Part Two: LUMBER TO NEWSPRINT

Chapter Five: They Were Called Visionaries

The Wisconsin River is about 450 miles long. The middle third of this stream is home to thirteen paper mills, from which there flows over five thousand tons of paper each day. It is said more printing paper is produced in one twenty-five mile portion of the river than in any other place in the world! Nekoosa Papers Inc., is proud of the fact that it was one of its parent mills, Centralia Pulp and Water Power Company, that has the distinction of being the birthplace of this gigantic paper business. This same parent company is the door by which we entered into the pulp/paper business.

This account of the birth of the Wisconsin River paper industry, as well as the birth of Nekoosa Papers Inc., is taken primarily from an article prepared by this writer. It appeared in a trade magazine entitled *The Papermaker,* published by Hercules Company, a supplier of raw materials for paper manufacturing.

The waters of the mighty Wisconsin were harnassed at South Centralia in Wisconsin Rapids in 1848 when Timothy Hurley built a sawmill for the cutting of white pine lumber. Subsequent transfers of ownership eventually placed the mill in the hands of John Rablin, who operated it as a tub-and-pail factory. However, financial troubles in 1879 resulted in the mill and the water rights being sold to a group of investors headed by Frank Garrison.

Garrison was a successful merchant and lumberman but knew little or nothing of papermaking. Nevertheless, on January 21, 1886, the *Wood County Reporter* carried the following news article:

> *"A serious movement is on foot to utilize the Hurleytown mill site. Citizens have banded together to form a stock company to buy the site and erect a pulp mill. This is a move in the right direction."*

Probably because Garrison lacked practical knowledge of the industry he was about to enter, the pulp and paper manufacturers in the eastern part of Wisconsin, eventual competitors, were most eager to advise Garrison and his group that the Wisconsin River water was not suitable for pulp manufacturing, let alone for making paper. After all, everyone knew that there was too much decayed vegetable matter—tannin, to the chemist—in the water. Why, the name of the river itself was derived from it characteristic swamp color and odor!

Garrison was not disheartened. He found technical support in two experienced papermakers, George Whiting and Frank Steele. They experimented with the water and found it suitable for making pulp. Accordingly, on February 12, 1886, eighteen shareholders subscribed to $100,000 worth of stock; and the Centralia Pulp and Water Power Company was born, incorporated under the laws of the State of Wisconsin. Financial support was also obtained from John McNaughton, Frank Wood, and John Edwards, Jr.

Immediately, two consulting civil engineers were engaged to develop plans for the new mill. Captain A. B. Towers of Holyoke, Massachusetts, and N. M. Edwards of Appleton, Wisconsin, made a survey of the river banks at the sawmill site, certain islands in the river, and the water power potential. They recommended that a new dam be constructed, a pulp mill be located on the river, and that a boiler house be located on the island. Furthermore, they found that the island had an excellent stone base and suggested that it would be a suitable site for a paper mill.

At this point, and to quell the adverse criticism of competitors, the consulting engineers again performed experiments on the river water and again "approved of it for pulp and paper manufacturing," as their report stated. Captain Towers further told the *Wood County Reporter,* "The water power here is amongst the finest in the United States." The *Reporter* added:

> *"All that is needed is capital to make the two cities of Grand Rapids and Centralia a second Minneapolis and Saint Paul."*

The newspaper expressed great faith in the success of the new undertaking, and the Centralia Pulp and Water Power Company was determined to make every attempt to make this conviction come true.

The first step was the construction of a dam 12 feet high which created a 14-foot head of water. The dam was built of white pine timber and followed a pattern referred to as "crib and spar." The cribs were filled with Wisconsin River bedrock. Consisting of three separate portions that interconnected the islands, the dam had a total length of 950 feet and was reported to be the best dam on the entire river—one that would withstand the severe ice and floods characteristic of the Wisconsin River. Parts of the same dam, although now raised and improved, still hold back a head of water for a hydroelectric plant.

On July 18, 1887, construction of the mill proper was begun under the direction of Charles Lemke. Final cost was $75,000, and the first pulp was produced less than a year later, on June 5, 1888. The pulp mill consisted of a single building, the foundations of which formed six flumes constructed of natural stone with each flume housing two turbines. The wheel pits were blasted from solid bedrock; the dislodged stone was used for flume construction and to fill the cribs of the dam.

The turbines, when operating under a full head of water, were capable of producing 1,845 horsepower. To express this another way in terms more familiar to a papermaker, the wood grinders could devour twelve cords of wood daily. Ten extra grinder stones were kept on hand and had a value of $1,395.

A wood room, housing two Morgan barkers, a Morgan splitter, and saws, was located on the west bank of the river. Wood was prepared here and then dropped by gravity to the grinder room. Fiber was screened over bronze screens and then sent to one

The Centralia Water Power and Paper Company's facilities at South Centralia, Wisconsin. The building on the right is the paper mill. The buildings that span the river is the groundwood pulp mill and the taller building on the left is the wood room. The mill operated two paper machines.

The boiler room at the Centralia mill burned wood as fuel. The only need for steam was for heating the dryers on the paper machines. Mechanical power was taken from a line shaft that was powered by water turbines. This building still stands and serves as a garage and storage building at the Centralia hydro-electric plant.

of two 76-inch Beloit wet-lap machines. The entire mill was heated with small stoves and was lighted with "modern electric lamps." Power for the lights was furnished by a 150-kilowatt Mather dynamo.

Located on an island in the river and adjoining the pulp mill was the boiler house, a brick building housing three coal-and-bark burners capable of generating 450 horsepower of steam. A brick-and-steel stack, 108 feet high, dominated the skyline, assuring local residents of no air pollution from the new mill. The boiler house also had a steam water pump for fire protection, a piece of equipment that was to play an important role in the eventual fate of the mill. Employed in the mill during those early days were twenty-five to thirty men, who worked ten hours a day for as little as $1.25 per day.

It is noted in the newspapers of the area that the pulp mill started up without any difficulties. The Centralia newspaper, expounding on the quality of the pulp, stated that the abundant horsepower available from the high head of water enabled the grindermen to run their stones quite dull, thereby producing an exceptionally strong fiber.

