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NUGGETS OF HISTORY

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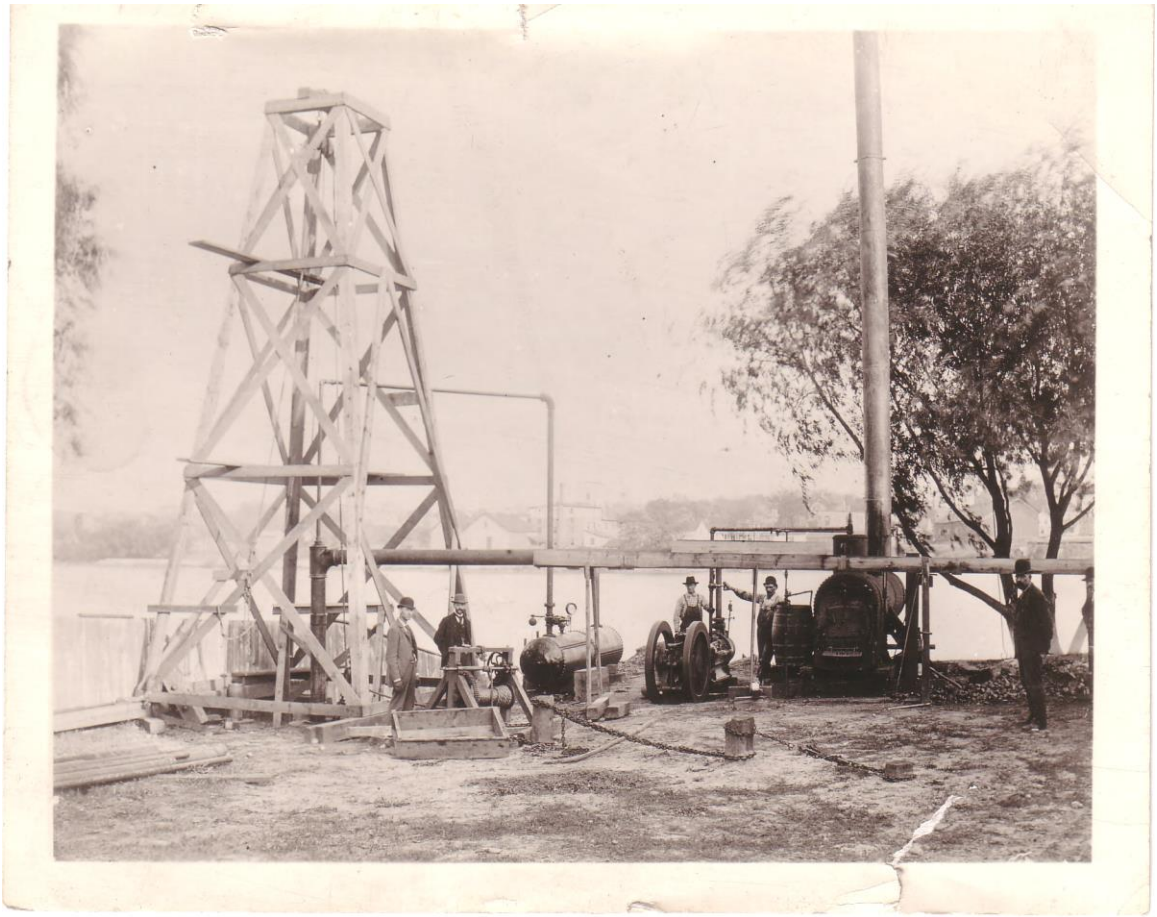
A HISTORY OF THE ROCKFORD WATER DEPARTMENT 1875-1955

By Thomas Powers



This photo shows a well being drilled near the Park Ave. pumping station in 1885. This was the first deep artesian well drilled in the city. The Rock River is in the background.

Photograph provided courtesy of the City of Rockford Water Division.

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FROM THE EDITOR'S DESK

This issue presents the first part of a history of the Rockford Water Utility. It starts with some background prior to the beginning of the municipal water works in 1875 and continues up to about the mid 1950s. The last fifty years will be covered in the next issue of the *Nuggets of History*.

I am the author of this article. I have been an employee of the Rockford Water Division for 12 years. During that time I have had access to many old documents and maps including city annual reports and water department annual reports. The water utility has maintained a wealth of records including old ledger books from as far back as the 1890s. I have also been able to talk to and learn from fellow employees, some of whom have been there 30+ years. I have found the history of the water utility very interesting and I hope that you do as well. Although there have been many changes in how the water utility operates; the basis principle of pumping water out of the ground, through mains and into peoples homes and businesses, remains the same after 130 years.

