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Water for Rochester

By BLAKE MCKELVEY

Few civic functions have enlisted the attention of more citizen leaders or played a more influential role in the city's ecological development than the provision of a safe and adequate supply of water. This task, which has confronted city builders since ancient times, prompted Rochester's pioneer engineer, Elisha Johnson, to draft a plan for a water works in the first year of the city's incorporation. That plan, however, was shelved and successive efforts to meet the problem made little headway for several decades, yet the need persisted and in fact became more urgent. Finally in the early seventies Rochester built not one but two water works, and in succeeding decades it has expanded these systems and witnessed the development of new private and county-wide services. In the process the community has supplied municipal and commercial as well as domestic needs for water, and these accomplishments have affected related civic fields—public health and safety, sewage disposal and regional expansion, and they have also influenced the character of successive stages of the city's development.

The Era of Wells and Cisterns

Located in a fertile valley, blessed with an abundant pre-

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cipitation, and situated at the brink of a succession of water falls, Rochester in the early days faced the hazards of too much not too little water. Thus a sudden flood early in November 1817 partially innundated the newly incorporated village, threatening the bridge and converting the low lands north of Buffalo [West Main] Street into stagnant marshes. Property owners on the west bank raised an embankment along the river and dug drainage ditches to clear the low lands for dwellings. Only in the southwest district where a gently rising hill supplied good drainage were wells considered safe for domestic use. That district became as a result the favored residential area, while commercial interests developed the lots on the north side as soon as they were drained.

A clear flowing spring on present Spring Street provided an abundant supply of fresh water until the summer of 1820 when several private wells were dug nearby. A plea for the opening of public wells was put off by an increased flow at the spring that fall, but a move for the organization of an Aqueduct Association was abandoned when enterprising water carriers supplied all needs.

As the 1500 residents of 1820 quadrupled in number in the next five years, the early water supplies became inadequate. The construction and opening of the Erie Canal through the heart of town had necessitated improved drainage on the northern side, and the village trustees had not only spurred that action but had sunk two public wells and subsidized the digging of a half dozen widely scattered private wells, making them too available for public use. Several merchants, whose properties were too distant from the river, the raceways, or the canal to permit easy use of their water, dug cisterns nearby to supply the volunteer fire fighters if needed, and the proprietor of the Ensworth Tavern at the Four Corners constructed a conduit of

bored logs to carry water from the old Red Mill's flume under Buffalo Street to supply the horse trough in front of his inn and provide for any emergency. On the higher east bank, where drainage into the river was unincumbered, private wells sufficed and facilitated its rapid development as a residential district.

Despite a disquieting recession in 1829, the town's growth continued, and its population doubled in number by 1834 when Rochester received its first city charter. The need for a more adequate water supply had contributed to the drive for city status. As the inadequacy of the scattered private and several public wells became apparent in the early thirties, Elisha Johnson, the eastside promoter and trustee, drafted a plan to supply the community with fresh water from the upper river and prompted his fellow trustees to petition the legislature in January 1834 for authority to organize a water company. The new charter granted a few months later authorized such action, but other urgent demands absorbed the attention of the early city officials. Instead, the Common Council authorized the construction of several additional wells and cisterns; it was not until the election of Elisha Johnson as the town's fifth mayor in 1838 that a new move developed to create a water works.

Although several British colonial towns had reported the organization of water companies, their services had been limited and it was not until the opening of Philadelphia's water works in 1801 that an American city acquired an effective water system. Boston, New York, Baltimore and a few other cities had developed similar systems in the next decade, and some forty additional towns reported the establishment of water companies in these years, many before they reached the 20,000 figure Rochester was now approaching. But the possibility of tapping a fairly steady flow of water at one or another of the rock ledges that could be found a few feet underground almost any-

where within the city favored a general reliance at Rochester on private wells for domestic use. The abundant supply of water in the river, the three races and the canal, especially as supplemented by private cisterns, had generally been adequate in the summertime for the volunteer fire companies, which were more interested in acquiring and operating one of the steam engines Alderman Lewis Selye was building at his machine shop on Mill Street. But, despite these assets, the number of fires and the losses suffered in winter months had boosted insurance rates in Rochester to a higher level than in Philadelphia and Pittsburgh, as Mayor Johnson discovered, and levied a hidden tax of $15,000 on its property holders that was larger than the maintenance cost of the water system he proposed. But when his estimates of the construction and acquisition costs for a suitable system exceeded $130,000, the council cautiously tabled the proposal.