Centralia Pulp and Water Power Company's claim to fame rests in the fact that it was the first paper mill on the Wisconsin River. This title was earned in 1891; for in that year similar letters were sent to all shareholders, a typical one being:

Dear Sir:

You are hereby notified that the Board of Directors have this day ordered that a 35 percent assessment be levied upon all subscribers to the capital stock of the company, 20 percent payable March 15 and 15 percent payable April 10. This will amount to $5,145 upon your subscription. Please respond immediately.

Yours sincerely,

Centralia Pulp and Water Power Co.
Frank Garrison, President

Stock in the company had been assessed to raise

capital for the purchase and installation of a paper machine and auxiliary equipment.

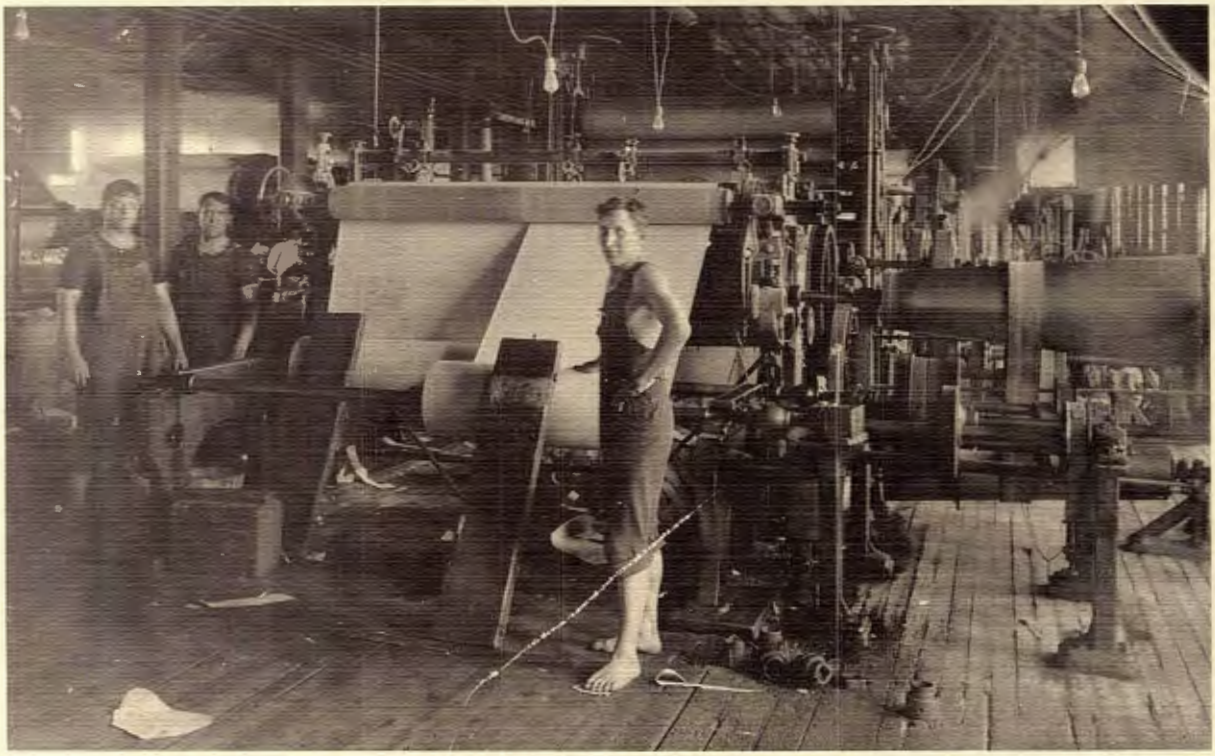
It is interesting to note here that John Edwards, Jr., an original shareholder, paid not only his own assessment, but those of two other directors as well. This step on Edwards' part was not entirely an altruistic one, for it enabled Edwards and his son-in-law, L. M. Alexander, to gain control of the company in later years and to take over the positions of president, treasurer, and general manager.

When the necessary funds had been raised, construction of a paper mill was begun in 1891. A 104-inch paper machine was purchased from Beloit Iron Works of Beloit, Wisconsin.

The paper mill building complex was located on an island and consisted of several buildings, the largest of which was a machine room measuring 40 by 175 feet. The foundation walls were of stone construction and were three and in some cases, even four feet thick. On these rested 12 by 14-inch white pine joists and a floor of three inch pine planks covered with a hardwood surface. (Note the apparent abundance of select lumber in the Wisconsin pinery.) The superstructure of the mill was also of wood. The basement of the machine room contained equipment to filter the river water used in the operation of the mill.

A beater room, 42 by 56 feet, housed five beaters and two refiners. All tanks, vats, and tubs were constructed of pine lumber and held together with iron hoops. A finishing area of 2,240 square feet and a 24 by 36-foot machine shop complemented the paper mill. The whitewashed interior walls and 168 windows in the finishing room alone, combined with electric lights, justify the statement of the *Reporter*, that "the mill employees are assured plenty of light."

A standpipe, five fire pumps, and 1,300 feet of two inch fire hose, provided fire protection to even the most remote corner of the mill. Further, no rags were used in the process—hence the mill's claim to the



An interior view of the Centralia paper mill, showing their two paper machines. Note the bare feet of the employees and the wooden floors. Between debris on the floors and slivers in the wooden flooring, foot injuries were quite prevalent; and no doubt influenced the safety rule requiring hard toe shoes in the mills of today.

insurance firms that there was no fire hazard from paper dust.

The product was newsprint, and apparently it was a quality one. At any rate, the *Centralia Enterprise* thought so, and editorialized accordingly in May of 1891:

> *The product is equal to, if not superior, to that manufactured in the Fox River Valley.*

And who might know newsprint quality better than a newspaper editor? By 1893, business warranted the installation of a second paper machine, an 88-inch Beloit.

The Centralia mill was managed by Frank Garrison, one of the founders, until his death in 1905; whereupon the bookkeeper became mill manager. This may seem a rather big promotion, but is even more phenomenal when one learns that the former bookkeeper and new manager was a woman, Callie Nason.