The water utility is very interested in preserving its history by collecting old photos, maps and documents. If you are in possession of any of these items and would be willing to donate them, or loan them to us so that they could be copied, please contact me at 987-5724 (day) or 986-4867 (evening). We are particularly interested in photos of old pump houses, reservoirs or water employees working.

NOTICE TO RESEARCHERS

If you have a subject that you have researched, or an idea for an article that you would like to pursue, give me a call. I would like to encourage original research into some aspects of local history that have not been adequately pursued. I can be reached at 987-5724 (day) or 986-4867 (evening).

Thomas Powers, Editor

THE HISTORY OF THE ROCKFORD WATER UTILITY
THE FIRST EIGHTY YEARS
1875 TO 1955

Rockford was first settled in 1834 and was incorporated as a city in 1852. In these early days there was no city-wide water supply. Businesses and residents got their water from private wells, the river, or from cisterns that collected rain water. The volunteer fire department drew water from the river to put out fires. If a business or residence was too far from the river it would likely burn down before a supply of water could arrive.

The first attempt to start a water utility began in 1868 when Goodyear A. Sanford went to Auburn, N.Y., at the request of the city council to investigate the Holly system of water works which had been installed in that city. Mr. Sanford was favorably impressed and upon his return he reported his findings to the city council. At that time, a charter had to be granted by the state legislature to set up a utility. Such a charter was passed by the legislature on March 29, 1869 to incorporate the Rockford Water Works Company.

The capital stock of the company was initially $50,000, and the charter stated that all of the stock had to be sold before the company could start business. The charter further stated that the city could buy out the company within 10 years after they laid their first mile of main, at the actual cost expended plus 10% interest per year less any profits made by the company.

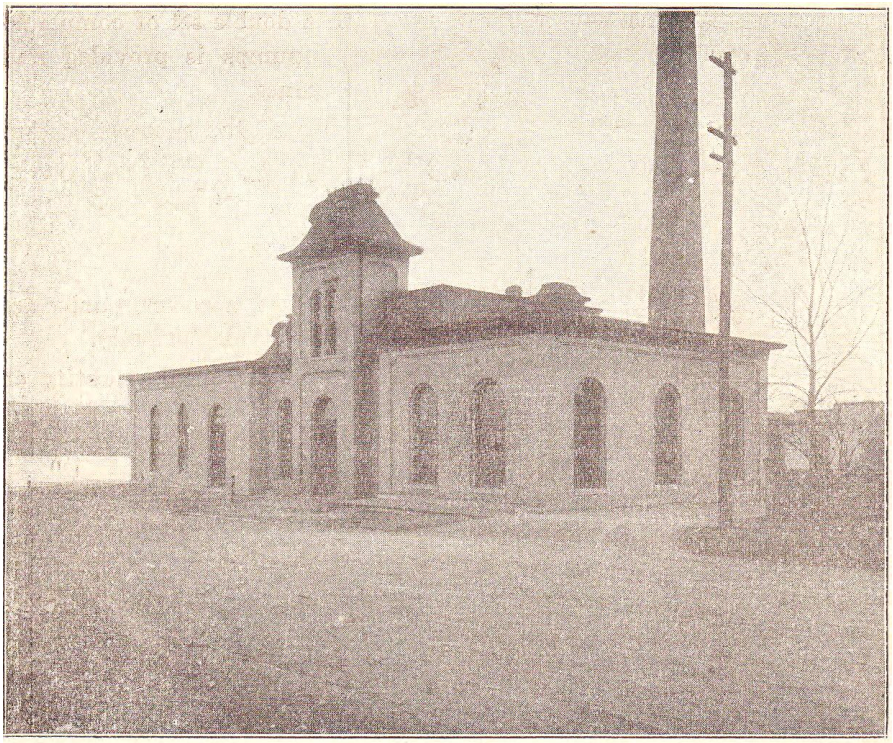
The Rockford Water Works Company never got off the ground. They never sold all of the capital stock. Also, the company was never able to reach agreement with the city council on a plan to install fire hydrants. On January 13, 1873 the city council refused to ratify a contract with the water works company and it folded. Over the next year and a half, two citizen petitions were circulated and a major fire spurred action. On August 4, 1874 the city council passed a resolution calling for the establishment of a municipally owned waterworks. This is generally considered the birth of our current water utility.

