Prospectus

Of the

Carrollton

Holly Water Works

Company.

Carrollton, La., 1871.
THE CARROLTON HOLLY WATER WORKS COMPANY respectfully invite the attention of citizens interested in the following information concerning the Holly system of "Fire Protection and Water Supply," which they now propose to introduce through the city of Carrollton, the rights and privileges required having been granted to this Company by the City Council for this purpose.

The Reservoir plan of Water Works is confessedly imperfect. Its settling process does not furnish water of satisfactory quality; its fixed gravitation pressure does not meet the varying wants of communities so far as quantity is concerned; its value for Fire Protection is generally limited to the supply of Fire Engines. It is, withal, so expensive, that tax-payers shrink from the liabilities it imposes. Topographical difficulties prohibit numerous localities from supplying their wants for water by this method. There was urgent need, therefore, of a new and better way of accomplishing the important object of Water Supply and Fire Protection. Happily these public wants are fully met in the new system of Water Works invented by Bierdell Holly. Gifted with a mind which intuitively discerns how mechanical results may be wrought out by simple and effective means, his past life had been spent in devising and perfecting numerous useful inventions relating to hydraulics. The frequency of fires in Lockport, N. Y., which Fire Engines were lamentably incompetent to check or control, turned his thoughts in the direction of providing a better method of Fire Protection.

An experimental set of machinery, of his own devising, was constructed and put in operation in that city, under contract which stipulated that the works should be competent to throw a stream of water one hundred feet high from a hydrant set fifty feet above the pump. Upon the public trial, the contract test was largely exceeded, and this pioneer set of machinery, although it will not favorably compare with the subsequent manufacture of the Holly Manufacturing Company, is still performing its work efficiently and satisfactorily. These experimental works were soon afterward duplicated on a larger scale, to embrace
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both the features of fire protection and daily domestic water supply. The plan of Mr. Holly now having been fully developed, and its utility demonstrated, these works were constantly referred to, until—as the result so far—the system has been introduced, contracted for and put in operation in the following named cities and towns:

Lookout, N. Y.; Auburn, N. Y.; Minneapolis, Minn.; Oglesby, N. Y.; Peoria, Ill.; Canton, Ohio; Marion, Mich.; Covington, Ky.; Indianapolis, Ind.; Norwalk, Ohio; Saratoga Springs, N. Y.; Evansville, Ind.; Schenectady, N. Y.; Syracuse, N. Y.; Athens, Ga.; Dayton, Ohio; Gouverneur, N. Y.; Vergennes, Vt.; Bangor, N. Y.; Batavia, N. Y.; Kalamazoo, Mich.; Canton, Ind.; Columbus, Ohio; Jackson, Mich.; Buffalo, N. Y.; Cumberland, Md.; Ta Porto, Ind.; Columbus, Ind.; Irondale, Ohio.

Method of Water Supply.

The peculiarity of the Holly system of Water Works is, that the supply of water is direct from the inlet pipes without the use of a reservoir. To guard the action of the pumps and provide for a varying supply, it has a system of mechanism that either increases or decreases the power of the pumps by letting on more or shutting off water in amount only limited by the capacity of the machinery to supply.

The delivery of water takes place through properly constructed mains and services provided with fire hydrants, placed at convenient intervals and at proper points. By means of a suitable arrangement of safety valves, pressure gauges and registers, perfect uniformity of flow and complete control of the water is obtained.

Testimony of Engineers.

We would here call attention to the following extracts from the report of a distinguished Canadian engineer, who was appointed to report upon the most feasible plan for supplying with water the city of Ottawa, the new Capital of the British Provinces. Thomas G. Keefer, Esq., under whose skillful direction the Reservoir Water Works of Montreal, Toronto and Hamilton were constructed, states, in his published report, dated May 15th, 1869, as follows:

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In gravitation plans it is necessary, either to provide a supply for future generations, entailing heavy interest charges on the present one, or else to duplicate the works at a great extra cost when an additional quantity is required; and, in this respect, a pumping system has an advantage over the others, additional pumps being added only as required, and at a comparatively trifling cost.

Gravitational supplies of water must also be assumed for a fixed level, and with the increase of consumption and waste, an annually increasing loss of head results, for which there is no remedy, save a higher head, which the fixed level cannot supply; but with the Holly system, the water can be kept up to any required level by the application of more power.

With the expensive city reservoirs, the supply, although, as in some cities it may be abundant, it is often restricted to the first floors of the house in consequence of the great draught. With the Holly system a pressure of from thirty pounds to forty pounds to the inch is sufficient for the ordinary supply for all domestic uses and for supplying constantly water in the upper rooms of the highest dwellings.

For fire purposes, the only value of the Reservoir plan of Water Works is to feed promptly the fire engines; and for this purpose alone hydrants were so much superior to wells, tanks or water carts, that a great advance was made. But it does not appear that the question of dispensing with fire engines altogether was considered in connection with the construction of water works, until within the past few years, and until the introduction of the system of Mr. Holly. The peculiarity of this system consists in the employment of rotary pumps, which possess the power of rapidly increasing the pressure, and thus supplying the place of high level reservoirs, when such are impossible, either from physical or financial reasons.

For the speedy extinction of fires, NOTHING CAN EQUAL THE HIGH PRESSURE HYDRANTS from which, as soon as a hose is attached, a ceaseless stream is poured on the flames, confining them to the place of origin. This system not only extorts a fire in the shortest possible time, but it has been found greatly to reduce the number of fires, and has been the means of detecting incendiarism. The fire is extinguished before the proofs of intended incendiarism are destroyed; and the prepared and saturated combustibles are thus revealed.

Mr. Holly, by his ingenious and economical arrangement, has done invaluable service to many towns; and by his rendering all kinds of fire engines unnecessary,
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will doubtless create a revolution in the existing system of water works throughout the United States.

The above a significant; and when an engineer like Mr. Keeler, whose life has been spent in constructing Reservoir Water Works, is brought, after a full examination, to express the opinion that Mr. Holly's plan "will doubtless create a revolution in the existing system of water works throughout the United States," it is quite conclusive of its preeminence over all other systems.

Another experienced engineer, J. D. Pelham, of Ohio, was employed to recommend plans and take direction of the construction of water works in Canton, Ohio. He says:

"After having carefully examined these works in operation at Lockport, and looking to the best interest of my employers, and desiring to construct the best possible system, I am constrained to say that I believe in Mr. Holly's plans, and that I am disposed to offer my services to the community for the promotion of the Holly system, and to conduct the work with the same care and energy that I have done in the past.

I have seen those works throw a stream through an 18-inch nozzle 175 feet into the air; and while a hand wind was blowing, the water was deluging a roof and running into the cavel in a perfect sheet for forty feet in length. No fire would have stood any length of time before this one stream; and when we consider that, in the compact part of the city, with proper hose companies, any number of such streams can be turned on to a fire in five minutes after the alarm is given; and that every private hydrant and water-cock becomes, under this system, a fire engine of the most effective kind, I should feel myself neglecting a serious duty if I did not use my best endeavors to have this system introduced. In view of these facts, and the abundant evidence of the success of the Holly system, I heartily recommend it to you, and that our estimators, plans and specifications be so arranged as to include this within our system, and render the whole as useful as under the proposed system."

Working of the Machinery.

There is strength combined with beauty of appearance and motion; great power used with much ease. It is comparatively noiseless, but gigantic in its effects. The nice and delicate arrangements by which the necessary signals are given, and the safeguards that are provided against almost any conceivable emergency, constitute a combination of machinery that none but a master mind could invent, arrange and put in motion for such great good to man. In fact, it seems as if a living thinking intelligence were hidden away in its mysteries.

The motive power consists of piston and rotary engines—the maximum capacity of either adapted to any required demand, and adjusted and arranged by intermediate connections, so that either engine can be turned into the mammoth gang pump, or the elliptical rotary pump, or all the engines to all the pumps at the same time, thereby giving security against accident to either engine or pump.

The mammoth gang pump is composed of separate piston pumps, and arranged each eccentric to the other, or so rotating in their discharge, that communication between the flow of water into the mains is dispensed with.