Born at Nasonville, Wisconsin, Miss Nason was educated in Marshfield, Wisconsin; and then taught school until 1888, when she entered the employment of Centralia Pulp and Water Power Company. She served as secretary and general manager until her retirement in 1919, and is believed to be the only woman to serve as general manager of a paper mill.

Under Miss Nason's direction were a pulp mill, a paper mill, and the hundred men needed to operate the mills. Production from the paper mill was about 35 tons a day, and groundwood pulp production amounted to about 12 tons daily. The remainder of the pulp needs was satisfied by the purchase of sulphite pulp from other mills.

Let's talk to General Manager Nason. Bubbling over with feminine pride in her mill operation, Miss Nason meets us in the general office of the company, which is located in a 20 by 30-foot frame building on the west bank of the river. The building houses her office, the general office of the company, the sales office, accounting department, personnel department, and the laboratory, which contains only a Mullen tester. Miss Nason might describe her mill and its operations in these words:

Our mill is small, but ultra-modern and is a fully integrated operation—from wood to finished paper. We own 200 acres of property, most of it woodlands. Up the river a few hundred yards you will see four homes (rental—$4.70 monthly) and a boarding house, all owned by this company. The barn over there houses the teams of horses we use in our daily operations.

The spur railroad track connects with three different railroads, assuring us of excellent delivery of our product to all parts of the midwest. The wood room consumes about 16 cords of wood daily or 563 railroad cars annually. (Wood cost—$3.50 per cord.)

We employ nearly 100 men, and our monthly payroll is in the neighborhood of $2,500. We maintain an inventory of 45 to 50 tons of finished paper and a stock of about 230 tons of pulp. Our wood yard contains about 475 cords of spruce wood.

Our product sells for $1.85 to $2.25 per hundredweight, and our earnings are in the neighborhood of $45,000 annually. Our mill is valued at $164,367.24, plus another $787 for this office building and its furnishings. (Furnishings included the Mullen tester, three desks, two typewriters, and a gilded, fireproof vault.)

We own stock in the Wood County Telephone Company, the Wisconsin Valley Improvement Company (a Wisconsin River regulatory cooperative), and the Northern Paper Company (a cooperative wood buying concern). We pay an annual dividend of 5 percent on our outstanding stock.

Miss Nason doesn't say it, but she might have mentioned that business was getting a little competitive, with the dividend becoming a little harder to meet each year because of competition from the new mills being built up and down the river.

At this point in Miss Nason's interview, a young lad of about fifteen years of age comes running into the office to announce that the stone on the number two

grinder just "blew up." Miss Nason detects our anxiety and explains that this happens occasionally.

> *The speed of the revolving stone is too great, and centrifugal force causes the stone to fly apart at its weakest point, usually a crack in the stone. We keep a stock of ten extra grinder stones on hand for just such emergencies.*

And with this explanation, Miss Nason excuses herself and starts for the mill to direct the repair work.

The remains of the pulp mill at Centralia are deliberately burned to clear the site for an addition to the hydro-electric plant. Unfortunately, no pictures were made the night of the fire that destroyed the mill.

On May 20, 1912, the story of the Centralia mill operation came to an end. To use a cliche, it was now an open-and-closed case. The mill that started it all, rose from an idea and grew to a prosperous business, and then, through catastrophe, faded into oblivion, had planted the seed of the Wisconsin River paper industry. When only twenty-five years of age, the mill was demolished by fire. That subject will be covered in a subsequent chapter of this work. Perhaps pioneer attorney Theodore Brazeau's reminiscences best eulogize this event. He stated "...and they were called visionaries. For they used to say that some day a great paper company would flourish in what was then a frontier settlement, hemmed in by tractless forests."

The mill continued to produce groundwood pulp for another five years. But the river was capable of greater expectations.

In 1913, a bond issue by Centralia Pulp and Water Company raised $300,0000 "payble in gold coin in 1932 and bearing two percent interest also payable in gold coin." The bonds were signed by C. Nason, and the funds thus raised were used to construct an ultramodern hydro-electric plant on the site. In 1917 L. M. Alexander, who was president of a pair of paper mills down the river a few miles, became president of the Centralia mill. In that year, shareholders of the two companies agreed on the sale of Centralia Pulp and Water Power Company, its property, groundwood mill, hydro-electric plant and water rights to the Nekoosa-Edwards Paper Company for $300,000, with the new owner assuming all outstanding debts of the old paper company. Thus, Centralia lost its individuality and became the south side electric plant of Nekoosa-Edwards Paper Company.

One small facet of the story remains to be told. In 1923, the new owners decided to abandon pulping operations and devote the water power exclusively to hydro-electric power production. Accordingly, the remaining pulp mill was dismantled and deliberately

Official Wisconsin State Historical marker has been erected at the site of the first paper mill on the Wisconsin River. The marker, placed here in 1962, is on a landscaped area overlooking the mill site, and is on state highways 73/54.

burned out. Hugh Boles was invited to supervise the dismantling work of the old mill "as a reward for his faithful, long, and continuous service as a machine tender." A fitting tribute to a papermaker?

And today? Well, the sturdy concrete and steel dam and the modern hydro-electric plant are providing power to the Wisconsin mills of Nekoosa Papers Inc. Originally, four generators supplied electricity for the mills, homeowners in Port Edwards and Nekoosa, and for the local street car line. Today six generators in this company plant send all their production over a high voltage line to the Nekoosa and Port Edwards mills, supplementing power being produced at each of those sites.

In 1961, the Wisconsin State Historical Society recognized the historical significance of the Centralia paper mill to the Wisconsin River Valley economy. An official state historical marker was erected at the site, thereby commemorating the birthplace of the mighty Wisconsin River paper industry and the entrance of Nekoosa Papers Inc., into the pulp/paper world.

The "Administration Building" of the Centralia Water Power and Paper Company was this modest frame structure on the riverbank overlooking the mill. A curling rink occupies the site today.

