from
La Crosse Tribune,
May 23, 1914.

# THE STORY OF THE LA CROSSE WATER WORKS SYSTEM

## *Complete History from 1875 to 1914 told from Council Records and newspaper files.*

The new well system for supplying La Crosse with water is now fully installed and in complete operation, and while it has not passed the controversial period, its cost has been so great that not even an adverse verdict can change it for many years to come. Therefore, perhaps a review of the history of the La Crosse water systems may prove an interesting diversion from the controversy in which women, gesticulating with chapped hands, boiler owners, experts and politicians have entertained us with a confusion of disagreement which the perceptible softening of the water has not availed to silence.

But this writing does not come to take away the sword and offer a story of peace, for in every stage the water question has proved a source of disagreement, and in "the good old days" in at least one instance the quarrel threatened a tragic conclusion.

At the outset it is well to note that the old La Crosse water system was not a concrete system, mapped out and projected with its final completion contemplated by its originators. Rather it came in a small way in response to immediate necessity, and was expanded in more or less patchwork fashion as the growing needs dictated.



### Medary the Originator.

While J. S. Medary, Fourteenth and King streets, must be credited with the distinction of founder of the first water system, there preceded his enterprise an ill starred undertaking of which history bears note. It was early in the year 1875 that at the suggestion of the late Alderman Charles Michel a committee of the council consisting of Mr. Michel, John Paul and H. T. Bliss, the latter city engineer, was appointed to look into the matter of a waterworks with a view to submitting plans to bond the city for that purpose to the popular vote.

The report of Engineer Bliss, based upon a survey made at the time, bears date of June 11, 1875, and the report of the Michel committee was made on September 28th of that year.

The Bliss survey proposed to take the water from La Crosse river, and it was the unique idea that the water could be distributed by its own power by damming the river to secure a sufficient head. The report adds that in addition to furnishing water in this way, sufficient power could be secured to operate manufacturing plants. The report is not long, and as it contains some interesting data and shows the point of view of the time, we reproduce it as summarized in the council proceedings:

### Power From La Crosse River.

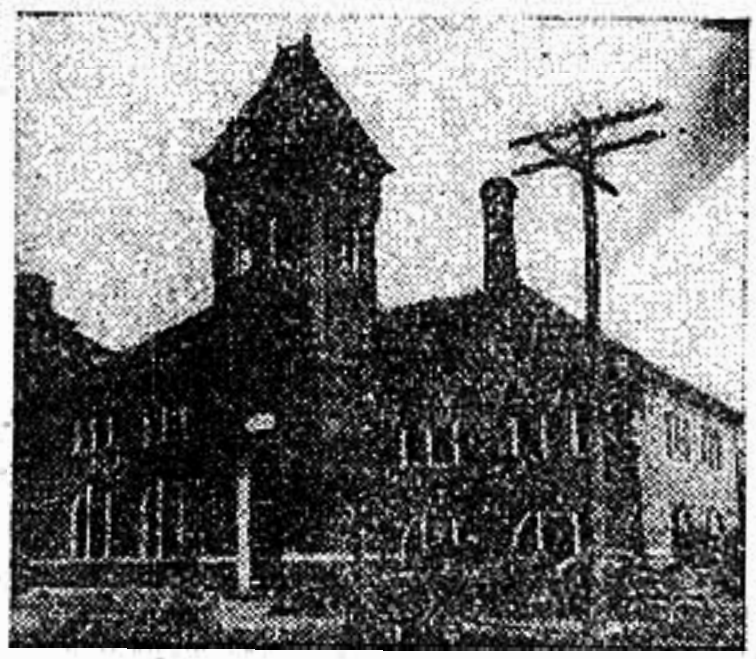
"We give below a report made by City Surveyor Bliss from the basis of some partial surveys made in accordance with the resolution introduced by Alderman Charles Michel at the last meeting. Mr. Bliss seems to be firm in the belief that there is available power in La Crosse river for the purpose and he made a good recommendation to the council which was acted upon and a committee has been appointed to look thoroughly into the matter and report as to the best plan of giving

the city the amount of water needed."

"The power from La Crosse river would be valuable for manufacturing purposes, but for two or three months of the year the fall is cut off by high water of Mississippi. Still there would be enough for raising water for city use.

"Can't say just how much would be needed per day. Statistics of various cities investigated vary. The lowest is 12 gallons; the highest 60 gallons for each individual. Probably 30 would be ample here. The

## The Old Pump House



This is the Original Building as Rebuilt for the Holly Pump in 1894-5.

only safe method is to make a large estimate as we must make provision for the future. This report estimated the future population at 20,000.

"This basis would require 600,000 gallons daily. A reservoir should contain two weeks' supply which would be 8,400,000 gallons. This would require an area of base of two and one-half acres and an area of ground, including base, embankment and slope, of 5 acres. The cost of ground and right of way would be, say $2,000. The cost of the earthwork for the reservoir would be about $5,000.

"The best method of securing the bottom and sides from leakage would be stone flagging and cement, it would cost $20,000. Puddling with clay would answer the purpose and is cheaper.

"The total cost then of a reservoir with the land would be $27,000.

"Two miles of pipe, 15 inches in diameter, would be needed, which would probably cost on an average of $50,000 when laid. Six miles of smaller pipe would cost on an average, including hydrants, gates and other attachments, $10,000 per mile, making $60,000.

"The total cost then of reservoir, pipes, etc., would be $137,000.

"A feasible plan for use of La Crosse River power would be to build a dam across the river above Winona Junction, bring the water in a canal along the edge of the tableland near the road to Bostwick valley as far as the Miller farm, and then put in works for pumping the water into a reservoir upon the tableland at a sufficient elevation, 150 feet, to give the required head for carrying the water wherever needed.

"Another plan, perhaps the better, would be to build a storage reservoir upon the tableland south and east of Winona Junction which could be supplied with water raised from Smith Creek. From this reservoir the water could be brought to a distributing reservoir near the Miller farm from which it could be taken to every part of the city.

"The advantage of this plan would that better ground for the reservoir could be found, purer water could be obtained, and providing the current of the river would supply the necessary power (and perhaps it would) could be improved at less cost.

"As your resolution does not call for any report in reference to steam power I have made no examination of the cost of waterworks operated thus."

"H. L. BLISS,"

"June 11, 1875."