"Mr. Holly's system of pumping into the mains, and pipe laid in distribution for domestic supply and fire protection," all of which is controlled by machinery arranged separately, but so constructed that it is capable of being used jointly to meet the increased demands, which demonstrates the pre-eminence of Mr. Birdsell Holly's conception of a system combining utility and economy in its service, pumping pressure being greatly reduced as compared with the reservoir system, which distributes water by force of gravity through the mains, producing the same pressure throughout the twenty-four hours; while the achievement of Mr. Holly enables a reduction of pressure during the hours of night, when but little water is consumed throughout the city, thereby rendering it unnecessary to sustain the higher pressure required to meet the demands during the hours of daylight, but can be increased within one minute to the required pressure in the event of a conflagration, which pressure is governed by the action of an automatic regulator, controlled by hydrostatic pressure, so arranged as to maintain any pressure that may be required either for fire protection or domestic supply, the element being attached to a variable cut-off—the cut-off of each engine being operated by conical scroll-cam, adjusting the cut-off levers to comply with the capacity of the engines, as the consumption of water is increased or diminished. An economical feature connected with the Holly machinery, is the mode of condensation of exhaust steam, through the application of a jet condenser, and favorable results of vacuum produced.

In further explanation of the extraordinary and superior efficiency of the
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Holly system, references may be made to the rotary principle upon which the pumps are constructed. Water is inconceivable, and its momentum, when flowing through pipes, is the same as all other heavy bodies in motion. In all reciprocating pumps, the water comes to a stand-still twice in every revolution of the pump, and has to start back in the opposite direction in order to escape from the pump, on account of this reciprocating motion of the water. In marked and favorable contrast is the action of the Holly Rotary Pump. From the moment the water comes under the influence of the pump, there is no reaction, no cessation, but one steady and unceasing flow, and with velocity largely increased by this difference of the rotary over the reciprocating or piston pump.

Another advantage of this works is, that they save and make available the precious time consumed by fire engines in reaching a fire after the alarm is given. Fire engines wait for men to draw them, or are liable to be detained by a bully horse, or by over-turning the engine, or by muddy streets or some other difficulty which keeps them from reaching the spot where their services are required, until too late to be of any service at all. The Holly works, on the contrary, reach out, by their under-ground pipes, throughout the entire town, and wherever a fire breaks out, there will always be, nearest at hand, several hydrants, which, under this system, is but another name for most powerful engines—ever standing sentinel—and always ready, without waiting to be moved, upon the turning of a wrench, and the attaching of a section of hose) for instant and successful action. The value of these works, in this feature cannot be over-estimated; for a few minutes gained in throwing water upon a fire at the outset, are more than equivalent of hours at a later period, where the conflagration has spread, and is sweeping all before it in its devastating course.

The Holly system, it is to be observed, meets a public necessity, inasmuch as it combines fire protection and water supply, without the expense of constructing and maintaining reservoirs and fire engines; and thus places within the reach and means of communities to enjoy almost perfect immunity against fires, while at the same time a full supply of water is secured for household and other purposes.

Better Quality of Water

In the old Reservoir Water Works, the settling process is relied upon for purification. It is inadequate to relieve water of its impurities. Hence the

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universal complaint of the poor quality of water furnished. The Richmond (Va.) Enquirer, crystallizes these complaints in its issue of January 21st. 1870. The editor, after referring in strong terms to the miserable quality of the water of the James River, which the reservoir through which it flows does not render fit for use, speaks thus in general and emphatic terms upon the question of reservoir water:

"The old-fashioned reservoirs for the accumulation of enormous quantities of stagnant water, as well as for the growth and encouragement of green slime, frogs, tadpoles, water-lizards, frog-spew, juvenile snapping-turtles, crustaceans, decomposing cats and puppies, defunct insects, snakes, edd, caddis, are things of the past. Modern science has devised very admirable methods for supplying the very largest cities with pure living water without digging huge holes for the accumulation of such saturated solutions of mud and water as those which fill our hydrants. Machinery, though enormous and perfect, now provides large cities with water of infinitely greater purity than it is possible for an old-fashioned reservoir to furnish."

The city of Buffalo received her water supply through a reservoir; and from its bed of accumulated impurities flowed out through the street mains and into the dwellings of her citizens, what one of her newspapers described as "neither good to eat or drink; and that we should hesitate to recommend for medicinal purposes."

"If this state of things is to continue," says the editor, "we must eschew water altogether; for we do not believe that even the Good Templars, who are said to be partial to water, will insist upon people drinking the muddy fluid served up to them."

The complaint as to the quality of the water, of which the above extract is but a specimen, together with the partial and unavailable supply in quantity, compelled Buffalo to contract with the Holly Company for a set of machinery; and her wants for water, both in quality and quantity, are now fully met.

Filtration

In contrast with the reservoir settling process, the Holly plan for purification of water may be described as a filtering method. The city of Binghamton receives water from the Susquehanna River (at times very turbid) by means of the
Holly Water Works as a Fire Extinguisher—Uniform and Extraordinary Efficiency.

The excellence of these works over the Fire Engine system has been abundantly demonstrated in the following instances: among many others which might be quoted, a similar example was given in Lockport, where they have been longest in use, it is unreservedly acknowledged by the citizens, that the prompt suppression of a single engine has occurred, under the most unfavorable circumstances, by these Water Works, saved the business part of the town from destruction. The fire broke out about two o'clock in the morning in one of the woolen buildings remaining on Main street, occupied as a grocery and provision store. The building was twenty feet wide on the street, and seventy-five feet deep. When discovered, the flames had made formidable headway. The night was intensely cold, and the wind blowing furiously in the direction to sweep nearly the entire extent of Main street. It was so cold that the fire engine could have immediately frozen up. So apparent was this impotency of the fire department to contend, either with

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the frost or the fire, that the shivering firemen did not withdraw their engines from the engine house. Within a few minutes after the alarm was sounded, and without the slightest impediment or delay, two streams in front, and two in the rear of the burning building, were brought to bear from the nearest hydrants of the Holly Water Works, and their powerful and incessant flow covered and protected the adjacent buildings, drowed out the flames, and left a considerable portion of the building standing.

In every other case in Lockport, the breaking out of a fire, when the works had been in operation, has been followed by its prompt suppression within the building in which it originated.

Fires in Auburn.

In Auburn, since the erection of these works, several fires have broken out, and there, as well as in Lockport, they have proved themselves equal to any and every emergency, in promptly suppressing what would otherwise have proved to have been wide-spread and desolating conflagrations.

One of these fires broke out in an oil refinery in Auburn, on the ninth of February, 1867, with the following results, as stated by the Auburn Advertiser and Union, of that city, in its issue of the next day:

The engine and reporter house of the extensive oil refinery of Moore, Brough & Bros., of this city, took fire about seven o'clock this evening. We are happy to state that the progress of the fire was arrested in the building in which it originated, containing the engines, boilers and machinery. The street hydrants of the Water Works Company are about 1500 feet from the refinery. A sufficient quantity of hose was promptly connected, and a continuous stream of water was poured upon the stockhouse, outbuildings, offices, etc. In the stockhouse was a large quantity of oil, naphtha, etc., which was all saved. The engines, boilers and machinery were also undamaged, and will only interrupt the business of Moore, Brough & Bros. a few days. We think no one present, who saw the operation of our Water Works Company upon this fire, at a distance of three miles from the works, and 1500 feet of hose stretched, and then a sufficient power in those waters over the building with great force, will deny its efficiency in cases of fire, and our city citizens may congratulate themselves on the result of this trial. And we also think the public are largely indebted to Mr. Holly, of Lockport, who invented and constructed the machinery for this Company.

Another fire in Auburn broke out about two o'clock in the afternoon, in a large wooden building occupied as a chair and cabinet manufactory. The building contained shavings, oil, varnishes and other combustibles incident to carrying on that kind of business. The fire originated from upsetting a pot of varnish,
and in a very brief space of time the snuffs and flames burst out of the openings in front, nearly to the middle of the street, and within three minutes by the watch, four full sized and powerful streams were thrown from as many of the nearest hydrants of the Water Works, which, by their overbearing flow, speedily subdued the flames and saved the building and part of the contents without much injury.