Chapter Six: We Can't Find Nekoosa on the Map

Thomas Nash was born in 1852 and died in 1917 at the age of sixty-five, which is the age most people are considering retirement. Nash was not able to reflect on his retirement years; but he could look back upon a business career in which he was personally involved with the organization and direction of three paper mills, a pulp mill, a lumber company, and a railroad. His career included the presidency of Nekoosa Edwards Paper Company, a position which he filled upon the consolidation of this company in 1908. This chapter reviews his organizing and building of the Nekoosa Paper Company.

Upon the demise of the Nekoosa Lumber Company in the 1860's, the property and water power rights reverted to a former owner, Moses Strong, who was a Milwaukee attorney. Having received no interest for over thirty years on his investment, he sold the land and rights to George and Frank Wood of Grand Rapids (Wisconsin Rapids), Wisconsin. These two brothers, in turn, sold their assets to Tom Nash in 1888.

Nash had a plan for these rights and the property. Bear in mind that this was raw timberland, much of it cut over by lumbermen, and an uncontrollable river. There were no buildings in the mill vicinity. All high ground was covered with a growth of timber, while the marsh area, now the pulpwood storage yard, was being utilized as a cranberry marsh. A large beaver dam, reputed to be over one hundred yards in length, was just west of the present wood yard. Such was the site of Nekoosa in 1888. This is what Nash was gambling his life savings on.

Nash had water power rights, land, and an idea. He turned to J. A. Kimberly of papermaking fame in eastern Wisconsin, asking if Kimberly's Paper Company would be interested in building a paper and pulp mill on the Wisconsin River, using Nash's assets as a nucleus for the mill. Kimberly responded with not only a refusal but also some candid advice for Nash. Kimberly stated, in an 1891 letter to Nash, that his company (predecessor of Kimberly Clarke Co.), had no interest in expansion in Wisconsin, and they "will not attempt to build any more pulp mills anywhere." He felt that Wisconsin could not support any more mills; the state's potential for papermaking having already been exploited. His letter closed with, "Trusting that you may strike some good fellow to go in and make a fortune with you, and wishing you the compliments of the season, I beg to remain, very truly yours, J. A. Kimberly."

With this rather discouraging Christmas greeting, Nash now turned to his friend in Port Edwards, L. M. Alexander, who turned out to be the "good fellow" that Kimberly referred to. Accordingly, Thomas Nash, Lewis Alexander, Frank Garrison, and Frank Wood were the prime movers who formed a corporation in 1893 to be called the Nekoosa Paper Company. The new business was capitalized for $350,000, of which Nash was the holder of $50,000 worth of stock. In exchange for this interest in the new company, he surrendered his water and timber rights to the new corporation. Nash was elected president of the company, a position he would fill until Nekoosa Paper Company was merged into Nekoosa-Edwards Paper Company. He would sit in the chair of president of that company for several years, until failing health would make him step down.

Nash took the responsibilities of presidency of the new company very seriously. He took a very active role in the business affairs of Nekoosa Paper Company. During construction he personally handled the legal paperwork, had stock certificates printed, employed laborers and contractors, and purchased equipment and materials. When the mill went into operation, he handled the sales, complaints, and finances. He found time to devote some of his efforts toward the plotting of the city of Nekoosa. He named the streets after directors in the company, but failed to include his own name. He planned and contracted for the building of the school, contributed

The Nekoosa Paper Company plant in 1898 included two paper machines, a groundwood pulp mill, boiler house and finishing room. An exploratory trip through the Nekoosa plant in 1987 will uncover many of the foundations and walls of the buildings seen in this photo. However, remodelings and expansions have been built around them.

An interior view of the Nekoosa Paper Company about 1900. The photo shows the first two paper machines that the Nekoosa mill operated. The prominent display of finished product in the foreground is newsprint paper. The Nekoosa Paper Company, apparently had a better housekeeping policy than the Centralia mill, as is evident when comparing this photo with the photo of the Centralia paper mill interior. Incidently, the two paper machines in this photo are still operating today!

toward a church structure, and discussed parks and landscaping of the city with a landscape artist.

Horses cooling off in the Wisconsin River! They might be doing that but the primary reason for being in the water is because the wagons they are pulling are full of rubble from the river bed. The scene is in the tailrace of the Nekoosa mill. By excavating the tail race of the power plant, the effective head of water is increased, thereby creating greater power generating capacity.

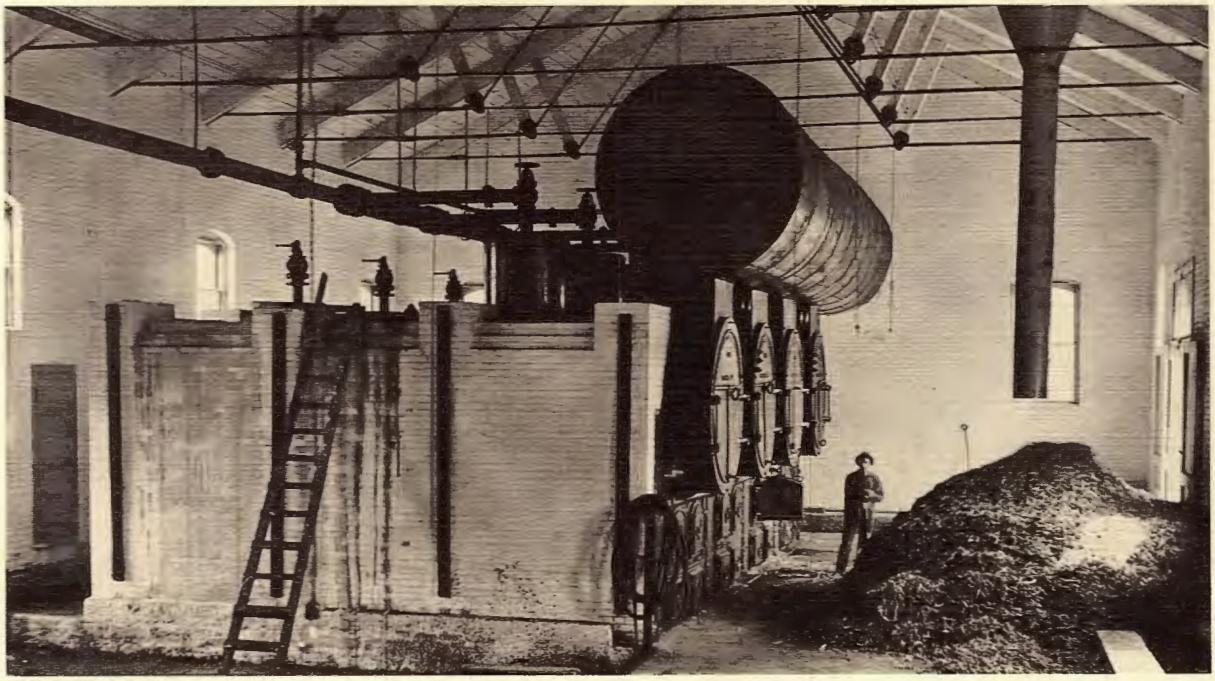
The first task in building the new paper mill was to harness the valuable water power of the Wisconsin River. The spring of 1893 saw the beginning of an 888-foot dam across the Wisconsin River. Sixty-four feet wide on the bottom and 22 feet at the top, the dam was actually one long continuous crib constructed of 12" x 12" timbers and filled with over 20,000 loads of rock fill.