The waterworks committee of the city council set to work. They purchased four lots at the foot of Park Ave on what is now known as the waterworks parking lot, for $600. They contracted with the Holly Manufacturing Co. to build and set up the machinery for $35,000 and to furnish 125 hydrants at $40 each. Ground was broken on the new water works building on September 30th. The building was completed on December 15th and the machinery was installed by the following March (1875).

The first well was built on this site. It was 27’ deep and 5’ wide. Water flowed into the well from natural springs in the area and was pumped out into a reservoir by steam power. From there it was pumped out into the

distribution system of water mains and service lines into homes and businesses. The water works was completed and turned on for the first time on August 19, 1875. The total cost of building the system was $213,670.48.

It wasn't long before demand outstripped supply. A second well was built in 1881 but it was only used for a short time. In 1885 the water supply was analyzed and the river water was analyzed at the same time. The river was found to be "comparatively free from organic contamination and far superior to the well water." The well was therefore closed and the water supply was drawn solely from the river. This did not last long however. In late 1885 the first artesian well was drilled to a depth of 1,520 ft. It produced a plentiful supply of 800 gallons per minute. The cost of this well was $5402. See the photograph on the cover.



Water Works Pumping Station.

The original pumping station was built in 1875. It was located on Park Ave. at the edge of the river just north of the future site of the Rockford Public Library.

Photograph originally published in the 1898 City of Rockford annual report.

The success of well #1 led to the drilling of four more deep Potsdam wells over the next three years. The name comes from the layer of sandstone that

underlies the area at a depth of from 500' to 200'. It is this layer of rock that contains the water that was pumped to the surface. The wells varied from 1,250 to 1,996 feet deep. These five wells were followed by four shallow wells into the St Peters sandstone during the 1890s. They averaged 385 feet deep. All of these wells were in the general vicinity of the Park St. pumping station and were connected by tunnels. The pumps were powered by steam which was generated by coal fired boilers. By 1898 the water works was pumping 944,000,000 gallons of water annually through 55 miles of main to service 3,060 customer accounts.

By 1911 the city had 11 artesian wells (six deep and five shallow). These provided an adequate supply of water, but the city was growing rapidly and within a few years a number of problems began to surface. The demand began to outstrip the supply, and on days of high demand, there was a very real danger that there might not be enough water to fight a fire. Secondly, many of the water mains were only 2" to 4" in diameter. These were not large enough to carry the increasing demand for water.

The first well outside of the downtown area was drilled in 1912 at the corner of 11th St and 18th Ave. This was the start of the current system of unit wells placed in strategic places throughout the city.

On July 13, 1915 Ross Beckstrom, the Superintendent of the Water Department sent a letter to the city council in which he asks for additional funds to address the lack of capacity as well as a need for larger water mains to provide better service and fire protection, and the elimination of dead ends. He proposed that the city issue $500,000 of bonds to pay for these improvements, the cost to be covered by an increase in rates from the current minimum bill of $3.20 per year. It would take a few years, but Mr. Beckstrom eventually got his wish.

Over the next few years various proposals were made to improve the water system. None of them met the approval of the city council. On February 10, 1919, Professor Daniel Webster Mead, who had designed and built much of the water system over the past twenty years, addressed the city council. With his great knowledge of the current system and its weaknesses he was able to make some suggestions that the aldermen took seriously. His plan involved building a new pumping station and a five million gallon reservoir. (By this time the old pumping station on Park Ave. was nearly 50 years old.) It also involved replacing many of the small 2" and 4" water mains with larger ones and eliminating dead ends in the distribution system.

Within a few months the council approved his plan and set about locating a site for the new pumping station. By September, the search had been narrowed down to two sites. The first, known as the Church property was located north of Cedar St. between Avon and Tay St. The second was located on North Madison St. near the old brewery. From an engineering standpoint both were nearly ideal. However, the Madison St. site was

already improved while the Church property was vacant land. It was felt that the cost and delay of purchasing the land from various private owners would be a burden, so the Church property was chosen.

In March of 1920 $500,000 of bonds were sold to finance the project. An additional $200,000 was funded through taxes. Construction of the pumping station and the 5 million gallon reservoir was begun in June, and the first of four wells was drilled in July. In later years two more wells were added. These wells were drilled to a depth of 1600 feet. The pumping station was built on the west side of Stanley St and is 70 feet tall. This height was necessary to house the two 300 H.P. boilers, the coal bins with a capacity of 450 tons of coal, and two large pumps with a capacity of 10 and 15 million gallons per day. When it was opened in 1922 this was a state-of-the-art facility.