The Honorable James J. Hogan was mayor of the city at the time these proceedings took place, and presided at the meeting at which the Michel committee reported. The committee described a junket in which it had visited numerous cities to examine waterworks and had gone to Chicago to investigate equipment. The report favored a plant similar to that at Clinton, Iowa, "a city of 9,000, the size of La Crosse without the Fifth ward." It will be noted that at this early day the "filtering plant" controversy was born, for there was such a plant at Clinton, and that the committee favored it is indicated by their report that it was "entirely satisfactory." At Rock Island, the committee saw the Holly waterworks, and it is interesting to note that it was a "Holly pump" which was later secured, after the two Blake pumps, and which, with its tribulations, we have with us to this day. The equipment which the committee report favored was so complete as to suggest that it would "reduce fire risk and insurance fifty per cent," and was to cost upwards of $56,000.

Following Alderman Michel's report, Alderman Joseph W. Losey in-

# J. S. MEDARY

He is fairly entitled to be called "The Father of the La Crosse Water System."

troduced a resolution providing for a bond issue of $60,000 at seven per cent interest to finance the waterworks, and for a special election to approve the bonds to be held on October 26, of that year.

**Vote Down Bond Issue.**

When early in the twentieth century the people of La Crosse defeated N. C. Bachellor's proposal for a new river water system with a filtering plant by more than two to one, the result was regarded as an overwhelming negative, but it was far less emphatic than the vote by which the people rejected the Michel-Bliss proposal in the fall of 1875, for in the latter year the vote was at least five and a half to one against the waterworks. Perhaps it was well that there was the saving grace of humor, to mitigate the bitterness of defeat, in the report which Mr. Losey made to the council upon the results of that memorable election. Following is the Losey report, taken from the council proceedings of December 1, 1875:

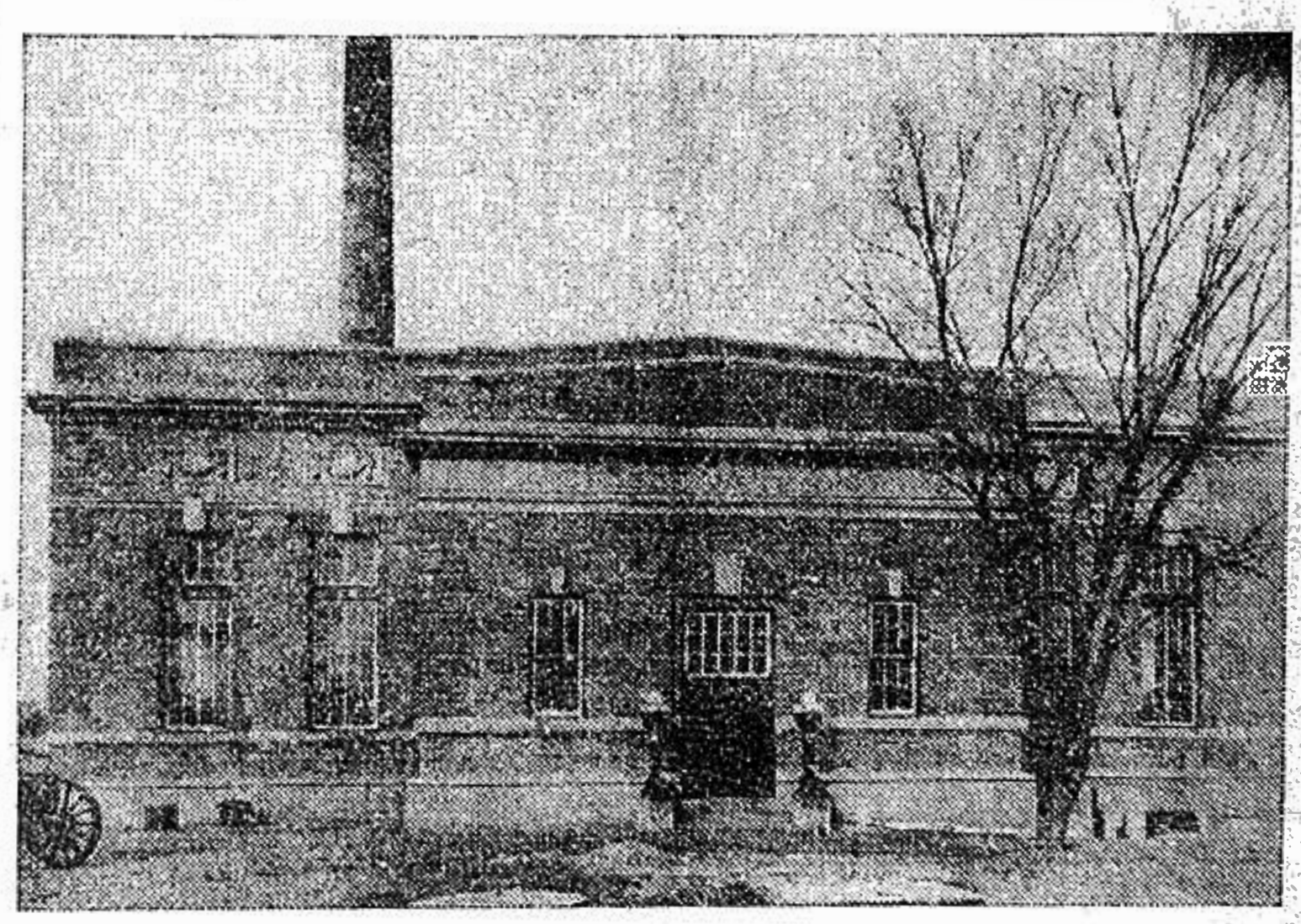
"The undersigned, a committee of one appointed by the mayor to perform the melancholy duty of canvassing the votes cast at the special election held in the city of La Crosse on the 23rd day of November, A. D. 1875, on the question of voting bonds in the sum of $60,000 to aid in the construction of water works, cheerfully reports:

"The number of votes cast at said special election was 731 (seven hundred and thirty-one), of which 124 (one hundred and twenty-four) were for the issue of bonds in the sum of $60,000 and 607 (six hundred and seven) of said votes were against the issue of bonds in the sum of $60,000.

"Your committee further reports 'with malice toward none and charity for all,' the result shows that a large majority of the voting free holders of this city have no desire to be washed with water—in the way we proposed.