Laborers were hired for construction of the dam and mill. This writer's grandfather gave up farming to get a job on the dam building crew, as it would be a way to get a foothold on a permanent job in the mill once it started production. The going rate was $1.75 per day, plus $3.50 per week for board. Dam work was evidently more difficult or strenuous since mill construction workers only received $1.50 per ten-hour day plus the board allowance. Masons, however, had a more skilled position, just as today. They were offered a rate of $4.00 per thousand bricks laid and $6.00 per thousand if the bricks were on the smoke stack.

A few other trivia facts pertaining to the outfitting of the mill. Nash bought five new beaters at a cost of $920 each. A paper machine was secured for $21,400, and a second machine for only $19,100! This second machine has an interesting heritage all its own, and this history will be dealt with in a separate chapter.

When it came time to fire the boilers and Nash turned to purchasing coal, one coal supplier responded to Nash's inquiry with, "Where is Nekoosa? We can't

The boiler room at Nekoosa Paper Company is much cleaner and better maintained than the one at Centralia, shown in a previous photo. Bark is the primary source of fuel here, supplemented by coal. Bark from the wood room has been dumped on a pile in front of the boilers and awaits shoveling into the boiler door.



The grinder room of the Nekoosa Paper Company about 1900. The grinders to the right of the center posts are driven by water turbines below them. The Wisconsin River actually flows through the basement of this room. Note the one lone stove for heating the room in winter.

find it on the map."

Wisconsin's newest paper mill of 1894 consisted of a boiler house, beater room, grinder room, machine room, finishing room, and blacksmith's shop. Twenty-five employees were engaged in the art of papermaking.

It's a rather stern look that employees get as they walk past the timekeeper's office on their way to and from work. Employee's records are most likely kept in the card files on the counter in the background.

The grinder room was located over the river, about where the Nekoosa hydro-electric plant is now located. Thirty-seven turbines, set in stone flumes, produced power for fourteen pulp grinders, as well as operating saws, barkers, and beaters. Fifty-five tons of groundwood pulp were produced per day.

In 1896 the demand for more and better pulp brought into being the addition of a sulfite mill. Thirty-three tons of sulfite pulp were cooked each day in two digesters.

In the paper mill, fifty-five tons of newsprint paper were being made daily on four paper machines. It is interesting to note that these same four paper machines, two installed in 1893 and two installed in 1897, are still producing quality paper today. However, it would be almost impossible to recognize the original machines since they have been well disguised by enlargements, rebuildings, and modernization.

Things went well for the fledgling paper company, and in 1896 a substantial fifteen percent dividend was paid on the stock. Nevertheless, Nash ran into financial problems that year. Alexander, who was ready to enter into the paper business with the construction of a new paper mill at Port Edwards, called in his loan to Nash. Nash was able to satisfy the payment with financial assistance from a friend in Madison, Wisconsin, Col. William Vilas.

The 1898 annual report of Nekoosa Paper Company indicated that they produced that year 13,500 tons of paper, 7,500 tons of sulfite pulp, and 9,500 tons of groundwood pulp.

In 1917, the need for more quality pulp brought about the building of a two-digester kraft mill. From 1917 to 1929 three kinds of pulp were being manufactured in the Nekoosa mill; groundwood, sulfite and kraft. In 1929, after adding two more kraft digesters, the Nekoosa sulfite mill was abandoned. In 1930, groundwood production was discontinued; this tonnage being replaced with kraft pulp production.

Five more paper machines were added over the years; but there was a removal of two, resulting in a complement of five today.

Once a specialty paper mill, the plant became noted for its wax, oil, and wet strength treated wrapping papers, many of them used in the food industry.

And the name Nekoosa? It's the Indian's nomenclature for the rapids which provided the water power that Tom Nash developed in 1893 for the Nekoosa Paper Company.

In 1908, Nekoosa Paper Company became a part of Nekoosa-Edwards Paper Company.

The pulpwood storage yard of the Nekoosa Paper Company. Pulpwood logs are being unloaded by hand, from box cars and neatly stacked in piles for drying. Each man carries a log weighing at least 100 pounds.

Chapter Seven: "They Say They Can Run it up to 300 Feet a Minute"

To many, a steam locomotive is a rather romantic piece of machinery, and so magnificent that an organization known as the Railway Locomotive and Historical Society was formed to study and preserve the history of these giants of the rails. No such organization exists on behalf of paper machines; but a paper machine is just as large and as heavy as a steam locomotive, is constructed of the same materials, and usually costs considerably more. And a paper machine has every bit as romantic a background as an old-time locomotive.

Beloit Iron Works' (now known as Beloit Corporation) Columbian paper machine is a typical example. Now let's get one point clear at the outset. The paper machine referred to here is not the oldest still in operation, nor is it the largest or fastest machine ever built. Nevertheless it is, as far as we have been able to ascertain, the only full-size, commercial paper machine ever built and operated specifically for a world's fair.