Still another fire occurred there about ten o’clock at night, in a frame barn, caused by breaking of a lantern, which at once set fire to the hay and other combustibles, communicated to the wood-work, thoroughly charred the roof boards, rafters and ceiling, and yet, upon the alarm being given, so prompt and effectual was the application of water from the Water Works Hydrants, that the flames were extinguished without barn to adjacent buildings, and the structure itself left standing, in a condition to repair at a moderate expense.

A fire broke out on Tuesday evening, November 17th, 1889, in the factory of R. M. Osborne & Co. to their Roomers Factory in Auburn. Three or four streams from the Holly Water-Work, were promptly applied, and the flames subdued with trifling loss. A commendation of that city, who witnessed the spectacle, states: "It was a beautiful sight to see these four streams pouring with an absolutely for some three hours on the combustible material. Any other system of fire protection would have been almost inexcusable in such a fire as this." The Auburn News of next day, in its account of the fire, says: "The fumes with the efficient aid of the Water Works, did all in their power to extinguish the fire, and after quite a hotly contest. All firemen know what an ugly thing a board pile is to put out, and this is just what our firemen had today, and they did it. The fire was confined to the dry house and prevented from spreading to the yard, filled with valuable lumber. In connection therewith Messrs. Osborne & Co. published the following:

"A CARD."

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The Daily Advertiser, of February 17th, 1889, thus describes a fire which occurred the previous evening:

"The Church of the Holy Family, (Catholic) was discovered to be on fire about half past five o'clock today evening. The fire originated in the organ loft. It is not unknown, but is being investigated. It was first discovered on entering the church for the purpose of practice by the choir. The alarm was immediately singly, and our ever-spiriting Fire Department promptly rallied with their apparatus and got quickly to work. The credit of the first stream is to the firemen, who successfully against the usual obstacles of bad location and insufficient power to the immediate north of the fire, and threw a water enough to keep a small area. As a result of their prompt work under the experienced direction of Chief Engineer Reynolds, and the overproportioned volume of water from the city mains, the flames were quenched and the edifice saved. The loss is comprised in the total destruction of the fine organ, the largest in the city, originally costing $2,000; on which there is an insurance of only $1,000; the walls and ceiling are badly damaged by desiccation from reaching the gallery floor is somewhat material. The carpet and corbels are also somewhat damaged, and some of the stained glass windows broken. It is thought that $2,500 to $3,000 will cover the loss on the building, but the organ cannot be repaired at its former cost. The cost was $2,000. The organ is being repaired of the defect and will be ready for the usual services on Friday next. General sympathy is evinced by citizens of all denominations in this loss to the church, and many isolated donations in clearing away the rubbish occasioned by the fire. But for the efficacy of our water works system, the building must have perished. The total loss, from this fire thus discovered, stands no chance against the volume of water supplied by our glorious Holly Water system of Water Works, which have already more than paid their cost in saving property."}

On the evening of February 21st last, a fire occurred in Auburn, of which the Daily News gives the following account:

"Another Fire.—One of the oldest landmarks of the early enterprise of our city, succeeded to the flames last night. We allude to the old red building on the north side of the outlet adjacent to the gas house. The store was surrounded about half past ten, and by the time the firemen reached the building it was completely enveloped in flames, but we have the Holly system of Water Works here, and the fine fire engines; and, therefore, the fire was confined to the building to which it originated, a portion of which is still standing. The building was occupied by John March, Esq., who worked on the premises of wood pulling. He had on hand about $1,000 worth of wood and jets, which were nearly all rescued, and most saved a total loss. Our firemen, as usual, worked hard, regardless of danger, and it was due to their efficient labor, aid in the Water Works, that the ruin was not more extensive.

Fires in Minneapolis.

In Minneapolis, soon after the works were put in operation, the efforts of inconsiderable to destroy the city were baffled with trifling loss. The following official letter by the story:

"D. H. Holly, Esq.—The occurrence of four fires in our city within the last month, and each getting well under way before being discovered, has demonstrated the efficacy of your rotary pumps and machinery to the satisfaction of all, and beyond the expectations of many."
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"In each case the fire has been LITERALLY DROWNED OUT, and thereby thousands of dollars in valuable property saved, which could not have been done with any ordinary fire apparatus.

Last Sunday morning a fire broke out in a large two-story frame boarding house on Helen street, and the entire upper story and roof were in flames before the horse companies got their hose attached and were ready for water; and in less than ten minutes from the time the first stream was thrown, the flames were extinguished, and the building now stands with the upper story and roof burnt off—a prominent advertisement of the Holly Water Works.

Very respectfully yours,

S. H. KING, C.E. Engineer.

MINNEAPOLIS, MINN., July 22, 1867.

A prominent citizen of Minneapolis, W. H. Lev, Esq., in a long letter, giving a detailed account of these conflagrations, estimates the aggregate saving of property at ONE AND A HALF MILLIONS OF DOLLARS, over and above what the timely use of fire engines could have accomplished.

The Minneapolis Tribune, of May 15th, 1869, gives the following accounts of two fires occurring there about simultaneously:

Another Fire.—Additional Tests of the Water Works.—Last evening, about half past six, a fire broke out in Hunt & Gribble's carriage manufactury, near Seventh street and Washington avenue. When first discovered it was extending from the roof near the chimney, to the back part of the building. The flames were promptly on the ground, and in less than ten minutes Manual Horse Company No. 2 had a stream on the fire, which was about 1000 feet of hose, from the hydrant at the Nicollet House. Minneapolis No. 1 was on hand in quick time from the Clinton House, and had a stream on the building from the hydrant at the Opera House just as soon as they could get hose enough to reach. Both companies worked under a deficit of about thirty feet, as their carrying hose was not much longer than five or six hundred feet of hose. When Manual No. 2 got fairly at work it was not twenty minutes before the fire was well under and the buildings completely flooded. Every second engine attacht to the force of the stream and the immense volume of water thrown, at so great a distance from the hydrant. It is but another proof of the great success of our Water Works. The damage by fire to the building was but slight, as only a small portion of the roof and the upper story of the house was burned. The damage to stock and personal by breaking, and by interment of business, appears to amount to several hundred dollars, but it is probable the whole loss on building and stock will not exceed $400.

Neill's Dam Fire.—An Unusually Good Test of the Water Works.—Water Thrown Through 2000 Foot of Hose.—At about 9 o'clock last night the alarm of fire was again sounded. This time it came from a small story and a half house; corner of Second and Nebraska streets, owned by the St. Paul and Pacific Railroad Company, which was undesirably the work of any fireman as a secondary, as the house had been occupied for some time. When first discovered, the fire was burning in one of the upper rooms, between the plastering and the floor covering, and was rapidly extending through the wall, and the rear house. The horse companies arrived at the fire, and before the Hook and Ladder and Horse Companies arrived the whole upper part of the house was in flames. The distance was so great that for expected the horses would attempt to reach the fire with their hose, but in a few minutes Minneapolis Company No. 1 entered the house in the quick, having attached their hose to No. 2, which extended from the hydrant at the Opera House, on Kansas street, and a stream of water was soon thrown upon the fire. A section of the hose on Kansas street bursted, but it was immediately replaced, and a powerful stream was continued until the fire was extinguished. This, like all the fires since we have had the Water Works, was completely subdued, before the building was half destroyed; and this, too, through 2000 feet of hose. IT IS ANOTHER GRAND TRIUMPH FOR THE WATER WORKS; STEAM FIRE ENGINES ARE NOWHERE."