"As said Micawber, so say I: 'The blossom is blighted, the leaf is with-

# The New Pump House



Fine new station which is the most imposing feature of the new well system.

ered. the God of day goes down upon the dreat scene and—and. in short, the scheme is forever flooyed.' If no one else mourns. the drawers of water and the housewives will. Farewell. Requiescat in hace.

"J. W. LOSEY.
"Committeeman."

**Renew Efforts.**

So far had the industrial and commercial section of the city developed, however. that one defeat could not stay the movement toward water service. The fire risk was the moving influence, and it should be borne in mind that the development of the water system from its beginning, following the emphatic rejection of the Michel plan, had in view only fire protection. On January 14, of the following year, 1876, Alderman Michel renewed his efforts, but to avoid public objection, took a new direction. He offered a resolution that the mayor appoint a committee of three to confer with Messrs. Colman and Paul "relative to putting in pump works to protect the commercial and manufacturing portions of the city from fire." This resolution was passed.

It is interesting to note that durIng all of these proceedings F. P. Bradish, father of our present city engineer, George P. Bradish, who has been so active a factor in the water works debate, was a member of the city council and participated in all the proceedings relative to the proposed water works.

Again failure resulted, this time because of the committee's misgivings as to the legality of any steps taken bursuant to the resolution. The committee's report, signed by Mr. Losey, chairman, raises the legal point that even were Messrs. Paul and Colman to consent to a suggestion that they enter into an agreement to pump the water, the city has no power to bond for the money to lay necessary water pipe, Therefore, "in view of the recent empbatic negative vote on the question, the committee refuses to recommend it."

**Medary Enters Fight.**

We now come to the point at which Mr. Medary became a factor in the fight for the water system.

By the way, some of our "younger timers" have heard the "old timers" talk of the days when "the three Jims" ran the town—Jim Hogan, Jim Medary and Jim McCord. Here we have them in full regalia, and from all accounts they were three "regular men." Jim Hogan presides over the city council as mayor, Jim McCord presides over the Board of Trade as president. and Jim Medary on the floor hears the burden of shokesman for the eminently necessary and thoroughly unbopular water plant proposal.

During the latter bart of April, 1877, Mr. Medary and others began the circulation of a petition among the voters, asking that some sort of a water system be provided; and

on May 6th the Board of Trade, President McCord Presiding, heard City Engineer Bliss, discussing this petition, urge that in order to insure success the petition be pushed until a majority of the electorate had signed it. This was ordered done, and on May 9th a formal petition from the Board of Trade, asking the council to provide a water system, was read before the latter body. Mayor Edwards, who had been elected to succeed Mr. Hogan, presided. Thereupon a committee composed of Aldermen Voight, Rau, Elwell, Pamperin and Losey was appointed. It was suggested that the committee consider a water plant "similar to that in Winona."

Mr. Medary monopolized the time of the ensuing meeting of the Board of Trade, May 16, 1877, with a vigorous presentation of the water question, citing the big Oshkosh fire and other similar disasters as object lessons by which this city should profit. He analyzed the opposition of the less well-to-do citizens as being based upon the fact that "they deemed an increase of taxation to be more than they could bear and erroneously thought that the enterprise was solely for the benefit of the rich."

### Adopt Winona System.

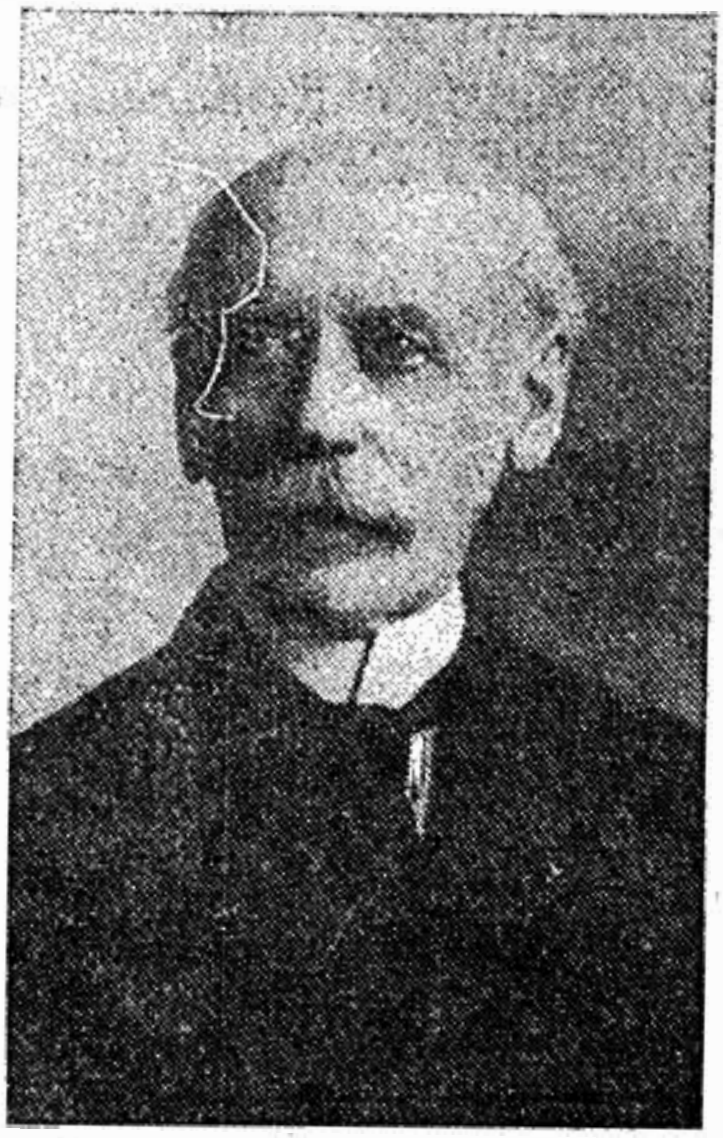
Mr. Medary argued that while it did not seem feasible for the city to begin an extensive water works at that time, there was no reason why a beginning should not be made in a modest way. He suggested, on grounds of economy, that the Winona system, in which the saw mill men furnished the pump and did the pumping on contract, the city furnishing only the pipe, be adopted.

