supply available to the City Ditch and none to the High Line for use by Denver citizens served by the lateral connected to its canal.

It was reported on July 9, 1887 that efforts were being made to get the consent of ditch owners with high priorities to waive their rights for a few days so that the trees in Denver could be saved. This was successful with the City, cooperating insofar as City Ditch water was concerned, with a partial supply thus becoming available from the High Line on July 13, 1887.

This very unsatisfactory condition continued on through the irrigating season of 1888 and 1889, with the State Engineer limiting the City Ditch to its early decrees in compliance with the Supreme Court decision of May 4, 1889 upholding the earlier district court ruling of 1883, as already noted; and keeping the High Line Canal dry most of the time, because its decree was junior to some 74 other ditches taking water from the South Platte River and its tributaries in water District No. 8.

The Supreme Court decision of January 4, 1888 in the "Wheeler" case established a number of points of water law, among them the one that a carrier of water for irrigation is entitled to compensation for carriage, but not to a charge for the right to use water taken from its canal by a consumer. Again the court said, "If the carrier has a rate of its own with which the consumer is satisfied, he is not required to apply to the County Commissioners to fix a maximum rate."

This was a case where in addition to a prepaid annual rental rate of $1.50 an acre for carriage of water, the Canal Company demanded, as a
prerequisite to the supply of water, an additional sum of $10.00 an acre
from the consumer as a "royalty" for a series of years in advance.

In commenting on the case, the Republican, in its issue of January 4, 1888 said:

"This forenoon an important decision was rendered by the State Supreme Court and one over which patrons of the ditch corporations will be very jubilant. It will be remembered that last spring, Dr. Wheeler filed a mandamus suit in the District Court before Judge Victor A. Elliott on the High Line Company demanding that the corporation furnish him water for his ranch at a price without paying the exorbitant royalty claimed or required by that corporation. The District Judge in this case found in favor of the High Line Ditch Company, but the Supreme Court reversed the decision in the case mentioned here."

Acting Mayor Clarke summed up the overall water situation on July 14, 1888 in an interview with a reporter from the Times, by saying:

"The only thing that is now bothering us, is the water supply both for the ditches and for domestic consumption. Superintendent Gilmore, of the High Line Ditch, says that he has no water for Capitol Hill and probably will not have until fall."

"The Holly Water Works, too, do not have enough to properly supply the lawns. The city will be obliged in the near future to buy a supply and establish reservoirs, or put down drive wells and obtain a supply by pumping from them.

"There are a half dozen gentlemen in Denver, I am told, who own Chicago Lake above Morrison. They also own grounds for reservoirs between
the Lake and the City. This immense supply of water and the reservoir
ground can be purchased, I believe, at a reasonable price. The city ought
to own it."

"The city, if it looks to its own interest, cannot afford to deprive
the farmers of water. From the farms comes a liberal share of our
business. There is no justice in robbing the farmer, nor is it good financing."

In an editorial dated July 16, 1888, the Republican discussed the
problem under the heading "A Reservoir Scheme", in part as follows:

"The problem of the source and management of the future water
supply of Denver has exercised the minds of many thinking people, especially
during the present dry season.

"The steady and rapid growth of the population of the city and the
extension of building territory with a corresponding extension of streets
and alleys with the necessity of greater fire protection will soon make
such demands on the present water system that an increase must be provided
for.

"The plans of Messrs. Wm. N. Byers and others to bring water
for domestic supply, irrigating purposes and fire protection from Green
Lake near Georgetown contemplate an immense expenditure of capital
for the construction of aqueducts, water ways, piping, etc. combine safety
and absolute certainty.

"The attention of others has been attracted to the well known Ford
Lake, now the property of John T. Marston, Esquire, 12 miles southwest
of the city. There are now 4 reservoirs devoted to fish culture covering
respectively 130 acres, 2 five acres each and 1 of 2-1/2 acres. The lake proper covers about 80 acres.

"This is about three quarters of a mile in length and one and a half miles in circumference, and has an average depth of 20 feet. It has no apparent outlet and preserves a constant depth, there being scarcely any variation, winter or summer.

"It is supplied with water from Bear Creek by the Harriman system of ditches and reservoirs. By increasing the water supply from the Platte River and from Bear Creek, some 800 acres of land could be covered with water having an average depth of 130 feet. The elevation would be about 400 feet above the level of Larimer Street, and a pipe line tapping this body of water would be about 10 miles long. On the route of this line would be no deep depressions, and water could be furnished to the military post and all the southern and southwestern suburbs of the city. The supply of water to build this grand reservoir could be brought from Bear Creek, Turkey Creek and the Platte River at points above the reach of impurities and at seasons when there is no demand for irrigation. There are already several lines of ditches which could be utilized for laying pipes through which water would come pure and without loss by evaporation or seepage.