On the 15th of May, 1879, a fire occurred in Minneapolis and the following account of it is copied from the Tribune at that city:

Not so Much Fire as Water.—Half A Million of Property Saved—Three Thousand Dollars Lost—A Tremendous Test of the Water Works.—In which they are Triumphers.—Half An Hour for one Hose.—At ten minutes past noon yesterday a fire was given from the Clinton House, the cause being the burning of an old, empty house behind the Clarion House property, and in rear of it only a few feet. The flames spread very rapidly, and ignited the piles of lumber in Jason, Herrick & Co.'s yard, immediately adjoining. The spread of the fire from the burned building to the lumber yard was instantaneous. Less than twenty minutes after the fire was first discovered, and one minute and ten minutes had two streams upon the fire. Hook and Ladder Company No. 2, were on hand immediately after, and within twenty minutes five streams of water from such materials played upon the raging element. These furnished water constantly for seven hours. When theincendiaris entered the ice house it communicated to three piles of dry common lumber, and the flames and smoke rolled up in immense volumes, and the heat was intense. These piles of lumber were about fifty feet from the hotel building, and on either side of the lumber was piled not ten feet of dry common lumber. The flames poured down an alley about twenty feet from the fire was piled lumber even higher than that consuming, and directly under lie of the wind, from the northeast. These adjacent lumber piles were unwiped.

The efforts of the firemen were directed to confine the fire within the three lumber piles, and we were leisurely walked in with water. It would have saved them a great deal of trouble and time if they had allowed them to have burned more rapidly, as it was impossible to save any of the stock, but the brent was fond that the wind or the fire might gain the advantage, and spread to other property. So the fire was burned down, the water, of course, not reaching the inside, which was done in great part of the corn and left the charred chelle standing.

The brick wall that was sustained was built by the concrete old gentleman, the Father of Waters. The water in the canal fell in the same hose, but the gate was raised so to give a more plentiful supply, and the current of the river and fire comes into the new rivial tunnel.

About 150,000 feet of lumber is destroyed, valued at about $3000. This is the third fire since the opening, and very one precedent yesterday where any part of a lumber pile was saved from miles. Its peculiar position is such that it cannot be reached by water. The ice-house was entirely consumed; value about $500.

What might have been, had we had no Water Works yesterday, we cannot undertake to say. The Clinton House, the entire block, with the electrick lobby, and we know not how much from the ice house and the other buildings. We believe there was not one person present yesterday where any part of a lumber pile was saved from miles. Its peculiar position is such that it cannot be reached by water. A large house was entirely consumed; value about $500.

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A CAFÉ.

To the Firemen and Citizens of Minneapolis who aided in saving our property from destruction by fire on Thursday, we hereby return our sincere thanks.

When the fire had communicated to the dry lumber, it seemed that no human efforts could have saved our entire yard from destruction, but your willing and well-directed efforts for
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many hours, confined the raging element to a space extremely limited, and finally subdued it, without injury to the numerous other piles standing but a few feet distant. No one could have witnessed the demonstration, without having all the possibilities of the Water Works clearly in view. We believe no parallel instance on record for nothing of the kind, but it was a grand example showing through what water over fire, the result of which is wholly due to the gallant efforts of the brave men of the Falls, the efficient and invaluable system of Water Works. Again, we say, thanks.

—JONES, HERRICK & CO.

Fires in Vergennes.

The Mayor of Vergennes, Vt. in a letter dated January 2, 1869, addressed to the Holly Company, says:

We have had a practical test of the works, and of their efficiency, which I have no doubt you will feel an interest in knowing: On the 30th day of December, Streets, Hays, Flande & Parker's Jumbo Dying House took fire, in the latter part of this month there was some 50,000 feet of lumber. We attached our hose to the nearest hydrant, and carried our pipe in the two openings in the flue, and in the mason of 100 feet we had literally drowned the fire out. An examination of the hanger during being taken out, shows that every piece had been in the water. The owners say that, from half to two-thirds can be dried by 5 days. We were saved by our fire alarm box that I had been fitted to be in the extensive manner of C. D. Keever, Esq. The fire had gained great headway before it was discovered, and therefore engine house in the interior was in danger, and therefore had got into the main finishing room, a very large room on the second floor, in which was a large amount of furniture in various stages of finishing, together with large quantities of oil, linseed, storage, making the material of the most combustible kind. Before it could get our house properly araigned, the fire had completely filled this room, and was fast getting to the ceiling. We began to play on the fire with two streams; from 14 and 12 inch nipples; in the course of an hour we had the fire under control, so much so that when we were able to get into the rear of the finishing room, where part of water could be taken from the fire, Mr. Keever's loss is from $30,000 to $50,000.

Fires in Vergennes.

In Oglesburg soon after the works were put in operation, a fire was disposed of in the following summary manner, according to the Oglesburg Journal, of April 16, 1869:

Fire Saturday Night.—A fire occurred in the frame dwelling occupied by James McCalley, three doors south of the Baptist church, at about midnight, on Saturday night. Some little time elapsed before the alarm became general, but Hose Company No. 5 came promptly to the work, and in less than a minute after arrival at the hydrant, corner of State and Madison streets, had a stream playing upon the fire, which was extinguished in a few minutes. The fire had got well under way when the Hose Company arrived.

In this instance the full benefit of the Water Works was exhibited, for though, one or two buildings must have been destroyed. The stream of water thrown was one of the very best we have ever seen. The alarm at the Water Works house responded at the first opening of the hydrant, and ran up the pressure of the required amount, instantly. Everybody passed the Water Works. They proved all that could be desired on this occasion.

In this account three things are evidently worthy of notice: 1st, That upon opening a hydrant the Regulator connected with the machinery instantly ran the pressure up to the point for throwing effective fire streams. 2d, That in less than a minute after the arrival of the Hose Company at the hydrant a powerful fire stream was brought to bear upon the fire; and 3d, And in a necessary consequence, that the fire was extinguished in a few minutes.

Another fire took place in Oglesburg on the 21st of July, 1870, which the Journal of that city thus describes:

"A fire broke out in the new wooden dwelling-house of J. F. Arnold, on Green street, about eleven o'clock Wednesday night. It took in the chamber over the kitchen, and when discovered was well under way, having consumed the floor in the period of the building. Yet in a short time after the alarm the firemen were at work and had the fire reduced and under control. The building was not entirely finished and just ready to be occupied. The damage from fire and water will reach probably $15,000.

The performance of the Water Works on this occasion was most satisfactory. In one minute after the alarm was sounded, sixty pounds pressure was upon the pipes, and the stream of water from the hose was overwhelming. It is owing entirely to the efficiency of the works that we are spared the presence of a great black burning district in one of the most beautiful places in the city.

The first stream of water passed through the pipes, in this city, on the first day of November, 1868; but up to Wednesday night we have never had an opportunity to test the full value or a fire apparatus. On this occasion a fire took in a wooden building, in a locality where it could not burn without communicating fire to several other buildings, and was well going when discovered. The water in the pond was at its lowest ebb; the weather so dry that everything was like tinder here. Yet instantly, after the alarm, the men were driving the water into the mains in a volume sufficient to give sixty pounds pressure per square inch, in many parts of the city. The result was an immediate reduction of the fire after the opening of the hydrants. If there were dozons remaining with any of our people as to the power of the Water a fire engine, they are now happily removed. A fire has no chance in a contest with the Holly Water Works.

Fires in Binghamton.

In Binghamton the first demonstration of the value of the Works in suppressing fires occurred on Christmas Day, 1868, in a cabinet shop, full of combustibles and threatened, for a short time, to destroy many buildings. The alarm was
Carrollton Sally Water Works

sounded," says the Banghpton Republican, "and the firemen, along with a great crowd of citizens were promptly on the ground. Lawyer Hose Company attached their hose to a hydrant near by, and succeeded in staying the flames and saving the residence of Mr. Harding, situated a few rods from this house. This is the first time the water supply by the Water Works has been brought into use, and but for its assistance the residence of Mr. Harding would have been entirely destroyed.

The success of the works was so complete that the firemen are delighted with having, in the future, a sure reliance. It is a great satisfaction to all to know that water is now provided with water, not only for culinary, but fire purposes. Already have we evinced one benefit resulting from it.