Thereupon, following a resolution offered by F. C. Jones, a committee was appointed to visit Winona and examine the system, the chair naming Messrs. Jones, Roosevelt and Bliss. This committee was also authorized to confer with the La Crosse mill owners "to see what could be done."

On May 23rd this committee reported favorable to the Winona plan, but informed the board that Messrs. Paul, Colman, Washburn and other mill owners, while interested in the plan, were not prepared to make a definite proposition. Thereupon a motion was carried continuing the committee, adding Secretary Ostrander to its number and directing that it report its findings to the city council.

The legal question presented by the failure of the former referendum, which had been responsible for Mr. Losey's declination to act under the second council resolution, had been offset now by a petition signed by a majority of the taxpayers. The council promptly took up the method suggested by the Board of Trade, and arranged to let the contract for pumping by means of bids for the work, mill owners being invited to submit proposals, but on August 27th Alderman Elwell, chairman of the water committee, reported that no bids had been submitted on August 14th, the time set for opening them, and that on August 21st the committee had arranged meetings with Messrs. Colman and Paul and conferred upon the terms whereby the latter should furnish pumping equipment. An alternate proposition was for the city to build its own pumping equipment. In case the contract plan was adopted, private citizens were "to be empowered at their own expense, to lay uniform pipes to connect with the water works." The resolution limited the city to an expense of $15,000. On July 14th the plan known as the Losey amendment, which provided

## *Dr. W. A. Anderson*



He developed the efficiency and economy of the water system.

that the city lay pipes "from Zeisler's Brewery to Badger street, Badger to State, Pearl to Division, Division to Mississippi, Front to Fifth, Fifth to Eighth, Eighth to Eleventh, and on Sixth, Eighth and Tenth streets," was adopted. The mills were to do the pumping, and even-

tually almost all the saw mills participated in this work.

This was the beginning of the water works, and it is interesting to note from the report of Mr. Elwell, who had the superintendency of the work, that the gross receipts for the water works for the first fifty days, which ended April 8, 1878, were $69.90.

### Erect Pump House.

In 1880 the contract with the mills was renewed, but on May 14th of that year steps were taken looking to the purchase of pumps and the erection of a pump house, and plans and specifications were ordered. This work was done during the ensuing year, and on May 14, 1881, the story of the achievement was told in a report to the council signed by the city engineer, of which the following is a summary:

"There has been erected during the past year a pump house in which has been placed a George F. Blake thirty inch steam and sixteen inch water cylinder duplex pump, all of which is nearly completed. Cost, $32,011.83. Cost prior to this year, $49,240.28. Total cost, $81,257.11. Total number of water takers 273, an increase of 71 during past year. Average amount of water pumped per day during last month was 353,180, increase of 43,118 since last annual report.

"(Signed) James Manchester, superintendent of water works."

From that time there followed a long period of gradual accretions to the water plant, developing its equipment and extending its service into the residence section. It was also a controversial period, and there has never been long sustained peace upon this subject. Always it has been a conflict between the advocates of a system that would give drinking water as well as fire protection, and those who insisted that the wholesomeness of our well water supply made the expense of that change unnecessary.

The first water tapper was appointed in 1882, and in the following year it was decided to provide an additional engine and boiler. In 1884 the present wells were sunk on land adjacent to the water works.

### Want Better Water.

The next move looking to making the water supply suitable for domestic consumption came on September 14, 1894, when a committee, consisting of D. F. Powell, E. E. Kowalke, Frank Schwalbe, William Neumeister and David Drummond, acting on authority from the council, reported that it would require from three to five thousand dollars to secure a competent hydraulic engineer "to find ways and means whereby an abundant and permanent supply of healthful water can be guaranteed." This was the beginning of the fight over the Holly pump, the next council meeting arranging for estimates on a ten million gallon pump. A consulting engineer by the name of Cole was hired. In casting about for a site the Listman Mill site was considered, but Mr. Cole declared it impracticable, and a committee composed of William Lohmiller, George H. Gordon and William Torrance sustained him. Mr. Cole's plans for a pump were also endorsed, and the Board of Public Works was authorized to ask for bids. There followed a junket as a result of which a committee recommended the Worthington pump. The Holly people objected, and the fight was on. The Holly people controlled the council and wanted to retain Cole, but Mayor Powell vetoed the resolution. The Board of Public Works let the contract to the Worthington company, but the contract was later rescinded, and Mr. Cole was finally hired and stayed hired. During this controversy the advocates of a filtering plant were busy, but made no headway.

There were three bidders: The Holly company, the Worthington company, and the Allis-Chalmers company. The conflict turned on the method of pumping. The Holly pump was a perpendicular pump, while the Worthington and Allis-Chalmers pumps had a direct drive into the water pipes, and it did seem this horizontal method was more logical.

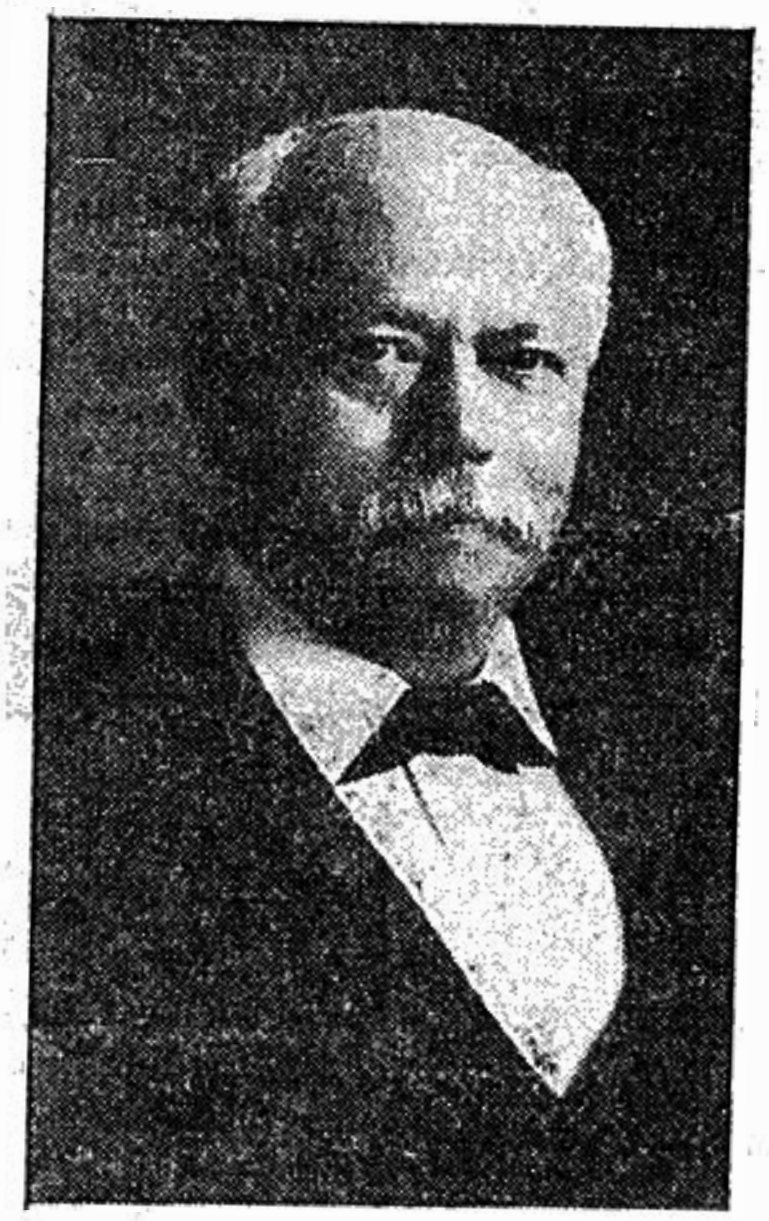
### Copeland Urges Wells.