Unprepared to tackle the full task, the council moved a year later to provide for the construction of additional water reservoirs or cisterns for use by the fire companies. This however failed to supply the need for pure domestic water, as the cholera epidemic of 1852 disclosed. Since the population had doubled again by the early fifties, contamination of the water in numerous wells was occurring, and several concerned citizens, headed by C. A. Jones, moved late in 1852 to secure a charter for a Rochester Water Company. An amendment the next year authorized the Common Council to subscribe for $200,000 of the company's stock, but that measure attracted censure from successive public meetings. Although a bill amending and renewing the charter passed in 1855, the city was not able to reach a decision between its two proposed systems, one to bring water up from Lake Ontario, and the other to bring it down from Hemlock Lake some twenty miles south of the city.

The Hesitant Development of a Water Works

An outbreak of numerous fires and the fear of renewed epidemics kept the issue alive. To reduce the first hazard the Common Council voted in 1859 to lay a conduit of iron pipes to keep six fire cisterns in the downtown district filled with river water, and it created a water works committee to recommend further action. The committee received a long letter of advice from former Mayor Johnson, now living in Elmira, citing his earlier proposals, but it engaged the services of Daniel Marsh a civil engineer to review the various possibilities and submit alternative cost estimates. Engineer Marsh assembled the latest reports of a number of water works companies and compiled a table showing the facilities, volume of water delivered, and costs of the water works of more than a score of American cities, most of which had made substantial outlays. With that introduction he estimated the cost of five alternate plans to tap Lake Ontario, the Genesee River, Little Black Creek, the Honeoye Outlet, or Hemlock Lake direct, and concluded by recommending the adoption of the last plan as the one most likely to prove satisfactory and adequate in the long run. The committee accordingly invited bids and accepted one from the Rochester Water Works Company and gave it a five-year contract to build a water conduit from Hemlock Lake to a reservoir near Mt. Hope and to distribute it through pipes to be laid in the city streets. The city agreed to pay $20,000 a year for hydrant water for fire protection and to encourage private customers to take advantage of its services for domestic use.

Daniel Marsh, who became the company's engineer, devised a plan for construction, but unfortunately the onset of the Civil War and the difficulty of raising the necessary funds delayed action until the summer of 1866 when a group of investors from Hartford, headed by Alexander Eaton who had built its water

works, acquired control of the Rochester company. The council renewed its contract for another five years and the company proceeded to acquire rights of way and to construct an open canal ditch 1800 feet long from the foot of Hemlock Lake feeding into a wooden conduit 24-inches in diameter that extended some 16 miles to a reservoir near Henrietta. Although the extension of that conduit to Rochester was only partly built, the company had also commenced to lay rivited steel pipes into South Avenue and other city streets. Its slow progress and the mounting pressure to secure water for the fire companies prompted the council committee to visit nearby Lockport to inspect its famed Holly system. Impressed by the efficiency of its patented pumps, the committee urged the council to authorize the construction of a separate system to deliver water from the Genesee to downtown hydrants under sufficient pressure to assure a steady stream to the fire companies. Determined to head off the formation of a rival system, the water company offered to pump river water through its existing downtown pipes until the supply from Hemlock was available, but the first attempt to deliver water under pressure proved the inadequacy of its pipes for such purposes, and the simultaneous discovery of the brackish taste of water brought through the log conduit forced the company into bankruptcy.

The need for forthright action was hotly debated in the council and by citizens generally. While some in the council were preparing to negotiate a new contract with the Holly Company to provide river water under pressure to the downtown district, others headed by Mayor Charles W. Briggs, fearing a complete abandonment of the Hemlock system, moved for the creation of a Water Works Commission to take full responsibility for providing water for Rochester. Daniel Powers, who was just completing the construction of his "fire proof"

cast-iron block at the Four Corners and wished to avoid a sudden increase in taxes, was one of several prominent business leaders who formed a Citizen's Association to oppose unnecessary expenditures. Their attitude, at least that of Chairman Powers, changed suddenly after the great Chicago fire obliterated the cast-iron blocks along with most of those of brick and stone as well as wood in that western metropolis. With his confidence in the safety of his cast-iron block shaken, Powers joined with others in backing the move for a Water Works Commission with power to take forthright action.

Assemblyman George D. Lord, Democrat, was very cooperative in pressing the application of Mayor Briggs, Republican, and a few of his minority associates on the council for the creation of a legislative commission to build the water works. He also helped the Mayor head off the plans of the Democratic majority on the council to build a city hall by creating a legislative commission to assume that function and the construction of a new high school as well. Assemblyman Lord's price for these services was the contract to build the Hemlock water works, although that fact did not come to light for another two years when his dummy contractor who had submitted the lowest bid stepped aside to permit Lord to press a $600,000 claim for unexpected extras. The commission meanwhile had placed J. Nelson Tubbs an able engineer in charge, with supervision over the construction both of a separate Holly system to serve downtown hydrants and of the Hemlock system to supply water for domestic use. Under his direction the Holly system was rushed to completion in twenty months, and thousands gathered on February 18, 1874, to witness the test when a stream of water released from a hydrant in front of the Powers Block gushed upward from a short hose without the aid of a streamer to wash the roof of the six-story block. Two more years elapsed

before the 28-mile Hemlock conduit was ready to deliver water to the reservoir in what 12 years later became Highland Park. Service to the first domestic customers commenced in September 1876.