For the complete story, we have to turn back to the year 1893. If that year strikes a bell in your memory, you will associate it with an economic and financial crisis in this country, referred to as the panic of 1893. It was also the year that Chicago celebrated its progress as a leading Midwestern city by staging a fair, better known as The World's Columbian Exposition.

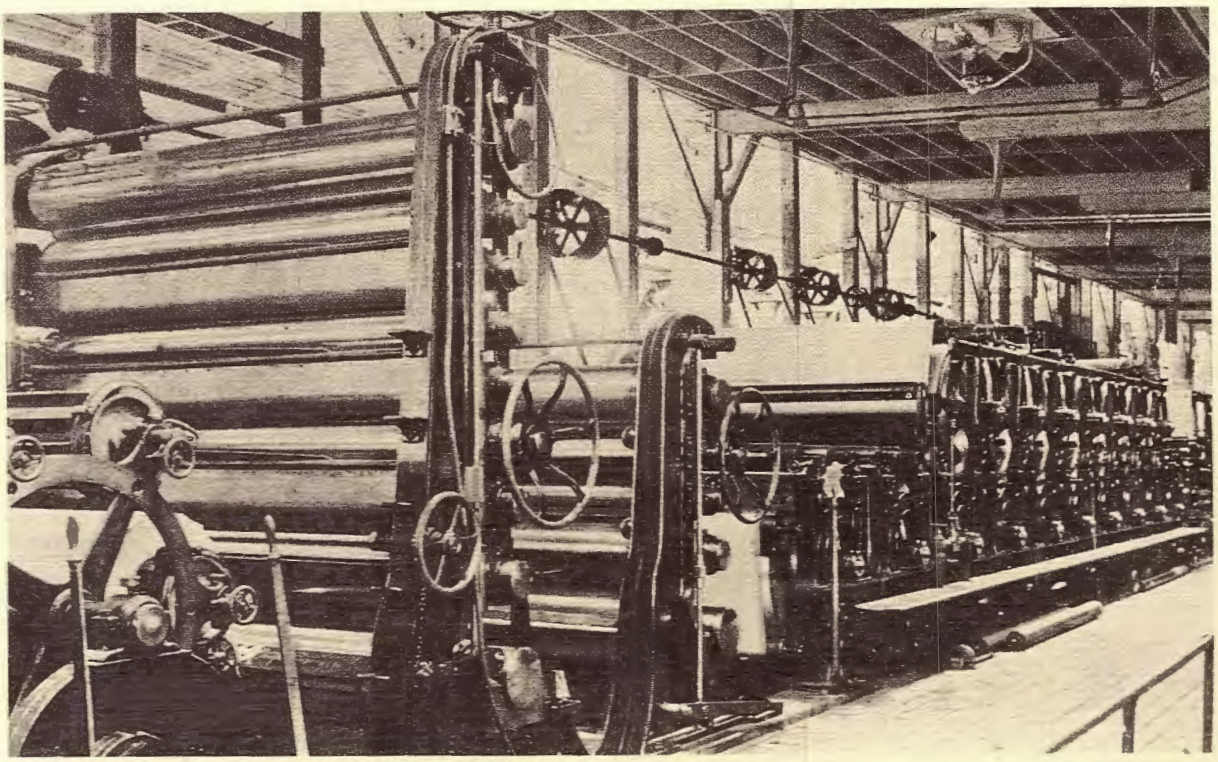
At Beloit, Wisconsin, not too many miles northwest of Chicago, the Beloit Iron Works took a decisive step. The company, already well on its way to becoming a leader in the manufacture of papermaking equipment, decided to build a paper machine for exposition at the fair. It was intended that this machine would represent the ultimate in design, and that it would actually produce paper on the fair midway. A costly exhibit, but Beloit, in spite of the financial panic, invested practically all of its surplus funds in its demonstration machine. Remuneration would be in the form of advertising, and perhaps a potential buyer of paper mill equipment would view the machine. More likely though, the exhibit would be viewed by thousands of people who would never again come in contact with a piece of papermaking equipment. This did not dishearten the Beloit people, who must have felt that, after all, there was the possibility of a sale of the machine when the Exposition closed.

Hubert H. Bancroft in his *Book of the Fair* describes the Beloit paper machine exhibit as follows:

> *Papermaking machinery is included, as I have said, among textile apparatus, and here may be observed the process whereby wood pulp is transformed into bulky rolls of paper ready for the printing press. The pulp is made from spruce logs, cut into suitable lengths, ground and mixed with sulphite to soften the fiber and destroy all deleterious substances. When ready for the mill, the material is placed in the beater and thoroughly mixed with sizing, coloring, and other matter which enters into the finished product. Then, in a semi-liquid condition, it is drawn off into a storage tank beneath, and presently submitted to a further mixing and grinding operation performed by a so-called perfecting machine. As yet, however, the paper is anything but finished, resembling somewhat curdled cream, but of whiter complexion, and only after much further manipulation, which need not here be described, is ready to receive on its surface the news of the world. In this machine, fashioned at the Beloit Iron Works, with a capacity of ten tons of paper a day, and occupying more than 100 feet of longitudinal floor space, are contained nearly 200 tons of steel and iron.*

Rossiter Johnson's book, *A History of the World's Columbian Exposition*, describes the exhibit more briefly but in another light. Johnson states:

> *The novel Fourdrinier machine of the Beloit Iron Works, one hundred and twelve inches*



A view of the Columbian paper machine as it appeared at the Chicago World's Fair in 1893. The machine actually made newsprint paper at the fair. Upon completion of the fair in the fall of 1893, the machine was sold to Nekoosa Paper Company for slightly over nineteen thousand dollars. The machine is still operating today, but has undergone several rebuilds, speedups and modernization projects.

wide, with a capacity for ten tons of paper a day, has a deckle frame with slice and pulleys of aluminum so light that two men can lift it from the machine.