The line-up in the council on the question was interesting. Mr. Gordon, a Republican, assumed the leadership of the Democrats, while Jim Murray, equally as prominent as a Democrat, became spokesman for the Republicans, and was promptly "read out of his party." Homer Crosby, former city engineer, was a supporter of the Worthington pump. It is interesting to note that even in the heat of this fight Colonel F. A. Copeland, who is regarded as the father of the well system, was intervening to urge the well system.

Colonel Copeland, during his term as mayor, 1891-3, had conducted some experiments by driving wells near Myrick park, the results promising so much both as to quality and supply that from that time he had worked diligently for a well system.

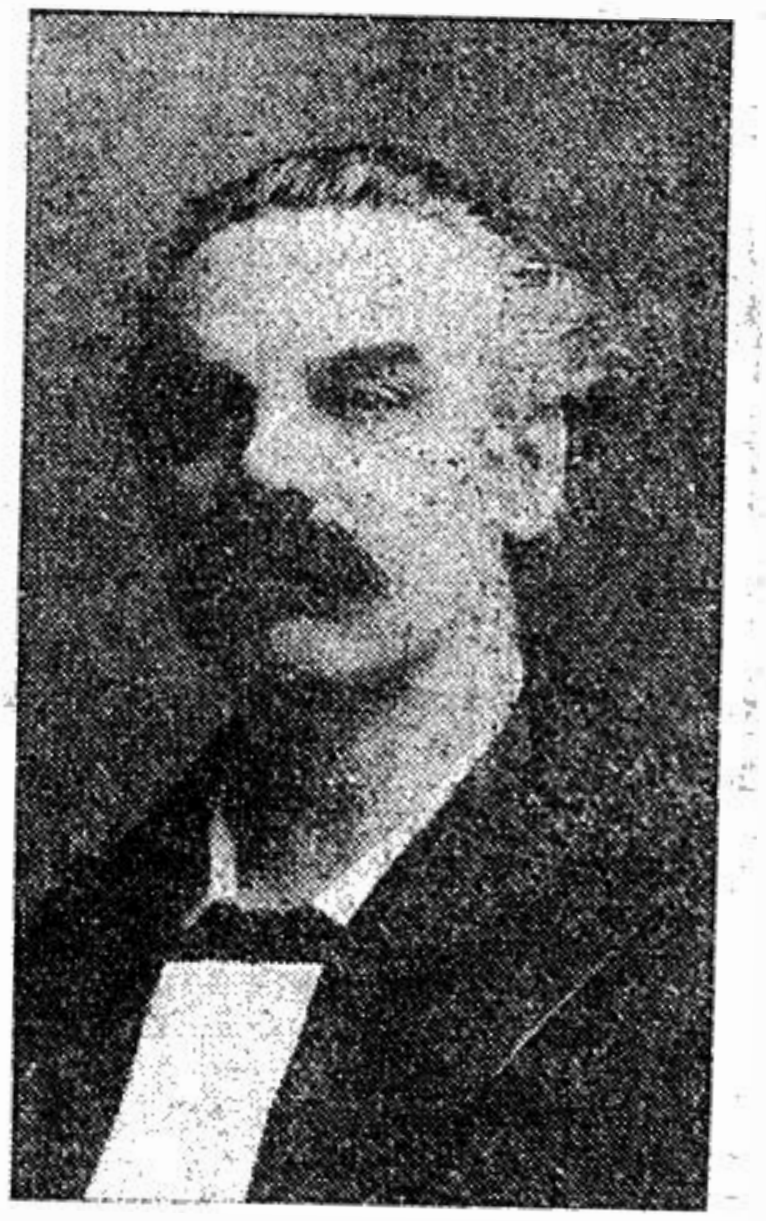
In a clash in the council a choleric ex-army captain and plainsman, who represented the Worthington company, resented what he termed an insult dealt him by Engineer Cole, and his hand flashed to his hip

**A. Hirshheimer**



Col. Copeland's "Right Bower" in the battle for a well system.

**George E. Powell**



He sang the swan song of the well system for a quarter of a century.

pocket. It was well known that the pocket was not empty, and his record as a frontier gun fighter was fully credited. He restrained himself with an effort, and immediately left the city, declining to be further connected with a controversy which he felt would compel him to do something for which he would be sorry. The final outcome, as is evidenced by the equipment in the old pumping station, which was rebuilt to house it, was a triumph for the Holly pump.

This ended the controversy for a time, and the next serious discussion of the water system arose in 1908, at which time N. C. Bachellor introduced a resolution providing that the council as a committee of the whole investigate the filtering plant in use in Davenport, Rock Island and Moline.

**Employ Consulting Engineer.**

The discussion resulted, after long continued debate, in the employment of Floyd Davis, Ph. D., a consulting engineer of Des Moines, to report upon some feasible way of securing a supply of pure water. This was the beginning of the last filtering plant fight. Mr. Davis' report condemned many of the private wells now in use, but found a majority of them wholesome. He believed that the city should establish a filtering plant, and as a result of his work it was proposed to build one, taking the water from a point located above the point of Pettibone Island.