The successful completion of the two water systems had many direct and indirect impacts on the city's development. Although the commission had rejected the offer of Thomas B. Rand, who had acquired control of the old Water Company, to complete its system, the city did liquidate his claims and secure his rights of way with a compromise settlement in 1873. Instead of the projected outlay of $800,000 for the Water Company's system, on which it had expended some $223,000 and received $26,000, the Hemlock system as finally and more substantially constructed cost $3,313,784 as reported by Tubbs in 1877. This expenditure included $200,784 for the separate Holly system which pumped river water through 7.3 miles of pipes to 120 hydrants in the central district. The Hemlock system was of course much larger and was comprised in addition to the 28.5 miles of iron conduit from Hemlock Lake, with an estimated capacity of 9,000,000 gallons a day, of two large reservoirs, one in the town of Rush and one in Highland Park, which supplied pressure to force the water through 58 miles of distribution pipes to 521 street hydrants, 27 water troughs for horses, and at the start 2700 domestic customers. The commission had raised $3.1 million in water bonds, and too justify such outlays pressed eagerly for additional paying customers. Fortunately the Holly system had not only proved so effective in combating fires that the insurance companies had granted sharp reductions in rates, but the availability of water under pressure had prompted the installation of water-driven elevators in a score of downtown establishments and spurred the erection of new six- and seven-story buildings.

But the disclosure of Lord's secret acquisition of the lucrative contract had produced a political explosion in 1875. Ex-Mayor Henry L. Fish, a reform Democrat of the 1860's, indignant over the action of Assemblyman Lord in removing the construction of the water works and city hall from local municipal control, had re-entered politics as a Democratic candidate for the Assembly and had replaced Lord in 1873. At Albany he joined Governor Tilden in his battle against corruption and soon uncovered Lord's complicity in several deals, including his control of the Hemlock contract. Although few blamed the respectable members of the Water Works Commission, headed by Roswell Hart, of responsibility for the scandal, the partisan character of the appointments to that and the city hall commissions, as well as the partisan practices of the Common Council, prompted Fish and British-born Mayer George A. Clarkson, a Republican reformer, to collaborate in the drafting of a bill creating a bypartisan Executive Board to take over the unifinished duties of the two commissions and several other administrative functions. The six-man Executive Board, three elected by the voters and three appointed by the mayor, with former Mayor and former Assemblyman Fish as chairman, thus received the task of completing the water works and finally reached a compromise settlement of Lord's $600,000 claim for the modest payment of $50,000, which he received after completing a brief term in jail.

But the most dramatic response to the successful launching of the water works project was the sudden annexation in 1874 of sufficient territory to more than double the city's acreage. Residents beyond the borders were eager to gain admittance even before the completion of the water conduits in order to assure the extension of the water mains to their tracts, and Rochester's boundaries reached out on every side to include a

total of 10,368 acres and 81,700 inhabitants. The water mains did not begin to cover that expanded area until 1880 when they extended for a total of 104 miles within the city serving most of the streets that would be improved by 1900. Rochester's water consumption had grown to over 4,500,000 gallons a day, not counting the Holly system services, or 63 gallons per citizen, second only to Brooklyn in volume and quality of service. By 1885 the possibility of a shortage of water began to appear during a dry summer. Several wet seasons dispelled such fears until 1889 when a test revealed that the conduit's daily flow had been cut to 6,730,000 from the 9 million gallons originally believed to be its maximum capacity. A frantic search for leaks and a reduction in the number of water troughs were coupled with increased charges for commercial uses designed to prompt industrialists to switch their cooling systems to river water. These policies helped to postpone a water famine but left the basic problem unsolved.