The second fire and the indispensable service rendered by the Water Works, is thus described by the Banghpton Republican, in its issue of January 8th, 1869:

A destructive fire at Adelphi and Union Plunge Mills, Decatur. About two o'clock this morning, a fire was discovered in the upper story of Cofer's & Thomas' plunger mill, situated on the bank of the canal, touching at Banghpton, and by Mr. Stanley, who, at that time, was coming in the rear attached to the playing mill, Stanley immediately placed a weight upon the steam whistle, which raised an alarm, while he ran to the Firemen's Hall and gave the alarm. The mill, which was a wood-frame structure, burned quickly, and by the time the fire companies got on the ground the upper story was completely enveloped by flames. The hose companies, in a short time attached their hose to the hydrant in the vicinity, and had these streams playing upon the fire before any of the engines got in position to work. In course of time the engine were put into use, and between them and the hydrant, as many as five or six streams were brought to bear, and in about two hours the fire was subdued, having burned the upper story only, but so far burning the mill will have to be removed. But for the fact that the fire caught in the upper story, and had to burn downwards, and thud washed out by the Water Works, not only the plunger mill entire, but several other buildings would have been destroyed. The mill was a right-angled frame, and dry as powder, and filled with sawdust. Within a few years, it has been several times on fire, either from accident or otherwise, but the fire has always been put out before damage was done. The machinery, consisting of boilers, etc., in the upper story was destroyed, but in the lower story it was preserved without injury, except the nozzle to the water pipe, which is the only part of the buildings that have been damaged.

The third visitation by fire occurred early in March. It broke out in the frame building occupied as a grocers and fruit store by J. W. Sullivan, which was enveloped in flames before the alarm was given. The Banghpton Police of next day says:

In a very short time the firemen arrived, and attaching the hose to a hydrant, let on the water; but the scene had made such headway that the green building and its contents were destroyed. The houses on the street, on both sides of the street, were set on fire and burned.

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HISTORIC NEW ORLEANS COLLECTION

535 ROYAL ST.

NEW ORLEANS, LA 70130

Water Supply and Fire Protection.

The water tank at the west end of the platform of the Erie Railway Depot, from which the fire companies were operating the ground in a few minutes from the time the fire was discovered. The first stream from Fireman Hoss took his supply of water from the hydrant on the corner of Convention and Washington streets, and Ford Hoss attached a hydrant at the corner of Fifth and City Water Works, but in this instance they were glad to receive it, in large quantities.

The fire was extinguished before the tank was badly injured, although the house covering the house was nearly destroyed. The damage will amount to between $500 and $800. The baggage house and shed escaped injury.

with the force and the volume. Two splendid streams were put upon the flames which soon died down. It was remarked last night, that Binghamton would not sell her right to these works for a million dollars, and she would not.

On the 12th of October, 1869, Binghamton had another fire. Says the Republican:

Between twelve and one o'clock, this morning, a fire was discovered in the show store of R. E. Haller, in Lafayette block. An alarm was sounded by the fire bell, and the fire companies were out and in position in a very short time. Sections of hose were attached to the hydrant in the corner of the American Hotel, and in front of Cofer's livery stable, and the firemen were thrown into the store with great force, literally bursting it open. When the firemen arrived, they counted, boxes, shelves, and everything of a combustible nature, but fortunately the fire was checked and subdued before it spread into other portions of the building.

On the 17th of January, 1870, still another fire, which the local papers thus refer to:

A little before twelve o'clock, last Saturday night, a fire was discovered in a two-story frame-house, on Second Street, near Franklin, known as the Shattock House, and owned by Mr. Thomas. The fire originated in the second story, near a cockloft, and the smoke issued in great volumes from all parts of the roof and gables, the exact location being hard to determine. Some men undertook to put out the fire by the use of buckets, but the smoke was so blinding that the men were obliged to desist.

Justice Cunningham, who resides near by, took some small hose, which he had in his possession, and attaching it to a small plug in All. He was known, adjoining the burning building, soon a fire, though small stream, playing directly upon the flames. The Central and Independent Hose Companies were soon on the ground, and hose was attached to a fire plug on the corner of Monroe and Third streets. A stream thrown upon the back of the building, and from hose attached to the hydrant on the corner of Second and Franklin streets, a stream was thrown upon the front of the house. With these two powerful streams of water playing upon the premises the fire was soon put out.

The house is an old frame, dry as tinder, and would have been totally destroyed but for the speedy intervention of these same in good season. A perfect deluge of water was thrown upon the house, and the ceilings are somewhat damaged by the flood, but it prevented the possibility of communicating to the adjoining houses.

On the third of March, 1870, there was another fire, with the following result:

The fire tank at the west end of the platform of the Erie Railway Depot, from which the fire companies were operating the ground in a few minutes from the time the fire was discovered. The first stream from Fireman Hoss took his supply of water from the hydrant on the corner of Convention and Washington streets, and Ford Hoss attached a hydrant at the corner of Fifth and City Water Works, but in this instance they were glad to receive it, in large quantities.

The fire was extinguished before the tank was badly injured, although the house covering the house was nearly destroyed. The damage will amount to between $500 and $800. The baggage house and shed escaped injury."
Carrollton Holly Water Works

On the 5th of April last, there was still another fire in Binghamton—the work of incendiaries, like those previously described—which the Republican of that city chronicles thus:

"Last evening, about half past nine o'clock, an alarm of fire was given, which originated from the house on the old Regas' property. [235] Court street, of present occupancy, and in which, when discovered, the flames were breaking out in the middle of the main structure, where it, without doubt, had been set early in the evening. In a short time two powerful streams were put on the fire by Hoe Companies; 1 and 4, and but a little time elapsed before the flame was extinguished; but not until considerable damage was done to the interior.

"We feel that we said again today much of the glory of the Holly Water Works, of which all our citizens are full of praise, and the faithful services of the attending men are very well understood. Old Joe Hurley, on duty, was present, and has not failed to satisfy us over the workings of our system at a fire, being the first he had witnessed here since the introduction of the work.

Of another fire in Binghamton, on the 26th of May, the Republican says:

"Almost as soon as the people in the immediate vicinity of the fire were around, the fire companies were on the ground and had the fire under control.

"There were a number of valuable frame houses situated within a few feet of the barn, which must have been destroyed had it not been for the promptness and great activity of the firemen, and the valuable aid of the City Water Works. These houses were only slightly damaged by the heat, which blistered the paint considerably on some of them.

"It is estimated by experienced farmers that at least twenty thousand dollars worth of property was saved by the Water Works. The nearest neighbor is the corner of Court and Carroll streets, and before a stream could have been thrown from that the fire would have ignited about the little Works for fire purposes. They are always there, always ready, and always effective."

Fires in Peoria

In Peoria, since the introduction of the Holly Water Works, enormous fires have broken out, but no serious loss has occurred except one in the suburb—beyond the reach of the works—invoking the loss of Paper Mill, Distillery, etc., with an aggregate loss of $500,000. Within the region protected by the Works the following results are reported. Of the first in occur, August 21, 1869, the Peoria Transcript says:

"An alarm of fire was sounded yesterday afternoon, and the engine companies, as of old, came out. The fire originated in the back part of Mr. Story's furnishing shop, on the corner of Fourth and Sandford streets. Two sets of hose were quickly attached to a hydrant on the corner of Fourth and State streets, and two streams were thrown upon the building, with such force that the flames were quickly subdued. This is the first time that an alarm of fire has been rung with the prehistoric guard by the Water Works, and it is the first time that the prehistoric workings of the Water Works have been thrown. The fire gained but little headway before the hose were attached and the flames subdued. Hoe Company No. 1 deserves the credit for the first trial, they being the first to attach the hose to the hydrant."

Water Supply and Fire Protection

Under date of December 30, 1869, the same paper has occasion to chronicle another fire as follows:

"The value of the Peoria Water Works, as a protection against fire, was again satisfactorily demonstrated at the fire at Plant Brothers, Pratt & Co.'s extensive plan works, on Saturday evening.

"The company have a three-inch water pipe running up through the three stories of the building, with hydrant and one hundred feet of hose attached and coiled up on each floor. The water can be turned on from a central valve, and the hose brought to bear with a stream on any part in the whole building in less than one minute.

"It was owing to this excellent arrangement that the fire was quickly subdued on Saturday evening. It was extinguished entirely from the water appearing on the inside, and with very little damage. The fire companies were promptly on the ground with hose attached to the interior hydrants, all prepared for action, but were stopped from playing as it was not deemed necessary."

