SOUVENIR

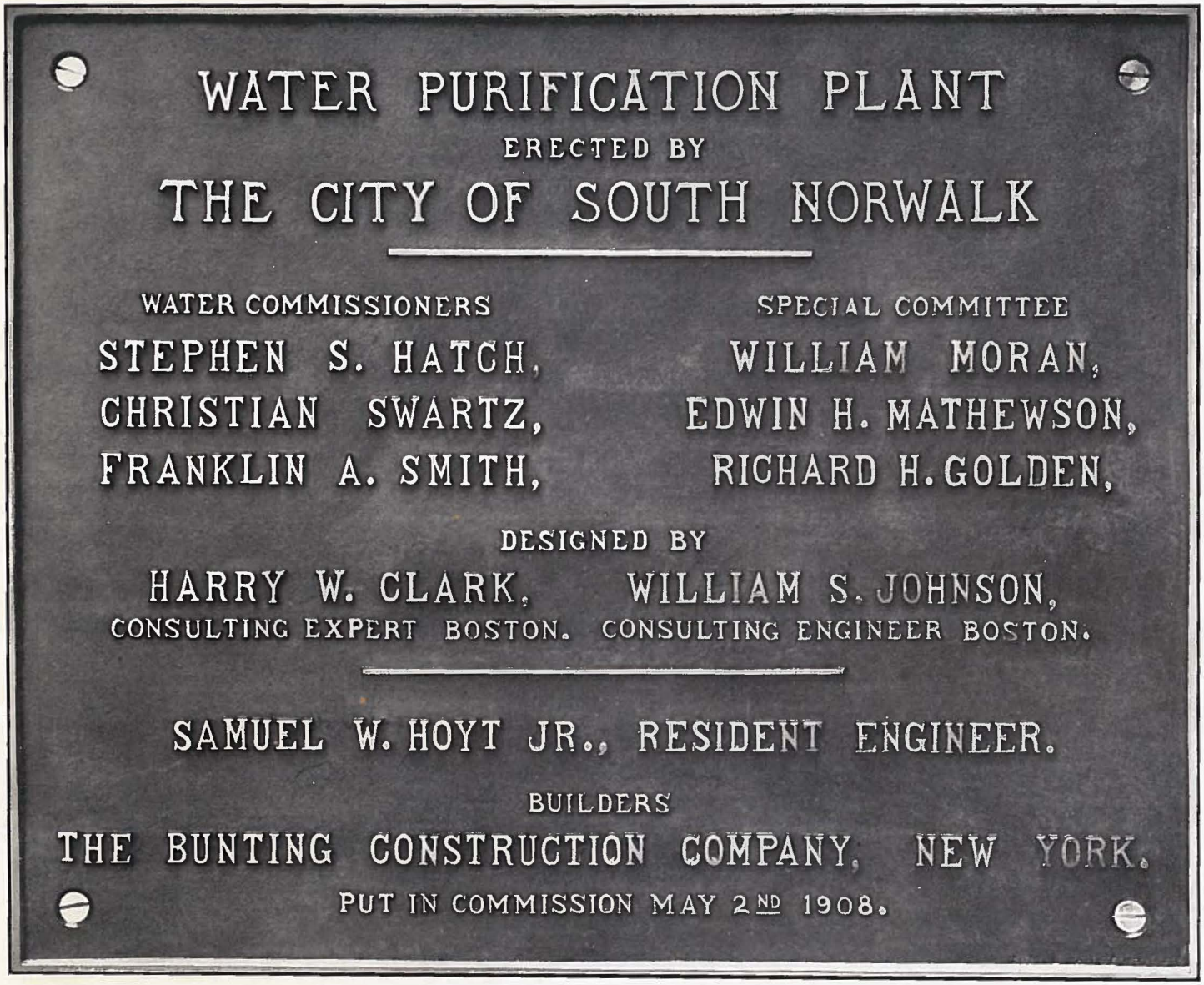
SOUTH NORWALK WATER WORKS

MAY 2, 1909

FIRST ANNIVERSARY

CITY PURIFICATION PLANT

PRICE 50 CENTS



Bronze Tablet in Operating House

OUR FRIENDS

WE, THE UNDERSIGNED, citizens of South Norwalk, desiring to extend by some public manifestation, our appreciation to the Board of Water Commissioners and the Special Committee for their genuine interest, untiring efforts and successful results in the erection of the City Filtration Plant, take great pleasure in contributing an equal proportionate amount of the cost for publication of this souvenir booklet, containing some of the facts and features of our magnificent water system.

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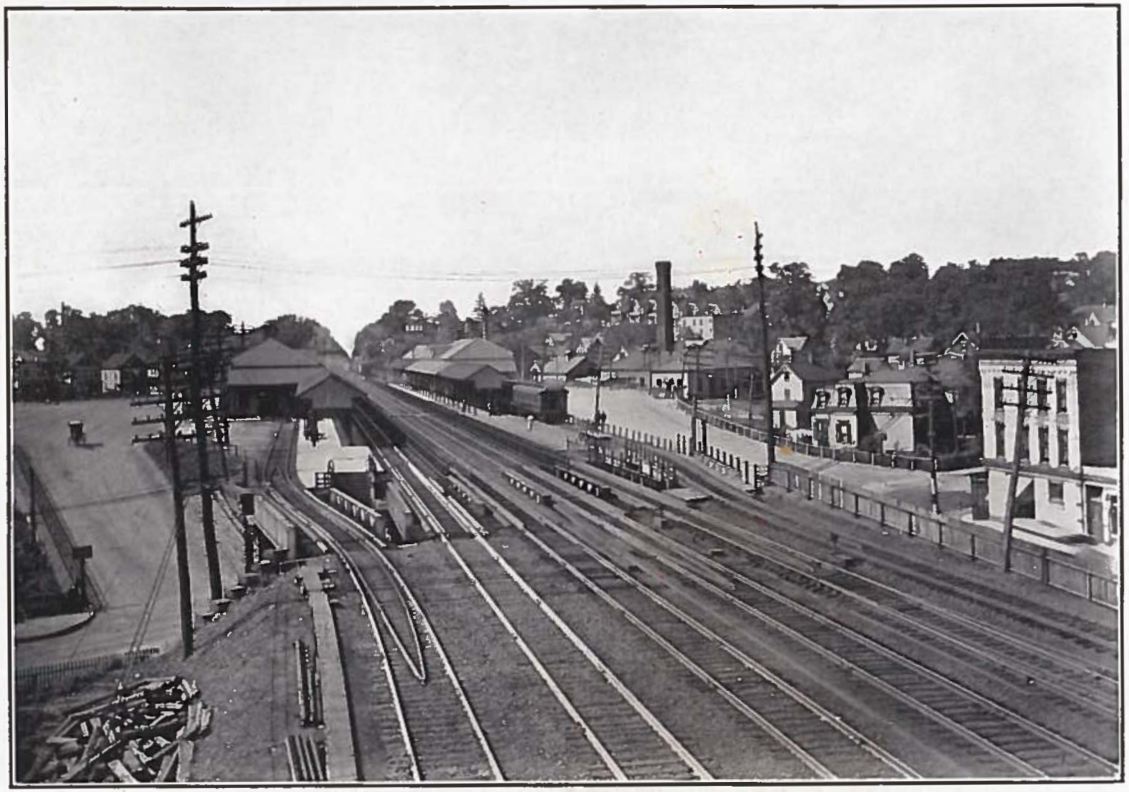
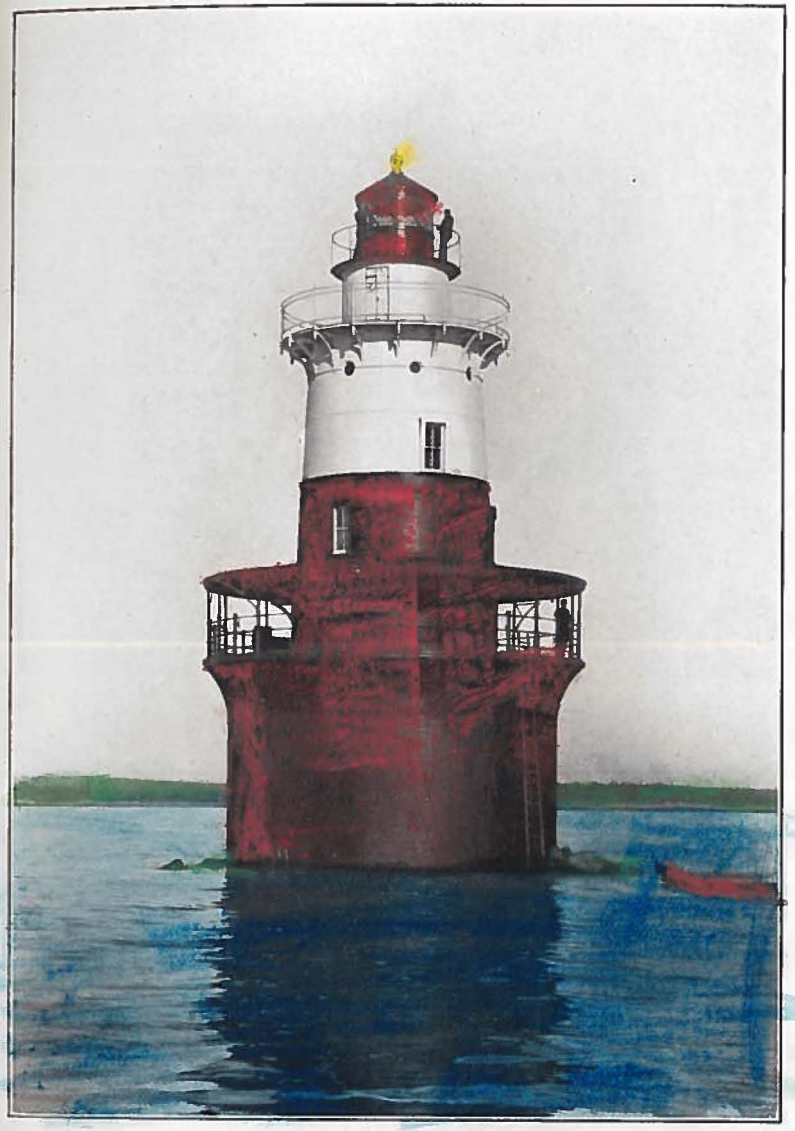
SOUTH NORWALK



RAILROAD STATIONS. LOOKING SOUTH FROM MONROE STREET

ONE purpose of issuing this souvenir booklet is to partially fill a long felt need of some visible means of presenting to the attention of others the many attractions, natural advantages and superior facilities of our enterprising city. South Norwalk has many public features that make it a desirable place of residence for the home seeker. It has numerous favorable conditions for profitable industrial and manufacturing purposes. South Norwalk is situated on the New York, New Haven & Hartford Railroad, forty-two miles from the Grand Central Station. One hour's ride will take you to the Great Metropolis. It is one of the important centers of the Consolidated System; thirty passenger trains each way, daily stop at this station. It is the southern terminal of the Danbury Division, and the first junction point out of New York City that makes through connections with all New England points. In addition to the excellent passenger accommodations and freight service afforded by this first class railroad, South Norwalk is favored with water facilities having an extensive frontage on Long Island Sound which furnish a fine harbor for steamers and other boating traffic. A daily boat plies between this place and New York throughout the year.

The Consolidated Road is now making preparations for equipping the South Norwalk division with electricity. When completed the schedule time between our city and New York will be but forty-five minutes. The unpleasant conditions of smoke and dust will be done away with. With the competitive water transportation facilities afforded by our harbor, South Norwalk is one of the most desirable and attractive suburban localities on Long Island Sound.



GREEN'S REEF LIGHT. SOUTH NORWALK HARBOR

SOUTH NORWALK

THE Connecticut Company's trolley system branches out in all directions from this center, supplying convenient, economical and pleasant transportation, running cars on a ten-minute schedule, with extra cars during rush hours and holidays. A five-cent fare takes one to any part of the city and its rural suburbs.

Among the other public service conveniences are: The Western Union Telegraph and Cable Co., The Postal Telegraph-Cable Co., The Southern New England Telephone Co., Adams Express Co. and Coles Electric Express Co., which handle both freight and express business by trolley. Free postal collection and delivery and free daily rural mail delivery. There is a number of regular daily messengers to New York, going at various hours in the morning and returning at early evening. They personally make purchases, deliver packages, exchange goods and transact all business entrusted to them.

The rate for monthly coupon commutation book between South Norwalk and New York is $10.40, good for sixty rides from date of sale. A little less than thirty-five cents daily will allow you to reside here and know the real joy of living, and conduct your business in the city.

"What a joy it is to dwell in the suburbs! To awake mornings and to look out upon a broad sweep of sky, to throw one's window wide open, and to drink in an inexhaustible supply of fresh, clean, crisp air, to get a sniff of the real earth, and to feel that one can stretch out one's arms on either side, even as old Winged Victory used to stretch her pinions without barking one's knuckles on the Venetian façade of the flat across the street, or skinning one's hither fist on the steam radiator in the music room just off your natatorium as do the dwellers in the sky-scraping cliffs of your great city. To have such a place where, as the saying is, you cannot only swing a cat, but maintain a cat in tolerably respectable condition."—*John Kendrick Bangs, in Suburban Life.*

SOUTH NORWALK

CLIFFORD HOTEL—SOUTH MAIN AND ELIZABETH STREETS.

THE purport of the contents of these pages is not to give the past history of our fair city, but to furnish a simple message, telling of some of the living, present advantages that abound on every hand, which are helpful aids for the success and enjoyment of the home seeker who is alert and diligent. The conditions and opportunities for profitable employment are unlimited. It is a good place for the man or woman having aspirations for progress and beneficial development. South Norwalk has all of the modern conveniences of the city. These are furnished at the lowest rates, as the city owns and maintains its public water works, electric lighting and power plant and sewer systems. It has well-kept streets, clean sidewalks and free collection of garbage and ashes. The hotel accommodations are universally quoted by the traveling public to be the best on the line of the Consolidated Road. On the other hand, one can have all the pleasures and freedom of country life among the hills and woods. To the lover of salt water bathing and boating, several miles of beautiful shore front, with fine beaches, afford ample opportunities.

The drives cannot be surpassed. In all directions are fine roadways that lead to the shore or to the rural sections. The elevation of the residential hill sections is 150 feet above high water. The healthfulness of South Norwalk cannot be better expressed than to refer to the records of the State Board of Health, which show that the percentage of illness and death, per 1,000 population, is one of the lowest in the State.

MAHACKEMO HOTEL—WASHINGTON AND NORTH MAIN STREETS.

SOUTH NORWALK

A GOOD description of South Norwalk may be presented by quoting the expressions of a visitor who, a short time since, came here for the first time on a business engagement. Having a couple of hours of leisure before going away, he stood looking toward the west, over the hill section of the city. He remarked to the station agent, "I would like to get a conveyance and take a drive around this place. It must be a beautiful spot upon those hills." A team was procured and with orders to the driver to take in the pleasant and principal sections of the city, off they went. Some two hours later, returning to the station, the gentleman alighted, and with much enthusiasm remarked to a number of people, waiting for the train, "Do you know that this is the finest place I have ever seen? I have traveled the greater part of my life, and my business has taken me into every State in the Union. I have been abroad several times, spent months at a time in Europe, visited France and Switzerland, also the Mediterranean. I want to say to you, gentlemen, in all of my travels I have never taken a two hours' drive and seen such a variety of magnificent scenery and surroundings as I have here this afternoon. Fine avenues bordered with trees, the beautiful hills, furnishing both landscape and water views, the delightful roads along the shore, fine residences and nicely kept yards—everything has an inviting look. You have a great place to live in. Good-bye, here's my train."

A visitor a few summers ago took the West Avenue trolley ride, going to the north terminal and returning. He remarked, mentioning a beautiful avenue in the city of Rochester, N. Y., "I thought the trolley ride through ———— Avenue in Rochester was the handsomest I had ever seen, but your West Avenue ride surpasses it."

Smith's Island Light. South Norwalk Harbor

Opinion of Experts

ST. PAUL BUILDING

New York, March 6, 1905.

"Properly constructed and operated sand filters will take out nearly all bacteria, including disease germs, and will largely reduce tastes and odors from algæ growths. Where the tastes and odors in the original water are not too great they can be reduced to the extent of practical elimination. Filters have been built on projects made in this office, where this was the principal object to be accomplished, and where entire success has been reached."

Allen Hazen,
M. Am. Soc. C. E.

ROOM 814, BANIGAN BUILDING

Providence, R. I., March 22, 1905.

"I can only answer your questions in a general way. Generally speaking, for ordinary New England conditions, I am strongly of the opinion that the so-called natural or slow sand filtration method is the best for the removal of disease germs and for the general purification and improvement in appearance of drinking water.

I believe that the surface waters or streams draining from districts that are at all populous or obviously subject to pollution should be filtered, and in such cases, as, for example, the Merrimac River at Lawrence or Lowell, the Androscoggin River at Augusta, Me., or the river from which Waterville, Me., is supplied, or indeed the Croton supply for New York City, should most certainly be subject to slow sand filtration before use for ordinary domestic purposes."

John R. Freeman, *Consulting Engineer.*

(Original correspondence from which these extracts are taken are on file in the Water Commissioners' office.)

President Roosevelt stated that he selected six of the best engineers in the country, to accompany Mr. Taft and investigate the Panama Canal problem, and that he would abide by their report. Allen Hazen and John R. Freeman were two of the six engineers selected.

Opinion of Experts

170 BROADWAY

NEW YORK, March 9, 1905.

"A well built and well managed plain sand filter plant will remove odor, taste and disease germs practically completely, provided the raw water does not contain too much of these objectionable qualities. As the latter increases in quantity, lower rates of filtration are used generally, and in the case of bad tastes and odors, double filtration combined with aëration is resorted to with satisfactory results."

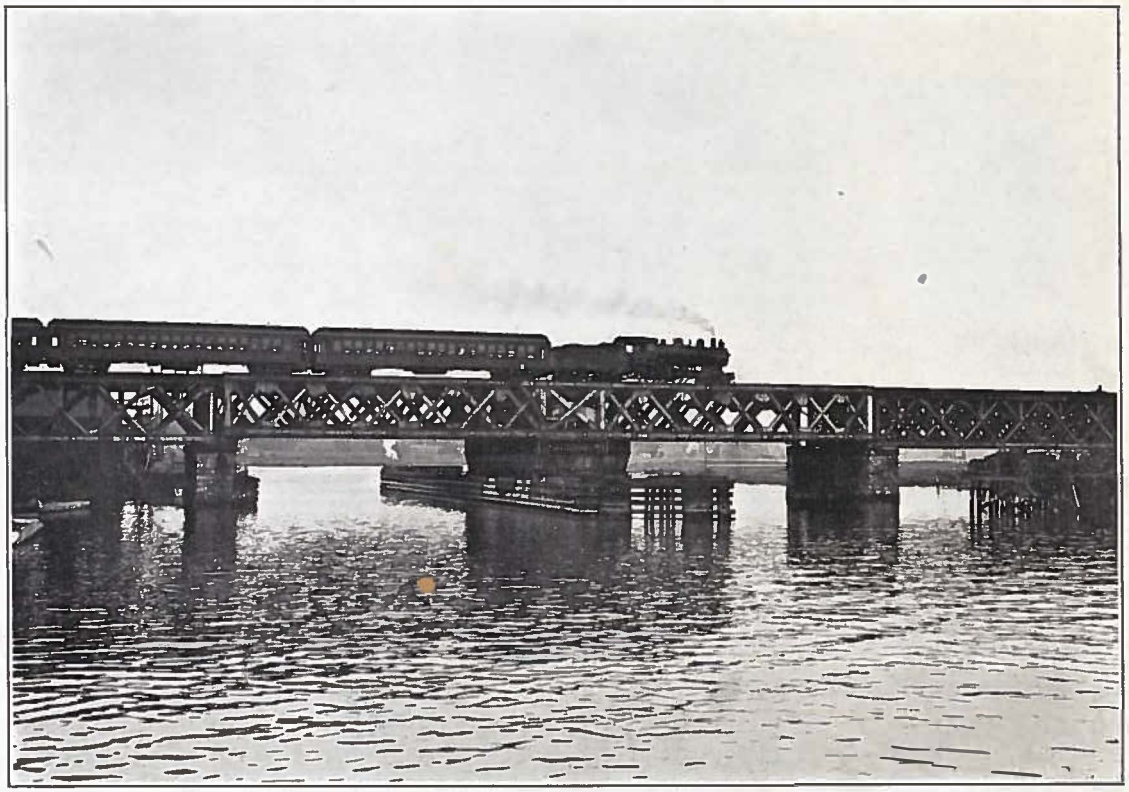
GEORGE W. FULLER,
Hydraulic Engineer and Sanitary Expert.

100 CROWN STREET

NEW HAVEN, CONN., March 7, 1905.

"Slow sand filtration is the surest and generally best method of water purification and will render the water pure from a sanitary standpoint, if the filters are properly constructed and operated."

ALBERT B. HILL, *M. Am. Soc. C. E.*



RAILROAD DRAW-BRIDGE. SOUTH NORWALK HARBOR

129 MAIN STREET

MIDDLETOWN, CONN., MARCH 7, 1905.

"Dating from 1866 to the present time, I have investigated all manner of experiments in water filtration. The most successful, is known as slow sand filtration, the same as is in operation at Lawrence, Mass. My opinion is that this question must prove a very important matter for the future to solve throughout the country."

GEORGE H. BISHOP, *C. E.*

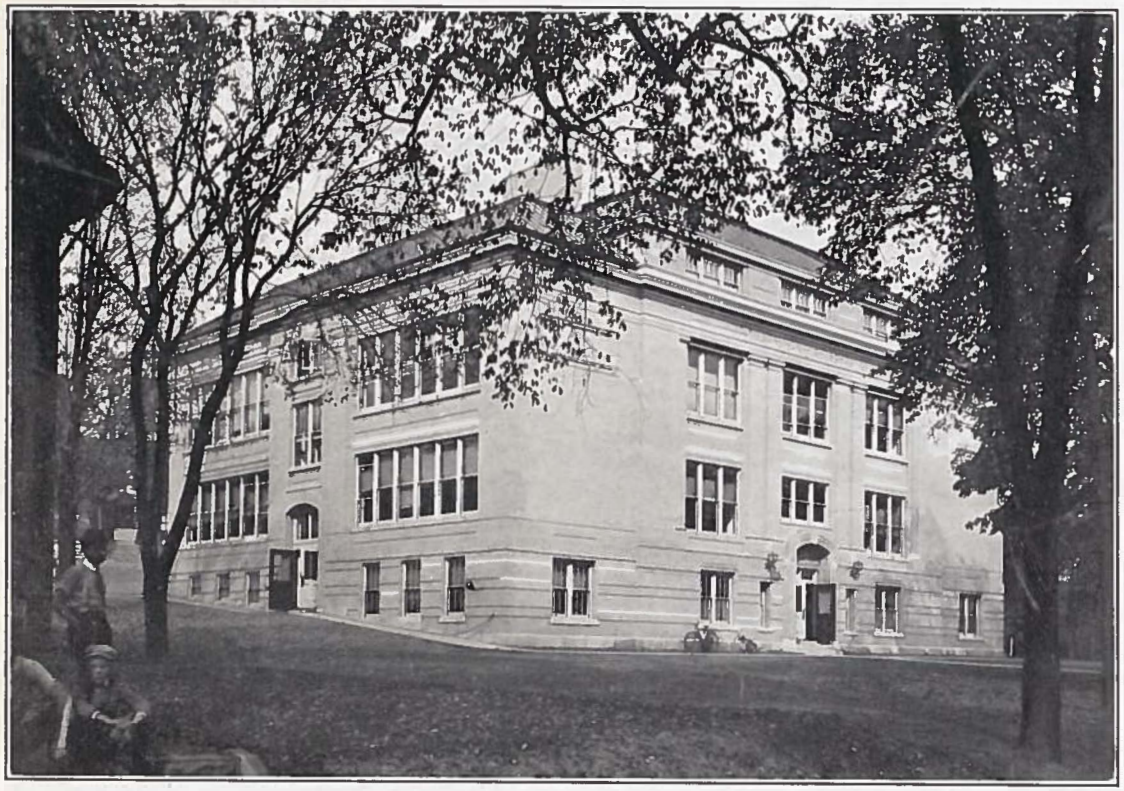
2530 FIRST STREET

WASHINGTON, D. C., March 7, 1905.

"The method of slow sand filtration is particularly well adapted to remove disease germs and give a good, pure water. We consider that all water should be filtered to make it fit for domestic purposes. Nearly all water seems to be subject to the growth of algæ when impounded."

I. D. MACLENNAN, *The Sand Filtration Corporation of America.*

(Original correspondence from which these extracts are taken are on file in the Water Commissioners' office.)



High School—West Ave. Property Value, $120,000.00

Opinion of Experts

Boston, Mass., May 17, 1904.

"In the investigations in regard to the value, efficiency and economy of the two kinds of filtration, at least $150,000. has been expended in the past nine years. The experts making these long-continued investigations have concluded, that with waters such as we have in New England, plain sand filtration is the most reliable, efficient and economical method of treatment."

H. W. Clark,

Consulting Expert, Water and Water Supplies.

140 NASSAU STREET

New York, March 7, 1905.

"Your inquiry implies a very creditable desire to secure for your city a plant that will be satisfactory under actual conditions of operation, and I trust the data contained in my reply will afford confirmation of what, I think to be, your view: that there is more to the question of water purification than reaching a decision as to whether slow filters or mechanical filters have the strongest popular support. It may be stated, in general terms, that there is no water (which would be at all fit for potable purposes) which cannot be rendered clear, pure, colorless and healthful; but the problem should be worked out with as much care and common sense as would be applied by any successful business man to a proposition submitted to him for consideration."

James H. Fuertes, *M. Am. Soc. C. E.*

710 CITY HALL, BROAD AND MARKET STREETS

Philadelphia, Pa., March 7, 1905.

"I would state that the plain sand filters in use in Philadelphia have given eminently satisfactory results. There is neither an objectionable odor nor taste in the Schuylkill water, and should either occur from time to time, it is wholly removable by filtration. The bacterial content is reduced to ninety-nine or more per cent. and the turbidity content is rather less than ninety-six per cent. I am sending you a report of the Bureau of Filtration for the year 1903. Yor will find considerable information on the above subject in this report, and should you desire any special information, I will be glad to supply same."

John A. Hill, *Chief Engineer.*

(Original correspondence from which these extracts are taken are on file in the Water Commissioners' office.)

Extracts from Messages of Mayors Lee—Cavanagh—Dow

Extract from Mayor Mortimer M. Lee's Third Annual Message, January 3, 1901.

"We realize very little what good water is worth until we are deprived of it. Our very efficient Water Commissioners, to whom the gratitude of every inhabitant of the city is due, appreciate fully the necessity and importance of an ample supply of good, wholesome water, and what it is worth, and believe they are doing everything possible to bring about that result. During the past summer the water was far from good, but there was an abundance of it. I understand the Commissioners have a plan under way by which during the coming summer there will be not only a plentiful but also a pure and wholesome supply."

Congregational Church—West Street. Property Value, $95,000.00. Organized 1836.

Extract from Mayor John J. Cavanagh's Message, January 3, 1903

"The condition of our water is a question that has most interested our people during the past year. We have the assurance of our Water Commissioners that they have procured a supply of good, wholesome water, which will greatly benefit the quality of our present supply. While it is a decided step in the right direction, I would recommend that the city go a step further and procure a filter."

Extract from Mayor Chas. E. Dow's Second Annual Message, January 9, 1905

"During the past year the Water Department has been conducted with the usual business ability of the Commissioners. While the time of the Commissioners has been extensively occupied in connection with the filtration system authorized by our city meeting, the other interests of the Department have not by any means been neglected. When this system is in operation I believe our people will have what they have paid for without getting, viz: a good supply of pure and wholesome water. We, who have suffered from the water conditions as they have prevailed, can appreciate fully what this result will mean to us."

No men living are more worthy to be trusted than those who toil up from poverty—none less inclined to take or touch aught which they have not honestly earned.—[Lincoln; Annual Message to Congress, December, 3, 1861.

Description of Filter

THE City of South Norwalk's Water Purification Plant is located about seven miles north of the City of South Norwalk in the town of Wilton, Conn.

The location of the plant, which is fed and operated entirely by gravity, is about 1,000 feet south of the city's largest reservoir, called City Lake, and into which two of their other reservoirs empty.

The site chosen was at the maximum elevation that was deemed safe, so that at all times water might be drawn from City Lake even at times of drouth.

The raw water first enters the plant through an 18-inch pipe and flows into the first aërator where the water absorbs oxygen, which makes possible the removal of odors and organic matter in solution by the process of oxidation.

FIG. 1. BIRD'S-EYE VIEW OF FILTER. OPERATOR'S COTTAGE IN BACKGROUND

After being aërated the water flows by gravity to the primary filter beds where the oxidizing process goes on, and the water is slowly filtered downward through 3 feet 9 inches of carefully selected and washed filtering sand which filters or strains out all impurities not in solution.