This report was rendered in 1905, but the authority to bond the city to the necessary extent, about $350,000, was refused by a two to one vote of the people in a referendum at which it was submitted. Later the project was again defeated at the polls. It is interesting to note that by its adverse vote the La Crosse public rejected an offer of L. F. Easton to contribute $10,000 toward the cost of the filtering plant.

In 1910, during Ole J. Sorensen's first term as mayor, a proposal was made for the construction of a new pumping station at Riverside Park, with a sedimentation basin in connection, the cost being estimated at about $250,000, and in the following April the city engineer was authorized to prepare plans and specifications, not only for the Riverside proposal, but also for a well and reservoir system to be located near Myrick Park. There were provisions for the employment of a competent consulting engineer. The alternative was considered as a result of pres-

**George P. Bradis h**

**Ori J. Sorensen**

River system advocate who is working out the problems of the new well system.

His coup with the rate commission forced action on water works.

I sure brought to bear by prominent citizens who thought wells preferable, notably Colonel Copeland and A. Hirshheimer.

From this time on the fight between the well and river systems was on in earnest, and all kinds of alternative suggestions were made, one of which was to drive wells in the river, and another of which, fathered by Alderman William Collins, was to utilize the lagoon on Pettibone Island as the source of supply. The fight in the council was too tedious to relate in detail; it became acrimonious in character, and the merits of the debate were often lost sight of in the eager devotion to strategic maneuver.

**George H. Gordon**

Strong Republican who became leader of Democrats in sensational Holly Pump Fight.

### Railway Commission Intervenes.

In the midst of this situation the state railway commission took a hand. The reason for its intervention is here made public for the first time, in the following interview with Mayor Ori J. Sorensen:

"The fight in the council had served one good purpose," said Mayor Sorensen. "The people had become partisans, some for the wells, and some for the river system, and in the heat of their partisanship they largely forgot that general opposi-

**The late Chas. Michel**

**Dr. D. Frank Powell**

He was a strong factor in the first movement to establish water works.

tion which made any sort of a new water system impossible. Thus the way was cleared for action.

"But while the breaking of the intake pipe near the edge of the river, and a personal examination which Commissioner James T. Day and myself made of the wells at the pump house disclosed a condition so putrid as to make even bathing in the water repugnant, the council was deadlocked, and there seemed no hope of action.

"I was fairly stumped. I hated to see the opportune moment which the existing state of public opinion presented pass without immediate and definite action of some sort. It was while I was thus embarrassed that, standing one day in a Milwaukee hotel, I was approached by a bluff and hearty looking man clad in a hunting suit. He proffered me a cigar, and assuming a bantering air, charged me with not knowing him, while he knew who I was and told me.

"The man was John H. Roemer, president of the state railway commission. During our conversation I told him of our troubles, and without taking the talk seriously, I asked him if there wasn't something he could do to help us out.

As mayor he was an outstanding figure in the Holly Pump Fight.

"'Certainly,' said Mr. Roemer. 'If you can make a showing that conditions in La Crosse are as bad as you say they are, I can issue an order compelling the city of La Crosse to establish a sufficient and wholesome supply of water.'

"I hurried home, and after a conference with Alderman William Torrance, the latter consented to present the case to the commission, which he did in a letter. An investigation by the commission followed, with the result that the city was ordered to take action, and from that moment it became merely a choice of systems."

### Wells vs. Rivers.

There is no doubt that Mayor Sorensen hoped that the choice would be the well system, as he earnestly believed that preferable. It would be a serious omission at this point to omit recognition of the fact that former Mayor Torrance, former City Engineer Walter S. Woods, City Engineer George P. Bradish and former Alderman N. C. Bachellor were vigorous advocates of the river system, while on the other side civilian honors of advocacy belong to Col. F. A. Copeland and A. Hirshheimer, while George E. Powell, for many years

## Col. F. A. Copeland

His years of unremitting activity stamp him unmistakably as "The Father of the Well System."

## Paul W. Mahoney

Council Leader for the Well System

back, had never lost an opportunity to urge wells and a reservoir. Paul W. Mahoney led the fight in the council for the well system.

The intervention of the state, however, brought new complications. The well people questioned both the disinterestedness and the ability of the consulting engineer, who advocated a river system, and through the state board of health the state took a hand in determining what the system should be. Professor Charles S. Slichter, known as an authority on the question of underground waters, and one of his assistants made surveys and declared emphatically for the well system. The force of state authority behind this proposition finally broke the back of the opposition, although its proponents insisted and still insist that the city will rue its choice. The well system was finally authorized at a meeting of the council held Oct. 27, 1911, and with a more or less stormy experience with conflicting expert opinion, it has finally been established. While the question of the merits of a well system as opposed to a river system is still debated, no question is raised as to one point—that the well system is as efficient and scientifically installed as anyone could ask.

The four years period comprising the two administrations of Dr. Wendell A. Anderson as mayor, 1901-2 and 1907-8, constituted almost the entire record of effort for efficiency and economy in the department. In a communication to the council in 1901, shortly after his inauguration, Dr. Anderson submitted a comprehensive survey of water service conditions in various cities, in which the city of Fall River, Mass., was selected as the type. The character of the object lessons contained in this comparison is strongly brought out by the fact that it shows that Fall River, with 104,000 inhabitants, consumed during the previous year 731,000,000 gallons of water less than was consumed during that same year in La Crosse, a city of approximately 29,000. The comparison was also made with St. Paul, Madison, Milwaukee and other cities, and in every case it was shown that our water consumption was out of all proportion to population. In his analysis of the situation Dr. Anderson referred to waste through excessive use for hydrants, flushing, water troughs, schools, sprinkling, fountains, etc., and in addition the excessive use which resulted from

## The late J. W. Losey

Prominent in all the early endeavors for a water system.

## Walter S. Woods

He Predicts Disaster for Well System in Future.

The fact that a flat rate was employed and few meters used, the presumption being that where the consumer paid according to the amount used his own instinct for economy would protect the city. A showing that by investing $30,000 in meters the city of Madison had materially reduced its water consumption offered a strong suggestion to the council. At this time, under the direction of Dr. Anderson, not only were efficient steps taken to reduce all of these losses, and to administer the service without favoritism so that many users who were getting much for little were placed on the common basis, but an entire revision of charges for water service was made.