And when the Exposition came to a close, Beloit pointed with pride to the elaborate and ornate plaque earned by its exhibit. The award read, "For very high standard of workmanship and productiveness, making 2,000 pounds of printing paper per hour. Machine shows great advancement in the art of paper making." But earning awards does not pay dividends. Beloit, in addition to having a beautiful plaque to hang on the office wall, now had an unsold paper machine on its hands. Furthermore, a good share of badly needed capital was invested in this machine.

Now, if you have read one of the previous chapters of this series, you will recall that the Nekoosa Paper Company also had its origin in the year 1893. Accordingly, Nekoosa President, Thomas Nash, wrote to Beloit Iron Works to inquire if Beloit was interested in manufacturing a paper machine for the new mill. Beloit responded with a letter asking if Nash would be interested in a machine similar to the ones just built a year or so prior for the Centralia paper mill. (The Centralia mill, it will be recalled, was located a few miles north of Nash's mill. It will be further recalled that Nash was a partner in the Centralia venture and accordingly was familiar with the Beloit Product.) Beloit's reply continued:

Referring to machine that you will soon contract for, we would like to have you consider a probability to take the machine we are building for the world's fair. The machine will be available November 15th and will make you a price on this machine of $21,800 delivered and set up in your mill. We name this price in order to make the sale at once. Also will say we are enabled to do this on account of other reasons which we cannot give now. The machine will only run for seven to

Plaque awarded to Beloit Iron Works for their paper machine exhibit at the Chicago World's Fair in 1893. Note that the machine was capable of manufacturing a ton of paper each hour. This was the state of the art in papermaking in 1893.

eight hours each day and will receive splendid care and for practical business, be in just as good condition if not better, at the end of the fair than a new machine. Being built for the purpose of exhibit at the World's Fair, we think it unnecessary to say that we have spared no expense and attention to make it a model machine in workmanship, convenience and finish.

Now Beloit's president, A. Aldrich, took things in his own hands, and wrote to Nash offering to sell him the "World's Fair Machine" for $21,000 delivered in the mill and set up with $330 deducted for wooden felt rollers instead of brass. "I believe this to be the finest machine put up to date with a number of improvements. It will have the best of care and will be in better condition, I believe, for business after the little running at the Exposition." He then specified terms that could be arranged for payment of the machine extending over a period of several months.

It is believed that at this point, Beloit's president was also attempting to negotiate a sale of the machine to a Fox River area paper mill in eastern Wisconsin, since the next letter from Aldrich to Nash was written in longhand on an Appleton, Wisconsin, hotel letterhead. Nash was not sold on the used machine and continued to carry on correspondence for a completely new machine.

Beloit engineers sent specifications to Nash for such a machine but added on the letter of specifications the following:

How about the "World's Fair Machine"? Have you sufficiently considered it to give us a decision?

You need have no fear buying this machine as it is built upon honor. Will say that although we made a desperate effort and expect it is right in every respect and as fine a machine as ever built, if anything shows up that is not just right we would of course correct it and stand behind it same as we do with all our work. We have never built a machine that received as much care during construction as this did.

After further correspondence, the machine was finally purchased by Nekoosa Paper Company at a price of $19,240 delivered and installed at the mill. Final specifications included three coats of paint with proper striping, polished brass caps on ends of rolls, along with polished brass hand wheels.

The actual start-up date of the machine at Nekoosa is not known but was, no doubt, during the summer of 1894. At any rate, in the late summer of 1895, Nash again approached Beloit on the possibility of increasing the speed of the Columbian paper machine. In his letter Nash stated that the World's Fair machine was running perfectly well on newsprint at a speed of 250 feet per minute, producing twelve tons of product per day. Nash, concerned with safety, continued his letter by writing: "The boys say they can run it up to 300 per minute but I haven't permitted that yet and will not until every condition is feasible."

Beloit's answer specified some changes that should be made in the machine if it were to be modified for the new speed, and added: "We see no reason why the machine would not run safely at 300 to 320 fpm."

The matter of quality at this increased speed was another concern for both Nekoosa and Beloit. Beloit suggested the adding of sulphite pulp to the furnish for added strength which would be needed when running at higher speeds. Thus Nekoosa Paper Company began construction of a sulphite pulp mill to augment its groundwood pulp supply.

The Columbian World's Fair Machine story does not end here. In 1908, the Nekoosa Paper Company became a part of Nekoosa Edwards Paper Company. In 1923, the Columbian was completely dismantled and reassembled at the Port Edwards mill. Subsequent rebuilds have resulted in the addition of an entire new dryer section, headbox, drive system, and Fourdrinier Section. In fact, about the only parts of the original machine that still exist are some of the base plates, a brass nameplate identifying it as the "Columbian," and a heritage of being the "Worlds' Fair Machine."

Today the machine, designated as number seven machine, operates at speeds in the neighborhood of a thousand feet per minute and produces grades that

are far superior to newsprint. Daily production today is about one hundred tons per day.

Old-timers around the mill still refer to her as the "Columbian" rather than Number Seven. This old machine has made "news" in more ways than one.