From the primary filter beds the water flows through four 14-inch cast iron pipes to four 14-inch venturi meters, and thence to a distributing chamber in the operating house, from which it can be sent to a second aëration and filtration to a clear water reservoir holding 250,000 gallons, or directly to the city water mains by means of gates and chambers in the operating house.

At certain times during the summer months when conditions are favorable, the organisms in the reservoir are more abundant than usual, and much of the oxygen which the raw water naturally contains is consumed by them. At these periods it is hardly possible to add enough oxygen to unite with all of the organisms in one aëration, and therefore to bring about perfect purification when the organisms are unusually abundant, it becomes necessary to resort to a second aëration and filtration. To provide for these conditions a second aërator is located in the operating house which receives water from the effluent of the primary filters.

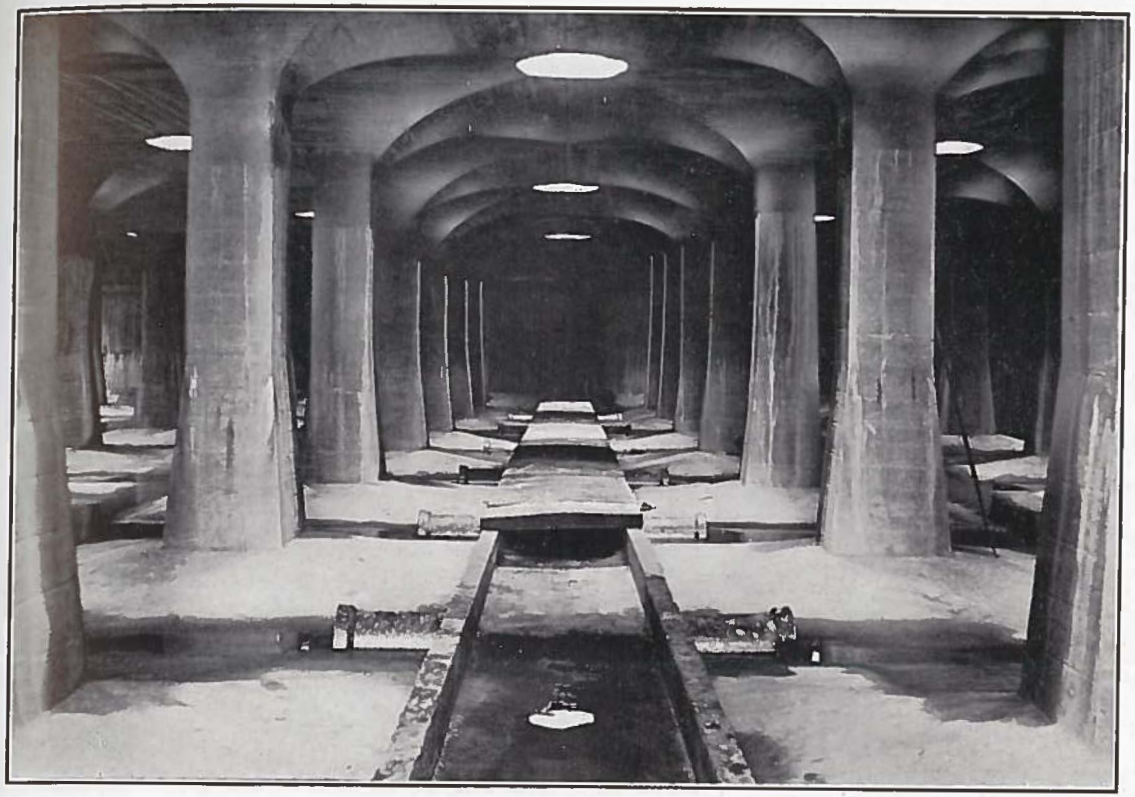


FIG. 2. INTERIOR PRIMARY SECTION. LENGTHWISE VIEW. NO. 48

Description of Filter

UPON being aërated the second time the water flows to the secondary filter to be again filtered to complete what could not be accomplished in the primary filters at times of abundant organisms in the reservoir.

The secondary filter has not as yet been filled with sand, but is used for the storage of water in conjunction with the clear water reservoir.

The plant covers about two acres of ground and is entirely of concrete, 10,500 barrels of cement being used in its construction.

The aërator house, where the raw water first enters the plant, is concrete construction with slate roof, shown on extreme right of general view on pages 40 and 41. The water enters through an 18-inch pipe which is provided with gates, making it possible to shut off the aërator and divert water directly to the filter beds for a few moments, when it becomes necessary to clean or repair. The aërator is a steel box open at the top, made of ¼-inch steel plates and is 9 feet 3 inches long, 6 feet 6 inches wide and 4 feet high; the bottom is perforated, containing 6,836 holes 3/16 inch in diameter, and spaced 1 inch between centers.

The raw water upon entering the aërator through its 18-inch pipe, which is connected to the bottom of the box, rises to a depth of about 4 inches and drops through the perforations in the bottom to a sub-chamber of concrete, from which it flows to the primary filters. In passing through the perforations, small streams are formed which twist and break into drops about 6 inches below the bottom of the box, allowing every drop of water to come in contact with the air and absorb oxygen and remove odors.

In the aërator box is found quite frequently a collection of fish, frogs and eels which have undoubtedly passed the screens at the reservoir while very young, living and growing in the pipes until at times of unusual drafts they are drawn into the plant, through which they cannot pass.

For proper regulation of the flow through the aërator, a regulating or float valve is provided, which shuts or opens the gate automatically.

FIG. 3. SECONDARY FILTER. SHOWING ENTRANCE AND MANHOLES. NO. 39

Description of Filter

THE primary filter is 317 feet 10 inches long and 145 feet wide, inside measurements, and is divided into four sections by three division walls, so that at any time a section may be shut off and cleaned without depriving the city of the use of the entire primary filter. The large doors at the entrance to each section may be seen in the general view of the plant, pages 40 and 41. The floors, side walls and roofs of these sections are constructed entirely of cement. Each section of the primary filter is 78 feet 4 inches wide and 145 feet long, inside measurements, the general construction of which is shown in figure 2 (photo No. 48), and by keeping this figure in mind the following description of a section of the primary filter may be readily understood. All the four sections are of similar dimensions and construction.

The floors, as mentioned before, are of cement concrete (1 part cement, 2½ parts clean, sharp sand and 4½ parts crushed stone were the proportions for concrete used throughout the entire work). Many visitors at the filter during its construction said the floors were designed after the famous "bump the bumps" at Coney Island on account of the unevenness of the surface. Under the piers supporting the roof the floor is 15 inches thick, and midway between piers only 6 inches in thickness, forming fifty mounds in each section, upon each of which a pier 28 inches square at the base and 20 inches square at the top was built.

The concrete roof is of the groined arch construction, being 6 inches thick at the summit of the arch and containing no reinforcement. The span between posts being 11 feet 8 inches, and each arch being one-half of an ellipse having a rise of 2 feet 6 inches.

The roof of each section contains thirty manholes 3 feet in diameter, provided with double covers which may be removed to afford light. See figure 3 (photo No. 39) of secondary filter.

Near the center of the floor of each section of the filter is provided an effluent channel 2 feet 10 inches wide and 8 inches high and covered with reinforced concrete slabs. See figure 2 (photo No. 48). From this channel lateral lines of 10-inch split vitrified pipe with open joints were laid in the invert of each vertical curve between piers across the filter bed.

Description of Filter

UPON these laterals of half pipe was placed underdrain gravel composed of a 6-inch layer of carefully selected stones, none of which were more than 3 inches or less than 1½ inches in diameter; upon this layer was placed a 2-inch layer of stones, none of which were more than 1½ inches or less than ⅜ inch in diameter, and then still another 2½-inch layer of stone none of which were more than ⅜ inch or less than 1/6 inch in diameter. Illustrated in figure 4 (photo No. 44).

Upon this last layer of pebbles was placed a layer of filtering sand 3 feet 9 inches deep, through which the water filtered downward to underdrains.

The object of the underdrains is to support the filtering sand and not allow it to flow with the water to the effluent channel and city mains.

FIG 4. PRIMARY FILTER SECTION. LOOKING CROSSWISE. NO. 44

The depth of the filtering sand and method of placing may be realized by the illustration figure 5 (photo No. 47); 8,641 cubic yards of underdrain stone and filtering sand were placed in the primary filters alone. The underdrain material, as stated above, had to be very carefully selected and again cleaned after reaching the beds. All the filtering sand had to be of an effective size of between .35 and .38 millimeters, and of a uniformity co-efficient of about 4.5 in order to do the best filtering with the greatest velocity.

The quality of sand was secured by mixing certain strata of sand found in the bank, the required strata being determined by a mechanical analysis performed daily by the resident engineer.

All of the sand upon reaching the filter was washed to eliminate all impurities, dust, loam, etc., before being placed.

Some idea of the quantity of filtering material gotten out, screened, washed and placed in the primary filter can be imagined when it is stated that if this filtering material were loaded into the largest steel freight cars used by any railroad to-day, and to the maximum capacity of each car, it would make a train of cars over two miles long, or in other words a train reaching from South Norwalk station to Rowayton station, and require eight of the largest locomotives to draw it.

Description of Filter

A COMPLETED portion of one of the filter beds may be seen in figure 6 (photo No. 43). The dark line near the top of piers and on wall in the distance shows the elevation at which the water will stand above the surface of the sand when filter is in operation, viz.: four feet.

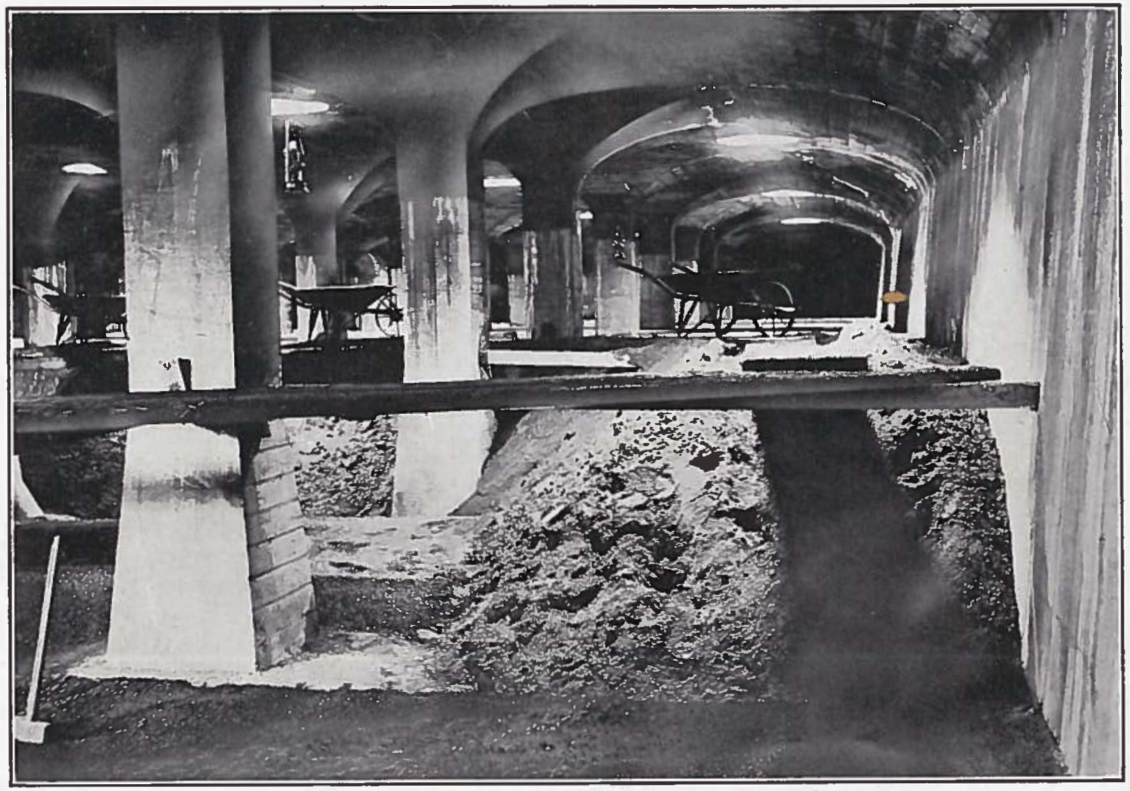


FIG. 5. PRIMARY SECTION. SHOWING DEPTH OF SAND. NO. 47

After filtering downward through 3 feet and 9 inches of clean sand, the water is collected from the underdrains into the 10-inch split pipe laterals mentioned above, and flows to the central effluent channel shown in course of construction in figure 2 (photo No. 48), from whence it flows to four 14-inch venturi meters, one for each section, which registers in the operating house by means of floats and weights, the rate of filtration per acre per day of 24 hours, the elevation of surface of water on bed and loss of head. The latter determining the amount of resistance caused by the accumulation of suspended matter on the surface of the sand, and by means of this data, it is ascertained accurately when it becomes necessary to shut off a section and clean. The process of cleaning will be taken up later.

The registering dials of the venturi meters are shown in figure 10, showing portion of interior of operating house.

From the four meters the filtered water flows to a central chamber under the operating house, from whence it may be turned by means of valves either directly to the city mains to a second aëration and filtration, or to a clear water reservoir of 250,000 gallons capacity.

The second aërator is located in a sub-chamber under the operating house and is identically similar to first aërator, the secondary filter and clear water reservoir lying just east of the primary filter and at an elevation slightly less than primary filters, so that operation by gravity is possible.

The clear water reservoir is of similar design as filter beds and is 78 feet 4 inches wide and 91 feet 8 inches long, the roof having two manholes.

The secondary filter is of same design, construction and dimensions as one section of primary filter, excepting that its effluent channel is under the floor.

FIG. 6. PRIMARY SECTION. WITH SAND IN. NO. 43

Description of Filter

THE plant is controlled by 31 gates or valves by means of which either aërator may be discontinued at will when cleaning becomes necessary or any filter bed be shut off temporarily without depriving the city from filter water.

The entire plant is amply equipped with overflow pipes and weirs to take care of surplus raw water in case any automatic valve gets out of order and refuses to work until the defect is discovered. These overflows and weirs connect with an 18-inch vitrified pipe drain leading back to brook.

The roofs of the primary filters, secondary filter and clear water reservoir are covered with 2 feet of selected earth, upon which grass seed was sown.

This roof covering was necessary to prevent the water in beds from freezing in winter.

In the washing and placing of the sand in the primary filters many obstacles were met.

The washing could not be accomplished outside in cold weather, and on account of being located so near the reservoir, and therefore having so little water pressure, a washer, specially designed by the resident engineer, had to be constructed to avoid the purchase and installation of large and expensive pumping machinery.

The washer constructed was in the shape of a trough about 8 feet long and 16 inches wide, with sides about 4 feet high, the bottom being inclined, on which four lines of perforated iron pipe were laid and connected to three lines of fire hose fed directly from the reservoir. The sand brought from the bank was dumped from the carts down through a manhole in the roof to a chute leading to upper end of washer.

The water rising from the perforated pipes at the bottom of the washer would carry with it to the overflow at top all the fine material and foreign matter contained in the sand, as it traveled from inlet to outlet of trough.

The outlet was provided with a valve by means of which iron wheelbarrows were filled as fast as they could be rolled into place.

FIG. 7. PIPE GALLERY. BETWEEN PRIMARY AND SECONDARY FILTER. NO. 38

Description of Filter

AN average of 160 cubic yards of sand were washed in a day and each man on the wheelbarrow gang walked from 25 to 27 miles daily with a wheelbarrow load of wet sand one-half that distance.

Selected Italian laborers undertook this arduous task willingly and happily.

On account of the dampness and water in this underground work it was decided as a precaution against sickness to give each man one 2-grain quinine pill each day. This act seemed to create confidence among the men, and with few exceptions the same men who started the work finished it and constantly refused to be relieved.

Some idea of the method of placing the filtering sand can be gotten in figure 5 (photo No. 47).

If by reason of any accident or unforeseen condition it becomes necessary to shut down the entire plant, raw water from the reservoir can be turned into the city mains from the operating house by the manipulation of a system of gates. During the tests at the plant before filtered water was turned into the city mains, this change was brought about by one man in 3½ minutes.

Samples of both raw and filtered water are periodically sent to the State chemist in sterilized bottles for analysis, and his reports show conclusively that the filter is doing exceptionally good work.

An accurate weir has been constructed at the overflow of the city lake reservoir by means of which the overflow is carefully measured daily.

A rain gauge has been built from plans designed by the resident engineer which accurately registers the rainfall in one hundredths of an inch per square inch of ground surface. From this data obtained the "run off" to our reservoir can be calculated.

Weekly reports showing the condition of the water in the reservoir, rainfall during the week, maximum, minimum and average temperature, amount of water filtered, maximum and minimum rate, etc.; in fact, every detail pertaining to the filtering process, are reported upon in writing by the superintendent in charge.

Description of Filter

WHERE the accumulated suspended matter collected upon the surface of the sand has become so thick that water cannot easily enter the sand, the bed so affected is shut off and water above the sand drawn off and cleaning is commenced.

South Norwalk's water supply system, being of the gravity plan, water pressure at the purification plant was not available, therefore the customary method of cleaning filter beds could not be used at this plant without the installation of a pumping station, which would be very expensive, consequently an entirely new method of cleaning had to be devised which did not require water pressure.

FIG. 8. SHOWING PIERS. CENTERING FOR ROOF. NO. 18

An 8-inch cast iron by-pass provided with gates was inserted in each division wall of the primary filter, which made it possible to supply water to the surface of any bed being cleaned. An 8-inch galvanized iron pipe with flanged joints was made, so that it could be easily attached to the by-pass. The 8-inch iron pipe was perforated at the bottom and laid horizontally upon boards placed across the extreme rear end of bed.

When water was turned into this perforated pipe it can be readily seen that a uniform flow of water was obtained the full width of the bed. Naturally the more water turned into this perforated pipe the greater would be the velocity of the water flowing across the surface of the sand toward the outlet.

A reversed or upward current of water is also turned on which flows upward through the sand to the surface.

With these two currents of water any disturbance of the surface of the sand causes the suspended matter to rise and flow with the current to the outlet and thence to waste drain especially provided.

Men provided with specially designed double rakes begin at the rear of the bed, and continually raking the surface of the sand, clean out all the accumulated suspended matter which flows away with the current.

After the entire bed has been cleaned the surface current is shut off and upward current continued until a sufficient depth of filtered water is above the sand surface to warrant turning on raw water.

Description of Filter

THE contract for the construction of the filters was awarded to the Bunting Construction Company, of New York City, on the 8th day of August, 1906. One of the terms of the contract was that the city furnish all cast iron pipe and gates and furnish and place all filtering sand.

Immediately after the awarding of the contract the preliminary work was staked out and shanties for the workmen were begun. Ground was broken on the 23d of August, 1906.

It was first necessary to construct the 712 feet of 18-inch pipe drain to afford proper drainage for the filter site, the lower half of which could best be described as an almost inaccessible swampy forest.

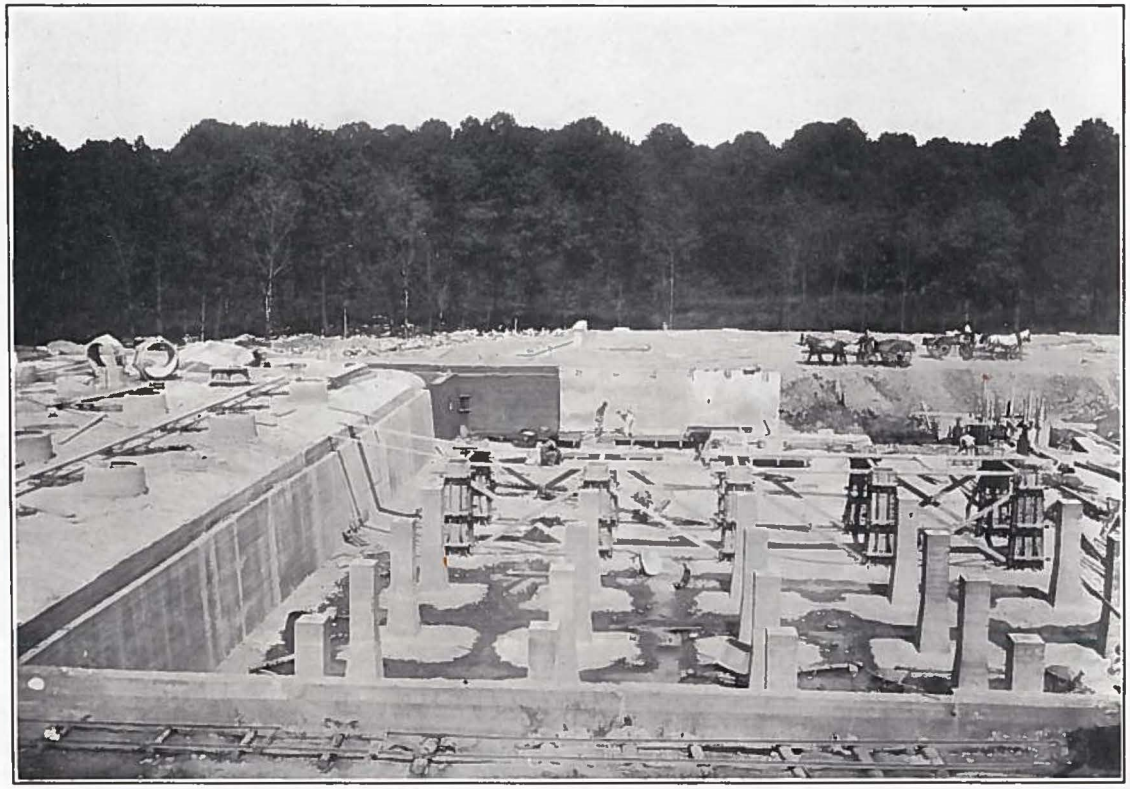


FIG. 9. COMPLETE AND INCOMPLETE FILTER SECTIONS. NO. 33

All efforts during the fall of 1906 were concentrated on excavation for the secondary filter and the clear water reservoir with an idea of getting some of the concrete work done before the cold weather set in, but the nature of the material excavated was such that the excavation was not completed before it was thought inadvisable to begin mixing cement.

All efforts were made by the resident engineer in behalf of the city to screen and deposit on the filter grounds as much filtering sand as could be gotten out during the winter months, using the laborers and teams already assembled on the works, a piece of land of about seven and one-half acres, containing the best sand that could be found in that vicinity, having been acquired by the water commissioners.

It was demonstrated by tests that to cart sand by way of the main road to the filter site it would cost $1.25 per yard. It was estimated that by a shorter route, and with no grade greater than 2 per cent. if a new road were built through the woods, sand could be carted for about 50 cents per yard, and as such large quantities of sand and gravel were needed, it could readily be seen the saving would be a large item. Land was, therefore, acquired mostly gratis for the new road, and work on the same was commenced December 6 of the same year, and fortunately December being an open month, the road bed of four-fifths of a mile was finished, and the first load of sand was carted to the filter site on January 23, 1907.

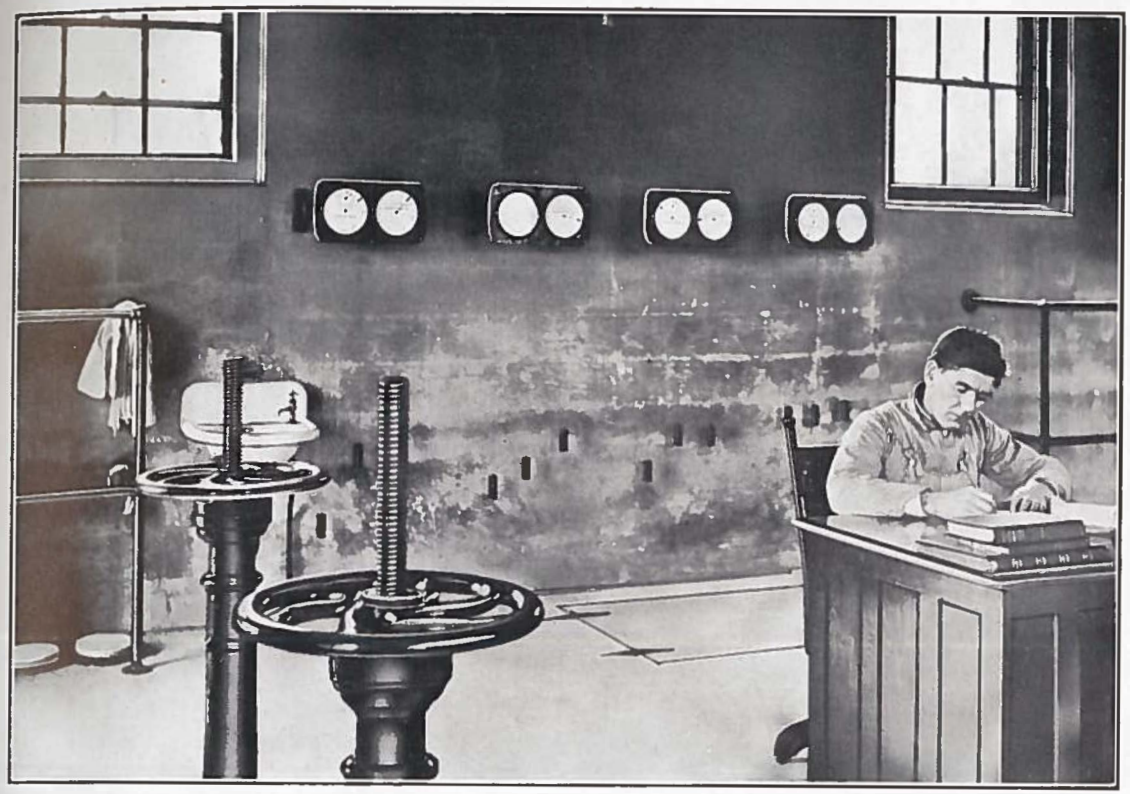


FIG. 10. INTERIOR OF OPERATING HOUSE

Description of Filter

SCREENING was begun on the south end of the lot, so that the men at work would be sheltered from the north winds, and the bank would not freeze at night deeper than could be broken up next morning with a shovel. In that way screening and carting were kept up all winter. All of the sand had to be analyzed on the works every day in order that the sizes of grains could be kept to an effective size as desired by the consulting experts, Messrs. Clark and Johnson, of Boston. This was done by selecting only such strata of sands which were of sizes desired and rejecting all others. During the winter months about 4,900 cubic yards were screened and about 2,900 yards of it carted.

Work was again resumed at the filter beds about March 1, 1907, but the weather would not permit of concrete being placed until April 22. On April 10 eight inches of snow covered the work.

Work on the secondary filter and clear water reservoir was carried on with as much speed as was consistent with good work and completed, with the exception of the entrance and doorway to the secondary filter, about July 4, as the form work on this entrance was very difficult and tedious. As many men as could work advantageously were left on this, and with the balance, work on the floors of the primary filters was begun. All the concrete was mixed by machinery and every four minutes 2/3 of a cubic yard was placed in the forms.

This work was carried on as fast as possible with the aid of 100 laborers, 28 horses and the necessary foremen and inspectors, and the primary filter beds were completed. These beds were then immediately filled with water and tested, and work begun on the pipe gallery and sub-chambers of operating house and aërator house. While this work was going on, teams were constantly bringing selected material from the excavation to cover the roofs of all filters and clear water reservoir two feet deep.

After the sub-chamber work was completed, and pipe lines and gates set, the pipe gallery was roofed over and the work on the operating house and aërator house proper was at once begun and completed just as frosty weather set in.

FIG. 11. CHIEF OPERATOR'S COTTAGE, OVERLOOKING FILTER

Description of Filter

AS soon as the primary filters had been completed and tested, the work of filling the beds was begun. It had been decided after many tests by the consulting experts that it would be running a great risk to place the sand in the beds without first being washed. Consequently a sand washer was constructed on the grounds, but the washing had to be done inside of the beds, to take advantage of every fraction of a pound of pressure that could be obtained, as with the sand washer on the roof the top of it would be almost on a level with the surface of the water in the reservoir, and pumping is decidedly expensive. Sand washing began in filter bed No. 1 on November 9, all the underdrain gravel having been previously placed. The highest rate of washing reached was 165 cubic yards in one day of 10 hours. Sand was placed from the washer by iron wheelbarrows, and it was figured that each man walked on an average of 25 miles a day and carried 100 pounds of sand one-half that distance.

Washing and placing sand was continued and rushed up to February 4, 1908, when on account of zero weather the sand washer froze solid at night. Wood fires, stoves and numerous lanterns were resorted to, but had no effect in so large a bed, and work had to be stopped for the winter.

At that time three of the four beds in the primary filter had been entirely filled, and about one-third of the fourth bed done.

On February 15, 1908, water was turned on the three beds already completed, and on Sunday afternoon, March 4, filtered water was turned on to the city for a few hours for a test.

On April 13 washing was resumed again in Bed No. 4 and completed April 25.