The four years intervening between the conclusion of the first Anderson administration and the beginning of his second term, gave ample opportunity to demonstrate the wisdom of the changes that had been made.

Early in his second term Dr. Anderson brought the water works again to the attention of the council in the form of a communication recommending that the water rent be charged directly to the property owner, instead of to the consumer, thereby avoiding an immense loss through delinquencies and placing the finances upon a surer basis.

**Water Consumption Decreased.**

An examination of the record at the time of this communication shows the remarkable advantages that had accrued as the result of the reform of 1901-2. In a word, the consumption of water in 1901 had been approximately two billion gallons a year, whereas in 1907 it had been reduced, notwithstanding increased number of consumers, to approximately one billion gallons a year. In addition to this reduction of approximately 2,700,000 gallons per day, or from 193 to 96 gallons per capita per day, there had been a reduction of approximately $5,000 a year in the coal cost for pumping. On the other hand, the advantage derived from the revision of rates is shown by fact that, with a big reduction in the cost of pumping and in consumption, the revenues from the water plant had increased from 1899 to 1907, a period of eight years, from $8,939 to $19,146, a total of over $10,000.

However, Dr. Anderson was not fully satisfied with the progress that had been made. He pointed out that whereas the per capita pumpage had been reduced from 193 gallons to 96 gallons per day, a fair standard as shown in other well regulated cities was 64 gallons per user. He believed in a more complete use of meters lay the solution, and he strongly urged at this time that vigorous campaign to have the meters adopted be pursued. It was his idea that the meters should be sold to the consumer upon terms that would avoid making that a hardship. James T. Day, then president of the board of public works, believed in Dr. Anderson's idea about meters, and with considerable vigor devoted himself

to increasing the number used. However, the idea was never put in mandatory form, and as it was worked out largely upon an educational basis, progress was not entirely satisfactory. Particularly was this true on the north side, where the number of meters used was comparatively small.

**Anderson Advocates Meters.**

Again, four years later, acting as a private citizen, Dr. Anderson took up the cudgel for the use of meters. About that time there had been much complaint of insufficient fire pressure, and an ordinance was pending providing for the expenditure of $70,000 for additional water mains to facilitate distribution and provide greater fire pressure. In a communication to The Tribune Dr. Anderson took the position that this expenditure would prove unnecessary providing leaks and excess pumping were avoided. To reinforce his argument Dr. Anderson showed that in the year 1908 there were in the city 1,708 metered taps, and 2,595 non-metered taps; that during that year the 1,708 metered taps had used but one-sixth of the entire pumpage, while the 2,595 non-metered taps had used all the remainder, less waste. In other words, had all been metered, a gross saving of approximately 700,000,000 gallons would have resulted. The coal saving on this pumpage alone would have been $4,800 or thereabout, and to offset this there was only approximately $1,000 that would have had to be taken care of in the way of repair and maintenance of meters. Dr. Anderson urged that this saving in pumpage would solve the pressure problem as well as result in great financial gain to the city.

Dr. Anderson's intervention served to delay the passing of the ordinance, and in the meantime the movement for a new water works progressed, with all the heat of the fight in which it was involved. The matter of the meters promises to find its solution in this controversy, for in its order peremptorily directing the city of La Crosse to proceed with the construction of suitable water works the state railway commission said that, when the new plant was fully installed, it would compel the adoption of meters as an economic proposition. While this has not been done, it unquestionably will not be long delayed.

**Cost Totals $400,000.**

With the completion of the new water plant the greatest piece of engineering work ever undertaken by the city of La Crosse has been brought to a successful termination. Its construction has involved an expenditure of approximately $400,000.

City Engineer George Bradish, in giving a brief history of the new water plant, in his annual report which was presented to the council, says:

"The end of the year practically saw the completion of the new water system. All contracts let during the year of 1912 in connection therewith have virtually been completed, there remaining uncompleted the moving of such parts of the old water plant as may be necessary to place the new plant or pumping station in a good and safe working condition. This work, in a very large measure, is the duty of the city.

"One boiler from the old station,

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**L. F. Easton**

filtering plant advocate whose offer of $10,000 for that purpose was rejected.

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together with the necessary appliances to operate the same, has been installed in the new plant and steam was first raised in the boiler about the middle of November. On the 18th day of December, 1913, the first well water was pumped into the new system and since that date more or less well water has been served the public."

**The New System.**

This water is first procured from the wells by means of what are known as low duty pumps. These pumps, one of which is placed in each of the five well houses, pumps the water to the low reservoir. The high duty pumps, installed in the pump house, then pump the water

from the low reservoir into the water mains, the surplus going to fill the high reservoir.

As the capacity of the pumps will be greater than needed they will be in operation only about eight hours per day in the winter and twelve hours in the summer. While the pumps are not in operation the city is supplied from the surplus which has been stored in the high reservoir.

While the term "water plant" includes hundreds of things too numerous to mention some conception of the new method of procuring the city water can be obtained from the classification of a few of the chief essentials such as wells, well houses, motors, pumps, service pipe lines, reservoirs, pole line, and pump station.

### The Pump Station.

Perhaps the pump station stands out as the most prominent feature of the new plant. This was constructed by the La Crosse Construction company in Myrick Park at a cost of $47,758 which with the cost of certain floors and foundation reached a total of $53,128. This building is of fire proof construction with vitrified brick and terra cotta trimming, and consists of a pump room 50 by 100 feet, a boiler room 40 by 59 feet, a coal bunker 29 by 39 feet, a work room 20 by 29 feet and a basement under the entire building.

The main entrance of the pump station is 18 by 40 feet and this, with the main pump room, has a brick finish, the wainscotting being white enameled brick and above the wainscoting finished with buff repressed brick. The roof of the building is of concrete slab covered with a four-ply composition roofing.

The building is provided with the necessary sky-lights, ventilators, steam heat, electric lights, toilets and drinking fountains and in all is a creditable building for the city.