A new conduit would be needed but again a dispute over its character and over the proper responsibility for its construction delayed action. Chief Engineer Tubbs prepared a fresh survey, locating a short route 16.8 miles in length, which would require the use of a pumping station to lift the water over an obstructing ridge. The newly formed Chamber of Commerce engaged an outside expert, Alphonse Fteley, chief engineer of New York's Croton aqueduct, to study Rochester's needs, and his proposal that a new all-gravity conduit be built prompted the Chamber to prepare a bill authorizing the construction of such a line with a capacity of 15,000,000 gallons at a cost not to exceed $1,500,000. Some members of the council favored a reliance on meters to cut down excess consumption; some backed the Tubbs plan; but some favored the Chamber's plan and formed a joint committee to back its passage. When that

bill failed to pass the legislature in 1888 and again the next year, chiefly because of dissension among the Rochester lobbyists, a super committee was formed at Rochester to represent all views, but its inability to reach a consensus, partly because of the intransigence of Engineer Tubbs, prompted a request for his resignation.

The dispute involved more than a choice between an all-gravity route and one requiring pumps. Fteley, the Chamber's expert, assisted by Farning an engineer from Minneapolis, had recommended tapping Conesus Lake as a first step in order to reduce the demands on Hemlock Lake, and some members of the council committee favored that solution. Tubbs, however, protested that Conesus water lacked the quality of Hemlock's water, and the city's health authorities also objected to it because the greater density of nearby residents threatened contamination. But when George W. Rafter, the assistant engineer who had collaborated with George Aldridge of the Executive Board in the test that demonstrated the reduced flow in the conduit, was nominated to succeed Tubbs as chief engineer, the Democrats who captured control of the Common Council and the mayor's office protested that it was a move by Aldridge to secure control of the proposed construction job. In response to that charge the chairman of the now three-man Executive Board switched his vote to Emil Kuichling, the other assistant engineer, who was a Democrat.

The debate continued in the council and the legislature for another two years, and when a law was finally passed, authorizing the city to raise $1.5 million in bonds to build a new conduit to Hemlock Lake, its opponents protested that Rochester had already exhausted its borrowing limits. A hasty appeal to the courts secured an opinion to the contrary and permitted the city to authorize the engineer to make test borings for a new conduit.

When the Executive Board called for bids for the construction of a new all-gravity conduit it received two bids, one so low that the New York company, when granted the contract, claimed an error in its calculations and refused to proceed. Impatient to get the job started, the board promptly let the contract to the next lowest bidder, a Rochester company. To forestall a water famine that summer the city issued a no-sprinkling order and contracted at the same time with the promoters of a Brighton Wells Company who undertook to supply a million gallons a day from artesian wells in that town at 8 cents a thousand. The board voted an increase in the water rates, especially in the low rates charged industrial users, and Kodak promptly sunk a well 128 feet deep to supply most of its needs, while two breweries drew water from the river to operate their cooling systems.

As work progressed day and night on the new conduit, petitions multiplied for an extension of the distribution mains. Shortly after the completion of the conduit from Hemlock Lake to the reservoir in Rush the governor signed a bill authorizing the city to float an additional $250,000 in bonds to finance an extension of the water services. A suit brought by the owner of a paper mill in Honeoye Falls, claiming damage because of a diversion of its water supply, widened the area of damage claims that had to be liquidated. At the same time a threat to develop a portion of the shore of Hemlock Lake as a resort focused attention on a proposal to buy up the entire shore line as a sanitary precaution. After much debate the city secured the passage in 1895 of a new bill authorizing the purchase under condemnation procedures of the flood lands at the head of the lake and of a strip extending along the shore 200 feet back from the high water mark in order to safeguard the lake from contamination. Engineer Kuichling, in his progress report in May 1896, noted that while the danger of a water famine had subsided, the rapid extension of distribu-

tion mains was taxing the capacity of the Highland Park reservoir was called for the early provision of a second reservoir. He proposed the acquisition of Cobbs Hill for this purpose at an estimated cost of $100,000 for the land. Indignant protests greeted that new suggestion, for the expenditures on the new conduit had finally reached $1,750,000 and most of the $250,000 authorized for the extension of services had been expended without reaching all petitioners. In addition the commissioners appointed to buy up the Hemlock Lake shore had expended most of the authorized sum on slightly less than half the shore line.

Yet despite the mounting criticism, most citizens took a genuine pride in the excellence of the Hemlock system. Complaints of a fishy taste had disappeared after the water works superintendent staged a public demonstration at the reservoir in Rush. With hundreds of spectators ready with pails and barrels to be filled with fish, he lowered a large net a dozen times into the reservoir and brought up less than half a dozen small fish—a disappointment to some but a relief to most citizens who soon forgot the fishy taste and learned to boast of the water's fine qualities. Applications for water meters mounted when the city removed the no-sprinkling restriction from all households equipped with meters, and when early in 1898 the number of meters in use reached 6700 the department abandoned the effort to read them monthly and settled for bimonthly readings and bills. Engineer Kuichling was able as a result to report increased returns on the steadily mounting consumption of water, but neither the Executive Board nor the Common Council gave heed to his repeated requests for the construction of a second reservoir.