The grounds surrounding the filters have not received a great deal of attention as yet, all the energies having been concentrated to give the city filtered water at the earliest possible moment.

With the constant cleaning up and grading, which is now going on around the grounds, the South Norwalk Purification Plant will be one of the greatest attractions for visitors to our city, as well as of inestimable value as a pure water producer.

Our Consulting Expert

Boston, Mass., April 14, 1904.

To the Water Commissioners and Special Committee upon Water Supply of South Norwalk:

Gentlemen—I make the following report in regard to my examination of your water supply, together with statements of methods for its improvement.

The supply is obtained by impounding surface water, and is sufficient in volume especially with the connection now made with the recently acquired source to amply supply a city of a much larger population than South Norwalk for many years to come. The water is obtained from a thinly settled watershed, but with a number of buildings near the streams and reservoirs and is, moreover, what is known as a "quick watershed"; that is, one from which the run-off of water is rapid and reaches the reservoirs soon after each rainfall of sufficient volume to increase the flow of the streams.

There is, apparently, no serious and steady source of pollution upon the watershed, but water-borne diseases occurring upon the area from which water is collected might, unless known and properly and promptly cared for, be at any time a serious source of danger to the users of this water. Moreover, sickness of a kind to cause dangerous pollution often occurs when the victim himself is unaware of being able to impart the disease to others, and the watershed is always open to pollution of this kind, not only from the residents upon it, but from those who either picnic, hunt or fish upon it. Such accidental pollution, while not always seriously considered, is, nevertheless, an always present menace, and one to be eliminated whenever possible. That this is so is proven by many recent epidemics of typhoid fever among the users of public water supplies drawn from sources and watersheds similar to your own, and well illustrated by the epidemic at New Haven during 1901, when typhoid fever in one house upon the watershed of one of the New Haven supplies caused 450 cases of typhoid fever. New Haven is now constructing sand filters to prevent the possibility of the recurrence of a similar epidemic.

One of the rules of the Imperial Board of Health of Germany is that no surface water shall be used as a public supply until properly filtered, and public sentiment in other civilized countries is rapidly learning to endorse this fundamental sanitary principle. England and the Continent are covered with sand filters for the purification of public supplies, and one of the most notable recent examples is that of Liverpool with its new supply from an immense reservoir impounding water from a practically uninhabited district in Wales, but all of which is, nevertheless, filtered before delivery to the city. Many large and small municipalities in this country have installed filter plants during the past twelve or fifteen years.

Examinations of the South Norwalk supply by the chemist of your State Board of Health have shown that the colon bacillus typical of the bacteria in the fecal discharges of man and the major animals is sometimes present in the South Norwalk water, and I have no hesitation in stating from my own examination of this water and watershed and experience with many surface supplies, that this bacillus would almost invariably be found in the South Norwalk water if a sufficient volume were taken for this test; for instance, 1,000 cubic centimeters.

The chief objection to the South Norwalk water, however, from the ordinary consumer's standpoint, is the large amount of organic matter present and the very disagreeable tastes and odors also present during a considerable portion of the year, due to the life and death of various microscopic organisms in the reservoirs. Such organisms as *Anabæna*, *Dinobryon*, *Uroglena*, *Synura* and *Chlamydomonas* are the cause of these tastes and odors, and my examination of samples taken from the reservoir and from a tap in South Norwalk during March, showed the presence of three of the organisms named above in sufficient numbers to impart tastes and odors to the water. These tastes and odors, while not serious from a health point-of-view, diminish very greatly the value of the water as a public supply and cause the waste of a great volume of water that otherwise would not have to be drawn from the reservoirs. While costly and efficient daily policing and inspection of the watershed would lessen to a considerable extent the danger from water-borne diseases, still this inspection could have no effect in rendering the water more palatable to its consumers. The danger from pollution, together with the disagreeable tastes and odors, can, however, be practically eliminated from the supply by filtration. Properly planned, constructed and operated filters would do this and more; they would also remove a large percentage of the coloring and organic matter present in the water and thus render this water not only safe and satisfactory for domestic consumption from all standpoints, but also much more valuable for manufacturing purposes. In order to obtain this result, plain sand filters could, I believe, from my inspection, be built on a site just below the large reservoir, this reservoir being at such an elevation above the town (260 feet) that the loss of head or pressure in the town due to the construction of filters would be immaterial.

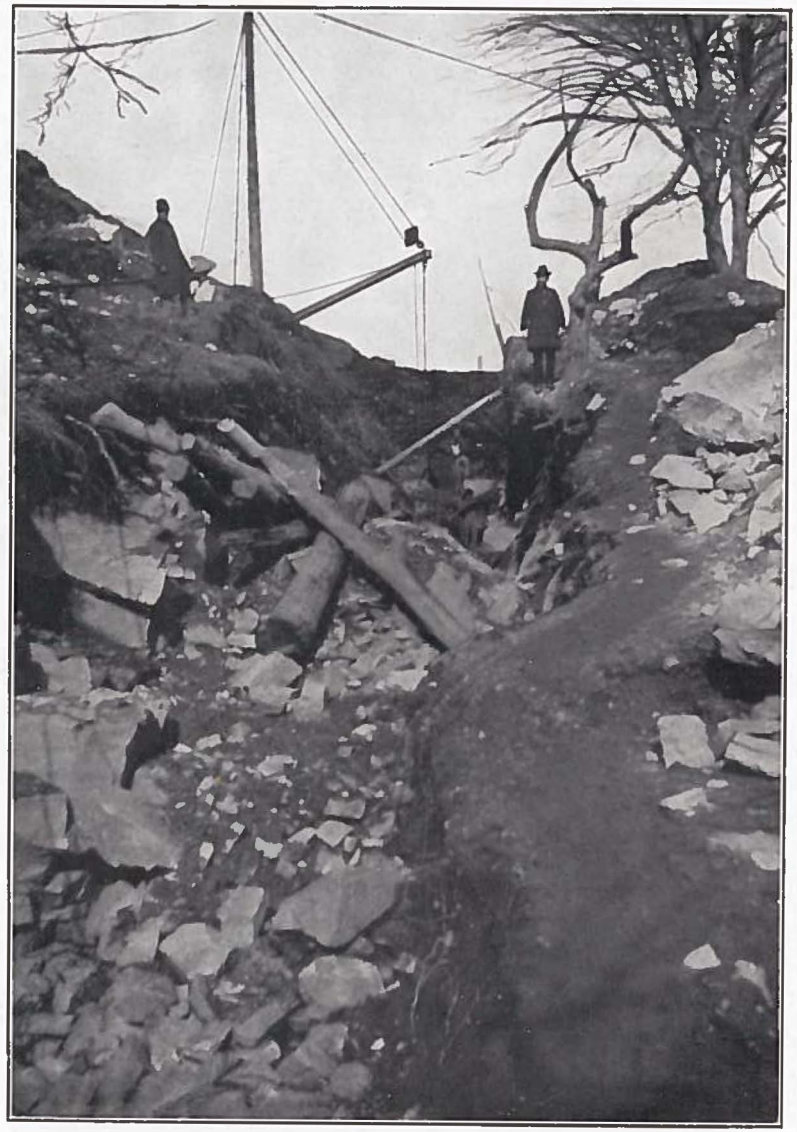
Our Consulting Expert

Letter Continued

I AM informed by you that the volume of water used daily in South Norwalk approximates 2,500,000 gallons. In order to satisfactorily filter this volume of water an area of about one and one-fourth acres of filter beds would probably be necessary. The usual procedure in sand filtration for the removal of bacteria is the passage of water through one filter. Examination of your water, however, and experience with waters of a similar character —that is, with similar growths of microscopic organisms and with the resultant tastes and odors—has convinced me that double filtration would be necessary in your case; at least during those periods of the year when the water is particularly obnoxious on account of the presence of these disagreeable tastes and odors. This double filtration, however, does not mean such an increase in expenditure for filter construction as might be imagined, as the rate through the primary filter can be somewhat greater than otherwise would be the case, while the secondary filter can be operated at a rate from three to four times as great as the primary filter. A rate of at least 3,000,000 gallons per acre daily for the primary filter and 10,000,000 gallons per acre daily for the secondary filter could undoubtedly be maintained and probably rates somewhat greater than these would give satisfactory results. It will probably be necessary to aerate the water always before the second filtration, and during the season of the year when the water is in its poorest condition before the primary filtration. The entire filter plant should, I believe, in order that the most satisfactory results should be obtained throughout the entire year, be suitably covered and thus protected not only from the cold weather of winter, but also from the direct sunlight upon the filter beds during summer weather, sunlight being in some instances the cause of quick and mat-like growths of *Algæ* upon the surface of the sand in the filter, and thus entailing more frequent scraping of the filter than would otherwise be necessary. Sand suitable for use in the construction of the filter is found in the vicinity of the proposed filter site, and probably in sufficient quantities, judging from the statements of your engineer.

In view, therefore, of the facts elaborated in this report, I recommend the construction of plain sand filters for the improvement of your water supply. Respectfully submitted,

H. W. Clark,
Consulting Expert, Water and Water Supplies, Purification of Water and Sewage.



Wilton Pipe Line. Rock Cut 26 Feet Deep

WILTON PIPE LINE RESERVOIR. LOOKING SOUTH

South Norwalk's Filter System

ADOPTED BY DOVER, N. H.

DOVER, N. H., Oct. 3, 1908.

Board of Water Commissioners, Water Department, South Norwalk, Conn.:

GENTLEMEN—In recognition of the courteous attention extended to our committee last spring while visiting your city, we desire to express our great appreciation.

At the first of this year, the Water Commissioners of Dover, N. H., deemed it advisable to have our city water filtered, and at once began an investigation on the subject, and at the suggestion of Mr. William S. Johnson, a noted hydraulic engineer, and whom we afterward employed, the commissioners visited the city of South Norwalk, Conn.

We were met at South Norwalk by members of the water board who royally entertained us, and during our inspection of the filter plant, every detail was explained, and our board at once decided that a like system would be the proper thing for us to install, and consequently we now have well under construction a filter plant on exactly the same plan.

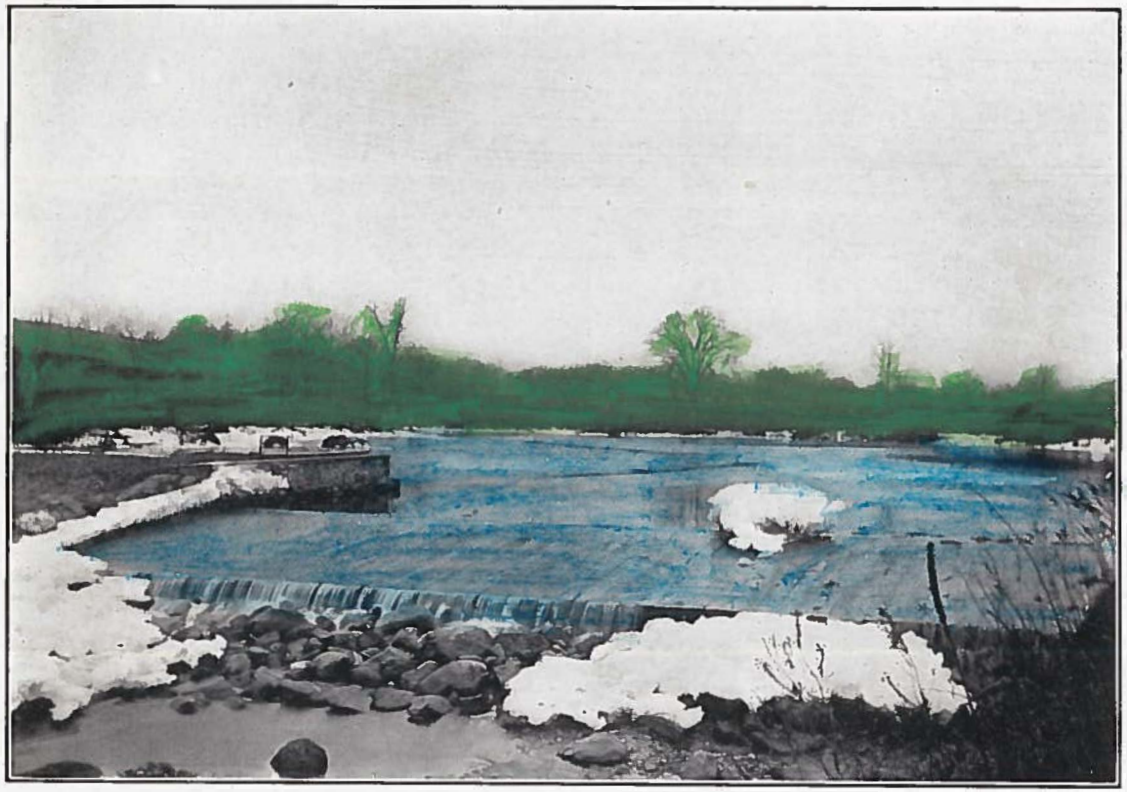
As the Water Department of Dover is a municipal resource, its members are generally interested in municipal affairs, and it was with much gratitude and pleasure that we learned that the entire electric light and power, as well as police and fire alarm systems of South Norwalk were owned and operated by the city, and to our surprise we were informed that South Norwalk, which is well lighted, pays a little more than half of what other cities are required to pay for their lights when purchased from an outside source.

During our visit it was our pleasure to be taken about the city and into some of the manufacturing factories, and we were highly pleased with the appearance of both, particularly the city, whose streets were exceptionally clean, also the buildings and their surroundings; in fact, the city is a model one and thoroughly up to date, and those who have been instrumental in attaining such a standard should be congratulated. We would be pleased to have you visit us at any time, and thanking you for your courtesy, we are,

Respectfully yours,

W. J. WEBB, *Clerk*,
M. J. WHITE, *Mayor*,
H. K. OWEN,
B. HANSON,
} *Water Commissioners.*

H. E. PERRY, *Superintendent.*



Wilton Pipe Line—Dam and Overflow

Extracts from Messages of Mayors Dow and Burnell

Extract from Mayor Charles E. Dow's Fourth Annual Message, January 7, 1907.

"The good business principles that have been applied to the conduct of this department in the past have obtained during the year just closed. In pursuance of the action of the city meeting of July 24th, last, in appropriating $100,000 for the building of a suitable sand filter for the city water supply, contract therefore was duly awarded by the Commissioners, and the work has been for some time in progress."

Extract from Mayor Francis I. Burnell's First Annual Message, January 10, 1908.

"A new filter costing $100,000 will be completed in a few weeks, insuring much better water than at present. The Water Commissioners have the confidence of the community, and have done excellent work."

Extract from Mayor Francis I. Burnell's Second Annual Message, January 5, 1909.

"The city's water system is all that could be desired. The new filtration plant was put in commission in May, 1908, and since that time pure water of the finest quality has been supplied the city. A new house has been especially erected for the care-taker, thus assuring constant care over this excellent plant. It is a pleasure to state that from the time the filter was put into operation there has been no cause for complaint either as to quantity or quality of water."

According to South Norwalk physicians, the water filter recently constructed there has had this effect: the people are drinking pure water and twice as much of it as they did before. Health conditions, says one authority, have been improved fifty per cent. This counts as though the filter would soon pay for itself; besides, people who drink freely of water are likely to drink less of something else.—*Ansonia Sentinel.* Jan. 8, 1909.

North Wilton Watershed

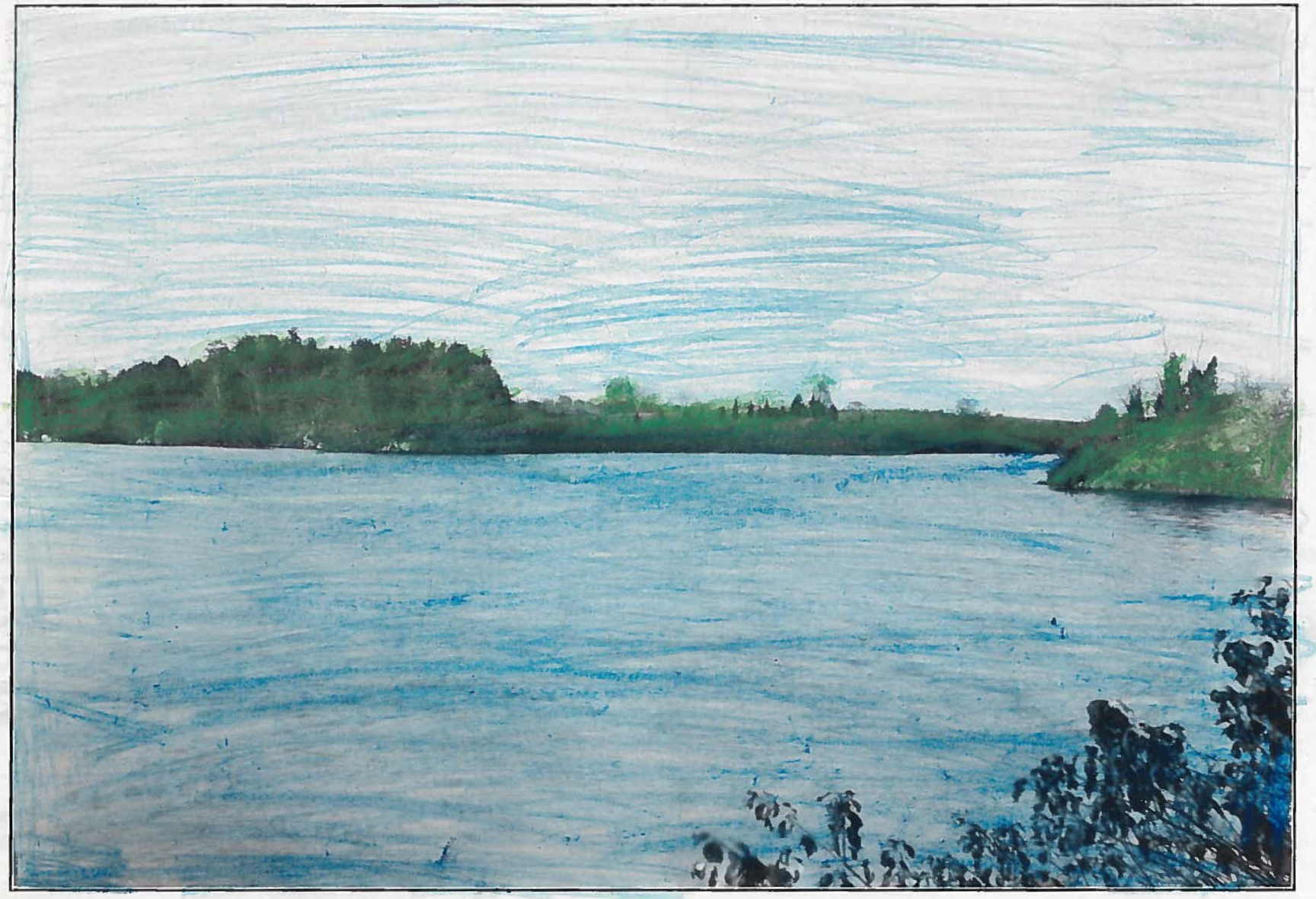
THE North Wilton water-shed which includes the East and West Branch of the Wilton stream, add nearly seven square miles to South Norwalk's water supply. Right of way, thirty feet in width, across the country from the East Wilton valley, to the West Wilton valley, was purchased and deeded to the city. A small dam was erected below the junction of the two streams, (the Barrett and the Comstock brooks), to retain the water sufficient to supply the pipe line. From this dam was laid a twenty inch, double strength, three feet lengths, vitrified pipe. About 7,200 feet of pipe line was laid to hydraulic grade, four-inch drop to every one hundred feet. This pipe discharges at the upper end of the City Lake Reservoir, as shown in cut. With rare exceptions, this will supply water eleven months in the year. No State Board of Health would allow water from the new watershed to be brought to the city direct and distributed for domestic use, unless sedimentation or some method of purification whereby the impurities and bacteria could be sufficiently diminished to prevent injury to health.

Wilton Pipe Line. Delivering Water to City Lake

The cost of the entire work, securing right of way, purchase of properties, building of dam, laying 7,200 feet of pipe line, settling of water right damages, (which were adjusted by commissioners appointed by the court), was about $55,000.00.

The first test of the pipe line, on November 2, 1903, demonstrated that the flowage was at the rate of 7,500,000 gallons per twenty-four hours, which was the basis that the Engineer and Commissioners had estimated when planning the work. The securing of this additional area of watershed, increased the supply source of the city water system about seventy-five per cent.

"The queer thing about a great man is that he never seems to work hard at it."



ROCK LAKE RESERVOIR

Elevation Above High Water, 327 Feet. Storage Capacity, 165,000,000 Gallons

Residence, 66 West Avenue

Stephen S. Hatch, who was elected a member of the Board of Water Commissioners in 1895, became a resident of our City during the year of 1860. Mr. Hatch in all of his public work has been an ardent supporter of permanent and substantial improvements, ratherthan temporary work, that served only for the present exigency. He was elected a member of the City Board of Councilmen in 1895, serving four consecutive terms, as chairman of the finance committee, and was president of the board the last three years of his official term. A vacancy in the Board of Water Commissioners occurred in June 1895, and Mr. Hatch was appointed to fill the position by his associates. During his first visits to the city reservoirs and water-shed, Mr. Hatch recognized the evident need of increased water supply, and advised securing additional reserve. He has always advocated that the public water supply should be purified by filtration, to secure absolute safety for the health of the people of our city. During Mr. Hatch's term of office as councilman, he was a member of the committee to investigate and report on the advisability of the City supplying commercial lighting and power, both of which he favored and voted for. Mr. Hatch was the father of the city annual year book; he recommended that all the City Departments should make annual reports, showing their receipts and expenditures, and have them printed in book form, that the tax-payers and citizens might know just how the public moneys were used. During the earlier history of the city water works, the administration and the clerical work was transacted in a private office, in connection with other business. Mr. Hatch at the commencement of his duties as Water Commissioner, devoted his entire spare time for several months, and with the assistance of Mr. John W. Dake, compiled the essential details, and collected together all matters relative to the public water system. The present office was established, accounts were classified, a set of double entry books opened and a general business basis adopted. These services have proved to be of inestimable value to the city. The water department records show in detail all revenues received, and the disposition of all expenditures. Mr. Hatch has been re-elected to office for four terms and has served on the Board about fourteen years. It has been his pleasure to see the water rates, which were $19,000.00 in 1895, increase to $34,000.00, received in 1908. No task is too arduous nor sacrifice too great for Mr. Hatch to consider, if it pertains to the public water system.

Stephen S. Hatch

Letter from Bunting-Bull Co.

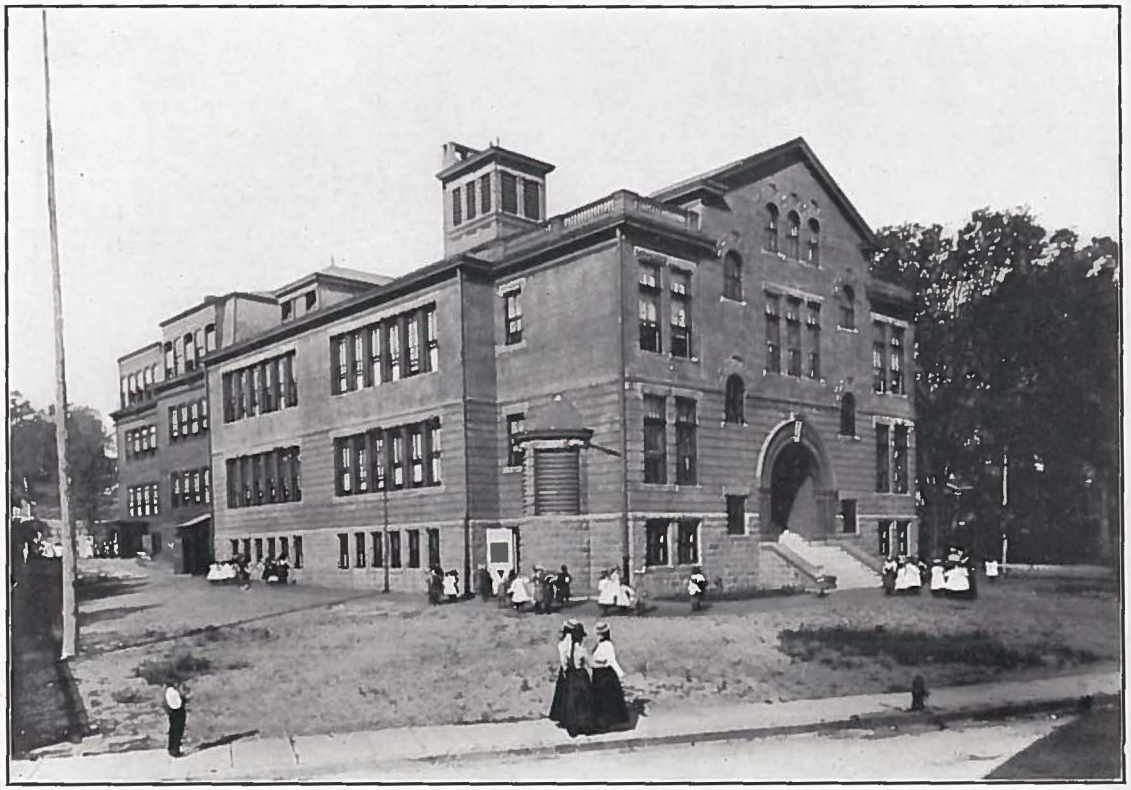
ONE of South Norwalk's citizens wrote to the Bunting Company, making inquiry about the quality of materials used, and the character of the work done in the construction of the filtration plant at Wilton. The following reply was received:

THE BUNTING-BULL CO.,
CONTRACTORS,
Lever Building, Main Street,
FLUSHING, N. Y., Oct. 5, 1908.

Mr. ————, South Norwalk, Conn.:

MY DEAR SIR—I have at hand your letter of September 19th, which I am pleased to answer to the best of my ability.

Our experience in all kinds of concrete construction covers a long period. Among the many contracts we have executed might be mentioned the reservoir and dam for New London, Conn.; Bear Hill reservoir for the Metropolitan Water Board, Boston, Mass.; sewage disposal plant at Rockville, Conn.; a concrete gas tank for the New Haven Gas Company; concrete arches for the Norfolk & Western R. R. Company, and filters for the New Haven Water Company.



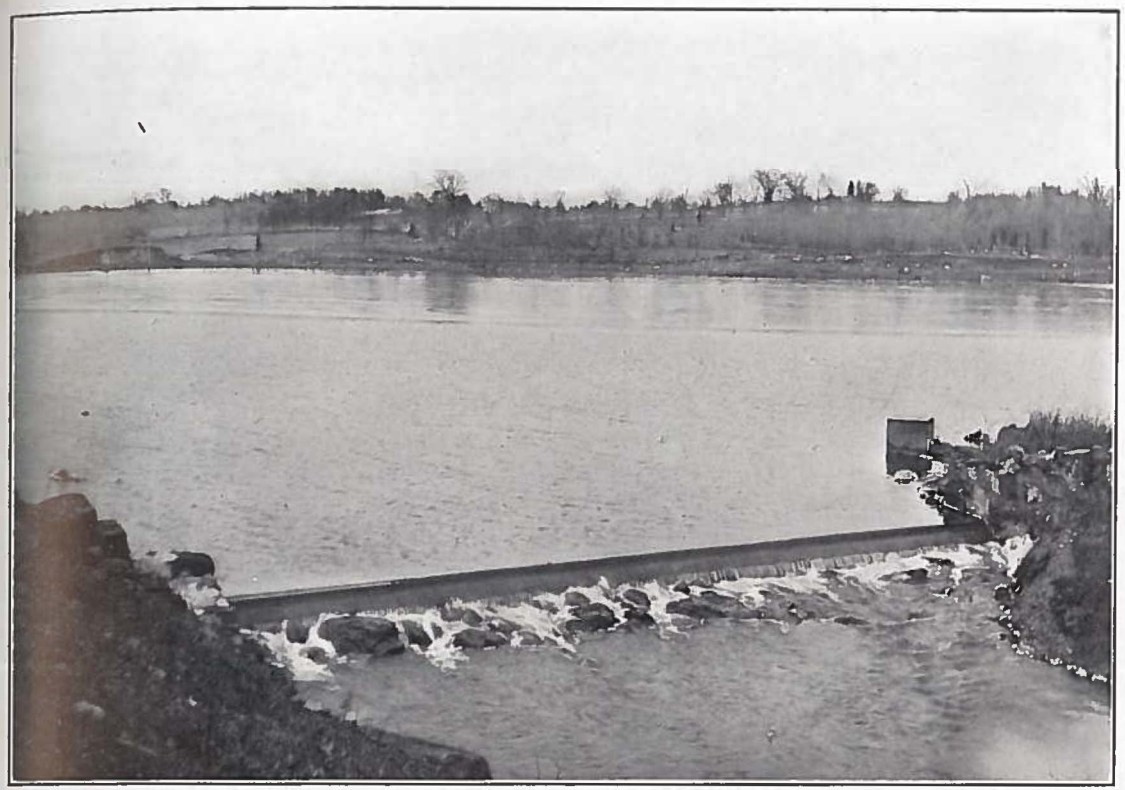
FRANKLIN STREET SCHOOL. PROPERTY VALUE, $80,000.00

The filters we built for South Norwalk we consider one of our best pieces of work. It was well built by skilled mechanics and constructed with the very best materials. Edison cement was used and gave excellent satisfaction. The sand was good, clean and sharp. The stone was mostly broken stone crushed on the work from field stone and boulders found in the excavation, and a small quantity of gravel. The concrete was well mixed and very rich, well tamped and spaded when placed.