Today, well pumps are powered by electricity. That was not the case in 1922. They used what was known as the air lift system. Two large air compressors pumped air down 6 and 8 inch pipes into the wells. The air was released about 300 feet down. It immediately expanded and rose to the surface, taking the water with it. The water flowed into the reservoir where the air escaped through vents in the roof. Coal fired boilers were used to produce high pressure steam which was used to run the pumps that pumped the water from the reservoir into the distribution system. Using this system the plant had a capacity of eight million gallons a day. When the plant was opened it consumed 20 tons of coal a day.

The Stanley St pumping station as it appeared in 1923.
The photograph was originally published in the 1923 City of Rockford annual report.

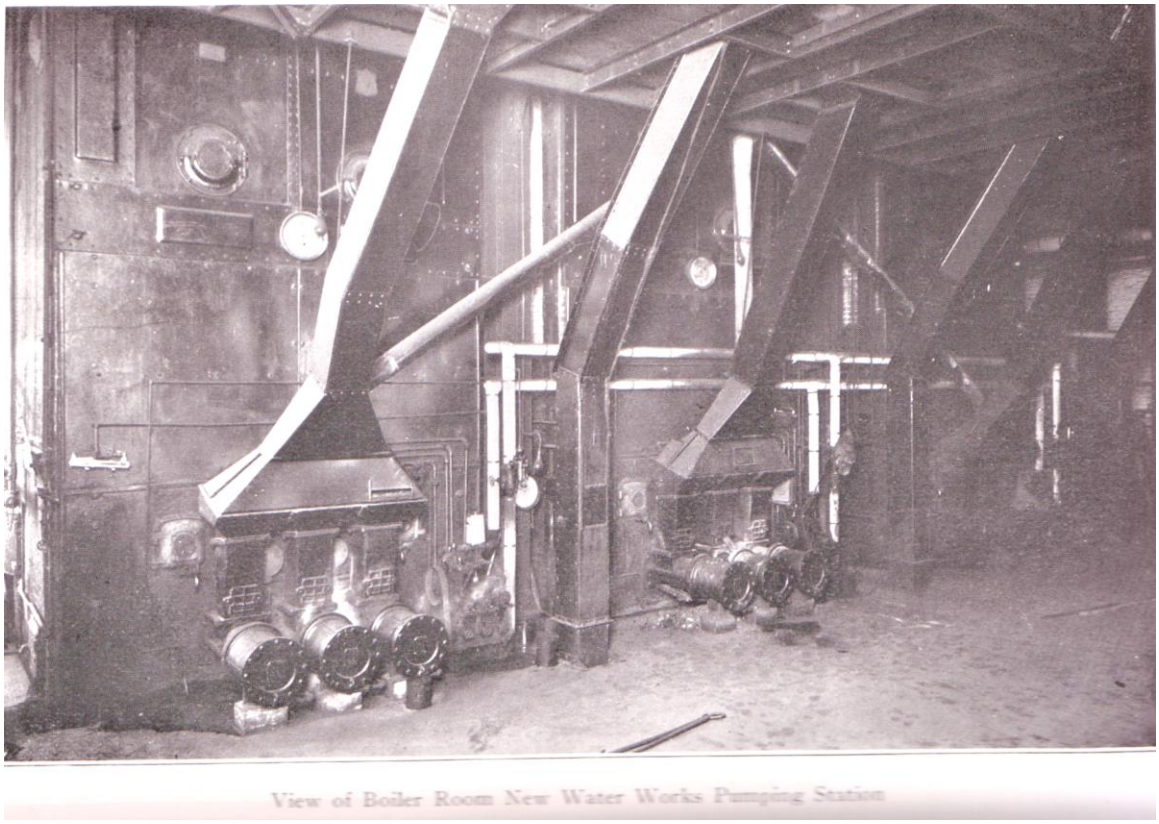
The Stanley St. pumping station still stands today. It is no longer a major pumping station but it still contains booster pumps that pump water into the distribution system. The 5,000,000 gallon reservoir built in 1920 is still in use today. Four of the six wells drilled in the 1920s are still being used although today they use modern electric pumps.

During the remainder of the 1920s water use continued to grow. By 1928 daily pumpage had doubled from just five years earlier. It reached its peak in 1929 on the eve of the great depression. With the closing of many factories during the early 1930s water consumption dropped. Widespread unemployment made it difficult for many people to pay their water bills. In 1933 the water department announced that all persons who were delinquent in paying their water bill must come to the water department offices and file an application for relief, or an application for an extension of time. Over 2000 people did so. Those who didn't respond risked having their water shut off. Some people who were unemployed and unable to pay their bills at all were allowed to work it off by digging ditches for water mains or performing other jobs as necessary.