The authority of the Executive Board and of Engineer Kuichling came to an end in January 1900 when the new White Charter went into effect. Under its provisions the water works became a responsibility of the City Engineer, and the new

Mayor George A. Carnahan named Edwin A. Fisher to that post. Carnahan was too busy establishing the new strong-mayor administration to give much attention to the water works, and Fisher, busy mastering its complexities, made few new proposals until 1902 when, with A. J. Rodenbeck as the new mayor, he renewed the proposal that Cobbs Hill be acquired as a site for a second reservoir. The situation had changed drastically with the organization that year of the Rochester and Lake Ontario Water Company, a private venture established by New York investors who secured the consent of the New York Central to lay mains along its track in order to reach and serve major local industries and Rochester's suburban towns. When that company acquired a 15-acre tract on the north side of Cobbs Hill for its own reservoir Engineer Fisher and Commissioner of Public Works McClintock finally pushed a bill through the council authorizing steps to condemn the major part of the hill for a public reservoir. The price for the various parcels when finally determined early in 1905 totaled $115,000 for 55.3 acres and the construction costs already promised to exceed $400,000, but the need for the new reservoir was no longer in doubt.

McClintock, an exceptionally able and notably independent man, never held any job for long, but he always managed to make a lasting contribution before he departed, and these included several to the water system. As first executive secretary to the Chamber of Commerce he had brought Fteley and Farning to Rochester and had pressed their preference for an all-gravity conduit so effectively that Tubbs had resigned shortly before McClintock himself had been forced out on another count. Now as Commissioner of Public Works he launched a campaign for the reforestation of the Hemlock Lake basin that not only safeguarded it shores, but created a glorious Pine Forest for the delight of future generations. He also backed Fisher's

pleas for Cobbs Hill so successfully that the measure survived the veto of Mayor Rodenbeck and prompted George Eastman and a group of public spirited industrialists to buy up an additional 54 acres on its slopes to make Cobbs Hill Park a rival to Highland Park given in similar circumstances two decades before to provide a suitable setting for the city's first reservoir. But when McClintock, who could not believe that Rochester industrialists would switch from the Hemlock system to the use of the inferior water of the Rochester and Lake Ontario Company, hesitated to use his power over the city streets to block the rival company from crossing them, Mayor Rodenbeck replaced him with a more compliant commissioner before he likewise was displaced by Boss Aldridge who had acquired an interest in that company.

City Engineer Fisher, who secured the assistance of the chief engineer of the Metropolitan Water Board of Boston in the planning of Cobbs Hill reservoir, adopted another practice of that board in instituting regular bimonthly checks of the Hemlock watershed to assure its safety. He soon extended this to include adjoining Canadice Lake, which had been designated as a future resource, and secured authorization for the gradual acquisition of its shore line as an additional precaution. Unfortunately that policy was not vigorously pushed, since the need to tap Canadice water seemed so far distant, and in 1909, when the purchase of Canadice shore lands was undertaken in earnest, it was discovered that at least two city employees had joined with others in acquiring properties on the lake ostensibly for commercial development, which compelled the city to pay a ten fold increase on their holdings. The Democratic candidate for Congress, James S. Havens, who disclosed the scandel, forced Mayor Edgerton to discharge the two officials involved and defeated the rival bid of Boss Aldridge for a seat in Congress, but the only paper to

feature the story was the Democratic *Union and Advertiser*.

Administering and Defending the System

The threat posed by the private Lake Ontario Water Company kept the Rochester Water Works on the alert. Rochester was able to annex Brighton Village and supply its residents with Hemlock water in 1905 before the private company had extended its distribution mains to the town of Brighton, but three years later when the Megiddo Mission settlement on the city southwest border sought an extension of the water mains, a delay in arrangements for its annexation prompted its head, Captain Nichols, to sign a contract with the Lake Ontario Water Company, which promptly extended its mains into other parts of Gates. As the private company extended its water mains into other suburban tracts in Brighton, Greece, and Irondequoit and eventually into Chili and Perinton, local capitalists headed by Henry C. Brewster acquired a controlling share of the stock and assumed charge of its direction. To meet the competition of its lower rates, Mayor Edgerton in 1909 granted a reduction in the Hemlock rates from the 14 cents per 1000 gallons to 12 and 10 cents per 1000 as consumption exceeded certain levels. The construction of a conduit from Canadice to Hemlock Lake authorized in 1912 and completed by slow stages in the next six years, provided an ample supply of excellent water and spurred the construction of a third conduit pipe increasing the carrying capacity to an estimated 42 million gallons a day by 1918 and actually delivering an average of 27 million to 49,000 metered customers that year. A Bureau of Municipal Research study in 1920 reported that no other city was so completely metered or more adequately served, and despite the loss of some industrial and commercial users to the Lake Ontario Water Company,

the Rochester Water Works was netting a handsome return to the city.