The work was executed under the direction of Mr. Samuel Hoyt, Jr., the city engineer, who was untiring in his duties, conscientious and greatly interested in his work, yet at all times fair to the contractors. Mr. Hoyt was ably assisted by two inspectors who were constantly on the work.

A great amount of credit is due to the three commissioners for their interest and for the large amount of work they did in connection with the construction of this plant. They were frequent visitors at the filter, and I do not believe a Saturday went by without seeing them on the job, and they always brought visitors with them. I believe that the city of South Norwalk should certainly be congratulated for having such representatives.

Yours truly,
J. E. BUNTING.



City Lake Reservoir Overflow. With Weir

Valuable Statistics

THE daily records taken at the city filtration plant are sent to the water commissioners' office in Washington Street every Monday. The summary of these weekly reports will be posted in the public library every Tuesday, so that our citizens may see the results of the work done. The records are made each hour, day and night, and embrace the temperature, time of storms, amount of rainfall and of snow, prevailing way of the wind, condition of water in reservoir, highest and lowest rate of filtering, number of gallons of water filtered daily, temperature of water in reservoir and temperature of same after it is filtered, and many other details. While the entire community are delighted with having good water, it is hardly possible for us to estimate the importance of this work or the general benefit that it will bring to us as a city and community. These records, on account of their detail and accuracy, will go into the State and national statistics which are published annually. In the near future all trustworthy and authoritative reference books on hydraulics and meteorological subjects, in our own country and abroad, will incorporate the statistics of the South Norwalk filtration plant. The silent influence going forth from the scattering abroad of this knowledge must in due season be productive of good. Those who are in quest of a pleasant suburban home will be attracted. The business that depends upon a supply of good water for its greatest success can be invited to locate here. It is hoped that the new filter will perform a double duty; first, in furnishing good water; second, that it will serve as a sign post by the way, with its index finger ever pointing, "This Way to South Norwalk."—*Evening Sentinel, May 30th, 1908.*

"Most people give advice about things they don't understand."

CITY LAKE RESERVOIR

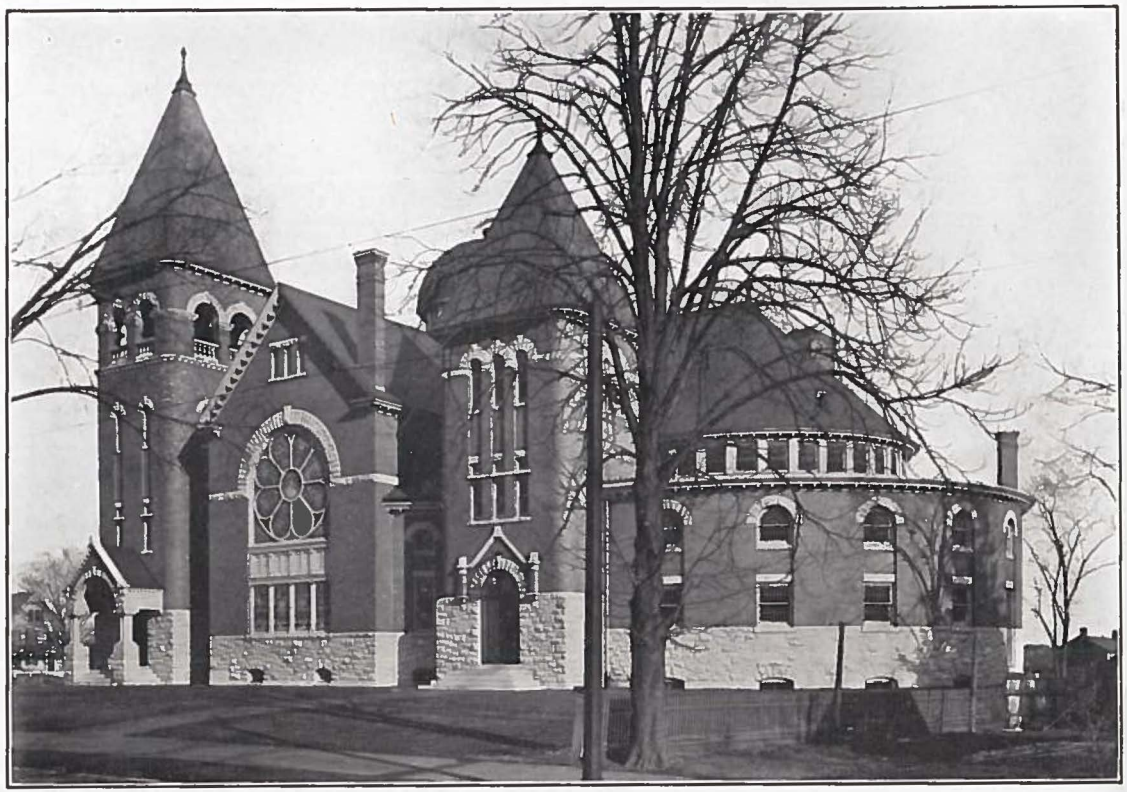
Elevation, 266 Feet. Capacity, 500,000,000 Gallons. One and One Half Miles Long

Residence, 68 West Avenue

Christian Swartz

Christian Swartz, who was elected a member of the Board of Water Commissioners in 1900, came to South Norwalk during 1868. He was a young man of aggressive character, and soon took an active interest in public matters. Mr. Swartz at the age of eighteen enlisted in the Union cause in the Civil War, and served until the war closed. Mr. Swartz was elected a member of the City Board of Councilmen in 1878, and was elected Mayor of the city in 1880. He was elected Mayor again in 1882. From 1884 to 1887, Mr. Swartz was Sheriff of Fairfield County. During 1882 when the organization of the City National Bank took place, he was elected on the Board of Directors, and from that time till the present has served on the Board, being one of the active and progressive managers of this successful institution. For fourteen years, dating from 1893, Mr. Swartz has been a member of the State Shell-fish Commission, serving with two other members. In the re-organization of the Norwalk Lock Company, he was elected one of the directors and still continues as such. In every position of public life and work that Mr. Swartz personally interests himself, he pursues an aggressive course of action. At the present time, he is president of the Norwalk Hospital Association, also president of the Town Board of Estimate and Taxation. Mr. Swartz has served on the Water Board three full terms and was re-elected last October for the fourth time; he is now serving his tenth year in this capacity. He was one of the charter life-members of the South Norwalk Free Public Library and Reading Room, and rendered efficient aid in getting this valuable institution established on a permanent basis. His service to the city and to the general public has been of the best and highest kind. Through official associations and society affiliations, Mr. Swartz has a large circle of friends and is well and favorably known throughout the entire state.

South Norwalk Health



First Methodist Episcopal Church—West Avenue. Property Value, $75,000.00. Organized 1790

"IN my opinion the new South Norwalk water filter will have saved the people of the city $25,000 in doctors' bills and the expenses of sickness by the end of the first year," remarked Dr. Henry C. Sherer, the South Norwalk health officer, this morning.

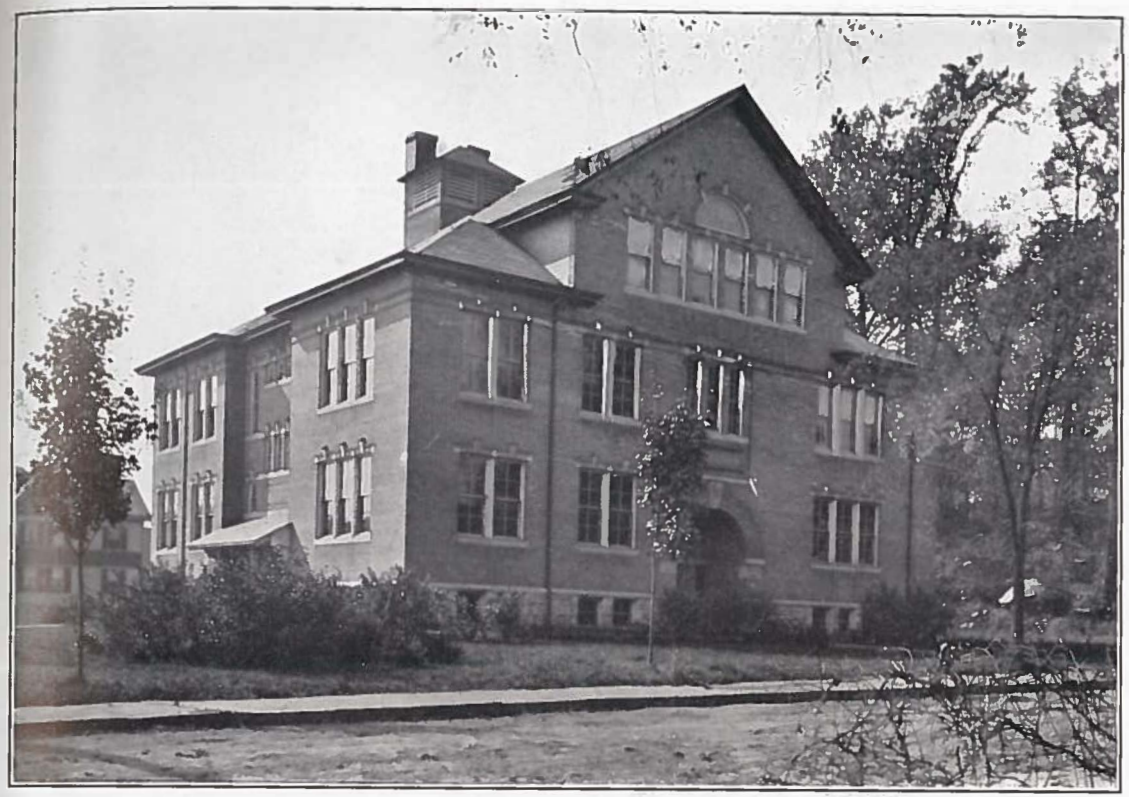
This interesting declaration came in connection with the announcement that not a single case of disease had been placed under quarantine in South Norwalk since early in November. There were three cases of scarlet fever—one in Day Street and two in Bouton Street—early in November and not a single case of infectious disease had been reported to him since that time.

Dr. Sherer stated that other parts of the town and the neighboring parts of the State had experienced no such wonderful revolution in the health of the people, while in South Norwalk the health had improved 50 per cent. in the last six months. The change is partly the result of the prompt and thorough work of the city's health department under Dr. George S. Kendall for the past few years, and partly the result of the good, filtered water the people are drinking.

"Not only are the people of South Norwalk now drinking good water, but they are drinking twice as much water as they did before the filter was installed, and this is a step toward good health," remarked another local physician when consulted on this matter this morning.

"It is a fallacy to think that cold weather means health," this doctor went on to explain. "Several years ago, when we had a cold, dry winter, an ideal season for health, according to the popular superstition, I nearly killed both of my horses attending to my business, and the other doctors had the same experience. This winter—and my experience shows that during all mild winters in this section—our practice is cut in half."

When it is considered that not only are the people of South Norwalk improving their health with the free use of the water from the new filter, but are saving, according to a practical estimate, the sum of $25,000 a year in doctors' fees and the expenses of sickness and of quarantine, the filter has surely been a paying venture. Accepting these figures it will have paid for itself in five years' time, including extras and interest.—*Norwalk Hour, January 6th, 1909.*



LINCOLN SCHOOL—CONCORD AND CHESTNUT STREETS. PROPERTY VALUE, $50,000.00.

Interesting Extracts

Manufacturing Encouraged by Low Water Rates

NEW BEDFORD, MASS.

By an almost unanimous vote the City Council has adopted an ordinance reducing the rate for city water used for manufacturing purposes from the former rate of 15 cents to 10 cents a thousand gallons. The history of New Bedford's prosperity in manufacturing dates back to the establishment of a municipal water works founded by a bequest of $100,000 for that purpose. The rate was fixed at 2½ cents per thousand gallons until three years ago, when the rate was raised to 15 cents, as the city was short of funds. Last year the manufacturers petitioned for a five cent rate, but the Water Board, after a hearing, recommended the rate now established.

—*Municipal Journal*, June 24, 1908.

For filtered, chemically pure water. for manufacturing purposes, South Norwalk charges five cents a thousand gallons.

Government Aid Against "Water Poisoning"

WASHINGTON, D. C.

President Roosevelt has received a letter from Edward Hatch, Jr., Chairman of the New York Merchants' Association Pollution Committee, requesting the President's support of the efforts being made by the association and others to prevent "water poisoning." Mr. Hatch thinks that a few words of encouragement and suggestion from the President would serve to dispel the apathy and give an impetus to the movement for pure water. As the Federal government safeguards the health of the people by quarantine regulations, Mr. Hatch says it should also look after their general welfare in protecting them from the effects of sewage pollution in lakes and rivers. He mentions that 35,000 lives are lost annually by typhoid fever out of a total of 350,000 cases.—*Municipal Journal*, April 29, 1908.

When an Inch is One Hundred Tons

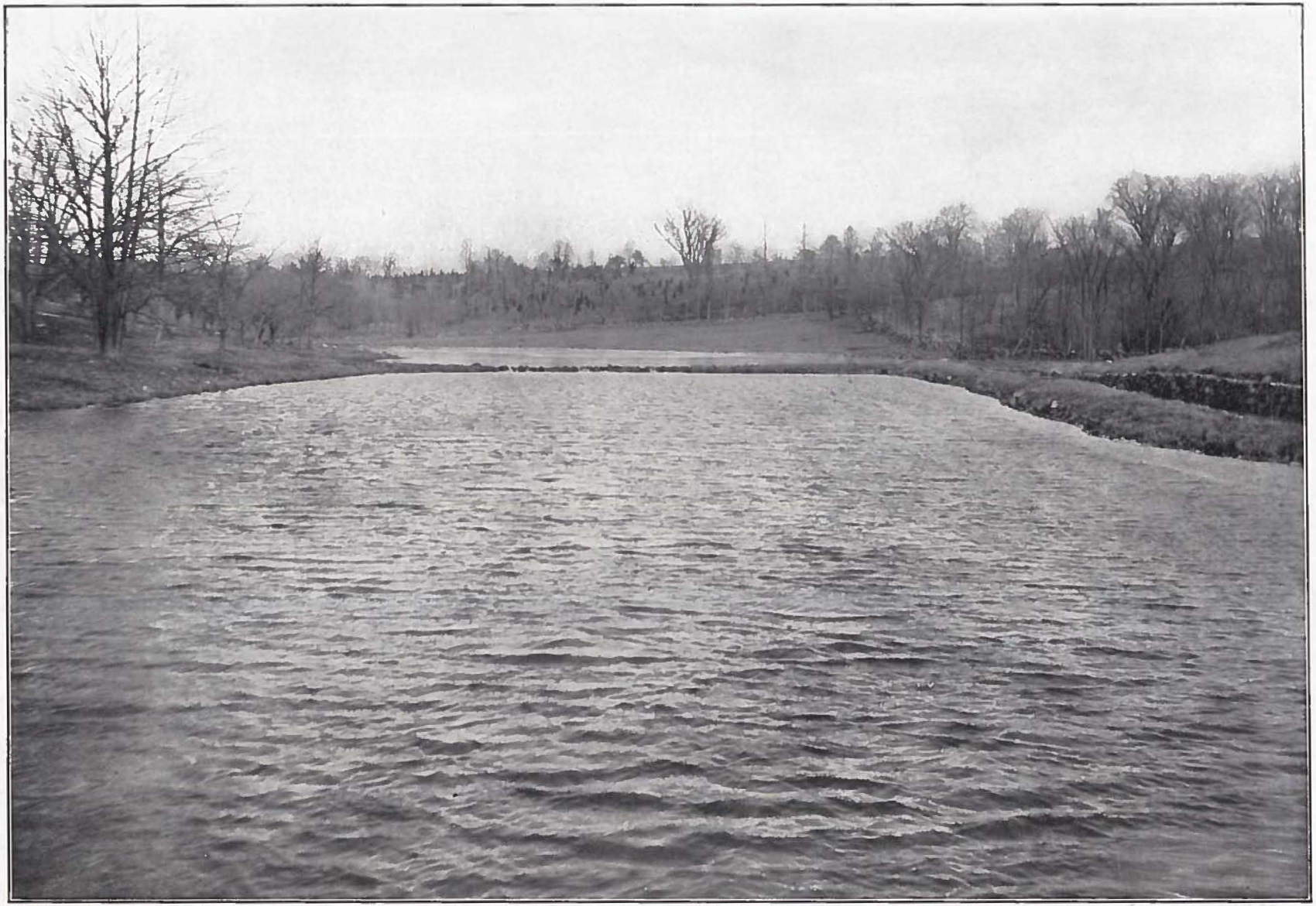
The rain fell in buckets, the thunder racketed terribly, and the lightning drew zigzag lines of bright gold upon the violet sky.

"So you, too, don't know what an inch of rain is exactly," said the weather clerk, as he looked at his rain-measuring instrument. "Very few people do, it seems. I'll explain it to you.

"An acre is 6,272,640 square inches. An inch of water on an acre is therefore 6,272.640 cubic inches. That amount, at 227 cubic inches to the gallon, equals 22,000 gallons, or 220,000 pounds, or 100 tons.

"An inch of rain is, in other words, rain falling at the rate of 100 tons to the acre."—*Philadelphia Bulletin.*

"Make it thy business to know thyself, which is the most difficult lesson in the world."—*Cervantes.*



CRYSTAL LAKE RESERVOIR.

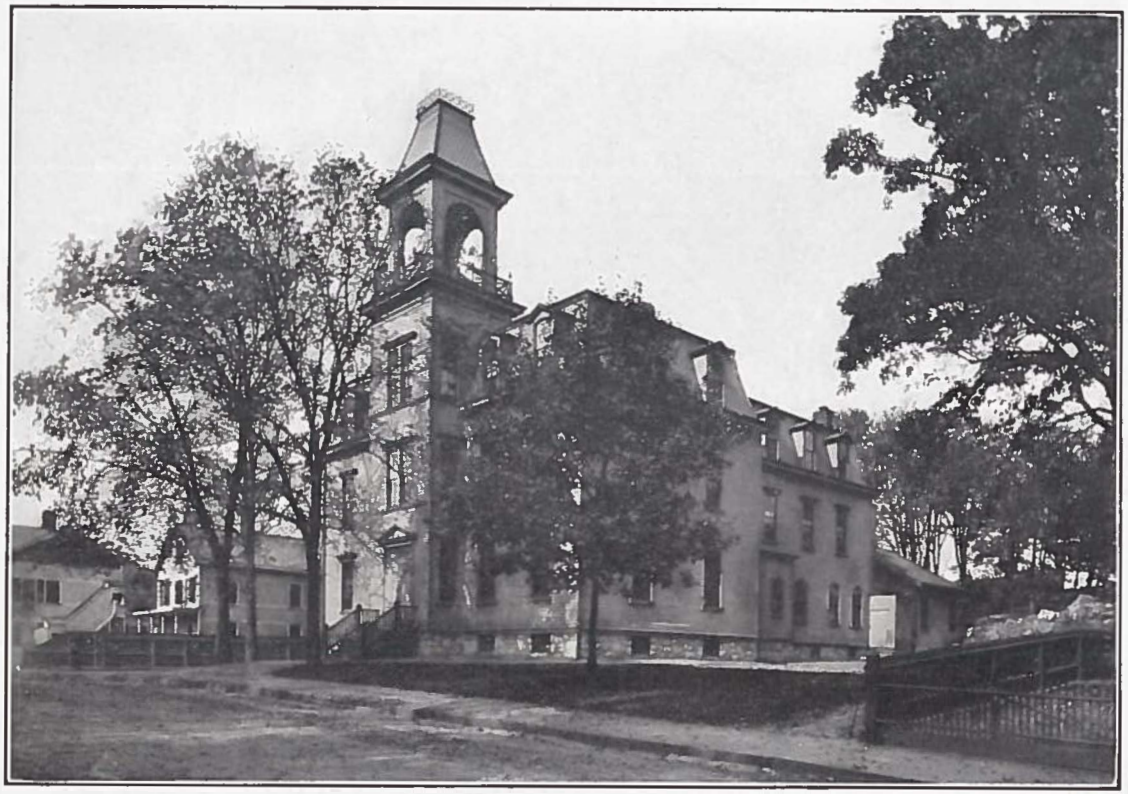
ELEVATION, 223 FEET. CAPACITY, 12,000,000 GALLONS

Franklin A. Smith

Residence, 71 West Street, Cor. Taylor Avenue

FRANKLIN A. SMITH, who was elected a member of the Board of Water Commissioners in 1902, has been a resident of South Norwalk since 1871. Mr. Smith has grown up among us, and has been identified with many of the features of public improvement and progress. Nothing will ruffle or disturb Mr. Smith so much as to hear anyone speak slightingly, or disclaim in any degree, the natural beauties and advantages that are to be found in every avenue of activity throughout the bounds of South Norwalk. Mr. Smith's first active public work was during 1886, when he was elected to the office of Registrar of Births, Marriages and Deaths for the town. He was a charter life member, and one of the vigilant promoters, of the South Norwalk Free Public Library. During the successive years Mr. Smith was elected a member of Union School District Committee. During his term of office, the Concord Street School Building was remodeled from a little two-room school house into the present modern building as it stands to-day. As a member of the City Council, he served as chairman of the Finance Committee, and was appointed a member of a committee of three to secure improved street lighting and postal service. This committee, after investigation and personal inspection of various lighting methods, introduced Electric Lighting (The Ball System) for the city streets. Through correspondence and consultation with Washington headquarters, free postal delivery was established. Mr. Smith was appointed a member of the first Board of Street Commissioners, which was created in 1898. He also served as Town Auditor and as Treasurer of Water Fund. Mr. Smith is a life director of the Norwalk Hospital and serves as treasurer of the association. He has been a trustee, and a member of the executive committee of The South Norwalk Trust Company since its incorporation in 1901, and is Vice-President of the Westport Water Co. Mr. Smith was appointed by the City Council in 1902 to fill a vacancy in the Board of Water Commissioners; he has been twice re-elected for three-year terms, and is now serving his eighth year. In all Mr. Smith's public work he has served the people faithfully and well, without partiality; every interest, and all people, receiving equal recognition.

Our Schools



Concord Street School. Property Value, $18,000.00

(COPY FROM ANNUAL REPORT OF 1907.)

THE number of scholars in the district is steadily increasing, the number now registered being 1,624. At Easter the large influx of young children necessitated opening an additional primary room, to which fifty pupils were transferred; yet the registration in the Knudsen Kindergarten now is 112 boys and girls, and in the Franklin Kindergarten 98. An extra primary may again be necessary in September.

The public common school has for its great purpose the training of the young to American citizenship. Its routine and discipline and its study of common branches all should tend toward this. Special stress should be placed upon the teaching of English. The school's work should be to make all its pupils masters of the elements of knowledge. Reading, writing, spelling, arithmetic must still be the backbone of its work. Our local public schools by tests held during the past year have shown that their pupils are getting well grounded in the essentials. A series of spelling examinations conducted in all grades showed well nigh marvelous power of accuracy in lists of commonly misspelled every day words. The power and skill in mental computations has received special attention, and the accuracy and facility of the higher grades in this work are marked features.

Success in these lines for the great mass of scholars is the fruit of earnest, persistent skill on the part of the corps of teachers.

The personnel of the teaching force of the city schools is above the average. The District has done wisely to recognize the merit of its teaching force, and year after year has retained in its employ its best teachers. The teaching body, however, has been thoroughly progressive, and while holding to the "best of the old" in the fundamental studies, has kept abreast of "the best of the new." Under an able Superintendent, with unity and oneness of purpose, with teachers of excellent ability and high ideals, the results have been such as compare favorably with New England standards.

Filtration a Success

SIX months ago to-day filtered water was turned into the city water mains. The Saturday afternoon that Mayor Burnell opened the gate and set the South Norwalk filtration plant in operation at Wilton marked one of the most notable events in the history of our city.

From that hour until the present time, without a single moment's intermission or the slightest interruption, from every faucet and service pipe has flowed pure water. If we pause and in our memories look back and compare the present water service with that of a year ago, the change seems little short of miraculous, and it arouses the profoundest regrets that procrastination should have had any place in such a needful necessity as public water.

BETH ISRAEL SYNAGOGUE. CORNER SOUTH MAIN AND CONCORD STREETS. PROPERTY VALUE, $16,000.00
ORGANIZED 1899

During these six months the water has been absolutely delicious; no color, odor or tastes have been seen. The continuous flow of clear, sparkling water has been a silent yet forceful witness that the filter project was a highly valuable investment for our citizens. The water department's untiring efforts in establishing the filter is receiving on every hand unstinted praise. The water commissioners have maintained for several years that it could be done, and that it was a great mistake and but little less than criminal to balance health and safety of human life in the scales of petty saving of a few dollars. If any were skeptical or any were opposed to filtration, through lack of knowledge on the subject, the results obtained from the practical successful demonstration of the problem affords the most convincing and conclusive evidence that filtration is a success.—*Evening Sentinel, November 2d, 1908.*

"Water is commoner than dirt—and more valuable than diamonds."

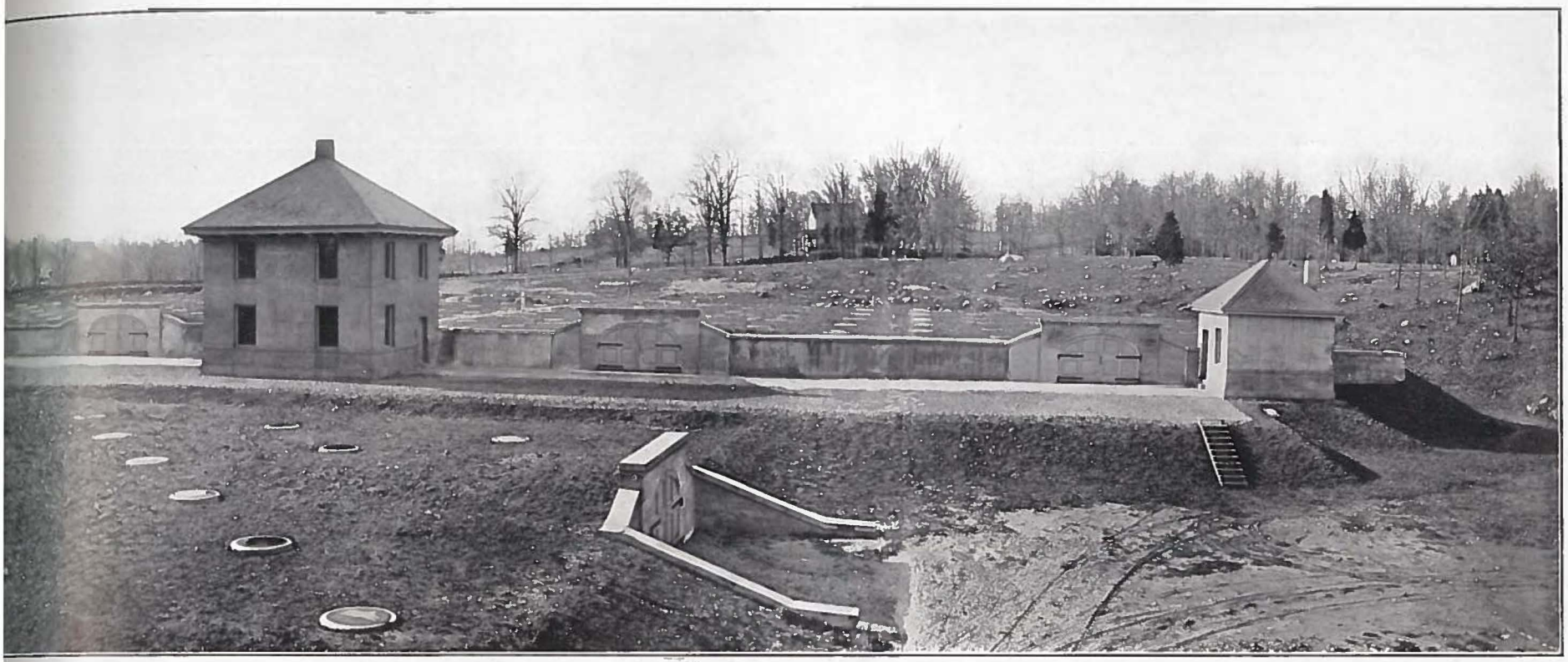
1809 EMANCIPATION 1909

ABRAHAM LINCOLN, the sixteenth President of the United States, was born February 12th, 1809. He was elected President November 6th, 1860, and re-elected for a second term November 8th, 1864. He was recognized throughout the world as the great "Emancipator." One evening a close friend of Lincoln was conversing with him about the living qualities of men. He said, "Mr. Lincoln, what one quality of character do you most desire?" Mr. Lincoln, after a moment or two of meditation, replied, "Above all other things, I most desire to be what people think me to be." This was Lincoln's practical definition of a manly man. "Lincoln despised all trickery and selfish greed. He loved manliness, truth and justice. He had unchanging faith in self government. Benevolence and forgiveness were the basis of his character. Rising with every opportunity, mastering every emergency, fulfilling every duty, he not only proved himself pre-eminently the man for the hour, but the signal benefactor of posterity."