"The banks of this depression are absolutely proof against breakage, wear or destruction by any means. The depression in which Ford Lake is situated is in the midst of a well cultivated section, one of the finest in the state. It is the opinion of many well informed men that this is the most feasible point from which to obtain the future water supply of Denver."
Reference to this possible source of additional water for Denver was again made by the Republican, when on November 21, 1888, a reporter was sent to consult Mr. Marston and his associates about their future plans. He then learned that a corporation had been formed, but its plans for the development of the Marston Lake scheme were not yet ready for release, although it was known that the old Ford Lake would be the main reservoir in the project.

On December 4, 1888, Messrs. H. C. Donnell and J. P. Marston representing the Denver Reservoir and Water Company, appeared before the Trustees of the Town of South Denver and explained the plans that had been developed with respect to a water supply to be obtained from the Marston Lake area. Although favorably received, the Trustees later decided to provide the town with water from another source as has been previously noted.

Artesian Water

The accidental discovery of artesian well water in Denver in the spring of 1883 was undoubtedly for the city and its immediate vicinity, the most important event of that year.

The interest aroused by this discovery was very great, so much so in fact, that for a period of some time thereafter, it was believed by many that artesian water might be abundant enough to rapidly and cheaply solve the question of a pure supply of water for the city for all time to come.

Certainly this belief had much to do with the negative action taken by the City Council on February 1, 1884, in voting, 10 to 4 against taking up the ten year option to purchase the plant of the Denver Water Company as provided for in that company's franchise of May 9, 1874.
Ironically enough, the discovery well was put down by an official of the Denver Water Company, Mr. R. R. McCormick, who, on March 8, 1883 struck a flowing well at a depth of 375 feet while prospecting for coal on property owned by him in a gulch near the original site of St. Lukes Hospital, located near the intersection of West 17th Avenue and Federal Boulevard.

Publicity given to the McCormick well soon brought about a disorganized, but very active program of well drilling upon the part of individuals and groups of citizens with the result that over 200 active artesian wells had been drilled within the city by the end of 1890.

One of the most spectacular of these was that put down by Mr. Thomas G. Anderson, who, on June 19, 1883 struck a stream of fine water at a depth of 375 feet, with an original discharge of 140,000 gallons a day, under a head of 6 feet.

This well was drilled, with the permission of city authorities, near the end of the Colfax Avenue bridge over Cherry Creek at the junction of West Colfax Avenue, California Street and 12th Street.

The successful completion of this well vindicated the position taken by Mr. Anderson in 1874, who as Alderman from April 1873 to April 1875, fought against great odds for city development of artesian well water, even though the exploration carried forward with both private and public funds in 1870 and 1874 ended in failure.

By the end of June 1883, 5 flowing wells were putting out enough water to supply a population of 60,000 people with a daily allotment of five gallons each.
By this time, the water company, dreading the competition of artesian well water, had begun to discourage large consumers from drilling wells, without much success.

As might have been expected, well water was wasted in large quantities, which brought about an ordinance, passed on October 15, 1883, which provided for the regulating of wells and the granting of rights of way to lay pipes in the streets and alleys of the city for the purpose of conveying water from wells for local distribution only. (See appendix for copy of the ordinance)

In its edition of January 1, 1884 the Republican reported that -

"The discovery of artesian water has caused the company - Denver Water Company - to reduce its schedule of rates on all public buildings and tenement houses, reduction amounting to about an average of 33 percent, so that the rates for the city are now lower than Kansas City or St. Louis. The company now has its plans and specifications ready for supplying the pipes with artesian water, and is engaged in sinking wells for that purpose. The plans include the building of a reservoir for artesian water exclusively and should the company continue to control the works it will expend at least $100,000 during 1884 in completing its improvements. The company was reported to have at this time one well 587 feet deep with casing of 3-1/2 inches, located near the west side pumping plant which was flowing at a rate of 90 gallons a minute. It was then proposed to sink 5 more wells at that location.

The contract, a copy of which is in water department files, to sink the above named five wells to a depth of 600 feet with a diameter of five and five eighth inches in the clear, was dated October 27, 1883, the agreed
The following description of these Denver Water Company wells has been taken from Monograph, Volume XXVII of the United States Geological Survey. This document was printed in 1896 on the Hydrography of Artesian Wells in the Denver area, and contain much scientific and other information about the artesian wells drilled here between 1883 and 1890.

"The Denver Water Company has sunk five wells near the engine house, at the works, West Side. Three are situated in the angles of a triangle, the sides of which are approximately 250 feet each, and were so placed as to test the effect of wells near each other. In No. 1 well, the first water was struck at 260 feet, which yielded 8 gallons per minute. A second flow was struck at 348 feet, a third at 385, and the last at about 555 feet. The total depth of the well is 5,87 feet. The flow at completion was 108 gallons a minute, and the total pressure 26 pounds. The second well was similar in every respect, and reduced the flow from No. 1 about one third.

"Well Number 3 reduced the flow from the other two, so that the total flow from the three wells was but little more than that obtained from the first well alone. Two other wells were sunk to about the same depths as the foregoing at a distance from them of about 1,800 feet. The total flow
of the five wells was about 200,000 gallons a day. The casings of all the wells were perforated at every flow and provided with rubber packing."