The Committee of the Peoria Common Council under whose supervision the Holly Water Works were constructed for that city, in their final report, giving a detailed history of the enterprise, and announcing the completion of the work, states that these works 'will not only supply our citizens with abundance of water of good quality for domestic and other purposes, but it affords one of the most complete fire protections ever invented. The value and superiority of the system lies in the fact that it allows of no large configurations, but is brought to bear upon and extinguishes a fire in its incipiency.'

Fires in Dayton

In Dayton, although it is but recently that the Works were put in operation, they have performed signal service on several occasions in prompt fire suppression. Of one of them—occurring on the 13th of June, the Dayton Journal says:

"On the 13th inst., a little after seven o'clock, a fire was discovered in the extensive wagon manufacture of C. N. Brown & Co., southwest corner of Fourth and St. Clair streets. Fortunately, the immense building is supplied with water from the Holly Works, and the water was immediately sent from the house over the fire, drenching it out in a few minutes, and before the alarm, which was sent from the box in the vicinity, could possibly be answered by the presence of fire engines.

"A large fan is used in the manufacture, to carry the dust and shavings away from the workmen to the 'shavings room,' and it was, doubtless, this arrangement which, by rapidity of motion and friction, caused the fire. The flames were forced up into the second story by means of the 'shavings carrier,' and were making frightful headway when first seen.

"Had it not been for the Holly Works, the building, with its contents, would have been in a great many houses, but the flames would have gained not headway among the combustible matter in the upper floors that the immense building would have been saved saving before the steamer could have been there and commenced to throw water on the fire.

"Here is a brilliant instance of the invaluable as system as a protection against fire."
Carrollton Holly Water Works

The damage was inconsequential, and operations were not even checked. The same paper describes another fire which broke out about the same time.

"The fire was double-caused by the pickets striking fire. They are run with fearful velocity, and when the spike getting a little out of trim, struck lightly against another spike, knocking out fire like a stick and flirt, and conveying the first, to the second, not considering the first, and the second, the first must carry the secret of carrying the picket-cotton up to the roof. And this affair being as dry as tinder, the fire resulted."

The "picking room" is located from the factory, and if the furnace should burn, our present system of Holly Water Works, it would be impossible to seriously threaten the latter.

On the 24th of June there was still another fire in Dayton. The Journal thus describes it:

While the church was being conducted, Sunday afternoon, an alarm from the Fourth Ward engine house, called the citizens and a large crowd of people to dress street, running parallel the usual leading down from Wesley's street from a fire was raging in a small frame, stable, occupied by Joseph Fisher, and an adjoining double-story frame house, bounded by the owner, Martin Wolf, a stone cutter, and Mr. Baker, a musician.

"The fire was apparently set out of reach of the Holly Water system, there being no plugs or mains on that side of the area in that neighborhood. The engines had just got to work, however, when the hose were attached to a plug on the corner of Main and Washington street, several hundred feet distant, and were dragged across the street. The stable, a mere shell, mean- time had burned down, and the house alongside was blazing. The furniture was quickly removed and in ten minutes the flames were extinguished. There was costly more water about the premises than they had never fire. The total loss did not exceed $1000."

"Without delecting from our splendid fire engines, it is proper to say that the great superiority of Holly is in the way of force, body of water thrown, and steadiness, was too manifest for dispute."

The same paper had occasion to give an account of another fire, on the 25th of July last, which, although serious, would have been much more so, for the timely and powerful action of the Holly Water Works. The following account of it is given by the Journal:

"The fire on the Board and Street Factory and Planing Machine establishment of B. W. Stewart & Co., in Waymouth and Journal, was but little night had almost put it out, because the flames were spreading like. The fire department got there with their apparatus, that the Miami River poured upon it would not save the interior. The flames went through the building like a flash of powder. Shavings and dry pine lumber, in various prepared shapes, were distributed through the establishment.

"The hose were quickly applied to two fire plugs, and the men were expeditions in getting water upon the fire. The best that could be done, however, was to save the brick shell of the factory, its engine house and the frame storehouse in the rear."

"All the valuable in the office were saved, and the engine and boiler were not injured in the fire. The men, however, were drenched and stomped, and some of the shafting damaged. Most of the fine machinery, tools, etc., were destroyed."

"The fire raged for an hour before it was thoroughly controlled. The combustible character of the building, and its rather hazardous walls prevented as efficient work by the firemen as might be expected ordinarily."

"The steam worked with their usual energy, and the Holly streams again demonstrated their superiority as fire protectors over the ordinary steam apparatus."

Still another fire broke out in Dayton about midnight of October 16th. The locality was a wood-house on Morrison alley, with stables and cabinet manufacture adjoining. Says the Dayton Journal: "The material being very combustible, the flames spread very rapidly and made a great blaze indicating a formidable conflagration. The Fire Department responded very promptly to the summons, and the Holly Water was applied when the flames were extinguished, almost as if a blast of wind had blown them out. Mr. Jas. R. Young, whose stable was across the alley, applied his garden hose to his own and adjacent stables to which the fire had communicated, and saved them. The total loss was inconsiderable, not exceeding $1000. The efficiency of the Holly system as a protection against fire was again handsomely demonstrated."

Fires in Kalamazoo.

In Kalamazoo the local newspapers give the following accounts of the fires occurring there since the introduction of the Holly Water Works. The first took place May 6, 1870, and the Kalamazoo Telegraph says of it:

"Yesterday afternoon an alarm of fire was received from Mrs. Longbottom's house on Portage street. The flames had made considerable progress under the roof, and the chances to save the building looked rather equally. But Phelps has been waiting for just such an opportunity to show off the Holly Water. The hose was brought out, and the water was poured in several streams, and in great abundance. The fire was extinguished at once. There were from two to six streams of water pouring on it at once. The people were pleased to see how quickly the thing was done. A few hundred dollars damage was done by fire and water, but there was no insurance on the house for $500. The crowd returned from the scene shouting "Great is Holly."

On the 18th of May there was another visitation by fire, with the following result, as stated by the same paper:

"The fire on the 18th of May was a very serious affair. A small building, about 30 by 50 feet, was occupied by a blacksmith, located on the north side of the street, about 400 yards west of the depot. The building was of frame, and about 12 feet high, and contained a double fireplace, with a shop and residence, making a total area of 40 by 50 feet. The fire was first discovered by the blacksmith, who was working in his shop, and immediately gave the alarm. The fire department was promptly in action, and the flames were extinguished before the building was consumed. The loss was very small, and the fire was extinguished in about 15 minutes. The blacksmith was not injured, and the loss was confined to the building itself. The fire was caused by a spark from the fireplace, which ignited the sawdust and shavings in the shop. The building was completely ruined, but the loss was not very great."
Fires in Canton.

Since the Holy Water Works were put in operation, last February, in Canton, there have been two or three fires there which were promptly and easily mastered, with trifling loss. It was not fully understood, however, by her citizens what these works were worth for the protection of property, until the night of October 17, 1879, when a fire broke out, with results as stated by the local newspapers in the following terms: Says the Canton Democrat, in its issue of October 21st:

"On Monday night, about the eleventh hour, our city was endangered by a serious fire, which broke out in Dr. Dade's stable, in Court Alley, west of Market street, and on the block immediately south of the square. It was soon enveloped in flames, and the fire soon communicated to the two stables of O'Brien, reaching Seventh street, and the wind blowing from the southwest, in a brief time behaved the flames into fiery. The stables, of course, were more or less full of hay, straw, etc., etc., Mr. O'Brien's largest harness-frame warehouse, abutting his stable on the east, also caught. Indeed, the flames spread very rapidly, and for a time looked very dangerous, threatening to sweep through to Market street, and north to Eagle block. Our brethren and classes were soon in position, and got their hose attached to the water plugs. From three to six streams of water continued pouring upon the fire for over an hour, and gradually mastered the raging element, and prevented its spreading.