CLEAR WATER BASIN PRIMARY SECTION NO. 4 PR

1874 EMANCIPATION 1909

IT is a passing coincidence, that with the celebration of the one hundreth anniversary of the great "Emancipator," Lincoln, we are privileged as a community to celebrate the first anniversary of emancipation from the unpleasant, and at times, serious conditions, that for many years have existed in our public water system. July 22, 1874, the General Assembly approved an act, entitled, "An Act to Provide a Supply of Pure and Wholesome Water to the City of South Norwalk." When the public water system was first put into operation, a twelve-inch pipe line, from the Crystal Lake Reservoir at Silver Mine, furnished the city with water. At the dam and inlet gateway



AERATOR CHAMBER OPERATING HOUSE PRIMARY SECTION NO. 2 SECONDARY FILTER PRIMARY SECTION NO. 1 FIRST AERATOR CHAMBER

EYE VIEW OF FILTRATION PLANT. LOOKING FROM THE EAST

ld Raises Its Loftiest Shaft to the Man 'Who Delivers the Goods'"

there was constructed a filter, composed of layers of charcoal and sponges. For a while this worked well and the water was clear and free from vegetable growths. It however soon got clogged and filled with the suspended substances in the water, and became unusable. Many of our people, probably, are not aware that the public water, over thirty years ago, was filtered. The plan proving impracticable, it was removed and abandoned. As additions were made to the storage capacity, and reserve water supply, the conditions gradually grew worse, the water becoming discolored and disagreeable in taste, at certain periods of the year. A suffering populace patiently endured these unpleasant qualities. Manufacturers overlooked the inconvenience, disadvantages and oftentimes loss, that was incurred on account of them. But the day of emancipation came. Every one hailed it with joy. To-day we celebrate the first anniversary of the "Pure and Wholesome Water."

Extracts from Correspondents

POUGHKEEPSIE, N. Y., Oct. 25, 1908.

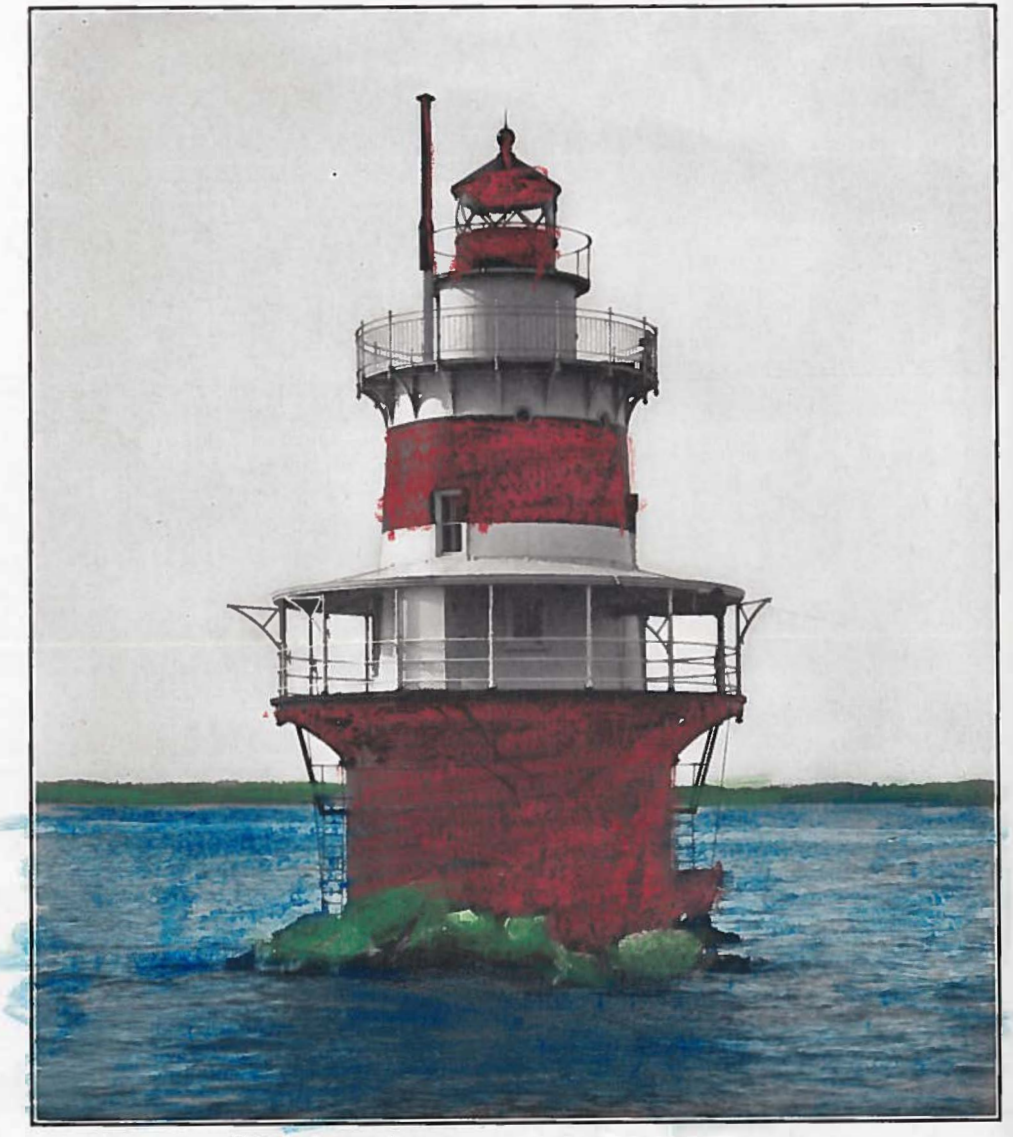
"Our filters were built in 1871. They are covered slow sand filters. The filters supply water for 31,000 people. The average daily consumption per capita is eighty-five gallons. The filters have been in continuous use for thirty-seven years. The analysis of water is good."

LAWRENCE, Mass., Oct. 24, 1908.

"We have slow sand filters. The open ones were built in 1893, covered ones in 1907. We supply water for 77,000 people. The average daily consumption per capita is forty-six gallons. The filters have been in continuous use for fifteen years. The water analysis show good results."

PHILADELPHIA, Pa., Oct. 24, 1908.

"Our filters were built in 1893-4-5. They are the covered slow sand filters. The filters furnish water for 880,000 people. The filters have been in use for about fourteen years and produce excellent results. The analysis of the filtered water show a high standard of purity."



PECK'S LEDGE LIGHT. SOUTH NORWALK HARBOR.

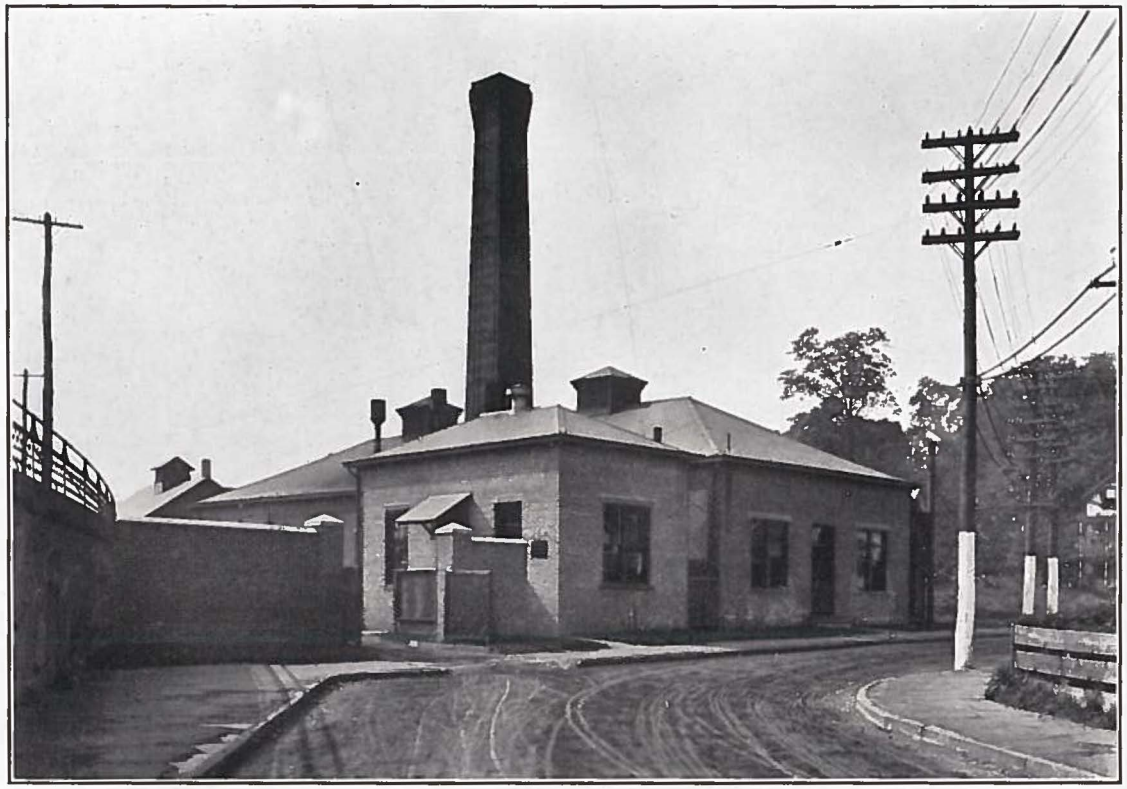
RESIDENCE, 192 SOUTH MAIN STREET

WILLIAM MORAN was appointed one of the special committee provided to assist the Water Commissioners in the detail of the building of the filter.

WILLIAM MORAN

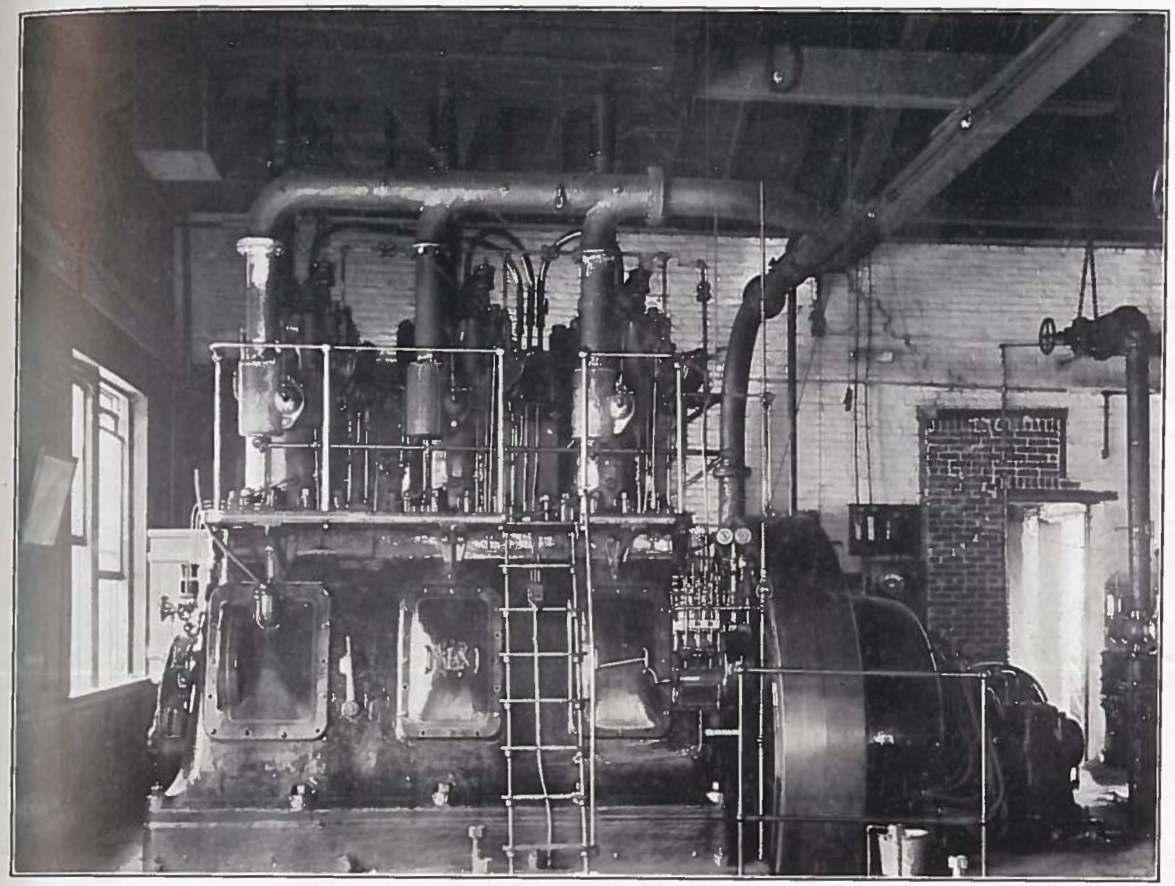
Mr. Moran, who is a native of South Orange, N. J., came to South Norwalk in 1871, and has since been actively identified with the hatting industry of this city. He has always avoided any position in public affairs, feeling that his business interests and the public welfare could not be simultaneously served with the justice due to each, but the question of a pure water supply has, for a number of years, been one to which he has given much thought and deep interest, believing that the most vital and most essential feature of any community is a pure water supply, and that one impure or polluted in any way, is a reproach to its people. Mr. Moran constructed a small filter in his factory, on the same principle as the one proposed to be erected for the city. The water went through two aërations and the required sand element; and during the entire summer when the public water was at its worst, Mr. Moran's filter furnished pure, clear, sparkling water, no color, odor, or taste. His employees and many of the near neighbors enjoyed having filtered water to drink during the season. Mr. Moran always makes a thorough investigation of details and determines the value of things on their merit. He seeks the fullest information that is obtainable, and is thereby enabled to conceive intelligent conclusions. His service on the committee was very helpful. It was a pleasure to Mr. Moran to be instrumental in bringing about a better state of affairs for South Norwalk.

South Norwalk Electric Works



South Norwalk Electric Works State Street.

THE power house is a substantial structure, practically fireproof, one and a half stories high, 48 feet wide by 109 feet long, with a coal house east of the boiler room, built in 1900. In the west side addition are a fire alarm battery room and a repair room built in 1898, also a laboratory built in 1900. A yard on the east with a driveway, inclosed by a walled front and main gateway built in 1907, contains a storage shed, built in the same year, and an ash deposit. The main building is divided by a fire wall into an engine room and a boiler room, which was nearly doubled in 1900. An office and stock room extension, built in 1907, adjoin the northeast corner. These were formerly in the front part of the main building. In the boiler room are four 125 horsepower return tubular boilers; No. 4 installed in 1892, No. 3 in 1898, Nos. 2 and 1 in 1900, all have water arches. The chimney, a massive brick structure, 91 feet high, resting on bed rock, was built in 1898; in its base is a fireproof vault for city records. The engine room contains four 100, one 255 to 300 horsepower Watertown high-speed engines and two 225 horsepower Diesel fuel oil engines. Each 100 horsepower engine is connected direct to a 60 k. w. generator, the 300 horsepower to a 165, and each Diesel to a 160 k. w. generator. All are 250 volts d. c. type, two of the 60 k. w. size were made by Siemens & Halske and two by the Eddy Co.; the 165 and two 160 k. w. generators were made by the Fort Wayne Electric Works. Units C and D were installed in 1898, E and F in 1900, B in 1903, G in 1905 and H in 1907. Unit A is a No. 12 Brush arc generator of 130 light capacity, connected direct to a General Electric 90 horsepower 250 volt d. c. motor and was installed in 1903 in place of the engine and the arc generators of the original 1892 equipment. Each of the Diesel units G and H is equipped with a Norwalk air compressor driven by a General Electric 25 horsepower motor. A marbleized slate switchboard, located at the west side of the room, from which the whole output is controlled, was built in 1898 in place of the original arc board. It was enlarged in 1900, 1903, 1905 and partially rebuilt and enlarged in 1907. The remaining equipment, briefly, consists of appliances for the operation and control of the city's fire alarm system, all of which were newly installed in 1097 in place of the unimproved original gravity battery apparatus; a telephone booth, damper regulator; two feed water heaters, one installed in 1892 and one in 1900; two steam feed pumps, the smaller installed in 1892 and the larger in 1900.



Diesel Fuel Oil Engine

South Norwalk Electric Works

The steam, exhaust and feed piping systems were extended in 1898, 1900 and 1903 and are designed for duplex service. A large whistle to signal employees and sound fire alarms, and three exhaust mufflers extend above the roof. The front and back ends of the main building consist of extensions added in 1900. Under the yard east of the driveway is a 3,350 gallon round fuel oil storage tank. Large outside doors open into the engine and boiler rooms. All floors are concrete, except in the boiler room, which is of paving brick on edge with stone flagging in front of the boilers. All doors through brick partitions are fireproof. Twenty-nine electrical conductors radiate from the station; 4 are high tension street arc mains, 8 low tension commercial feeders to the cribbed mains of the lighting and power system, 6 are pressure indicator wires, 2 light the station, 1 controls the city clock and bridge lights and the remaining 6 are for the fire alarm system.

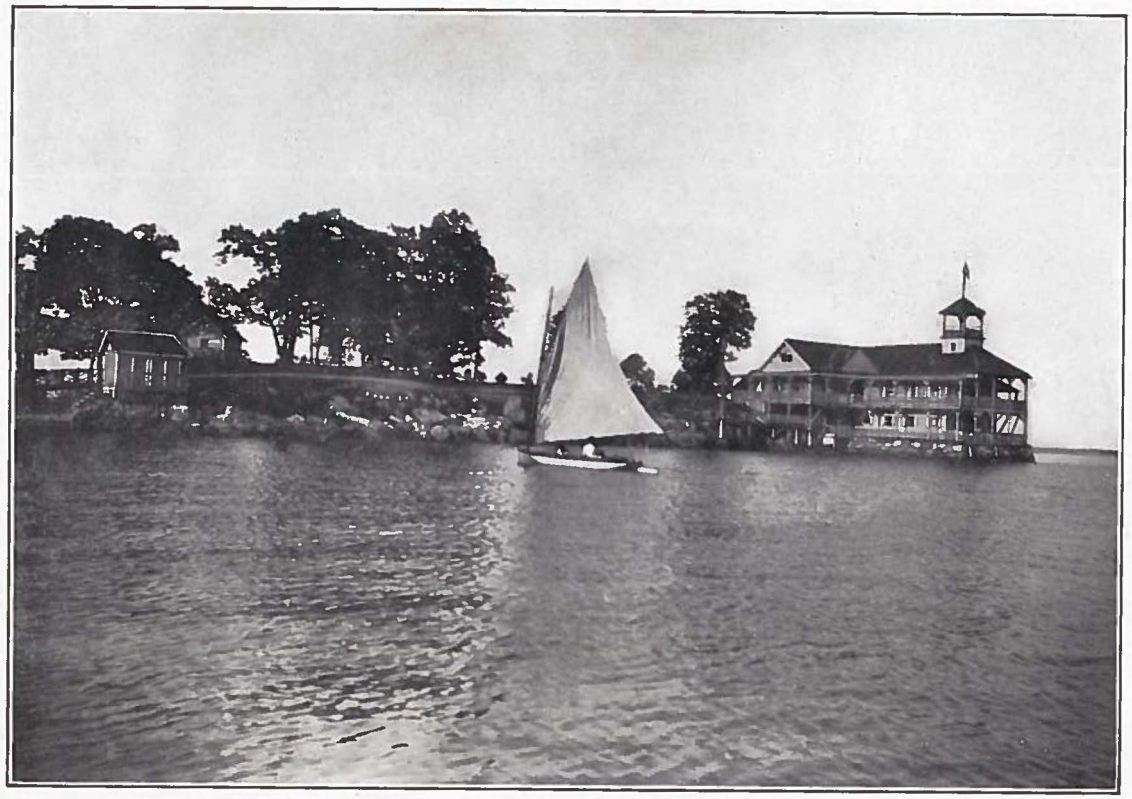
ELECTRICAL COMMISSIONERS

Joseph A. Volk — Charles N. Smith — Thomas Richardson

OPERATING STAFF

Albert E. Winchester, *General Superintendent*

August C. Knorr, *Clerk*
William Derringer, *Assistant*
William H. Mosher, *Chief Engineer*
J. William Drew, *Assistant Engineer*
Ransford Christopher, *Assistant Engineer*
H. P. Campbell, *Helper*
John W. Fant, *Fireman*
John F. Hanford, *Fireman*
R. W. Bray, *Meter Inspector*
J. W. Luddington, *Line Foreman*
Fred Koehler, *Lineman*
Ralph Le Croix, *Trimmer*



KNOB OUTING CLUB. SOUTH NORWALK HARBOR.

ISAAC S. JENNINGS, *President* WILLIAM H. ODELL, *Vice-President*
HENRY C. SHERER, M. D., *Secretary and Treasurer*

Extracts From Foreign Correspondents

72 GEORGE STREET,
EDINBURGH, SCOTLAND, October 27, 1908.

"Our filters were built as follows: four in 1879, two in 1888, two in 1895, two in 1906. They are open slow sand filters. We filter water for 300,000 people. The normal average consumption is 39 gallons per head, inclusive of all trade supplies. Filters have been in continuous use for 29 years. The water always has turned out good. Recent analysis of the water show that the filters are doing excellent work both from a chemical and a bacteriological point of view."

W. A. TAIT.

BREMEN, GERMANY, October 21, 1908.

"The filters were built in 1872. They are open slow sand filters. We supply water for 232,000 people. The average daily consumption is 49 gallons per capita. Filters have run continuously for 36 years. The water turns out good at all times."

GOTZ, *Director of Water Works.*

BERLIN, GERMANY, November 14, 1908.

"Water Works Filters were built in 1890-93-94-95. They are open slow sand filters. The filters supply water for 2,161,246 people. The average daily consumption per person is 24 gallons. Filters have been in use for 16 years. The water has been good at all times."

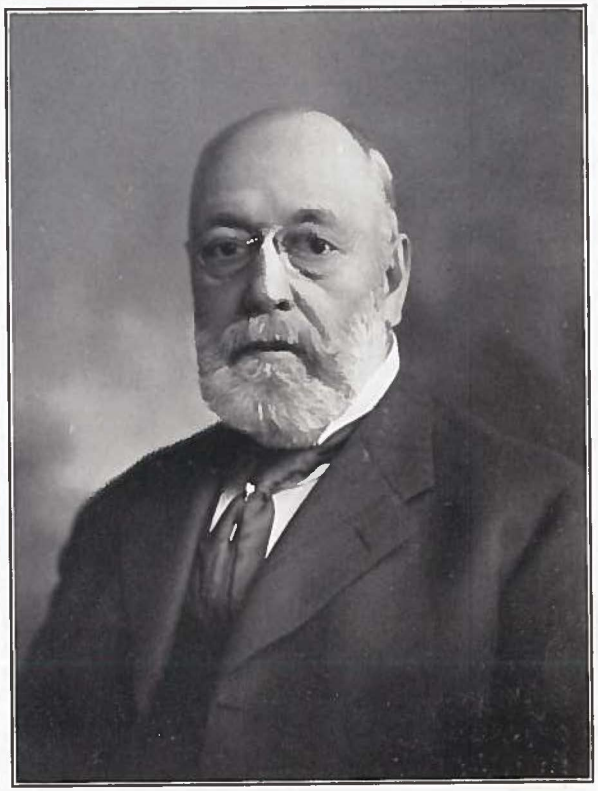
EGGERT, *Director of Water Works.*

A TESTIMONIAL.

The pages of this souvenir book contain the illustrations of our church edifices. They represent various denominations and creeds. These church buildings are modern and attractive in exterior, and have been erected or remodeled during recent years. They are commodious, cheerful and inviting in their auditoriums and are conveniently located on the principal streets, easy of access. The investment in church edifices of $283,000 in this community, and each of the several societies having large and flourishing congregations, furnish a forceful and commendable testimonial of the substantial character of South Norwalk.

Residence, 64 West Avenue

EDWIN H. MATHEWSON was appointed a member of the special committee, to act with the Board of Water Commissioners, in the investigation, the selection of method, and in the construction of the City Filtration Plant. Mr. Mathewson cast his lot in South Norwalk when a young man, his first vote being deposited in our city. In affairs relating to the best welfare of the community, and for the advancement and progress of public service, he has always advocated that what was worth doing at all, was worth doing well.



Edwin H. Mathewson

Governor Phineas C. Lounsbury appointed Mr. Mathewson on the Governor's Staff, with the rank of Colonel. Since his two years of service for the state, his military title has remained with him, and he is usually hailed by his many friends as Colonel.

Mr. Mathewson has always been a worker, willing and ready to serve the city, in public duties of committee work and associated conference, but has insistently declined accepting any public office. He was one of the organizers of the City National Bank in April, 1882, and served on the Board of Directors, from that time until January, 1904, when he was elected president of the bank, which position he still occupies. For the past twenty years Mr. Mathewson has been a director in the United Shoe Machinery Corporation. This company has developed into one of the large and extensive business ventures of the country. The several business enterprises of Mr. Mathewson have necessitated a good deal of travel, extending through a large part of the United States, with numerous trips abroad. He has had unlimited opportunities for acquiring knowledge, through actual observation of things, and personal contact with people engaged in public work. On this account Mr. Mathewson was a valuable member of the committee, and proved a very efficient and untiring worker in the various duties that he was called on to perform. He is a staunch believer that a bright future is in store for South Norwalk, and that good water will be an important factor in bringing it about.

Extracts from Foreign Correspondents

ZURICH, Switzerland, Oct. 21, 1908.

"FIRST filters were installed in 1885 and added to in 1892. They are covered slow sand filters. The filters supply a population of 180,000. The average daily consumption of water is about sixty gallons per capita. The filters have been in constant use for twenty-three years. The water turns out excellent. The filters consist of the double filtration system. In the first filters they are cleaned mechanically by air pressure; in the first filters impurities are kept back. The second or purification filters cleanse the water of all bacteria. The last filters built are constructed after the pattern of the English sand filters.

"T. PETER,
"Zurich Water Works Director."

COUNTRY CLUB—SOUTH NORWALK HARBOR

RICHARD H. GOLDEN, *President* — CHARLES E. HOYT, *Secretary*
CARL A. HARSTROM, *Vice-President* — JOHN W. OLMSTED, *Treasurer*

HAMBURG, Germany, Nov. 18, 1908.

"We built eighteen filters in 1890-93 and four filters in 1897-98. They are open slow sand filters. The filters supply water for 848,000 people. The average consumption per capita for 1907 was forty-one gallons. The filters have been in constant use for sixteen years and the water has been good at all times."

CUNETER,
Director of Water Works.

(For translation we are indebted to Miss Helen Swartz and Mr. Otto Barthol.)

PUBLIC UTILITIES AND MUNICIPAL OWNERSHIP.

There is no possible reason in pure logic why a city, for instance, should supply its inhabitants with water, and allow private companies to supply them with gas, any more than there is why the general government should take charge of the delivery of letters but not of telegrams.

—THEODORE ROOSEVELT.

Residence, 72 West Avenue

Richard H. Golden

RICHARD H. GOLDEN was appointed a member of the special committee on Filtration to act with the Water Commissioners.

Mr. Golden was born in Glen Cove, L. I. He came to South Norwalk in the fall of 1872, and entered in partnership with James Golden in the South Norwalk *Sentinel.* During 1887 he formed a partnership with the late Gen. Nelson Taylor in the real estate and insurance business, under the firm name of Taylor & Golden, and at present is doing one of the largest businesses of south-west Connecticut. Mr. Golden has taken a lively interest in the growth of the Norwalks, both socially and politically. He was Mayor of the city of South Norwalk in 1884. Afterwards served one year in the Common Council. He has served as committeeman of the South Norwalk Union School District. Mr. Golden was one of the originators of the South Norwalk Public Library and is a director of same. He is a director of the Norwalk Hospital Association, and a director of the Westport Water Company. Mr. Golden has been secretary of The Norwalk Building, Loan and Investment Association since its organization in 1889, and is treasurer of The Norwalk Towing Company. Mr. Golden was president of the Knob Outing Club for fifteen years, and was one of the promoters of the Norwalk Country Club and is president of same. Mr. Golden has taken an active interest in the development of Belle Island, located on the shore, in South Norwalk Harbor, one of the most popular summer resorts between Stamford and Bridgeport, on Long Island Sound, and has served as president of the Belle Island Improvement Association. He has been appointed by Judges of the Superior Court as commissioner on several public improvements, being considered an expert on real estate values, and also an adjuster of fire losses. Mr. Golden is president of The South Norwalk Trust Company, and largely through his efforts the charter was procured and the company organized. Mr. Golden was an enthusiastic member of the committee and was always ready to undertake any work that had for its object a better public water service for the community.