Two major events took place in 1935. H. Spencer Merz was appointed as superintendent of the water department, and the city began using electricity to pump water for the first time. In the previous 50 years, 17 men had served as water superintendent. Merz would hold the job for 40 years before retiring in 1975. He was at the helm when most of the major changes took place in the water department. His first major task was to electrify the unit wells on the outskirts of the city. This was made possible by a contract with the Central Illinois Electric & Gas Company whereby the water dept. could purchase electricity at an average cost of slightly less than one cent per KWH. This made it cheaper to run the pumps with electricity then with coal. The central pumping station on Stanley St. continued to use the steam powered pumps, but the unit wells outside of the downtown area were equipped with electric pumps. These wells, which were previously used primarily for backup, now became the primary source of water. The central pumping station continued to be used for many years, but it was no longer the primary source of water.

The switch from pumping water using the air lift system to pumping water using electric pumps, created a new problem that we are still dealing with today. The rock stratum which contains the water also contains large amounts of iron and manganese in some parts of the city. When the water is pumped from the ground, it contains a certain amount of these dissolved metals. When the water was air lifted from the wells, the oxygen from the air combined with the iron and caused it to oxidize. These oxidized particles then precipitated out and settled to the bottom of the reservoir before being pumped into the distribution system. When electric pumps are used instead of air, the iron is not oxidized. It stays in suspension much longer, until it reaches the water mains, service lines and homes of our customers. It also

sometimes contains hydrogen sulfide, which causes a rotten egg smell. The wells near the Stanley St. pumping station contained very low levels of iron. However, some of the outlying wells contained much higher levels. Although it is not a health issue, it caused problems with stained laundry and porcelain.



The boiler room in the Stanley St. Pumping Station in 1923
Note the coal chutes feeding the boilers.
Originally published in the 1923 City of Rockford annual report

In 1938 the city returned to the site of the old pumping station on Park Ave. and drilled a new well. This new deep well had a capacity of 2000 gallons per minute and added 25% to the capacity of the water works. The old pumping station had not been used for 16 years but the building and a one million gallon reservoir were still there. After cleaning and renovation the reservoir was put back into use. To combat the iron problem, a combined aerator and fountain was built into the reservoir. A glass enclosure was built on top of the reservoir to enclose the fountain and floodlights were lit at night to illuminate it.

The city now had ten wells. Six were located next to the pumping station on Stanley St. Four of these were drilled in 1919 and the other two were drilled in 1926. These are run on steam power. The remaining four were in various

locations in the city. The first unit well was drilled on 11th St. at 18th Ave. in 1913. A second unit well was drilled on Camp Ave. near Auburn St. in 1914. A third was drilled on James & Crosby Sts. in 1928. The new Park Ave. well made ten.

Water main breaks are a fact of life. Old and sometimes not so old cast iron water mains sometimes crack when pressure suddenly changes, or frost in the ground causes the main to shift. Water crews repair many main breaks every year. On Thanksgiving night in 1938 the water department experienced the mother of all main breaks! The 24" main which fed water from all six wells into the reservoir at the Stanley St. pumping station, ruptured. A fountain of water rose fifty feet in the air as millions of gallons of water flooded the nearby streets. The sole operator on duty was overcome by fumes when the chlorinating equipment blew up. The outlying unit wells had been shut off so the entire city was soon out of water. An emergency crew was quickly put together to make repairs, valves were closed to isolate the break, and the unit wells were turned on. Within two hours water pressure had been restored to most of the city. Fortunately there were no fires that night.

As we came out of the great depression, went through World War II and entered the post-war era, Rockford, like many cities experienced a great deal of growth. New subdivisions like Rolling Green were built and the water utility had to expand to serve them. In earlier years the city's water supply was provided by a well field, a series of wells in close proximity that could be pumped together using steam power. By the late 1930s, the city had outgrown this type of system. As early as 1913 the first individual or "unit" well was drilled on 11th St and 18th Ave. By 1938 the well field feeding the Stanley St. reservoir was supplemented by four unit wells in various parts of the city. Although the wells near Stanley St. would continue to be used for many years (Four of them are still in use more than eighty years after they were first drilled!), they were no longer the principal source of water for the city.