The Lake Ontario Water Company was likewise prospering. Its domestic consumers numbered 4800 by 1920 when, through its contracts with water districts in eight suburban towns, it served a total population of approximately 75,000. The company's main plant, located on the lake shore a mile west of the river, pumped water from an intake pipe extending 4000 feet into the lake and, after chlorinating it and drawing it through a sand filter, pumped it through a network of mains that totaled nearly 100 miles in length. Its storage tank adjoining the city's Cobbs Hill reservoir had a capacity of 500,000 gallons and helped to maintain a constant pressure. The rapid growth of the city's suburbs promised additional demands on the private company, and when in 1923 Rochester annexed tracts the company was already supplying in the 17th and 22nd wards the city contracted for a continuation of its services there. Indeed the prospects of the private company were so bright that the Federal Water Service Corporation, with similar plants in other metropolitan areas, acquired a controlling interest in the Rochester and Lake Ontario Water Company in 1927.

That move was designed to forestall a proposal by Engineer Fisher that the city acquire ownership of the private company. Fisher, concerned by the mounting consumption of Hemlock water, which reached 32,000,000 gallons a day early in 1926, engaged Allen Hazen and H. P. Eddy as outside consultants to evaluate five proposed methods for increasing the city's supply. They joined Fisher in dismissing a renewed proposal to tap Conesus Lake and gave their first preference to an alternate plan to tap the Honeoye basin. That proposal, which called for a dam impounding the waters of the entire Honeoye watershed, attracted outspoken opposition from residents in the village of

Honeoye and from others in the basin who would be displaced by the dam. The cost, estimated at $12 million seemed however exorbitant, and many favored the acquisition instead of the Lake Ontario Water Company, until its purchase by the Federal Water Services Corporation forestalled such action. Rochester accordingly pressed its claim to the right to acquire the Honeoye basin before the State Water Power and Control Commission and in 1928 won a favorable decision from that state authority. However the huge construction costs and the prospects of numerous damage suits prompted caution, and a series of rainy seasons that raised the levels of Hemlock and Canadice Lakes postponed action.

When in the early thirties consumption again began to exceed the available supply of Hemlock water, Rochester increased the volume of its intake from the Lake Ontario Water Company. The increased prices demanded by that company, whose rates now exceeded those of the Hemlock system, prompted the city to negotiate for an alternate supply from the water mains developed in the early 1920's by the Eastman Kodak Company. The State Water Power and Control Commission approved the use of these filtered supplies in 1934, but the next year when City Manager Harold Baker proposed the construction of a city filtering plant adjoining that of the Eastman Company at Bogus Point, to supply Rochester's future needs from Lake Ontario rather than Honeoye Lake, a heated controversy developed. The Chamber of Commerce strongly favored the Bogus Point project as less costly than the Honeoye basin development, but a Republican faction headed by Harold MacFarlin collected some 27,000 signatures from residents who preferred the pure upland lake water to filtered water from Lake Ontario. A move by Baker and the Democrats in control of the City Council to disregard that protest made it the chief issue in local politics in 1935

and prompted the Republican dominated State Water Power and Control Commission to refuse its consent for the construction of a city filtering plant.

Again a series of wet seasons raised the level of the upland lakes and postponed the need for additional water resources. The slow growth of the city, as most of its increase spilled into the suburbs, permitted the Lake Ontario Water Company to carry the major burden for increased consumption. The city faced a crisis in 1940 however when a careless workman opened one of the valves separating the Holly and Hemlock systems and permitted a million gallons of river water to enter and pollute the domestic system. The city, which had fed its domestic water into the Holly system for years, resorting to river water for fire fighting only in periods of shortage, had almost forgotten two earlier scares when the Holly pumps pushed river water into the domestic system. An outbreak of 58 cases of typhoid in 1910 had been traced to an open valve, and a second outbreak of 40 cases of typhoid with four deaths in 1926 had resulted from an unauthorized connection in a department store. Now Rochester escaped with an epidemic of dysentery and diarrhea but as the number of cases reported exceeded 34,000, popular protests mounted. The State ordered Rochesterians to boil all drinking water for several days, and the city finally determined to shut off the intake of any river water and to operate the high-pressure Holly mains exclusively with filtered water from the Kodak or Lake Ontario systems.