Baptist Church—West Avenue. Property Value, $37,000.00. Organized 1859

Meters and Water Consumption

HARTFORD, CONN., WATER WORKS

THE following table is an exhibit of the number of meters in use and the daily per capita consumption by years. The 84.6 gallons per capita opposite the year 1900 may be taken as the best information that we have of the per capita consumption previous to general metering, and was computed from scattering Venturi meter readings. In 1902 the automatic register was attached to the Venturi and since that time the records are reliable.

Year.	No. of Services in Use.	No. of Meters in Use.	Per Capita Consumption Gals. per Day.
1900	8,951	550	84.6
1901	9,256	2,783	76.3
1902	9,514	6,993	78 8
1903	9,683	9,156	75.0
1904	9,809	9,604	66.7
1905	10,006	9,860	62 6
1906	10,328	10,137	61.6
1907	10,623	10,433	59.1

These figures are based upon the total population supplied, which at present is estimated to be:

1900.	Population 90,000.	86 gallons daily.		7,560,000.
1907.	" 113,000,	59	" "	6,667,000.

N. E. W. W. A., Sept. 24, 1908.

WATER METERS AT MINNEAPOLIS

Minneapolis, Minn., in the three years from January 1, 1905, to January 1, 1908, has increased the number of meters in service from 11,044 to 22,660. At the latter date there were less than 8,000 unmetered services in the city, most of them furnishing very small consumers and over 800 of them being used for lawn sprinkling in the summer season only. It is the policy of the department to require meters to be placed on these connections wherever a waste of water is found or new fixtures are added.

The effect of installing meters is indicated by the fact that between 1903 and 1908 more than 57 miles of water mains and 7,000 consumers were added, but the total consumption meantime decreased from 7,467,840,050 gallons to 6,420,027,030 gallons. The per capita daily consumption was 58.6 gallons. The meters making the best showing, on the basis of percentage condemned, were the Nash, Keystone and Trident.—*M. J.*, September 16, 1908.

Typhoid Fever

KINDERGARTEN SCHOOL—CHESTNUT STREET. PROPERTY VALUE, $10,000 00

SO much has been written on the danger of impure drinking water, and so many epidemics of typhoid fever have been traced to this source, that it seems almost needless to utter a warning against the use of "raw" water when there is the slightest suspicion that such water may not be absolutely pure. Yet so strong is the force of conservatism and so impatient are many with the seeming overcautiousness of modern sanitary teaching that the warning, and the reasons for it cannot be too often repeated. If such warning is heeded by only one family and a visitation of typhoid fever is thereby averted, it will have been well worth while.

The water supply of every large city, taken from a river, a lake or a number of streams, unless there is a system of sand filtration at the reservoir, is never absolutely safe. A single case of typhoid fever on the banks of the river or of any of the small streams which contribute to the supply may contaminate the water and give rise to other cases lower down on the stream and the aggregate of pollution in the water may soon render dangerous the city supply to which it contributes.

The course of the underground water flow is so erratic that the country dweller can never be sure that his well, however securely situated it may seem to be, may not become fouled with seepings from his own or his neighbor's cesspool.

Typhoid fever, not to mention other diseases which may be spread by means of the water supply, is, it should be remembered, a country disease. It seems to be a city disease; but this is only because there are more people in a city, and so the number of cases is larger and the number attracts attention. In almost every case, the exceptions being so rare that they need not be considered, the infection is brought from the country, either in the water supply or in the bodies of those who got it while staying in the country by quenching their thirst from "the old oaken bucket" of sentimental fame.

There are, it is true, other means by which the infection is spread—flies, for example, which may carry the germs from the sick-room to the kitchen or dining room. This is probably the most effective means for the spread of typhoid in military camps. Salads or vegetables, eaten raw, may be contaminated either from water or from manure used as fertilizer. Nevertheless, the most common mode of the spread of typhoid and dysentery is through the medium of water, and the wise man will avoid the danger by boiling every drop of water used for drinking and cooking purposes.—*Youth's Companion.*

NORWALK HOSPITAL.—CONNECTICUT AVENUE

NORWALK HOSPITAL

OFFICERS, 1908

CHRISTIAN SWARTZ - - - *President*

ARTHUR C. WHEELER - *Vice-President* STEPHEN W. VELSOR, - *Secretary*

FRANKLIN A. SMITH - - - *Treasurer*

DIRECTORS

DR. J. G. GREGORY	EDWARD BEARD	THOMAS I. RAYMOND
ROBERT VAN BUREN	IRA COLE	RICHARD H. GOLDEN
CHRISTIAN SWARTZ	STEPHEN W. VELSOR	DR. W. J. TRACEY
JOHN J. CAVANAGH	GEORGE F. BUTTERWORTH	ARTHUR C. WHEELER

Our Physicians' Opinion

SOUTH NORWALK, CONN., Sept. 30, 1908.

One of the great essential needs during many years past in this community has been pure water. General health is impaired and vitality weakened by continuous use of impure water. Typhoid and other diseases of a dysenteric nature are often caused and fostered by impure water. As practicing physicians of South Norwalk it has been in our province to know something of the deleterious effects that impure water produces in the physical system. The introduction of pure filtered water for all uses, for all the people, is a blessing of great value and will prove to be a regenerating agent in many lives. We believe the sparkling, palatable, pure public water that we now enjoy will have a marked influence during the future in producing improved healthfulness.

LAUREN M. ALLEN, M.D.
FREDERICK B. BAKER, M.D.
FRANCIS I. BURNELL, M.D.
J. MILTON COBURN, M.D.
ROBERT E. PURDUE, M.D.
VINCENT G. TITO, M.D.
ALVIN D. WADSWORTH, M.D.
CHARLES G. BOHANNAN, M.D.
FRANKLYN G. BROWN, M.D.
ARTHUR N. CLARK, M.D.
JEAN DUMORTIER, M.D.
WILLIAM H. STOWE, M.D.
JOHN W. VOLLMER, M.D.
ROBERT M. WOLFE, M.D.

HENRY C. SHERER, M.D., *City Health Officer.*

What do we live for if not to make life less difficult to each other?—GEORGE ELIOT.

WEST AVENUE. LOOKING NORTH FROM REED STREET

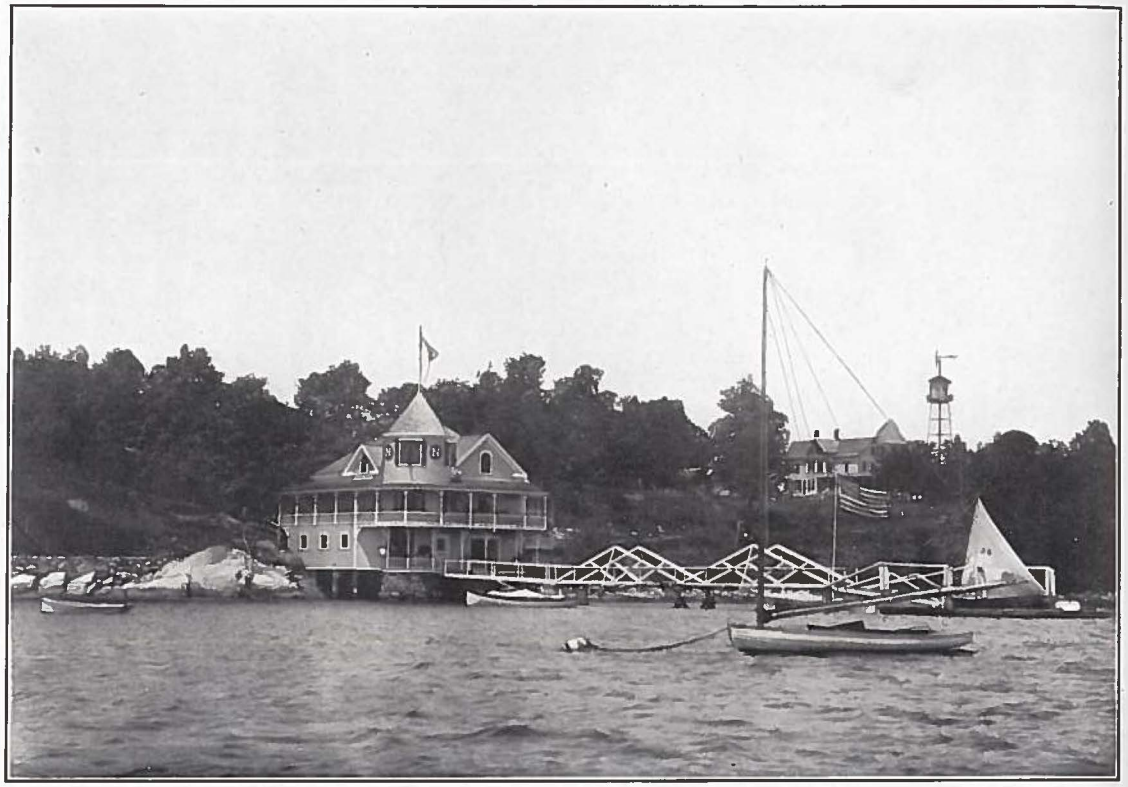
Extracts from Municipal Journals

METERS TO STOP WATER WASTE.

NEW CASTLE, Ind.—Municipal ownership of the water plant in this city has proven more expensive each year, and has reached a point where radical steps must be taken by the city authorities. Since the failure of the gas wells owned by the city, fuel bills have become an important item and the cost of operating the plant has largely increased. Using water at a flat rate, consumers have become careless, with the result that thousands of gallons of water are wasted each month. The waste has become so wanton that several times this summer the city would have been in great danger had a serious fire broken out. The waste has also increased the operating expenses, more than three times as much water being pumped at the plant as is necessary. After considering the matter the Council has decided to install meters.

WANTS CITY DEPARTMENTS TO PAY FOR WATER.

GLOUCESTER, Mass.—In the report of the Water Commissioners sent to the Municipal Council, the Board suggests an ordinance that will oblige the city to pay for its water. It is estimated that over $20,000 worth of water is used annually by the city departments, from which no revenue is received, based on a rate of 14 cents each 1,000 gallons which it costs the department.



NORWALK YACHT CLUB. SOUTH NORWALK HARBOR

Commodore, WILLIAM S. HATFIELD — *Rear-Commodore*, JAMES S. BAILEY
Vice-Commodore, DR. M. L. ALLEN — *Secretary*, GEORGE C. CURTIS
Treasurer, ROBERT G. MITCHELL

WILL METER WATER FOR PUBLIC BUILDINGS.

NEW BEDFORD, Mass.—The joint special committee of the City Council, appointed to consider the recommendation in Mayor William J. Bullock's inaugural that the water ordinance be amended so as to require metered supplies so far as it is practical, and that each department be required to pay from its own funds to that of the Water Department for water thus supplied, has voted to recommend to the Council that all public buildings be metered by July 1.

METERING PUBLIC BUILDINGS.

A special Council committee of New Bedford, Mass., has recommended that all public buildings be metered and that each department pay the water department from its own funds for all water used. We are glad to see another city falling in line with what we believe to be the only correct practice.—*Municipal Journal.*

Residence, 30 Elmwood Avenue

SAMUEL W. HOYT, Jr., C.E., was selected by the Board of Water Commissioners to take charge of the construction of the Filtration Plant. He was to supervise and look after the interest of the Water Board. Mr. Hoyt is a South Norwalk boy, receiving his education in our public schools. He began work in 1892, assisting Ferris S. Morehouse, Civil Engineer and Architect, who was then city engineer. In 1904 Mr. Hoyt accepted a position as assistant to City Engineer and Street Commissioner Waldo C. Briggs, and enrolled with correspondent schools, taking a course in Municipal Engineering.

Samuel W. Hoyt, Jr.

In 1905 Mr. Hoyt was appointed by the Board of Street Commissioners superintendent of streets, sewers and sidewalks, and custodian of all city maps and notes in Engineering Department. Later, engineering instruments were purchased and he did the major part of the engineering work of the city, in connection with his other duties.

In February, 1906, Mr. Hoyt decided to start in business for himself. He tendered his resignation to the Board of Street Commissioners and opened offices at 79 Washington Street. In the fall of the same year the Board of Water Commissioners secured the services of Mr. Hoyt as Resident Engineer in charge of construction of the city's new water purification plant at Wilton, Conn., in association with H. W. Clark and W. S. Johnson, of Boston Mass., the consulting experts and designers of the Filter. Mr. Hoyt gave up his local business and devoted all of his time to the work on the Filtration Plant. He completed this work about July 1908, and returned to his local business. Mr. Hoyt was appointed City Engineer by the Council in 1908, and re-appointed to the same position in 1909. The Board of Water Commissioners were well pleased with Mr. Hoyt's work; he was watchful of all details and thorough in the execution of every interest connected with the large undertaking. W. S. Johnson, Consulting Engineer of Boston, who has made an enviable record for excellent work in water systems and filtration plants, complimented Mr. Hoyt for the great interest, and the successful direction that he exercised throughout the development of the work. The Bunting Construction Co., builders of the plant, always spoke in praise of Mr. Hoyt's fairness in advice and suggestions, and were ready to abide by his decisions in all matters pertaining to workmen and work.

Citizens Publicly Thanked

STATEMENT ISSUED BY THE BOARD OF WATER COMMISSIONERS OF SOUTH NORWALK.

THE Water Commissioners of South Norwalk, composed of Christian Swartz, Stephen S. Hatch and Franklin A. Smith, have issued the following:

It affords your Board of Water Commissioners at this time a great deal of satisfaction to publicly thank the citizens of our city and the entire community for the confidence that has been assured them in the expenditure of so large an amount of money. Step by step your commissioners, with the assistance of the special committee appointed to act with them, have sought the fullest information from the best expert authority and have made personal investigation in all details of their work, in order to secure the largest return for the money spent and the best results for the object that they were endeavoring to obtain. It has been especially pleasing to us that many of our citizens have viewed the work as it has progressed, and each one has added his testimony, with a large number of visitors from neighboring towns, cities and States, that the work is a marvel and seems hardly possible that it could be done for the amount of money spent. In several instances well informed men along the lines of construction work have said $200,000 would be a more probable figure for the cost of such a piece of work. During the past five years your commissioners, with their faithful special committee, have devoted time and thought with the one end in view, to furnish South Norwalk with pure water, believing that when this was accomplished, not only would our people be greatly benefited, but also our city would soon be heralded throughout the land for having an abundant, healthful, pure water supply, and it would be sought by hundreds as a place of residence and for manufacturing and business. No subject relating to the sanitary welfare of the public, and to the vital security of happiness of large communities, is receiving more attention to-day than the purification of the water supply. The day is not far distant when every public water supply will have to be filtered or purified in some way before distribution.—*Evening Sentinel.*

ST. JOSEPH R. C. CHURCH—89 SOUTH MAIN STREET. PROPERTY VALUATION, $40,000.00. ORGANIZED 1895

Growth of South Norwalk

WATER COMMISSIONERS OFFICE

South Norwalk, Conn., January 20, 1909.

The following figures show the number of new taps made annually, and the yearly receipts from water-rents, for the past eight years.

	TAPS MADE ANNUALLY	RECEIPTS—WATER RENTS
1901	43	$22,046.82
1902	132	24,776 94
1903	47	25,649.21
1904	54	26,532.05
1905	89	28,139.17
1906	84	29,428.73
1907	104	30,725.41
1908	84	32,984.51
	637	

During the eight years there have been made 637 new connections to the public water system. The water rents for 1901 were $22,000, for 1908 were $33,000, showing an increase of $11,000.

Water Commissioners.

OFFICE CITY ELECTRIC WORKS

South Norwalk, Conn., March 7, 1909.

Water Commissioners,

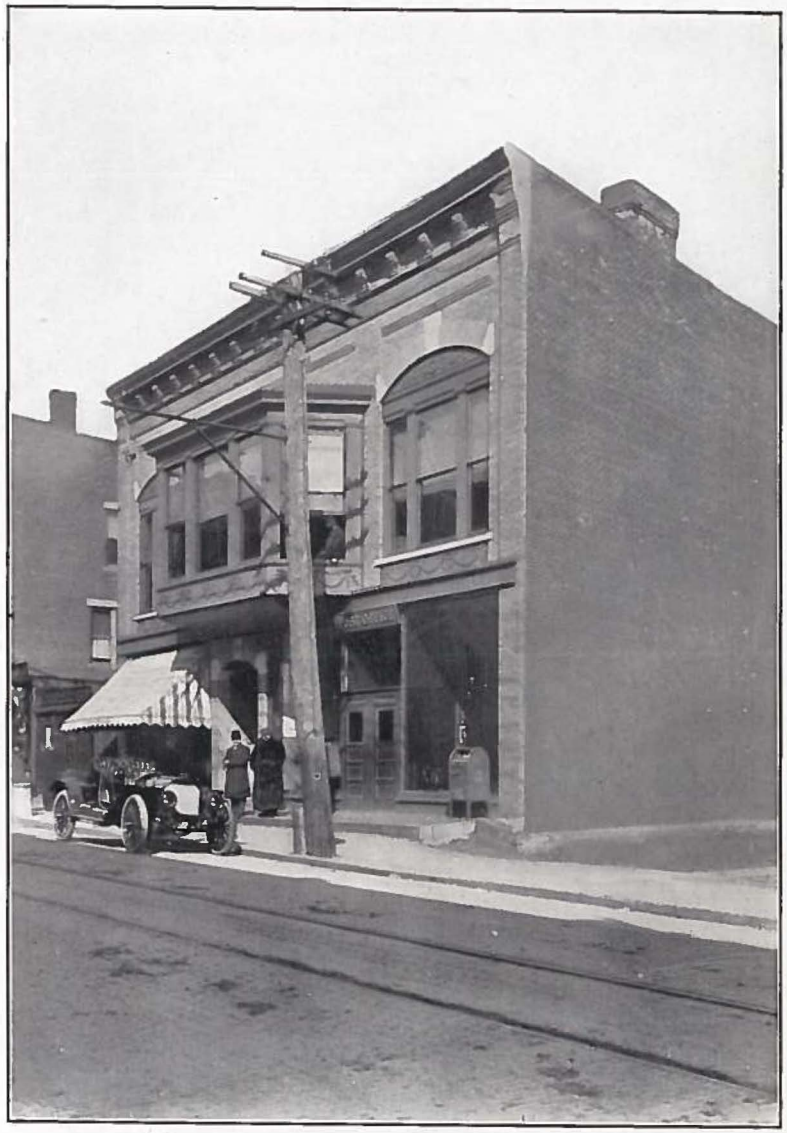
Dear Sirs:—The subjoined statistics are hereby tendered to you in the hope that they will supply you with the information desired.

ELECTRIC WORKS: 1901 TO 1908

Year	Consumers			Income
	Light	Power	Total	
1901	181	33	214	$19,799.12
1902	221	45	266	24,404.82
1903	259	26	285	25,598.51
1904	318	42	360	27,559.43
1905	378	52	430	31,554.34
1906	464	60	524	39,426.06
1907	557	68	625	46,494.90
1908	650	74	724	50,780.52

Respectfully,

Albert E. Winchester,
General Superintendent



Post Office. South Norwalk Club

South Norwalk Club—107 Washington Street
President, James Golden. *Vice-President*, Edwin H. Mathewson.
Secretary and Treasurer, Elbirt W. Fitch.

Growth of South Norwalk

SECTION OF CITY LAKE RESERVOIR. DEPTH, 30 FEET

SOUTH NORWALK, Conn., March 12, 1909.

Water Commissioners, South Norwalk, Conn.:

DEAR SIRS—Complying with your request for information relative to the growth of telephone service for the past ten years in the South Norwalk division, I take pleasure in giving you herewith a condensed statement, which will give you a general idea of the activity in this particular line of business.

On January 1st, 1899, the South Norwalk Exchange had two hundred and forty-seven (247) working stations. At that time the town of Westport was included in the division, consequently the subscribers, then in that town, were included in the above number. The office of the company was in the Sentinel building, occupying two rooms now occupied by the Metropolitan Life Insurance Co. The switchboard then in use had two positions, of the old magneto type, and, to give twenty-four hour service, a force of only four operators was necessary. One lineman constituted the outside force.

At the present time the division has one thousand seven hundred and seventy (1,770) working stations, with enough uncompleted orders in our office to increase the number to one thousand eight hundred (1,800), which number we expect to complete by the first of May. At this point I wish to call your attention to the fact that since 1899 Westport has been taken from the South Norwalk division and has an even three hundred (300) working stations in itself.

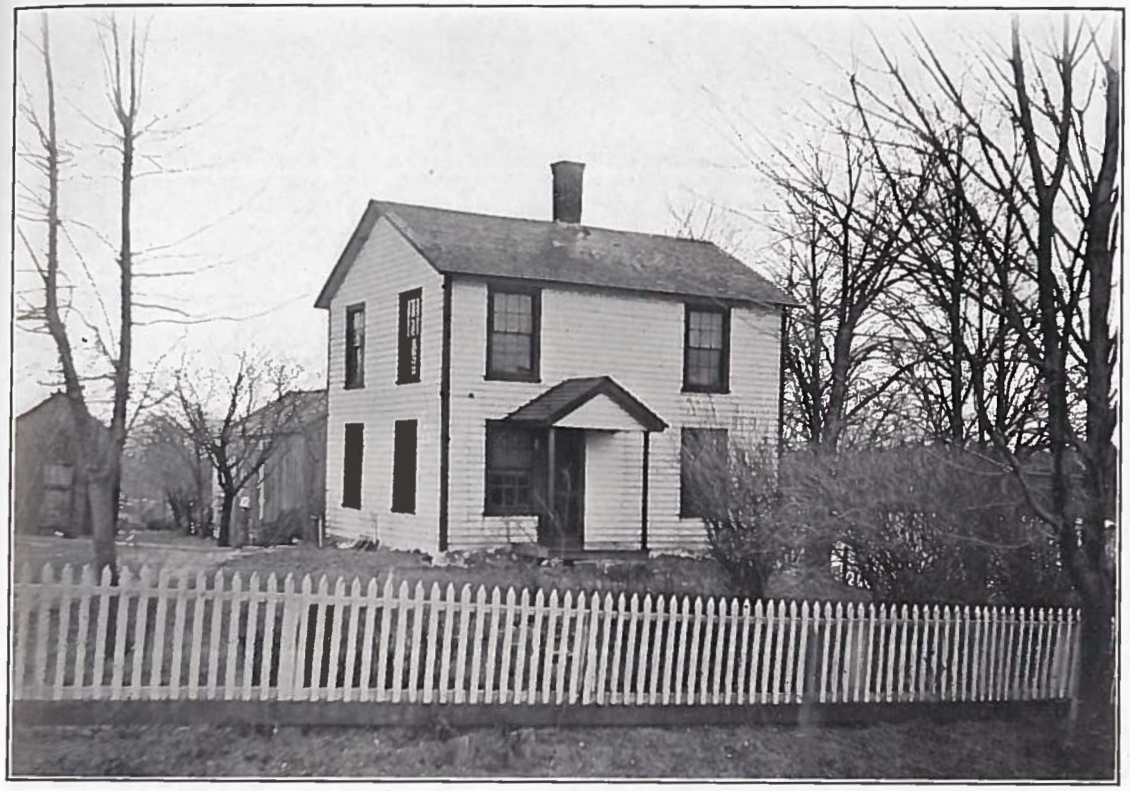
During the same period the system has undergone numerous and radical plant changes, due to new methods and general progress toward an improved service. Among these changes one of the most noteworthy is the transfer from overhead to underground construction between Norwalk and South Norwalk, and later the introduction of common battery instead of magneto service.

As the system stands to-day, twenty-five people are employed in the operating department, twenty-one operators, one complaint or information operator and two supervisors under charge of a chief operator.

The outside work is conducted by a force of five repair men under charge of a foreman or wire chief. While ten years ago the manager was his own chief operator, wire chief and bookkeeper, to-day his time, together with a solicitor, bookkeeper and stenographer, is required to attend to the commercial end of the business.

Yours very truly,

M. H. NUTTING, *Local Manager.*



HOME OF CARE-TAKER OF RESERVOIRS AND PIPE LINE

Growth of South Norwalk

UNITED STATES POST OFFICE

SOUTH NORWALK, CONN., March 18, 1909.

WATER COMMISSIONERS,
SOUTH NORWALK, CONN.:

DEAR SIRS: In compliance with your request, I herewith submit the receipts of the South Norwalk Post Office for the quarters ending Dec. 31st during the past eight years:

For Quarter ending	Dec.	31st,	1901,	$ 4,822 39
"	"	"	1902,	6,116.96
"	"	"	1903,	6,267.08
"	"	"	1904,	6.447.25
"	"	"	1905,	7,046.91
"	"	"	1906,	7,807.20
"	"	"	1907,	9,196.68
"	"	"	1908,	11,223.00

Respectfully yours,
E. E. CROWE, *Postmaster.*

Population of South Norwalk

1890..... 4,807
1900..... 6,591
1908..... 8.340

A TESTIMONIAL

Within the covers of this book will be found the illustrations of our public school buildings. They are up to date in equipment. Sanitary and health conditions receive careful consideration. The temperature, light and ventilation are watched with care. Text books and school supplies are furnished pupils without cost. The teaching force are graduates of college and normal schools, some of the teachers having acceptably filled their positions in the schools during the past twenty years. During a certain period of the year, a public night school for adults and all who will attend is maintained. The investment in public school buildings and furniture of $278,000, and the enrollment of nearly 2,000 pupils, serves as an index of the growth and prosperity of our city, and is a flattering testimonial of South Norwalk.

I am not ashamed to confess that twenty-five years ago I was a hired laborer, mauling rails, at work on a flat-boat—just what might happen to any poor man's son. I want every man to have a chance.—LINCOLN: Speech at New Haven, Conn., March 6, 1860.

TRINITY EPISCOPAL CHURCH—WEST ST. AND FAIRFIELD AVE. PROPERTY VALUE, $30,000. ORGANIZED 1868

(EXTRACT FROM LETTER OF CHEMIST)

HARTFORD STEAM BOILER INSPECTION & INSURANCE COMPANY.

HARTFORD, CONN., NOV. 16th, 1908.

"The suspended vegetable and other organic matter that was formerly in the water, would have a great tendency to bind and cement deposit matter into a touch scale. Freeing the water from this is no doubt the reason the sediment and scale has come off the boiler tubes. This organic matter, too, is very non-conducting when forming any large proportion of a deposit."

GEORGE H. SEYRUS, *Chemist.*

Benefits of Filtered Water

G. S. NORTH, PHOTOGRAPHER

73 WASHINGTON STREET

SOUTH NORWALK, CONN., October 31st, 1908.

BOARD OF WATER COMMISSIONERS,
CITY OF SOUTH NORWALK, CONN.:

GENTLEMEN:—I am very glad of an opportunity to express my appreciation of the excellent public water service since the installation of the filter.

Previous to that, much of my work was often spoiled by the impurities of the public water, and some days, the trouble being so bad as to cause the loss of many dollars worth of work.

During an entire summer I was obliged to buy all of the water used for my photographic work. The year previous to the installation of the filter, I filtered all of the water used in finishing photographs, in order to insure good results. It is a most valuable help in all the various processes of my business.

Very truly yours,
G. S. NORTH.

THE CROFUT & KNAPP COMPANY

FUR HAT MANUFACTURERS

SOUTH NORWALK, CONN., July 17, 1908.

WATER COMMISSIONERS,
SOUTH NORWALK, CONN.:

DEAR SIRS:—In reply to your postal in reference to water since filtering, would say that it is a decided benefit to us, and think the commissioners should be highly commended for the work they have done.

Yours truly,
THE CROFUT & KNAPP COMPANY,
P. N. Knapp, *Vice-Pres.*

GOOD WATER SERVICE

There has not been a single instance of difficulty with the water service during the past year, and the Water Commissioners, alive to the growing need for greater pressure in certain sections, are maturing plans which will meet all requirements in good season. The hydrants are kept in excellent condition and promptly thawed out when frozen. In this connection it should be stated that the Street Department has made it a regular duty for its force to keep all hydrants free from snow, a service that has been heartily appreciated by the firemen.—EXTRACT, CHIEF ENGINEER'S REPORT, 1907.

Our Fire Department

THE city's fire department, consisting of up-to-date apparatus, combined with a force of sturdy, self-sacrificing men, make it one of the best volunteer fire departments in the State.

The department has modern apparatus and all the equipments are in good order. The new system of fire alarm works admirably and will be continued. All the fire companies have a full quota of men.