O'Brien's livery stable, across the alley, and on Seventh street, was on fire several times, but the deluge of water poured its destruction, although it was somewhat threatened. O'Brien's livery stable was entirely burned down, although the fire had, for a time, full possession of the center of the building, but, in that part of the roof, the warehouse contained a large quantity of hay, hogs, and sheep. In a room up stairs were several beds, in which the entire members of the family kept their clothing and immediate use. One of the clerks was in bed when the fire commenced, and had to hurry himself out. The horses, cows and hogs on the premises were all got out, though some lost a narrow chance.

Our citizens acted on this occasion to demonstrate the efficacy of our Water Works. IT IS HARD TO SAY WHERE THE FIRE WOULD HAVE RUN TO IF WE DEPEND ON THE OLD SYSTEM OF CISTERNES, AND ENGINES AND WAGONS.

The other city paper—the Canton Repository—after giving a detailed account of the severe conflagration, adds the following:

"It is unanimously agreed that our system of water works repaid their entire cost on Monday night. The entire spray and water blocks must have been destroyed, for a high wind was blowing from the south. Indeed, we doubt if the fire could have been stopped until it had swept to the north end of the city. Houses three blocks distant caught fire time and again, and falling chutes were heard from the north. A man was later found on the corner of Market and Cherry streets, the water was turned on, and then the value of the Holy Water Works was fully realized. The single stream of water falling in every direction, and the flames, that until then had burned above the tree tops were now seen, as if by a glimpse at Niagara Falls, and in a short time hardly a spark of fire was to be seen. There are those in Kansas who have pronounced the Holy Water Works a failure; if they were at the scene of the fire Canton's failure, and have witnessed how quickly the fire was extinguished, we have no fear of hearing their complaints hereafter."

Water Supply and Fire Protection.

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It will be universally acknowledged that the above accounts and all corrobory in regard to the extraordinary efficiency of the Holy method of fire suppression. The entire history of fire engine service cannot furnish a record which will at all compare with their uniformly successful performances in saving property from destruction by fire. A disastrous conflagration, which recently occurred in Chicago, illustrates in marked contrast the difference and imperfections of gravitational works and fire engines, as compared with Holy's variable pressure method of fire suppressions. Chicago has model works of their kind. The cost of them, up to March 31, 1909, was $3,142,360, less expense. These embrace a capacious tunnel running out for water to supply into the broad and inextinguishable waters of Lake Michigan. Within a building, large in size and of fine architectural proportions, is placed massive and powerful machinery, which lifts the abundant waters of the lake to the top of a Stand Pipe 390 feet high. This elevation is relied upon for pressure by gravitation to yield a supply of water to her citizens through 306 miles of streets mains, and also furnishes her seventeen fire engines with water through 1070 hydrants for fire service. Can Chicago rely upon these costly and extensive arrangements for the protection of the property within her limits? For others, as in the recent case, among many others, palpably and painfully demonstrates. On the 4th of September last, a fire broke out in the upper, or fifth story, of one of her splendid business blocks. Assuming each story to be fifteen feet high, and it would locate the fire seventy-five feet above the street. The alarm was given—the fire engines appeared on the ground, and commenced playing, but could not reach the fire. Meanwhile the flames spread—devastated the whole block, and, despite all the Fire Department could do to check them, destroyed the block of buildings and their contents, to an amount estimated at nearly $5,000,000, besides the loss of several precious
Carrollton Holly Water Works

lives. The cause of this pitiable failure was investigated, and, according to the testimony of the Fire Marshal, it was principally the scanty supply of water through the hydrants, which limited the power of the engines to reach and muster the fire. "The scarcity of water," he declared, "was the principal obstacle to the prevention of the fire." The Evening Post, in its account of the conflagration, stated that "the water supply was entirely inadequate. As to our fire apparatus, it was pitiable to see its utter inability to contend with the flames. The whole thing had an absurdly useless look. There were the great volumes of flames roaring and surging, far above the utmost reach of the poor steamers, which strove in vain to reach them." The explanation develops an interest and most serious defect of the Chicago works, and all others on the plan of gravitation pressure, whether by Stand Pipe or Reservoir. Here was a sudden demand for an increased flow of water, obtainable only by increased pressure. The Stand Pipe did not respond to the call. Its pressure could not be increased beyond what its altitude, of 136 feet, gives it, and hence, with its costly works—its splendid array of engines, and all Lake Michigan to draw upon for a supply, Chicago suffered a loss of $1,000,000 for lack of water to supply her engines. This fatal defect Holly's plan remedies. Pressure is increased promptly as required in the emergencies of fire, and it is safe to say, that by this complete, effective and comprehensive method, the above terrible conflagration would have been mastered, without the intermediate agency of fire engines, by numerous powerful streams from the adjacent hydrants, drawing their full supply of water directly from the lake, and free from the obstruction of a Stand Pipe. It is not surprising, therefore, that wherever Holly Water Works are introduced, it is found by experience that fire engines are superfluous. The Holly Works Separate Head and Steam Fire Engines.

Largely Reduced Taxation for Fire Department Expenses.

This reduction of taxes is no trifling affair. The expenses of a fully equipped and well-regulated Fire Department, including a full complement of engines, makes a large portion of the expenses for which municipal corporations provide by taxation.
the expense of maintaining them after being built—which, if the present system of a Fire Department is continued, must be a greater expense than ever heretofore.

Columbus, in respect to its costly and increasing Fire Department expenses, is a type of numerous other cities, and they, like her, may be relieved of full three-fourths of the burden by imitating her example in the introduction of the Holly Water Works.

The commercial prosperity of no community in this country is so dependent on this upon the perfection of sanitary measures to secure the public health and guard against epidemics and yes how sadly in want of pure, wholesome water are the masses here who are the most exposed to danger.

Our better classes little know or can appreciate what suffering is caused every season of drought for the want of good water in abundance, within the reach of all—the poor as well as the rich. No one measure is so important for the preservation of the public health as a thorough and adequate supply of water, accessible to all classes, and at a reasonable rate. Pestiferous conflagrations are continually occurring; multitudes are permanently ruined; and insurance companies, hitherto safe to the insured and profitable to the stockholders, are being seriously crippled. Underwriters seek a partial remedy for this alarming state of things by increased and enormous rates of insurance upon property; while the real and urgent want is increased protection against these disastrous conflagrations. Conclusive proof of the superiority of the Holly system is found in the fact that underwriters readily make large concessions in the rates of insurance within districts covered and protected by this system.

It is pertinent to state that, in Topeka, with a view of overcoming the incredulity of tax-payers, a prominent citizen, who had faith in the system, secured a large portion of signatures to the petition, asking the Common Council to authorize their construction, by the promise that he would obligate himself to pay the tax of each one for the amount of saving in insurance for the term of three years. He has not been visited upon to make up any deficiency under his stipulation. In fact, in many cases, two years' saving has more than equalled the tax paid for construction.

A full and reliable supply of water, embracing household purposes, watering streets, sprinkling lawns, and supplying fountains and public baths, is more than ever felt to be a public necessity, because in this way is the public

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Water Supply and Fire Protection.

Cities are now rivaling each other in providing water abundantly for the necessities of man and beast.

We quote from an article in a late number of Scribner's Monthly Magazine: "There are many things in Philadelphia worthy of imitation, and among them one which deserves the attention of every city in the land. About two years ago some humane citizens had their sympathies aroused in view of the suffering and inconvenience caused by want of water in the streets. Although the Schuylkill yielded its abundance to the city, public fountains, where the weary passer-by or the tired beast could quench their thirst, were unknown. Instead of going to the city authorities and waiting their slow action, Dr. Swan invited a number of ladies and gentlemen to meet at his house and take into consideration the propriety of forming a society for the erection of fountains along the streets and thoroughfares of Philadelphia. It was resolved to open at once subscription books and soliciting subscribers who would agree to pay five dollars annually towards erecting fountains and keeping them in order, and when a hundred names were obtained, to organize a society. In a few days the requisite number was secured, the organization perfected, and, in process of time, a charter was obtained from the Legislature. Work was now commenced and pushed rapidly forward. According to a report made last year, the society, from private funds alone, had erected one hundred and seventeen fountains and ninety-nine troughs. The officers of the society who had charge of the enterprise received no pay. So grateful were all classes for this inestimable boon, that they have carefully protected these fountains so that not one has received injury even from thoughtless boys. These fountains are made of iron, granite or marble, and many of them are the voluntary gifts of wealthy ladies and gentlemen. Some of them show great artistic taste, and are ornamental as well as serviceable. At three of these fountains, count was kept of the number of persons who drank at them during one day, and it was found to exceed fifteen thousand. At six fountains, more than a thousand horses and mules drank in a single day."