### Thoroughly Equipped.

The equipment of the new pump house was divided into several contracts, chief of which was that of the boilers. The plant when entirely completed will be equipped with three internally fired Scotch Marine boilers. These boilers have a rating of 187 horse power apiece and will be operated under 150 pounds of steam pressure. But one of these boilers have been installed as yet but the other two will be removed from the old pump station at the direction of the engineers in charge. Each of these boilers will be supplied with an automatic stoker which will be furnished by the Under-feed Stoker company at a cost of $3,260.

The stokers are operated by steam, furnished from the boilers, and are automatically regulated. Draught for the boilers is supplied by means of a fan which is operated by a small engine having a belt connection. All parts of this device are automatically regulated depending in a large measure upon the pressure in the boilers.

The heater for the pump station was furnished by the Platt Iron works at a cost of $295, and has a capacity of 12,000 pounds of feed water per hour.

### Pumps.

One of the most important lines of equipment of the new pump station are the pumps. The pump station is equipped with the four million gallon Blake pump from the old pump station in addition to a new eight million gallon pump furnished by the Allis-Chalmers company of Milwaukee, at a cost of $18,580. The ten-million gallon Holly pump is also being moved from the old pump station to the new.

The new pump has a cross-compound crank and fly-wheel. This pump has a capacity of eight million gallons of water for every twenty-four hours. Steam will be furnished the engine under a boiler pressure of 150 pounds. The piston speed of the pump will not exceed 250 feet per minute and the velocity of the water will not exceed two and one-half feet per second.

The new plant is also equipped with two Turbo generators which cost $11,767. Two venturi meters have been installed, one for the measuring of feed water going into the boilers and the other is used to measure all water going into the low duty reservoir.

One of the big features of the pump station is the traveling crane which travels the length of the building and is capable of lifting fifteen ton. This will be used largely to facilitate repair work on the pump house equipment.

### Reservoirs.

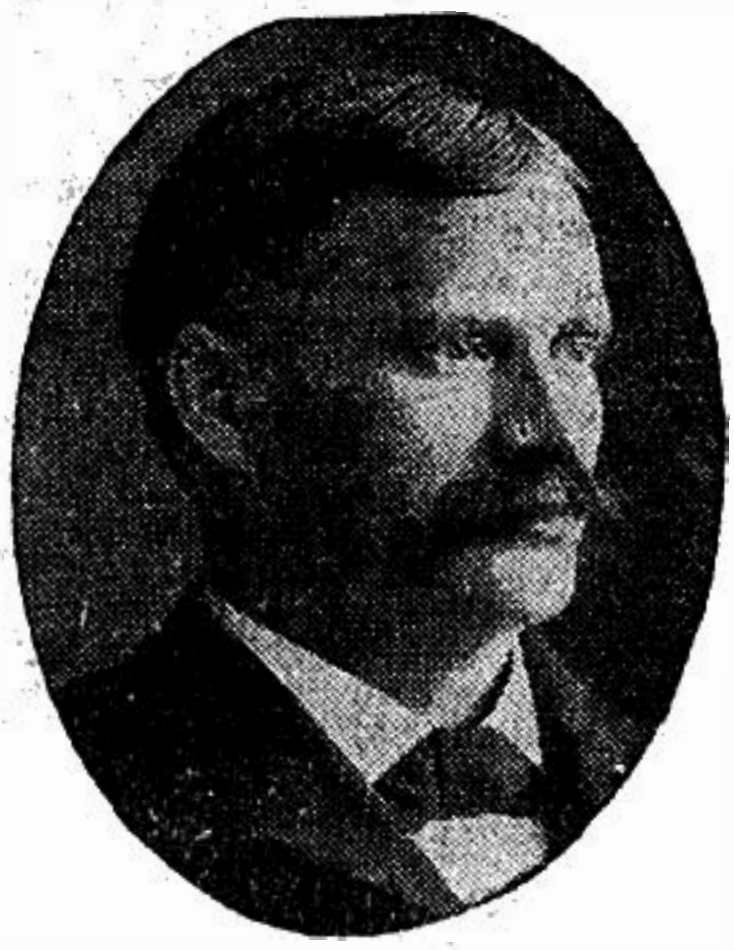
One of the greatest undertakings in installing the new system was the erection of the low and high reservoirs. These reservoirs cost the city $90,352, or nearly one-fourth of the entire cost of the new system.

The high reservoir is located on the north side of Grand Dad bluff and just south of what is known as the Bliss road. This reservoir is 80 feet wide, 400 feet long and 20 feet in depth. When filled to its full capacity there is 5,000,000 gallons of water available for the city of La Crosse from this source.

It is divided into two separate compartments and by a system of piping and valves either compart-

ment may be entirely closed off from the water system. The floors of the reservoir are at an elevation of 258 feet and are slightly slanted toward adjoining corners of the two

**Alderman Wm. Torrance**



Former mayor who was prominent in advocacy of filter.

compartments where the drain outlets are located. The reservoir itself is constructed of reinforced concrete, is entirely covered with a roof and has manholes and ventilators for each compartment.

In addition to the high reservoir there is also a low reservoir, located adjacent to the pump station at Myrick Park, with a capacity of 1,000,000 gallons which is 102 feet wide, 106 feet long and 15 feet deep. This reservoir is also constructed of reinforced concrete and is erected upon lines similar to the larger reservoir. The large reservoir was erected by the J. W. Turner Improvement company of Des Moines, for $74,461, and the low reservoir by the Western Conscruction company of La Crosse. This cost $16,491.

**Good Supply of Water.**

Upon testing the new wells, twenty in number, it was found that they produced on an average supply 50 per cent higher than the specifications called for. There are five groups of wells, each group being separated from the others by a distance of from 800 to 1,000 feet. In each group there are four wells about 100 feet apart with a well house located in the center of each group.

The wells average approximately 120 feet in depth and are capable of producing 15,000,000 gallons of water per day although that amount of water will probably never be required.

The well houses, five in number, are of reinforced concrete fourteen feet in diameter and twenty-five feet in height. These were erected by the Western Construction company.

In each of the well houses is installed a 25-horsepower, 440 volt, 60 cycle three phase motor connected to a centrifugal pump. Each of these pumps have a capacity of not less than 1,400 gallons per minute. In addition to this each of the well houses is provided with a small pump for priming the centrifugal pump, which is operated by means of a small motor.

These low duty pumps are used to pump the water from the wells. It is then conveyed to the low reservoir through what is known as the low service pipe line and then to the water mains through the high duty pipe line.