The public should give the firemen their most hearty support, and needed supplies or apparatus should be allowed by the Council.—*Mayor Burnell's Message, January 1st, 1908.*

CRESCENT TERRACE—JUNCTION WEST AND SPRING STREETS

The work of our efficient volunteer fire department has kept pace during the past year with its long record of excellence. A total of about forty calls have been responded to during the year. Generally speaking our fire fighting equipment, though not extensive, is up to date and built for service. But best of all we have a working body of firemen second to none. Possibly one of the most important adjuncts of our fire department, of which, owing to its remarkable reliability under the charge of the electrical commissioners, is taken for granted, and but little thought of is the fire alarm system of the city which, on account of its originality and practicability, probably is not excelled if equaled anywhere else. By means of it any fire alarm box can be rung in from any telephone and instantly summon the fire department to any part of the city. Thus valuable minutes lost in running to fire alarm boxes can be saved.—*Mayor Burnell's Message, January 5th, 1909.*

OUR POLICE

Our Police Force is composed of men well-fitted to deal with their many disagreeable and sometimes dangerous duties. However, as a municipality, we are exceedingly fortunate in having a very low record per capita for trouble and disorder, which speaks well for the law-abiding spirit of our citizens and their high standard of morality.—*Mayor Burnell's Annual Message, January 5, 1909.*

OUR POLICE FORCE

WILLIAM VOLLMER, *Chief*

WILLIAM R. PENNINGTON, *Captain*

Patrolmen

FRANK V. RAYMOND

FRANK S STRATTON

JOHN H. SMITH

JOHN TUTHILL

FROM WATER COMMISSIONERS' REPORT, 1908

SOUTH NORWALK, Conn., January 25, 1909.

To the Honorable Mayor and Board of Councilmen:

GENTLEMEN—It is with pleasure that we sumbit this, the thirty-third annual report of the water department and seventh annual report of the present Board of Water Commissioners. We desire to thank our mayor and board of councilmen and fellow citizens for the confidence and support given us during these years. It has been an inspiration and stimulant for our best endeavors in securing a public water system that is acknowledged as being unsurpassed throughout the New England States. During the seven years that the present Board of Commissioners have been associated together their paramount aim has been to secure an ample supply of water and provide a way of delivering it to the people in the purest and most wholesome condition.

The net receipts from water rents for the year 1908 were $32.984.51, an increase over 1907 of about $1,200. About eighty new water connections were made during the year. The present delivery of water to the city averages about 2.600,000 gallons daily, as follows: 600,000 gallons daily, metered consumers; 1,000,000 gallons daily general consumers; 1,000,000 gallons daily runs to waste. Our citizens should be interested in the greatest success and efficiency of the public water service and unitedly endeavor to remedy all needless waste.

The analysis of the water by the state chemist shows the water to be of excellent quality this present month.

The filtration plant is in communication with our city headquarters by telephone five times daily. The operators report at 2:30 a. m., 6:45 a. m., 12 m., 5 p. m. and 9:30 p. m.

The value of the water system during the past seven years has increased $202,760.36. The indebtedness has increased $85,979.57, demonstrating that the extraordinarily large amount of new work done during these seven years has been over one-half paid for while in progress.

SEVEN YEARS' RESULTS—1902 TO 1908.

	Cost of Works.	Surplus.	Profits.	Extensions.
1902	$330,361.66	$148,482.10	$11,873.38	$62.743.85
1903	339,871.55	160,355.57	11,554.05	9,238.36
1904	343,119 41	171,909.62	11,479.01	2.494.82
1905	348 481.60	190.072.63	11.732.71	6,482.16
1905		Sale of Bonds	6.684.00	
1906	354.458.02	201,805.34	15,580.00	6,153.60
1907	419,480.92	217,385.58	7.422.50	10,136 65
1908	422,603.98	236.983.56	12.175.48	2.355.70
Filter	110,518.04			110,518.04
	$533,122.02	$236,983 56	$88,501.13	$210,123.21

These figures give some idea of the work of the water board during the past seven years, showing that there has been expended, during this time, in extensions and improvements, $210,123.21, and from the current earnings a net profit has been produced of $88,501.13 toward paying for the work done. The total indebtedness of the water works, December 31, 1908, was $328,577.07. This shows that the aggregate cost of the entire works has been nearly one-half paid off. The water system comprises ten square miles of water shed, 500 acres of land, four reservoirs, storing 700,000,000 gallons of water, filtration plant, four dwelling houses, 43 miles of pipe lines, 240 fire hydrants, drinking tanks and accessories.

The city public water system is an ideal one, having abundant supply, ample storage, modern purification methods, gravity delivery, and supplementary reserve. Its value as an up-to-date going plant is a full round $1,000,000. The new bond issue will make a bonded indebtedness of $320,000.

CITY WATER SERVICE.

All public water service connections are maintained and all water for public use is furnished by the water department without expense to the city, or any charge entry on the water department books. This fact shows its value and likewise the great saving it makes in the yearly expenses of the city by considering it in dollars. It annually amounts to $8.500, as follows:

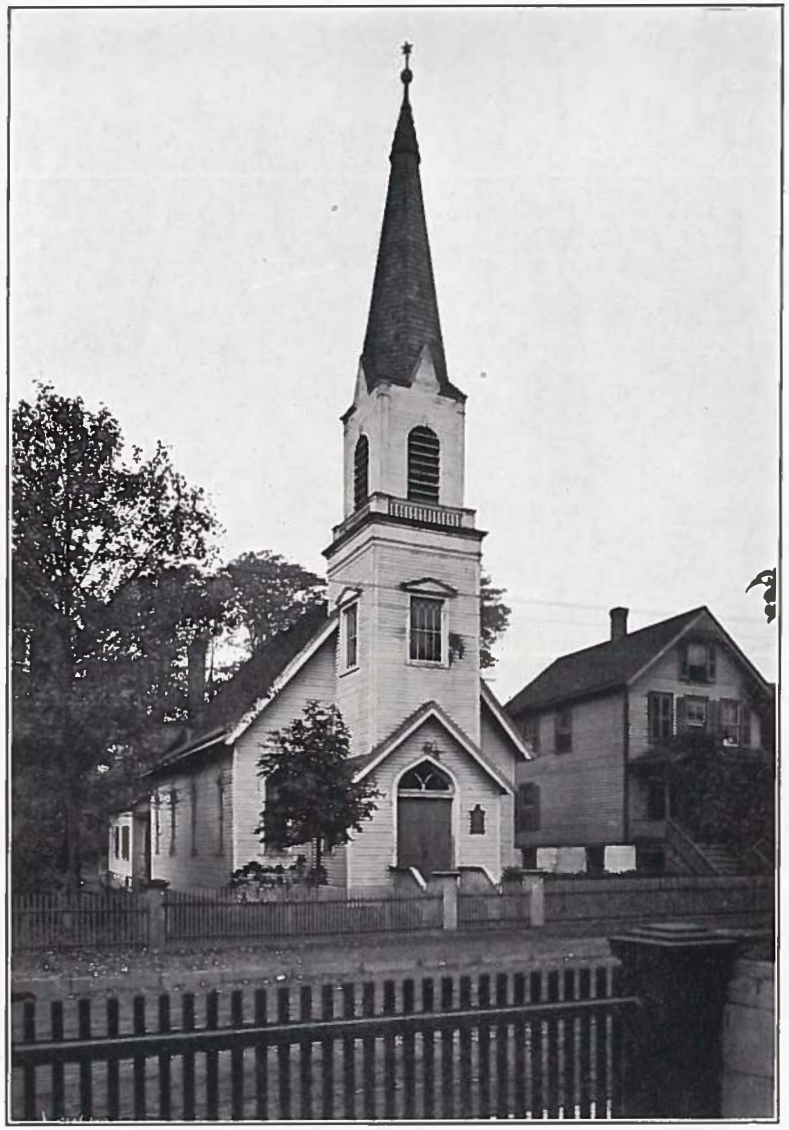
240 fire hydrants, at $25	$6,000.00
Four watering tanks at $175	700.00
Six months' street sprinkling, at $50	300.00
Flushing sewers	50 00
Library building	15.00
Old Well Hook and Ladder building	20.00
Putnam Hose building	20.00
Electric light plant, about	1.395.00
	$8,500.00

RESOURCES.

Water works and extensions	$422.603.98	
Filtration plant	110.518.04	
Operator's house	2.486.26	
Real estate	9.763.06	
		$545.371.34
Inventory, pipe and hydrant supplies	$3.272.98	
Inventory, meters, previous inventory	$2.720.00	
Inventory, meters, 1908	1,207.10	
	3.927.10	
Inventory, office fixtures and supplies	140.00	
Inventory, filtration plant supplies	180.00	
Mortgage receivable	2,500 00	
Water accounts receivable	7,805.72	
Labor accounts receivable	70.10	
Cash in water office	337.18	
Cash in treasurer's office	756.21	
Advance interest paid	1,200.00	
		20,189.29
		$565,560.63

LIABILITIES.

Bonds payable	$211,000.00	
Bills payable, Jeliffe note	4,000.00	
Bills payable, banks and individuals' notes	113.577.07	
		$328,577.07
Profit and loss, net gain for 1908	$9,455.48	
Profit and loss, previous meter inventory	2,720.00	
	$12,175.48	
Surplus	224,808.08	
		236.983.56
		$565.560.63



HUNGARIAN REFORMED CHURCH—LEXINGTON AVE. PROPERTY VALUE, $6,000.00
ORGANIZED 1896

EXTRACT.—REPORT TO STATE BOARD OF HEALTH.

INSPECTION OF SOUTH NORWALK FILTRATION PLANT, JAN. 9, 1909.

"Aside from the removal of the odors, aëration and filtration assist in another process continually going on in the water. Surface waters normally contain considerable amounts of dissolved oxygen which has been taken from the air. This oxygen is used by microscopic organisms known as nitrifying bacteria in oxidizing decomposed nitrogenous organic matter, thus changing it to harmless inorganic salts. In warm weather when large amounts of organic matter are undergoing decomposition in the water through the action of other forms of bacteria, the dissolved oxygen is quickly used up, and unless more oxygen is obtained, the water becomes stagnant. The aëration then not only removes a large amount of odor from the water, but allows a large absorption of oxygen by bringing practically every drop of water in contact with the air. The aërated water then goes to the filters, where the oxidation is continued by the nitrifying bacteria, which develop in very large numbers on or very near the surface of the sand and attack the organic matter as it comes to the filter. Similar to the case of removing odors it sometimes happens that sufficient oxygen cannot be taken into the water during the first aëration to completely oxidize the organic matter, and a second aëration is therefore necessary. The oxidation is then usually completed on the secondary filter, and the resulting effluent is clear, sparkling and very much improved in quality.

"The water commissioners are to be congratulated on the result of their effort to supply good, wholesome water to their city. The filter plant at the time of inspection appeared to be complete in every detail and is under careful supervision day and night. The results of monthly analysis, which have been made during the past three months, show that the water is exceptionally good.

"If there is a reduction in the number of infectious diseases or death rate since filters were put in operation, the statistics from South Norwalk will be of considerable value to the State.

"Mr. Allen Hazen, of New York City, is authority for the statement that, in cities where filters or purer drinking supplies have been installed, the death rate has been noticeably reduced not only for typhoid fever, but also for a number of other diseases such as infantile ailments, tuberculosis and other diseases which we have not previously supposed were affected by the quality of the drinking supply."

JAMES A. NEWLANDS,
Chemist State Board of Health.

Water Supply

IMPORTS TREES TO REFOREST WATERSHEDS

BRIDGEPORT, CONN.—A consignment of 20,000 white pine trees will arrive in this city from Holland the latter part of next month, for the Bridgeport Hydraulic Company, to be used in the execution of an elaborate plan for the growth of pine forests upon the watershed of the company in Bridgeport, Stratford, Fairfield, Easton, Monroe and other towns. The company has established a forestry department and has engaged the services of Frank C. Schleichert to act as forester. The intention is to utilize the fertile farm lands acquired by the company for the protection of its watershed for the double purpose of improving conditions and to grow white pine trees, which, in about 30 years will be valuable for timber, the present market price being $60 per thousand feet. The duty on the trees is so high that it greatly increased the cost of importing them and arrangements have been made for the establishment of a nursery to cover an acre of ground, and there will be planted the 20,000 trees expected from Holland next month. From these plantings the seedings will be obtained and the trees will be grown for transplanting. The company now has 4,000 acres of land which in time will be entirely covered with white pine trees.

HUNGARIAN AMERICAN BAND—YOUNG MEN TWELVE TO TWENTY YEARS

Water Rates Charged in 375 Cities

DOW R. GWINN

A Paper Presented at the Twenty-eighth Annual Convention of the American Water Works Association.

The figures recorded in the tables were checked and re-checked, and efforts were made to reduce the errors to the minimum. Errors will no doubt be found, but they will probably not materially affect the general average. The compiler believes that the average rates as given are practically correct, and represent the rates charged in the principal cities in the United States. An extra effort was made to secure rates from cities having filtration plants.

A great many people have an idea that water should be as free as air, and the writer believes this thought is responsible, to a certain extent, for the very low rates charged for water. There is no public service which the writer knows of which is so poorly paid for as the water supply. While every one will admit that a telephone is a great convenience, just compare that service with water service in a kitchen, and bath room privileges. Which is the greatest necessity and convenience? As a rule, telephone service costs considerably more than water service.

The usual switching charges for a car inside the limits of a moderate sized city is $1.50; on the basis of 30-ton cars, this is 5 cents per ton. The cost of water delivery at 20 cents per 1,000 gallons is less than the cost of switching a car on the basis of 5 cents per ton.

This does not take into account the cost of the commodity. In many parts of the United States, the cost of water at the station ready for delivery into the mains is no inconsiderable amount. It is claimed by some city officials that their water departments are making money at the low rates charged, and they point with pride to the annual reports. In most of these reports, one can look in vain for a charge of interest on the investment not included in the bonded debt; also for a charge for taxes which would be paid if the property was owned by individuals.

There are broad-minded officials who recognize the fact that money invested in a business should earn a reasonable rate of interest whether it is a private business or a public one; that involuntary investors in a public business are entitled to as much return on their money as the stockholders in a private company.

In the writer's opinion, if the actual cost of water furnished by municipalities was known, there would be a general advance in the rates charged. The writer believes that a consumer who uses water in small quantities in a city where the water is filtered or must be pumped twice, should pay at least 40 cents per thousand gallons. And there are cities where the rate should be higher. The service rendered to a householder supplied with filtered or Artesian water through a meter should be worth at least $1.00 per month. This is only 3 1-3 cents per day. If the privilege of using Artesian or filtered water in the kitchen, in the bath room, and for any purpose, at any time, day or night, is not worth 3 1-3 cents per day, it is not worth anything. "The readiness to serve" charge in connection with meters should be at least $1.00 per month, or $12.00 per annum, net.

The average charge in 134 cities supplied by private companies for a six-room house, bath, closet, basin, and 50 feet sprinkling is approximately $21.00. This is not high enough where water is furnished under difficult conditions. The average charge in 149 cities supplied by municipal plants, for a six-room house, bath, closet, basin and 50 feet sprinkling is approximately $18.00. Average meter rates in the cities supplied by private companies, is per 1,000 gallons—highest 32 cents, lowest 11 cents. Cities furnished by municipal plants, is per 1,000 gallons—highest 22 cents, lowest 8 cents. Now the writer believes that where the water is filtered, or where there is double pumping, the rate should be 25 per cent. higher than where water is furnished under ordinary conditions.

Owing to the many leaks that occur in water closets, it is only fair that such fixtures should pay a higher rate than bath tubs. The regulation of sprinkling is one of the most difficult problems that confronts water works' officials. If all the service pipes having sprinkling fixtures were supplied through meters, the trouble caused by violation of sprinkling rules would be practically eliminated.

In some localities, particularly where it is extremely difficult to get water, or where freight rates on pipe and machinery are so excessive as to materially increase the investment in the plant, a basing rate of $6.00 is not high enough. Cities where it is necessary to pump direct and to furnish fire pressure whenever called for, should have a higher basing rate than cities where fire pressure is not required.

The standard of public water supplies is being raised. Water of better quality means higher cost. Higher cost of production means higher rates. The public demand good, wholesome water and should have it, but the price should be commensurate with the service rendered. Water rates in many cities have been, and are still too low. Some city officials are realizing that they are furnishing water at much less than cost. In a few places, the rates have been raised. Where water is delivered to any part of the city, at any time when called for, at about the cost, on a tonnage basis, of switching a car, it is time to raise the rates to a point where the department or company will get something for the water as well as for delivering it.

Our Banks

SOUTH NORWALK TRUST COMPANY

INCORPORATED, 1901

TOTAL ASSETS - - - $1,224,549.88

Number of Depositors, 2,971 TOTAL DEPOSITS, $1,071,511.89

President, RICHARD H. GOLDEN

Vice-President, EDWIN O. KEELER *Treasurer*, CHARLES E. HOYT

Trustees

NELSON TAYLOR	FRANKLIN A. SMITH	THOMAS I. RAYMOND
EDWIN O. KEELER	ASA B. WOODWARD	JOSEPH R. TAYLOR
RICHARD H. GOLDEN	DAVID H. MILLER, JR.	CHARLES E. HOYT

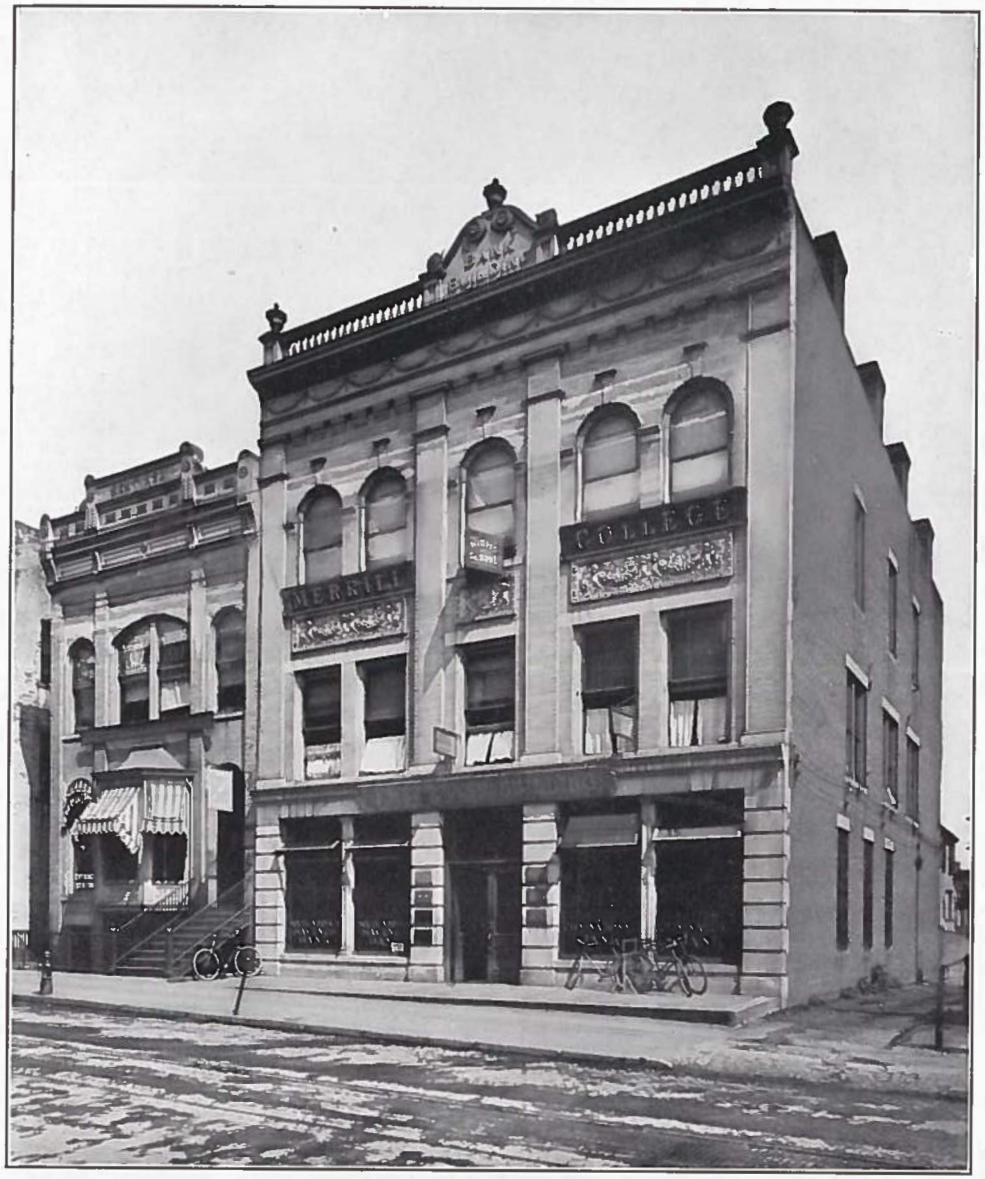
Connecticut's Savings Banks Deposits, 1908 - -	$256,372,062.00
Number of Depositors - - - - - - - -	539,673
Average amount for each Depositor - - - -	$473.75

Connecticut is the fourth state, in the largest average amount for each depositor.

SAVING MONEY.

A savings account is probably one of the best investments that can be made by the man of small means. Each dollar deposited is earning something for the saver night and day—Sundays and holidays not excepted. Every man, woman and child in the country, who has not already done so, should take advantage of the first opportunity to open a savings account with some good reliable bank that pays a good rate of interest, on small sums as well as large. If you did not receive a part of the $112,000,000, which was credited to savers last year, by all means place yourself in a position to receive some of it this year. Nothing is as effective as persistent, systematic economy. It lends a stimulating influence to one's every action. Four per cent. compound interest has been paid for years by the strongest banks in the country. So far as is known, not one penny has ever gone astray, and the interest shown by thousands of satisfied depositors all over the country demonstrates that saving eventually becomes a pleasure.—*World's Events.*

SOUTH NORWALK TRUST CO.—NO. 93 WASHINGTON STREET



EVENING SENTINEL. SOUTH NORWALK SAVINGS BANK. CITY NATIONAL BANK

Our Banks

SOUTH NORWALK SAVINGS BANK

INCORPORATED, 1860 TOTAL ASSETS, $2,191,633.43
Number of Depositors, 6154 TOTAL DEPOSITS, $2,039.376.88
President, ALDEN SOLMANS
Vice-President, JOHN H. KNAPP *Treasurer*, GEORGE L. WOODWARD

Directors

ALDEN SOLMANS
HENRY I. SMITH
JOHN H. LIGHT
HENRY SEYMOUR
CHARLES G. BOHANNAN
FREDERICK H. ROWAN
CHARLES W. BELL
JOHN H. KNAPP
EDWARD BEARD
JOSIAH R. MARVIN
CHARLES E. DOW
FREDERICK B. BAKER
JOHN F. MCMAHON
FRANK D. LAYTON

CITY NATIONAL BANK

INCORPORATED, 1882 TOTAL ASSETS, $758,266.39
Number of Depositors, 927 TOTAL DEPOSITS, $419,703.81
President, EDWIN H. MATHEWSON *First Vice-Pres.* JOHN H. KNAPP
Cashier, WILFRED H. BODWELL *Second Vice-Pres.* FREDERICK H. ROWAN

Directors

EDWIN H. MATHEWSON
CHRISTIAN SWARTZ
JOHN H. KNAPP
JOSIAH R. MARVIN
HENRY SEYMOUR
SAMUEL GRUMMAN
J. WALLACE MARVIN
JOHN H. LIGHT
FREDERICK H. ROWAN

SAVING MONEY.

The Department of Commerce and Labor has lately received information, through its Bureau of Statistics, that the total deposits in the savings banks of the world amount to ten and one-half billion dollars, contributed by 8,640,000 depositors. Of this total the United States shows aggregate deposits of over three billion dollars, credited to 7,305,000 depositors. As the figures used in arriving at the grand totals cover about half of the population of the world, it appears that the United States, with less than 9½ per cent. of the total population considered, contributes over 29 per cent. of the total savings deposits recorded —also the average deposit per account in this country is more than four times, and the average savings, per inhabitant, is more than three and one-half times the corresponding averages for the rest of the world. These figures afford an excellent opportunity to study and compare the habits of people generally. It is almost impossible to appreciate the fact that the great middle class is receiving, annually, more than $112,000,000 in compound interest.—*World's Events.*

South Norwalk Harbor—From Country Club Dock

PUBLIC SERVICE PRAISED.

Memphis, Tenn.—A complete report of the workings of the city Water Department from the time of its purchase by the city in 1902 up to the present was read before the City Club from a committee that had spent a month in investigating. Municipal management has been successful in reducing the charges to consumers more than 30 per cent. The average daily consumption is 14,000,000 gallons, although the sum invested is only $2,902,000. The report states that eternal vigilance must be the price of continued success, and that good men, when found, must be kept in office, regardless of politics.

Direct Benefits Received From Our Public Water Works

All real estate within the bounds of the public water system mains is enhanced in value. A building lot valued at $800.00 on an avenue or street not supplied with the public water, is worth $1,000 when the water main is laid in the thoroughfare on which the lot is located. Insurance rates within the specified limits of the public water hydrant service are materially lower on account of this protection. Without fire protection the insurance rates would be 33 per cent. higher on mercantile risks, and on dwellings and their contents, 50 per cent. higher. The amount of premiums paid for fire insurance carried in our city is stated to be not less than $100,000 yearly. A fair estimate, on the proportionate risks, show a saving to the citizens of our city of at least $38,000 annually, on account of the public water hydrant service.

INDIRECT BENEFITS RECEIVED FROM OUR PUBLIC WATER WORKS.

It would be a strenuous task to enumerate the benefits accruing to our community, indirectly, from the public water system. There have been some mentioned in public print to which we will refer. On page 34, we have from qualified authority, that the annual savings by decreased physicians' services and druggist supplies, will amount to $25,000. From the Commissioners' report on page 62, we note that the city is furnished $8,500 worth of water yearly without charge. From reliable data collected, there is an annual saving to citizens of some $3,500, formerly expended for spring waters. Druggist and hotel figures show a probable economy of $5,000 annually on account of having pure filtered water for their use.

Total annual saving: Insurance, $38,000; doctors and druggists, $25,000; public water, $8,500; druggists and hotels, $5,000; spring waters, $3,500. Grand total yearly, $80,000.

SOUTH NORWALK FIRE DEPARTMENT

Old Well Hook & Ladder Co. Putnam Hose Co. Fire Police Previous to Starting for the Westport Anniversary October 10, 1906

Property Loss by Fire

1835—New York	$17,500 000
1842—Hamburg	35,000,000
1848—Constantinople ...	15,000,000
1851—Saint Louis	15,000,000
1861—Charleston, S. C..	10.000,000
1866—Portland, Me.	10,000,000
1870—Constantinople ...	25,000,000
1871—Chicago	165,000,000
1872—Boston	70.000,000
1876—St. Hyacinthe, Can.	15,000,000
1877—St. John, N. B....	15,000,000
1882—Kingston, Jamaica	10,000,000
1892—St. John's, N. F...	25,000.000
1896—Guayaquil, Ecuador	22 000,000
1900—Ottawa, Hull, Ont.	10,000 000
1901—Jacksonville, Fla..	10,050,000
1904—Baltimore	50,000.000
1904—Toronto, Can. ...	12,000,000
1906—San Francisco....	350,000,000

Within the last five years, as fire insurance statistics show, the loss of property in the United States from fires alone reaches a total of $1.257.716,855, an average of $251, 000,000 a year.

More than half of all fires are the result of carelessness.

Rome burned for eight days and most of the city was destroyed. London has had seven great fires. In the Moscow conflagration of 1812 the loss was $150,000,000. Paris lost $150,000,000 by fire in 1871.

Fire fighters estimate that only about one-fifth of the water discharged from hose reaches the seat of a fire. The other four-fifths are wasted. Does not this call for improved apparatus and methods?

PUTNAM HOSE CO. SUPPLY WAGON, PUTNAM HOSE CO. CHEMICAL ENGINE
PUTNAM HOSE HOUSE—23 FRANKLIN STREET

PUTNAM HOSE CO. OFFICERS

CHAS. E. LOCKWOOD, *Captain*
FRED B. COLEMAN, JR., *First Lieutenant*
HARRY O'BRIEN, *Second Lieutenant*
GEO. W. BOGARDUS, *Treasurer*
DENNIS LEAHY, *Financial Secretary*
AUGUST C. KNORR, *Recording Secretary*

OLD WELL HOOK & LADDER CO. OFFICERS

RICHARD VOIGHT, *Foreman*
HOWARD ZELUFF, *First Assistant Foreman*
HENRY HOWARD, *Second Assistant Foreman*
FRANK N. FERRIS, *Treasurer*
D. WILLIAM HARFORD, *Secretary*
HAROLD F. CLARK, *Fire Marshal*

ALBERT E. WINCHESTER, *Fire Alarm Superintendent*

OLD WELL HOOK AND LADDER CO. HOUSE, 9 HAVILAND ST. OLD WELL H. & L. TRUCK, THREE-HORSE HITCH

SOUTH NORWALK FIRE DEPARTMENT OFFICERS

HAROLD F. CLARK, *Chief Engineer*
ELBIRT W. CLARK, *First Assist. Engineer*
CHESTER F. CLARK, *Second Assist. Engineer*
GEO. W. BOGARDUS, *Treasurer*
AUGUST C. KNORR, *Secretary*

FIRE POLICE OFFICERS

LE ROY ADAMS, *Captain*
JOHN HYDE, *First Sergeant*
WM. H. MOSHER, *Second Sergeant*
JOSEPH BROWN, JR., *Secretary*
THOMAS DONALDSON, *Treasurer*

DR. HENRY C. SHERER, *Department Physician*

Property Loss by Fire

IN THE UNITED STATES FOR TEN YEARS.