Kodak's increased use of its own water resources forced the city to repair its original Hemlock conduit, relining several miles of its pipes that had become practically useless by the early forties. Because of the soft terrain through which the first section of Conduit I had been built its condition had deteriorated, and after the completion of Conduit II's more substantial brick tunnel

13,000 feet in length to Overflow I, the first section of the original conduit was bypassed. The brick tunnel of Conduit II continued to carry the full load from Hemlock to Overflow I until 1964 when the city built a small tunnel equipped with pumps to enable it to supplement or even supplant in an emergency the larger brick tunnel to Overflow I. The second tunnel further increased the potential capacity of the system. Fortunately the progressive redemption of the water works bonds enabled the city to finance that improvement out of water revenues.

But while these provisions maintained the high standard of the city's water they did not answer its increasing needs. The city did install a floating pump station in Hemlock Lake to enable it to reach down and draw water from below the gravity-flow level, thus increasing its delivery in dry seasons. The only real solution seemed to lie in a proper use of Lake Ontario's abundant supplies, but the Republicans, who had defeated the Bogus Point project in the mid-thirties, refused to reconsider that alternative until 1949 when a sharp warning from the National Board of Fire Underwriters prompted the council to order City Manager Cartwright to undertake the construction of a filtering and pumping plant near the Kodak Company's newly expanded intake facilities and to install pipes to carry an adequate flow of potable water to meet the needs of the growing city and to supply some of those of the suburbs as well.

Meanwhile numerous complaints in the suburban towns of the inadequate water pressure and slow extensions of service by the Lake Ontario Water Company were prompting action by the county authorities. Control of that private company had been acquired in the late forties by the New York Water Services Corporation, which installed Herman Russell of the Rochester Gas & Electric as its local president. Despite the steady growth of the suburban population, its domestic customers still scarcely

exceeded 20,000, and several of the contracting water districts were complaining of the wide fluctuations in pressure, which sometimes dropped so low as to deliver scarcely a trickle in many homes. In an effort to correct the situation, the county created a Monroe County Water Authority in 1951. The authority was authorized to purchase water from the city on the completion of its Lake Ontario filtration plant in 1953 for supply to towns and water districts unable to secure adequate service from the New York Water Services Corporation, but the main goal of the county authority was to acquire full ownership of the private company. Finally in 1956 it instituted condemnation proceedings which enabled it in March 1959 to acquire by negotiations the company's widely dispersed facilities for $9,750,000. Its plan to proceed with the absorption of the city's Lake Ontario system as well was however blocked by the Democrats who secured control of the City Council in 1960. The city's efforts, in turn, to negotiate separate contracts with the suburban towns to supply its water directly to their water districts were blocked by the County Water Authority, which retained control over this city-county relationship. The authority, however, failed in its effort to persuade the city to sell its Lake Ontario plant to the county and faced as a result the necessity to build an enlarged plant of its own. While at the time this seemed a costly extravagance resulting from a failure to move smoothly towards a metropolitan integration of all facilities, the result by the late sixties was the development of water resources that not only met the expanding suburban needs, where the number of water customers finally exceeded those of the city but, because of an agreement with the separate city system for mutual aid in case of need, forestalled any threat of serious emergencies.