During the 1940s, more unit wells were drilled. Wells were drilled in the Rolling Green and Burr Heights subdivisions in the early 1940s. In 1948 a well and a five million gallon reservoir were built on a site near Alpine and Newburg Roads, behind the current site of Colonial Village shopping mall. Other wells were drilled in Garden Acres subdivision in 1947, and in Northtown Heights in 1948.

The first attempt to add fluoride to the public water supply to fight tooth decay was made in 1947 when James Weart, a state chemist spoke at a meeting of water plant operators. Mr. Merz, the Water Superintendent, although not against the idea, urged caution and stated that the idea needed to be studied further. The use of fluoride would be a contentious issue in Rockford for another 20 years.

As the 1940s moved into the 1950s Rockford continued to grow. The baby boom was at its peak. Many new families were looking for new homes and subdivisions were being built on all sides of town. As the city grew, so did the Water Department. In 1951 the city pumped 5,320,000,000 gallons. This was nearly a record despite the fact that it had been a wet summer. Every year new water main was added to the distribution system to serve the new homes being built. Every few years a new well was added to the production facilities.

On April 8, 1952 the city had a referendum that asked the voters if they wanted to add Fluoride to the city water supply in order to combat tooth decay. The referendum passed overwhelmingly by a 3:1 margin. However, the city council still had to approve the plan and appropriate funds for the necessary equipment. For the next year and a half, the council argued back and forth, voting against it, then for it, then against it again. On November 2, 1953 by a vote of 10 to 9, the council killed it for good. It would be more than a decade later before the city council would honor the referendum and vote to install fluoridation equipment in the well houses.

In June 1953, the city council approved a $225,000 bond issue to build a new office and garage building on the Stanley St. site. This building was to replace the old waterworks building at 100 Park Ave. which was nearly 80 years old. However, just as construction was beginning, the Park Ave. plant burned down. On the night of September 7, 1953, an arsonist set fire to the plant along with nine other buildings around town. The waterworks building was a complete loss. Along with the building and office furnishings, many office records were lost. However, most of them could be replaced with duplicate records stored at city hall. Also, the fire department was able to move all of the vehicles parked in the garage before any were damaged.

The very next day the police picked up a suspect named Ralph A. Johnson. Johnson had a long history of arson and fit the description of a number of eye-witnesses. After questioning by the police, Johnson confessed to setting the waterworks fire. He later confessed to setting several other fires. His trial was held in October. He was found guilty by the jury and sentenced to 10 years in prison.

Over the next few months, the remains of the old pumping station, along with the 201- foot smoke stack were demolished. They left behind, buried 90 feet down; a series of old tunnels and pumps. After the land was cleared, the city used much of the site for a parking lot. Many people even today refer to it as the "waterworks parking lot." The old plant was replaced with a ranch-style pump house to hold the well and pumping equipment. The well, first drilled in 1937 was still in operation.

After the Park Ave. plant burned down, construction continued on the new water department offices at 1111 Cedar St. The new offices were built just east of the five million gallon reservoir that was built in 1920. The reservoir

in turn was just east of the Stanley St. pumping station. The operators in charge of running the wells had their offices in the pumping station. The new building on Cedar & Avon, housed offices for the administration, billing, engineering and distribution staff, as well as garages for the storage of vehicles and a storage area for parts and equipment. With this move, the entire department was located within two blocks.

This move might be considered the beginning of the modern water department. The last remnant of the old Park Ave. plant was the 850,000 gallon reservoir. It had been built in 1912 and used until the early 1920s. After a period of disuse, it was reactivated in 1937 when a new well was built on the site. It was at this time that the glass dome and aerator were installed. The colored lights and the aerator were shut off during World War II to save power. They were never turned back on. However the reservoir was still used until 1957. It was torn down in 1958.

This covers the first 75 – 80 years of the Rockford Water Department. The next issue of the Nuggets of History will contain the modern history from the mid 1950s to the present.

SOURCES

Much of the information contained here derived from a newspaper clipping collection put together by Connie Pauwels as an internship during her senior year at Rockford College in July, 1992. The newspaper articles came from the Rockford Register Gazette and the Rockford Register Republic and were published between the 1890s and the 1990s.

In addition, I gathered information from a number of city annual reports and water department annual reports. I also had access to special reports issued periodically by the water department. Some of the photos came from these reports; others came from the collection of the water division.

I also gathered information from three long-time employees of the water division. Wally Parson and Tom Garson are both Assistant Superintendents, and John Martin is the Water Division Engineer. Their combined knowledge and experience was invaluable, and their critique of this paper was much appreciated.