Comments on the life of the Denver basin wells contained in above monographs were, in part, as follows:

"The wells of the City of Denver and its suburbs range in date of sinking from March 1883, to the present day - 1890 - although in the past six years operations have been at a minimum. Well statistics gathered in February 1886 and again in December 1890, show for the intervening period a gradual but pronounced diminution in yield, appearing first as a decrease in the strength of flow and in the discharge for a particular area, followed by an increased influence of one well upon another and a not infrequent failure to flow at the surface, this gradually extending throughout the entire district; finally, there appears under the heavy overdraft by pumping an actual lowering of the water table to a considerable depth beneath the surface."

"The period of 1885-1886 was one of special activity in well boring, and during this time the effects of over development, which in later times increased to an actual drain on the total water supply, gradually became evident. Between the years 1888 and 1890, but few of the wells yielded flows at the surface, and these only for a short time. In December 1890, from the long and heavy overdraft, there were but six flowing wells, and with these exceptions, the water levels had sunk to between 15 and 200 feet beneath the surface."

"The causes of decrease in flow and of the total failure of so many wells are mainly three, first - poor casing and packing, second - filling or
clogging with sand; third, tapping of the same water bearing strata by
too many wells."

The author of this monograph concluded, "that the probable average
amount of water permanently available from artesian wells in and around
Denver did not exceed 180,000 cubic feet a day, which was about 1.7 cubic
feet per capital of Denver's population in 1890. -106,713 - and also concluded
that if all the wells in Denver were plugged, it would take forty years before
the water bearing strata of the tertiary in the Denver Basin were again in
the condition of saturation existing when the first well was sunk."

In the Republican annual review for 1886, dated January 1, 1887, the
following statement concerning the artesian well situation as it then affected
the Denver Water Company was as follows:

"The demand upon the Denver Water Company during the past year for the
extension of main pipes has been unusually large. "Five miles of new mains
have been laid, making fifty miles now in use and a larger number of new
connections made than any year in the history of the company. Owing to
the failure of many artesian wells to furnish water under pressure, a large
number of reattachments have been made from this source."

There is no doubt that at the height of the artesian well excitement in
1883 and 1884, the officials of the Denver Water Company were much concerned
over the future of their company, particularly during the months immediately
preceeding May 9, 1884 or the day upon which the city's option to purchase
the water plant expired.
City Government

Among the numerous amendments to and changes made in the City Charter during this decade was an Act passed by the State Legislature and approved by the Governor on March 16, 1885. Among other things, this Act changed the composition of the City Council from that of a Mayor elected at large and two Aldermen chosen from each Ward, all elected for concurrent two year terms; to a bicameral City Council consisting of a Board of Aldermen to be elected, one from each Ward, and a Board of Supervisors five in number to be elected for 2 year terms from the City at large.

For the first time in the City's history, a separate executive department was created, with power vested in a Mayor, elected at large for a term of two years as before, a City Treasurer, a City Auditor, City Clerk, City Engineer, a Street Commissioner, water Commissioner and City Attorney, each elected for two year terms.

The first election for officers under this new arrangement was held on Tuesday, April 7, 1885 with a Republican victory which according to the democratic News was the most disgraceful one ever held in Denver.

Joseph E. Bates was elected Mayor, succeeding John L. Routt. According to King, in his book on "The History of the Government of Denver" with special reference to its Relations with Public Service Corporations, Page 115, "The reason for the creation of the Board of Supervisors was that the majority party thereby assured itself of control of the Council.

As the City as a whole was safely Republican, the upper branch, elected at large, would be safely Republican.
The decay of the council was most rapid after it was made a bicameral body, for this so thoroughly diffused its powers and responsibilities that neither the council as a whole nor either branch of it, could be held definitely responsible for any action whatsoever, nor could responsibility be unescapably fixed upon any one of its members. No distinct powers were granted to the Board of Supervisors, save power to confirm the nominations of the Mayor. Even this power was, to a certain extent, taken from it in 1887 and given to the council in joint convention assembled."

The City Charter was again revised and amended by the State Legislature through the passage of an Act approved by the Governor on March 11, 1889.

According to "King", page 124, "The most radical change in the structural plan of Denver's city government was made in 1889, when the State Legislature, the famous "Robber Seventh" (so-called because of its reckless expenditures and because its members carried home with them a large amount of State furniture and furnishings) made the relation of the State and City government all the more intimate by the creation of a State Board, the Board of Public Works, to manage and control all the public municipal works carried on in Denver.

Its powers and duties were large and extensive. The motives behind its creation were said to be, to give the political party then in control of both city and state added control over the city by the State. Also, it was later explained that the General Assembly had been importuned by the inhabitants of Denver to create it in order to "protect the city against itself" by removing
this important department from local management and from local politics. Again Mayor Rogers told the National Municipal League in 1894 that the Board had been created "to prevent the public improvements moneys being squandered by the council."

Whatever the motives were, this first step encroachment by the State upon the City, had a far reaching effect upon city government affairs as will be seen later on in this narrative.