1899	$153,597,830
1900	160,929,805
1901	174,160,680
1902	161,488,355
1903	145,302,155
1904	230,520,131
1905	165,221,650
1906	444,326,124
1907	215,671,250
1908	217,885,850
	$2,069,103,830

LARGE FIRES DURING 1908.

Jan.	10	N. Y. City	$2,430,000
"	28.	Chicago	1,120,000
April	12.	Chelsea	10,500,000
May	8.	Atlanta	1,125 000
July	6.	Boston	1,150,000
Aug.	30.	New Orleans	1,400,000
Sept.	7.	Chisholm	1,700,000

AUTOMATIC SPRINKLERS

The way to stop a fire is to attack it at its inception. The best way of doing this is to provide buildings with automatic sprinklers, which work while you sleep. They are operated by the fire which they are designed to extinguish.

HOYT'S THEATRE—130 WASHINGTON STREET. SEATING CAPACITY, 800

PRIVATE WATER WORKS RATES (FILTERED)

Population	City	Family	Bath	Closet	Bowl	Sprinkling	Total	Meter Rates Highest	Meter Rates Lowest
13,074	Ashland, Wis.....	$9.00	$5.00	$4.00	....	$5.00	$23.00	.30	.08
30,154	Chattanooga, Tenn.....	7.50	6.00	6.00	...	7.50	27 00	.25	.08
12,566	Cairo, Ill.....	6.00	5.00	5.00	2.50	5.00	23.50	.30	.10
25,238	Easton, Pa.....	7.00	3.00	4.00	1.00	3.00	18.00	.26	.08
29,655	E. St. Louis, Ill.....	6.00	5.00	5.00	....	7.50	23.50	.30	.15
12,172	Greenwich, Conn..... ...	8.80	5.50	5.50	....	....	....	.29	.16
8,872	Long Branch, N. J.....	8.00	4.00	4.00	....	5.00	21.00	.30	.15
108,027	New Haven, Conn.....	5.00	3.00	3.00	.50	4.00	15.50	.18	.10
7,174	Oneonta, N. Y.....	6.00	5.00	5.00	....	5.00	21.00	.50	.20
105,171	Paterson, N. J.....	12.00	2.00	4.00	....	8.00	26.00	.30	.10

(Sprinkling is for 50 feet frontage)

Our Consulting Engineer

January 8, 1909

Water Commissioners, South Norwalk, Conn.:

GENTLEMEN—In response to your request, I submit the following statement in regard to the work of constructing the water purification plant at South Norwalk.

The method adopted for purifying the water is that recommended by Mr. H. W. Clark. The essential features are: First, the thorough aëration of the water; second, filtration through sand filters at a rate of from three million to four million gallons per acre per day; third, aëration of the effluent from the primary filters; fourth, secondary filtration at a rate of about ten million gallons per acre per day. The plant was designed to accomplish this treatment with the least possible expense for construction and maintenance.

The work of construction was supervised on the ground by Mr. Samuel W. Hoyt, Jr., of South Norwalk, acting as resident engineer. Throughout the work Mr. Hoyt was in regular correspondence with me, and I also made occasional visits to the filter during the progress of the work, the visits being sufficiently frequent to enable me to keep myself acquainted with the character of the work which was being performed. All portions of the work have been executed in a thoroughly satisfactory manner, and much credit is due both to Mr. Hoyt, and to the contractor for the manner in which the work has been done.

The cost of the plant is somewhat more than was anticipated, due in a large measure to the great difficulty in securing sand of proper quality for filtration purposes. The absence of any natural deposit of sand in the vicinity of the filter made it necessary to screen the sand from gravel, and the proportion of sand in the gravel was so small that an enormous

Our Consulting Engineer

(Continued)

quantity of soil had to be handled to obtain the required quantity of sand.

It was then necessary to wash the sand in order to remove the dirt and other fine material. If sand of suitable quality had been available, the cost of the work would have been very much smaller. The sand finally obtained, however, is of excellent quality for the purpose, being of the proper grade and entirely free from dirt.

Much credit is due to the Water Commissioners for their attitude during the progress of the work. Every suggestion which has been made has been heartily endorsed as soon as evidence was given that the adoption of the suggestion would tend to improve the quality of the work or to render the filter more effective. At the same time every effort was made to keep the cost of the work as small as possible, where the cost could be kept down without impairing the efficiency of the plant.

The plant is unique in that it is one of the first filtration plants in this country designed chiefly for the removal of tastes and odors from a reservoir water subject to growths of organisms, without the addition of chemicals.

The sand has not been put in the secondary filter, and apparently its omission has not as yet been seriously felt, but I would urge that it be completed as soon as possible, as there are certain to be times when single filtration will not remove all of the tastes and odors. Such times are likely to occur after the water in the reservoir has been continuously bad for a considerable period, and while they are likely to be of short duration, it is very desirable that the high standard to which the water consumers have become accustomed since the filter was started, should be maintained without interruption, even for brief periods.

Very truly yours,

WILLIAM S. JOHNSON.

EAST WASHINGTON STREET—LOOKING TOWARD RAILROAD BRIDGE

MUNICIPAL WATER WORKS RATES (FILTERED)

Population	City	Family	Bath	Closet	Bowl	Sprinkling	Total	Meter Rates Highest	Meter Rates Lowest
25,656	Cedar Rapids, Ia.....	$6.50	$3.00	$3.00	....	$5.00	$17.50	.25	.08
6,460	Bloomington, Ind...	5.00	3.00	4.00	....	10.00	22.00	.35	.10
11,918	Hornell, N. Y.....	4.32	2.88	2.88	1.44	4.32	15.84	.24	.06
13,136	Ithaca, N. Y	8.00	5.00	5.00	....	7.70	25.70	31	.08
24,535	Kingston, N. Y..... ...	5.00	4.00	3.00	....	5.00	17.00	.22	.07
62,559	Lawrence, Mass.....	5.00	3.00	4.00	....	3.75	15.75	.20	.08
14,896	Meridian, Miss.....	6.00	5.00	5.00	1.00	5.00	22.00	.40	.08
62,059	Springfield, Mass	8.00	4.00	4.00	....	5.00	21.00	.29	.07
175,597	Providence, R. I.....	6.00	5.00	5.00	2.00	5.00	23.00	.20	...
8,340	South Norwalk, Conn....	5.00	3.00	3.00	....	3.00	14.00	....	.05

(Sprinkling is for 50 feet frontage)

South Norwalk Industries

DECEMBER, 1908

FIRM	PRODUCT	CAPITAL	EMPLOYED
Artistic Bronze Co., The	Metal trimmings	$20,000	40
Barthol, Otto, Co., The	Hat Forming	10,000	30
Bates, Martin, Jr., & Co.	Hatters' Furs	150,000	100
Binns Chemical Works	Oils and Acids	60,000	25
Boese Peppard Co.	Appliqué Laces	75 000	100
Clear Felt Hat Co.	Men's Fur Hats	40 000	60
Colonial Mill Co.	House Wood Work	20,000	25
Connecticut Co.	Trolley, Electricity, Gas		230
Crofut & Knapp Co, The	Men's Fur Hats	500,000	700
Decker, David	Oyster Dealers	25,000	15
Decker, Peter	Oyster Dealers	100 000	15
Dikeman Mfg. Co., The	Screw Machine Tools	10,000	20
Dreyer Hat Co.	Men's Fur Hats	35 000	60
Hatch & Bailey Co., The	Lumber and Mill Work	50,000	25
Hat Forming Co., The	Hat Forming	26,500	30
Hoyt, W. F., & Son	Oyster Dealers	25,000	25
Hygeia Ice Co.	Ice, Cold Storage	15,000	20
Knapp Box Co., The	Packing Cases	5,000	15
Lockwood Mfg. Co.	Builders' Hardware	200,000	500
Lounsbury, Mathewson & Co.	Ladies' Shoes	100,000	250
Murphy Mfg. Co.	Novelties	10 000	20
National Oyster Carrier Co.	Oyster Carriers	400,000	70
New England Food Co., The	Cereals	100,000	25
Northport Oyster Co., The	Oyster Dealers	15,000	75
Norwalk Box Co., The	Paper Boxes	10,000	50
Norwalk Lock Co., The	Builders' Hardware	152,000	300
Norwalk Iron Works Co, The	Air Compressors	123 000	300
Norwalk Shirt Co., The	Shirts and Aprons	75,000	70
Old Well Cigar Co., The	Cigars	10,000	75
Phenix Fur Co., The	Hatters' Furs	30,000	25
Radel, Andrew, Co., The	Oyster Dealers	500 000	145
Rough Hat Co., The	Men's Fur Hats	35,000	50
R. & G. Corset Co.	Corsets	200,000	1200
Southern N. E. Telephone Co.	Telephone		40
Standard Oyster Co	Oyster Dealers	300,000	100
Steegmuller Toby Co.	Paper Boxes	15,000	25
Standard Oil Co.	New England Branch		50
Tallmadge Brothers	Oyster Dealers	30,000	20
Trowbridge, C. S., Co., The	Paper Boxes	35,000	100
Wilson, John C., Hat Co., The	Men's Fur Hats	200,000	125
Wolthausen, John H., Co., The	Men's Fur Hats	30,000	60

About twenty of our industries do not appear in this list. We were unable to secure the required information, and regret being obliged to omit them.

Copy from Water Department Books

1875 THIRTY-FOUR YEARS 1908

YEAR	WATER-WORKS	TAPS	WATER RENTS
1875	$100,724.62	46	
1876	741.40	156	$5,655.32
1877	1,247 95	34	6.055.77
1878	42.88	26	6.118 91
1879	1,270.38	31	6,888.58
1880	682.62	40	7.842.24
1881	249.04	20	8,657.11
1882	463.84	30	9,166.48
1883	1,302.50	34	9 436.75
1884	83.12	33	10,057.88
1885	966.94	42	11,052.44
1886	1,478.73	35	11,659.34
1887	9,204.52	60	12.269.26
1888	6,644.03	67	13.075 00
1889	44,186.06	76	15.108.70
1890	34,404.24	82	16,246.57
1891	65.029 59	101	18,959.17
1892	4,018.06	58	16,033.64
1893	2,351.98	64	14,843.21
1894	1,987.73	43	17,257.93
1895	1,698.41	79	*23,216.50
1896	109.49	41	19.730.49
1897	1,411.00	43	19,776.67
1898	1.315 53	53	19.593.23
1899	4.146.15	32	20,616.21
1900	6,266.49	36	22.036 29
1901	6,516.73	43	22,046.82
1902	31,818.63	132	24.776.94
1903	9,509.89	47	25,649.21
1904	2,247.86	54	26,532.05
1905	6,362 19	89	28,139.17
1906	5.976.42	84	29.428.73
1907	65,522.90	104	30.725.41
1908	3,123.06	84	32.984.51
	$422,603.98	1999	$561,629.49

Total General Maintenance for 34 years	$57.128.40
Total Office Expenses for 34 years	19,558.66
Total Interest Account for 34 years	257,080 77
Total Taxes (Wilton) for 34 years	1.918.76
Total Accounts not classified for 34 years	1.134.82
Surplus Account, Jan. 1, 1908	224.808.08
	$561,629.49

*(1895 was the year that Mr. Hatch was appointed Water Commissioner. Mr. Hatch and Mr. Dake collected the year rates of $19.000, and got in, over $4.000, of arrearage accounts.)

City Officials for 1909

Mayor

FRANCIS I. BURNELL

Councilmen

DANIEL DUNLOP
JOHN PAUL
ALBERT M. POHLMAN
GEORGE W. BOGARDUS
CHESTER F. CLARK
FREDERICK A. HUNKEMEIER

City Clerk — JOSEPH R. TAYLOR

Corporation Counsel — JOHN KEOGH

City Treasurer, WILFRED BODWELL

City Tax Collector, WILLIAM S. WILCOX

Electrical Commissioners

JOSEPH A. VOLK
CHARLES N. SMITH
THOMAS RICHARDSON

Street Commissioner, DANIEL DUNLOP

City Board of Health

DR. GEORGE S. KENDALL
DR. CHARLES G. BOHANNAN
DR. JEAN DUMORTIER

City Health Officer

DR. HENRY C. SHERER

WATER DEPARTMENT OFFICIALS

Commissioners

CHRISTIAN SWARTZ
STEPHEN S. HATCH
FRANKLIN A. SMITH

Office and Inspection

JOHN W. DAKE — HAROLD W. BOUTON

Installation and Repair Inspector

WILLIAM IRELAND

Filtration Plant

Day Operator — COURTNEY WOOD

Night Operator — JOHN W. LOCKWOOD

Asst. Operator, MAURO PARVELLO

Reservoir and Pipe Line Inspector

GEORGE BARLOW

Pipe Line Walker, CHAS. A. BROWN

OYSTER BOATS IN HARBOR—WASHINGTON STREET WHARF

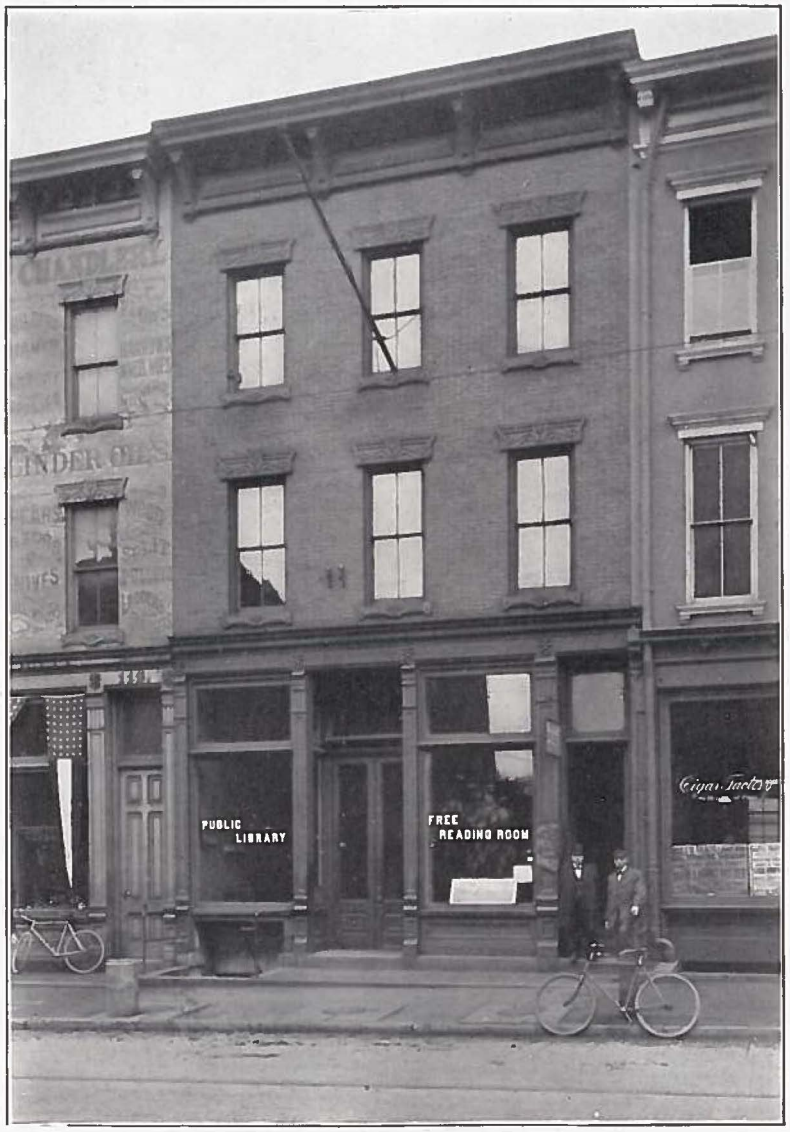
STRIKE A BALANCE

In our small journey through life we run into many dangers and temptations, and it behooves everybody who wants to make the journey successfully and with the greatest happiness to look well to the conduct of his affairs. The difficulty with most of us is to learn to live sensibly and sanely. We are in great danger of going to extremes. The thing is to strike an effective middle course. We want to do great deeds; to accumulate money; to reform somebody or something. Now, it is certainly wrong not to be awake to our privileges and opportunities for work, and not to get joy out of doing something that will make the world happier. But there is a time to loaf and be glad, also. There is virtue in being a happy citizen, as well as an active one. Life is serious, but not so serious that we need go about with a sour countenance and a book of rules. The wise man is the one who hits a nice balance in his affairs, who is neither wearisomely strenuous nor a flaccid shirk—*Farm and Fireside.*

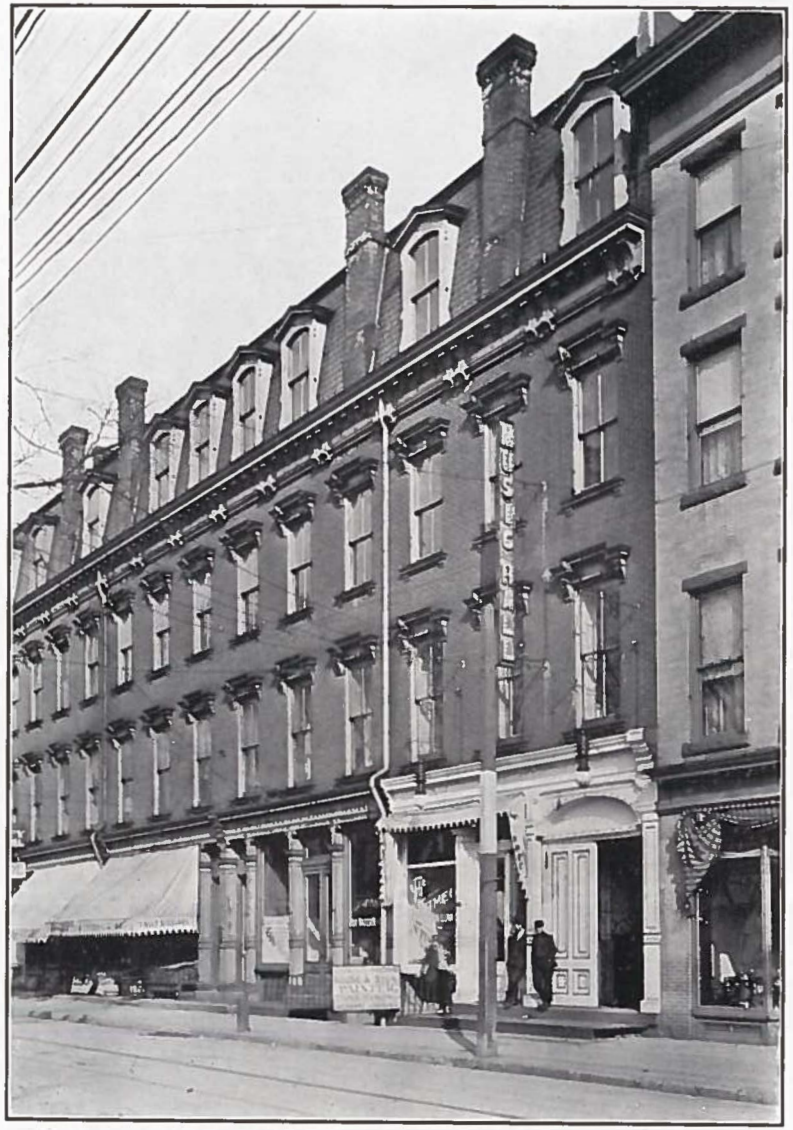
SOUTH NORWALK

The illustrations and limited description contained within these eighty pages, but partially cover the public features of South Norwalk. It would be impossible to justly present our public enterprises in so limited space. It would require many volumes to fitly speak of our handsome residences and their surroundings, and to illustrate and tell of the hundreds of business places. South Norwalk has several hotels, located in convenient sections of the city. Two theatres with comfortable seating arrangements, commodious stage provisions, that will accommodate the largest and best companies and plays.

Every line of mercantile business is amply represented, goods of all kinds are sold and delivered free, at as favorable prices as in much larger cities. Flourishing societies of all the leading mutual benefit orders have their lodge and council rooms in the center of the city, several of which own their buildings, furnished and equipped in elegant style. There are many social, literary and outing clubs, where family associations are a leading feature. These clubs supply both indoor pastime and pleasure, and outdoor recreation and enjoyment. With a large expanse of sea shore within a few minutes' trolley ride, and a rural inland stretch of miles of wooded hills and valleys, every taste and requirement can be fully provided for. Aside from the public Kindergarten, grammar and high school, South Norwalk has a model business college, practically teaching all lines of commercial activity; each year thirty to forty young ladies and young men graduate from this institution. South Norwalk has the best of banking facilities, has a well edited daily newspaper, public library with all periodicals and over 8,000 books for circulation. The streets are shaded with fine elms and maples and are well kept, being the best lighted at night of any city in the State. South Norwalk has a uniformed police force, and a uniformed fire department. A vigilant and active health board, comprised of some of the leading physicians of the city, who look well after the sanitary conditions. The Mayor, Councilmen, Water Commissioners, Electrical Commissioners, Board of Health and other city officials, devote their time and give their service to the city without remuneration. South Norwalk was organized a city August 18, 1870, and no salaries have been paid for the administrative public service during these thirty-eight years. A record that every citizen may be justly proud of. Fifteen physicians donate their services to the public hospital, ten in active practice on the medical staff and five in consultation.



CITY LIBRARY—108 WASHINGTON STREET. PROPERTY VALUE, $15,000
WATER COMMISSIONERS' AND STREET COMMISSIONER'S OFFICES



City Hotel. Music Hall, 54 South Main Street.

SOUTH NORWALK

SOME UNIQUE FEATURES

South Norwalk Industries, number of people employed, over		5,000
South Norwalk owns its Administrative equipment, value		$800.00
South Norwalk owns its Health Department equipment, value		900.00
South Norwalk owns its Street Department equipment,	"	1,300.00
South Norwalk owns its Police Telegraph equipment,	"	1,400.00
South Norwalk owns City Property, Fairfield Avenue,	"	3,500.00
South Norwalk owns Public Dock Property,	"	5,000.00
South Norwalk owns its Fire Alarm System,	"	5,200.00
South Norwalk owns its Fire Department equipment,	"	9,500.00
South Norwalk owns its Hose House and Property,	"	14,000.00
South Norwalk owns its Public Library Property,	"	15,000.00
South Norwalk owns its Electrical Works,	"	160,000.00
South Norwalk owns its Public School Properties,	"	278,000.00
South Norwalk has Church Properties,	"	283,000.00
South Norwalk owns its Public Water Works,	"	565,600.00
South Norwalk has capital invested in industries,	"	4,000,000.00
South Norwalk Grand List Real Estate, 1908,	"	6,000,000.00

The City of South Norwalk occupies but a small space, (about one square mile in area) in a small state. But the small places like South Norwalk, with people who are progressive, is the secret of success that makes little Connecticut rank first among the states in clocks, second in hats, third in silk goods, fourth in cotton goods, eighth in tobacco, nineteenth in property valuation and twenty-ninth in population. Connecticut was settled in 1635 and enjoys the honor of being one of the thirteen original states. Connecticut is a good state to live in, and South Norwalk is one of the most desirable locations in the state, equalled by few, excelled by none. It is a good locality on account of quick and satisfactory transportation facilities to all points, north, south, east and west. South Norwalk is an ideal place to establish a permanent suburban home, its nearness to New York, the superiority of the railroad service, and all the modern public conveniences which are supplied at very low rates on account of being owned and operated by the city. South Norwalk has pure filtered water, electric lights, good schools, churches, clubs, libraries, choice and well-stocked markets and stores. No other suburban locality can make so strong an appeal to the seekers of a beautiful and healthful home section, as South Norwalk.

STREET SPRINKLING CART — STEEL REFUSE COLLECTING CART

SOUTH NORWALK STREET DEPARTMENT

SOME FILTER FACTS

During 1904 it was decided to construct the city filtration plant. The Commissioners, special committee and resident engineer, each had water filters in their homes, also at their places of business. The filters were kept in continuous operation, and during the period when the public water was bad in odor, taste and color, these miniature filtration plants supplied clear, sparkling water. This was one of the practical means of securing positive evidence that the public water could be made pure and wholesome by filtering. Purification of water by filtration is not an experiment of modern times. It was firmly established in the eighteenth century. One of the earliest filters in England was patented by a woman, Mrs. Johanna Hempel, in the year 1790. It was a basin made of clay and course sea or pit sand.

The city filtration plant is built in the best possible manner; it is so arranged that there may be extra primary sections added without disturbing the original plant or interfering with its operation. The only requisite to insure efficient and satisfactory service for the future is to have the plant well cared for and properly operated.

SOUTH NORWALK

IT is stated that there is no better place to have illustrated the workings of a public water system than South Norwalk. The water works being operated exclusively for the benefit of the people, the results furnish valuable and reliable data that is not generally obtainable. The contents of this souvenir book presents a limited amount of information concerning water supplies and water rates, water consumption and water meters, with the hope that it may be of interest to the reader. The making of a city is its public utilities, the things participated in by everybody, whether rich or poor, landlord or tenant. The most important and essential is public water. An abundant supply of pure water is the foundation, nerve force and heart action of a city. No city of any size can exist without it. All of the utilities that are public necessities should be conducted by and in the interest of the people. With marvelous progress in our country along other lines, it is humiliating to know that the conduct of our municipal affairs generally are backward and unsatisfactory. South Norwalk can point with pride to the results that have been achieved along municipal ownership lines. The things already accomplished, with their splendid results to the people, speak more loudly and persuasively than any array of arguments that could be presented. South Norwalk stands to-day a banner city.

SOUTH NORWALK

IN speaking of the general and prevailing characteristics of South Norwalk as a community, it will be pardonable to refer to a few of our officials by name, as it will furnish an illustration of the points that are to be mentioned. Mayor Dow served the city four consecutive terms. Mayor Lee served five consecutive terms. Dr. Kendall for twelve years has served as president of the City Board of Health, introducing the free collection of ashes and refuse, improving the sanitary conditions and developing the health results to a high standard. Mr. Taylor has served as city clerk for fourteen years. Mr. Hatch has served as water commissioner for fifteen years. Mr. Volk as electrical commissioner, and Mr. Winchester as superintendent of the city electrical works, each have served for seventeen years. Mr. Vollmer, chief of police, has served on the police force for twenty-one years. Mr. McGowan, driver of Putnam Hose Co supply wagon, has been actively associated with the city fire department for thirty years. Mr. Ferris has been treasurer of Old Well Hook and Ladder Co. for thirty-three years. Many of the firemen have finished their twenty years of active service and are now on the honorary list of the department. These few references are made, as they afford applicable illustrations of two things. First, the unanimity of spirit and universal appreciation on the part of the people for the public services that they enjoy. Second, the unselfish and competent manner that public duties are performed by officials that consent to assume them.

ASH AND PAPER CART. STREET OILING CART. PATENT DISTRIBUTING SPRAY STEEL DUMP CART

SOUTH NORWALK STREET DEPARTMENT

BLOW YOUR HORN

It is generally conceded by the public that the business that succeeds is the one that judiciously advertises. Why should not South Norwalk with such attractive advantages for homes, and such excellent facilities for manufacturing industries, make some active effort to let them be known? Within the pages of this souvenir book will be found the names of over two hundred of the leading citizens of South Norwalk. If the reader would like to secure particular information regarding any special feature of our city, write to some one of these gentlemen and they will appreciate having the opportunity of answering your enquiries. Several industries have located here the past few years on account of the moderate cost of electric power furnished by the City Plant. Three large industries recently located here on account of the pure, filtered public water, which is an essential element in their work.

WATER COMMISSIONERS' OFFICE—106 WASHINGTON STREET
SECOND FLOOR, LIBRARY BUILDING

Lincoln's First Political Speech

The following is the first political speech ever delivered by ABRAHAM LINCOLN:

GENTLEMEN AND FELLOW CITIZENS: I presume you all know who I am. I am humble Abraham Lincoln. I have been solicited by my many friends to become a candidate for the Legislature. My politics are short and sweet. I am in favor of a national bank. I am in favor of the internal improvement system and a high protective tariff. These are my sentiments and political principles. If elected, I shall be thankful; if not, it will be all the same.

Truth

No matter what price a man may pay for truth, he is getting it at a bargain. The lying of others can never hurt us long, it always carries with it our exoneration in the end. During the siege of Sebastopol, the Russian shells that threatened to destroy a fort opened a hidden spring of water in the hillside, and saved the thirsting people they sought to kill.—W. G. J.

STREET COMMISSIONER'S OFFICE—106 WASHINGTON STREET. SECOND FLOOR, LIBRARY BUILDING