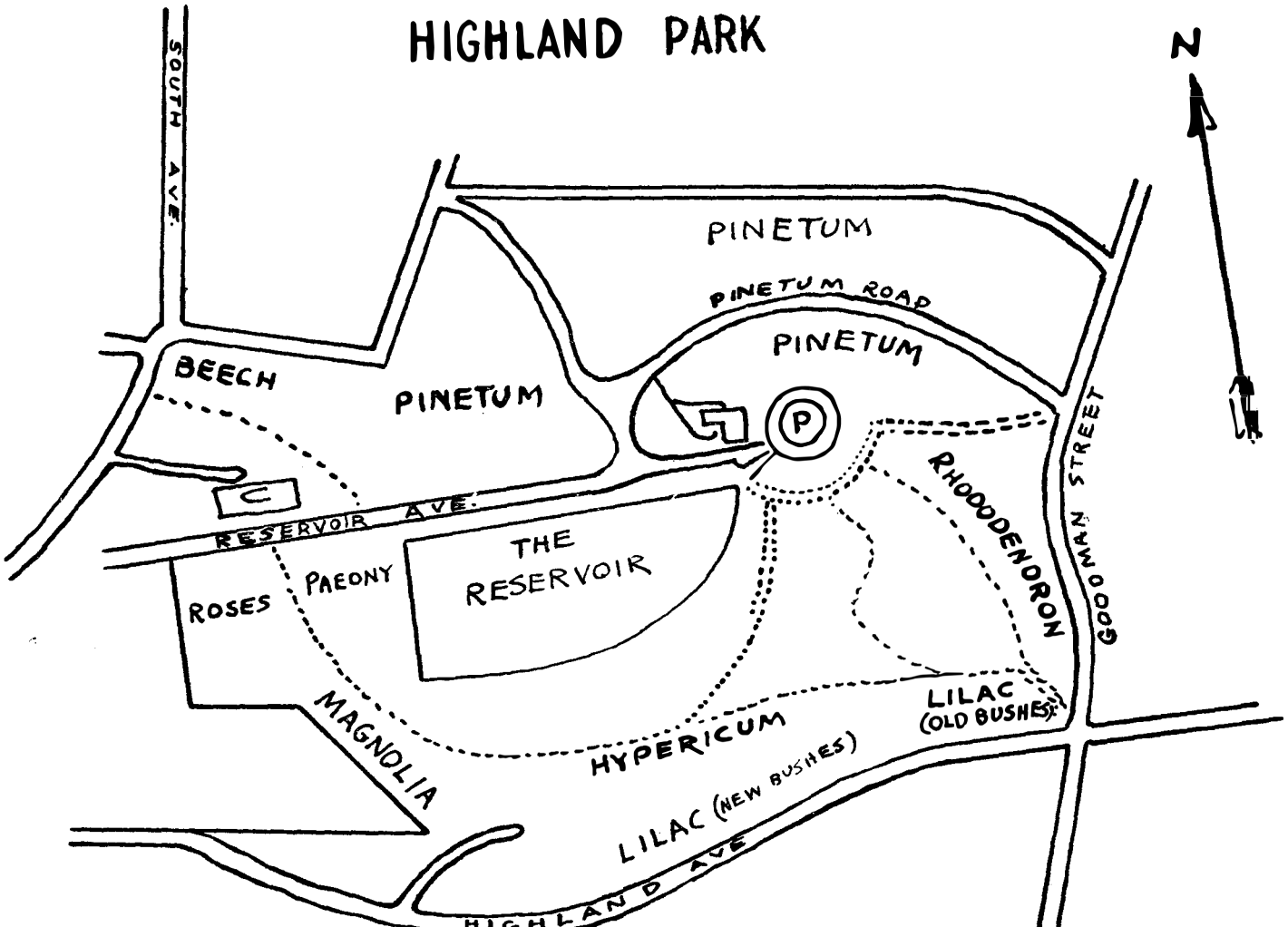
In the early sixties when the Eastman Kodak Company, facing the increased needs of its plants, gave notice that its contract

to supply the city's Lake Ontario division would not be renewed, the city water bureau made a partial payment to the authority to assist in the construction of a larger intake pipe with the right of drawing 40 million gallons a day for city use and an agreement to pay 40/140th of all maintenance costs. To develop the full benefits from this investment in a joint intake pipe and its separate filtration plant, the city installed a new battery of pumps which increased the potential capacity of its Lake Ontario supply system and encouraged the city to press for a wider market for its water. Because of its desire to escape the taxes imposed on its conduits by the towns, the city welcomed a bid for direct service from Henrietta in Monroe County and from Lima, West Bloomfield, and Livonia beyond the county borders, and secured a remission of taxes for that direct service. It continued to supply water to Brighton, Mendon, and Rush but through the agency of the Monroe County Water Authority and sought its assistance in reducing the taxes they collected on its works. It also sought the consent of that Authority to supply its water to the Wards still served by the County.

In an effort to reach an agreement for a comprehensive development of the water resources of the Rochester and Monroe County Metropolitan district, the city water bureau and the county's water authority engaged the firm of Malcolm Pirnie Engineers to make a Comprehensive Survey of the Water System of the Rochester area. When submitted in 1967 this survey recommended a division of tasks to permit the city to supply its entire area and the towns to the south in Monroe County and in adjoining counties that could best be served by the city's upland conduits. The city's existing facilities were judged adequate for these additional services until 1972 and the city and county authorities undertook a series of consultations seeking a suitable resolution of the problems of metropolitan integration. While

has not been fully realized and the city's arrangement with the Town of Henrietta has been set aside by the courts, an agreement to cooperate in case of emergency breaks has been reached and a new contract has been signed by the city and the authority providing for a continuation of their mutual services pending the results of litigation over the interpretation of prior agreements. Meanwhile both the city and the county have taken steps to assure the adequacy of their systems.

the implementation of the Malcolm Pirnie recommendations


HIGHLAND PARK
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SOUTH AVE.
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THE RESERVOIR
ROSES
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RHOODENORON
GOODMAN STREET
MAGNOLIA
HYPERICUM
LILAC (OLD BUSHES)
LILAC (NEW BUSHES)
HIGHLAND AVE