Free public baths are of the highest sanitary importance in a crowded city. In Boston the free baths are all in constant use; and in the month of July of this year, there were 516,086 baths taken in the seventeen public bath-houses of that city.
Carrollton Holly Water Works

What unbridled blessings cannot be derived by an abundant and cheap supply of pure, wholesome water. Not only is the city in the world is more fortunately situated than this to command at her very doors an inexhaustible quantity; and by the introduction, as proposed, at an early day, of the Holly system of machinery, our citizens will begin to realize those blessings, not only in enhanced condition, great protection and the beautifying results, but in an increased valuation of property, which has been astonishing wherever this system has been introduced.

In conclusion, the “Carrollton Holly Water Works Company,” new organized and domiciled at Carrollton (suburban to New Orleans), has been established for, and we are determined upon introducing this character of machinery and equipments for a general supply of water, which, for all uses, shall be filled, and shall be furnished with all the foregoing advantages, at ten per cent, below the price now asked by the city of New Orleans, from her works, for nearly water.

The Company is chartered under the general law of the State, with a charter liberal towards the Public, and has secured from Carrollton for twenty-five years the exclusive privilege of supplying water, from which point the Mississippi river will give a more wholesome water than it located elsewhere, as we escape the entire debris of the city front, and when filtered this water will be equal to the best in the world.

The citizens of the Sixth and Fourth District of the city of New Orleans, who will be in our path of supply, now heartily welcome us in this important improvement, and cannot too highly appreciate its advantages.

The books of subscription to the capital stock of the Company are now open, at its office, and all persons interested are invited to take advantage of the great benefit this will extend to the city and all its inhabitants.

The public are invited to invest a portion of their surplus funds in the capital stock of the Carrollton Holly Water Works Company.

THEODORE MECKS, Secretary.
F. FISCHER, President.
Company who shall fail or refuse to pay the installments when due, shall forfeit their stock, and the same shall be re-laid and sold as stock newly subscribed for.

Art. V. Modifications, additions or changes in these articles may be made by the stockholders at a general meeting convened specially for that purpose, with the consent of a majority of all of its capital stock of the corporation.

Art. VI. This corporation shall go into operation from and after the thirty-first day of July, 1872, and provide for the acquisition of any and every year from the date of this recording of this act, and for so long a time as may be allowed by general or special laws.

Art. VII. All corporate powers are hereby vested in a board of seven Directors, to be elected as herein provided, except those powers or rights contained in the provisions of this act. The Directors are hereby authorized and directed to set all the corporate powers of this corporation.

Art. VIII. The following named corporators or their representatives, or any seven of them, shall constitute the board of Directors, to serve until their successors are elected and qualified under the provisions of this act, and their successors shall be elected by the corporators in the manner hereinbefore provided.

Art. IX. The first meeting of the stockholders of this Company shall be held on the first Monday of June, 1872, and annually thereafter, at such place as may be fixed by the board of Directors hereinbefore named. All subsequent annual meetings of stockholders shall be held at such time and place as shall be named in the by-laws to be adopted by said Company. No person shall be eligible as a director who is not the owner of at least twenty-five shares of stock. The stockholders at all elections may vote either in person or by proxy, and shall be entitled to one vote upon each of their respective shares, not in excess of two hundred. No number of votes shall constitute an election unless the same constitutes a majority of the whole stock of the corporation.

Sec. 2. The right of the directors in regular meetings of the stockholders shall not interfere this Company; but the directors shall in office shall continue to exercise their functions until a new board be elected.

Sec. 3. Five members of said Board of Directors shall form a quorum to do business, and the Board of Directors shall have power to make and adopt all necessary rules and by-laws for the government of the Company, provided the same do not conflict with the laws hereinbefore provided.

Sec. 4. If any director shall cease to be a director during his term of office, his place as director shall be declared vacant, and in that event, or in case of the death, permanent absence or residuation of any director, the board shall have authority to fill the vacancy occasioned thereby.

Art. X. The officers of the Board shall be a President, Vice President, Secretary and Treasurer. The President and Vice President shall be elected from their own number. Said officers shall be elected at the first meeting of the board after their election, and to serve for the term of one year, and until their successors are elected and qualified.

The Company shall also have a General Superintendent or Engineer, who shall be elected at such time as the Board of Directors may deem expedient.

Art. XI. Under no circumstances shall any stockholder he liable for the debts or losses of the Company beyond the amount due on his subscription, nor shall any necessity of the organization of said Company render this charter null and void.

Art. XII. No assessment shall be made on the subscribers in the capital stock of the Company until the sum of two hundred thousand dollars has been subscribed, when a payment of ten per cent, shall be due and payable.

Three hundred shares of the capital stock of this Company shall be sold and the proceeds appropriated to expenses of organization.
**AN ORDINANCE**

Granting to the “Carrollton Holly Water Works Company” certain rights to construct Water Works, and to supply the city and citizens of Carrollton with water, under the system known as the Holly Water Works System.

BE IT ORDAINED, by the Mayor and Council of the City of Carrollton, that the “Carrollton Holly Water Works Company” and its successors and assigns, and they are hereby granted, the exclusive privileges for the period of (20) twenty years, for supplying water to the City and citizens of Carrollton, at the rate of at least ten per cent. below the present tariff of the City Water Works, now supplying the citizens of New Orleans with water.

Provided, No discrimination be made between the price of water for public and private use; and to erect buildings, machinery and filters, and to lay and lay pipes on any and all streets and by-ways of said City of Carrollton, and in erect at right angles (except when and where mechanical difficulties may exist) with the pipes laid on the streets, any and all an unanesthetized, for the purpose of conveying water from their main pipe to any building or buildings, public or private, and to place not less than one hydrant and the necessary valves thereon, on each square fronting on one side of the line of main pipes, and to supply water for domestic and ornamental uses, sanitary purposes and fire protection.

The above ordinance to be null and void, provided, the said Company known as the “Carrollton Holly Water Works Company” fail to purchase or select a site within the present limits of the City of Carrollton, and to erect the necessary buildings and machinery, to be in course of construction within twelve months from and after the date of the passage of this ordinance.

And provided further, That if the said Company, known as the “Carrollton Holly Water Works Company,” should change its name, or merge itself into any other Company by an act of incorporation; transfer, sell, or dispose of its rights or privileges, for the purpose of establishing any other system of supplying water to the City and citizens of Carrollton, other than the system known as the “Holly Water Works System,” then, and in that event, this ordinance to be null and void.

And provided, The said Company will lay a line of main pipes from Leverline to Upperline streets through St. Charles and its continuation, Leroy street; also, from St. Charles street through Carrollton avenue to Fifth street, and will furnish and place one hydrant for each square fronting on one side of said line of pipes, and said hydrant shall be in place and condition to receive water, when the works shall be ready to supply the same; also, to lay pipes and hydrants on Delphi street for the use of the new Market now being constructed.

And the said pipes and appurtenances thereto belonging, together with the buildings, machinery, filters, lands, etc., to be purchased and built by the said Company, and the said City of Carrollton to be in no manner held responsible for any part of the cost or expense thereof.

And it is further provided, That said Company shall, from time to time, extend their pipes throughout the city, as fast as the public demand shall justify the same, and all water so furnished shall be filtered water. The ordinance shall take effect from and after the date of its passage.
BOARD OF DIRECTORS.

F. Fischer, A. G. Brice,
N. Commandeur, E. E. Chubbuck,
C. W. Newton, H. L. Burns,
Henry L. Jones.

OFFICERS.

F. Fischer, President,
N. Commandeur, Vice Pres't,
C. W. Newton, Treasurer,
Theodore Meeks, Secretary.