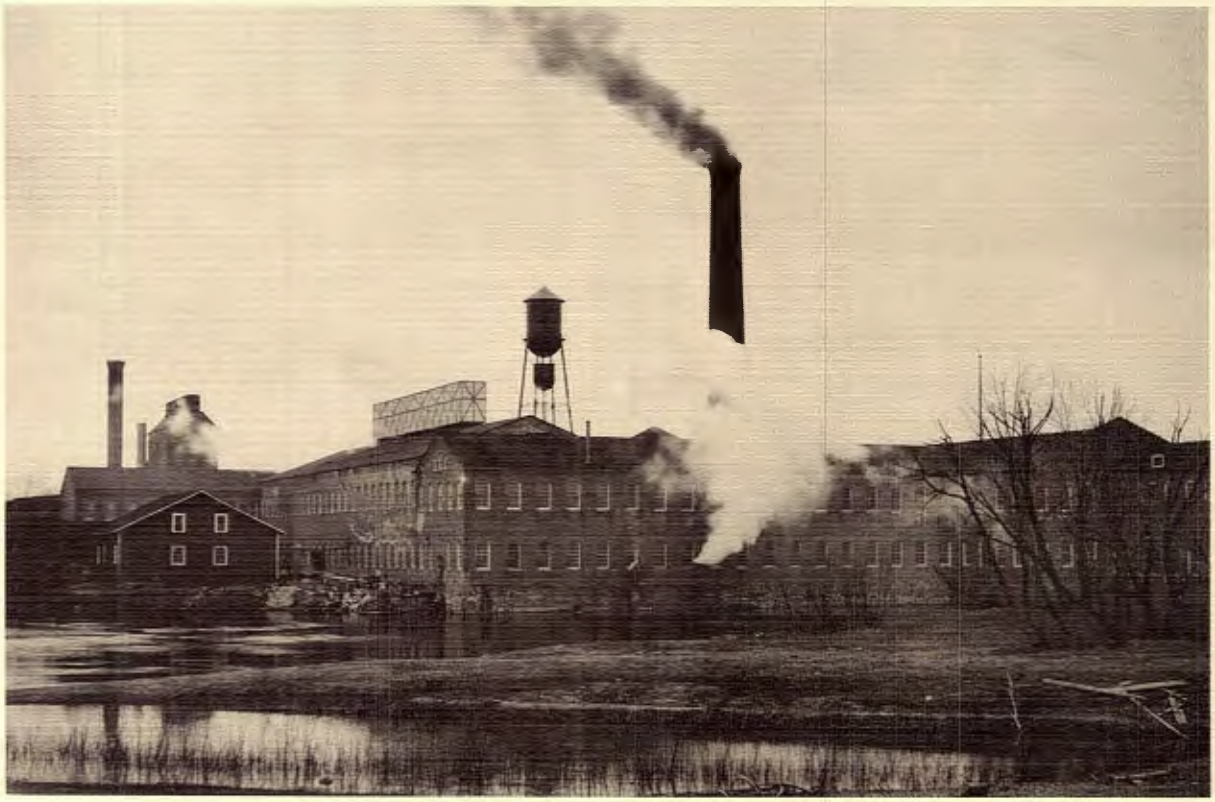
NOTE: The foregoing article was prepared by the author and orginally appeared in *The Papermaker,* a publication of Hercules Co.

A view of the Columbian paper machine shortly after its relocation in the Port Edwards mill. It has been renumbered now bearing the identification of No. 7 paper machine. From the looks of the product at the far end of the machine, it appears that the machine has been converted to meat wrapping paper at the time of this photo.

Chapter Eight: Maybe We Should Have Stayed in Lumbering

With the diminishing availability each year of pine logs in the Central Wisconsin pinery, John Edwards, lumber entrepreneur at Frenchtown (Port Edwards), saw the proverbial handwriting on the wall. The tall timber was just about depleted. There were smaller trees and an abundance of hardwood forests remaining, but these trees were not desirable for satisfying the ravenous appetites of the saws. Some other events were transpiring at Frenchtown that would help to plot the destiny of this lumbering business. John Edwards, Jr., took in a partner, as well as a son-in-law, in the person of Lewis Miller Alexander. The French lumberjacks were being replaced by German and Scandinavian settlers; and, as one Frenchman admitted, "the Germans are hard workers and the French are great drinkers." The settlement of Frenchtown was incorporated into the Village of Port Edwards in 1869. Finally, John Edwards was elected to the Wisconsin legislature in 1890, where he served for only one year before his death.

Edwards and Alexander, in October of 1890, reorganized the Port Edwards lumber business as a corporation, naming it the John Edwards Manufacturing Company. The organization of this company was hardly more than a legal procedure since no change in product or physical plant was undertaken. The sawmill remained the same as when it was the John Edwards Lumber Co. Products were still white pine lumber, hardwood lumber, shingles, lath, and



The above photo of John Edwards Manufacturing Company shows the down river side of the mill. On the skyline to the left is the Port Edwards Fiber Company pulp mill. Two paper machines were producing about fifty tons of newsprint paper each day. The object on the roof is a little puzzling. In another picture, it has been replaced with a ventilator. However, here it looks like a wrapped package just sitting on the roof.

The John Edwards Manufacturing Company groundwood pulp mill and newsprint papermill at Port Edwards about 1900. Although some pulpwood was stored adjacent to the mill, as shown here, much was also stored on the Wisconsin River, in an area designated as the mill pond. Thus, pulpwood arrived at the mill either by horse drawn wagons or brought to the wood room via a conveyor that brought them from the river where they floated to the mill.

pickets. John Edwards Jr., was still president and L. M. Alexander, secretary.

In 1896, with Alexander now in the office of presidency, a decision was made to complement the line of timber products by the addition of newsprint paper. Thus, the John Edwards sawmill was demolished in order that the valuable water power on the Wisconsin River might be better utilized for a new paper mill. Construction began in 1895, and it is interesting to note that L. M. Alexander kept a journal of material and equipment used in the mill construction. Here are a few of the purchases of construction items taken from said ledger.

4,084.62 Cords of Worden Quarry Stone
(About 1,000 railroad cars)
2,252,980 bricks
(About 250 railroad cars)
353 Window Frames with Sash
30 Wooden Doors

The first pulp produced was groundwood, produced by a series of six grinders, powered by Wisconsin River power. The grinder room, still standing today, was located over the river. To the west of the grinder room was the wet machine room, then the wood room, saw room and machine shop. These departments all have since been relocated to make room for the Port Edwards finishing room. The beater room was in the location it now is. However, the boiler room and steam engine room were located where the finishing room now is.

Two paper machines, now Nos. 5 and 6, were purchased from the Beloit Iron Works in 1896. Total cost of these two machines, along with some auxiliary parts, was $57,000. But even this price, which seems very small today, was rather expensive for a newly organized paper mill in 1896. Therefore, the machines were paid for on the installment plan, some payments being as small as $1,000. The economy had not yet recovered from the 1893 panic.

For the next few years, paper was the principal product of John Edwards Manufacturing Co.; about forty tons being produced each day. Some lumber was still being produced and sold by the timber products division.

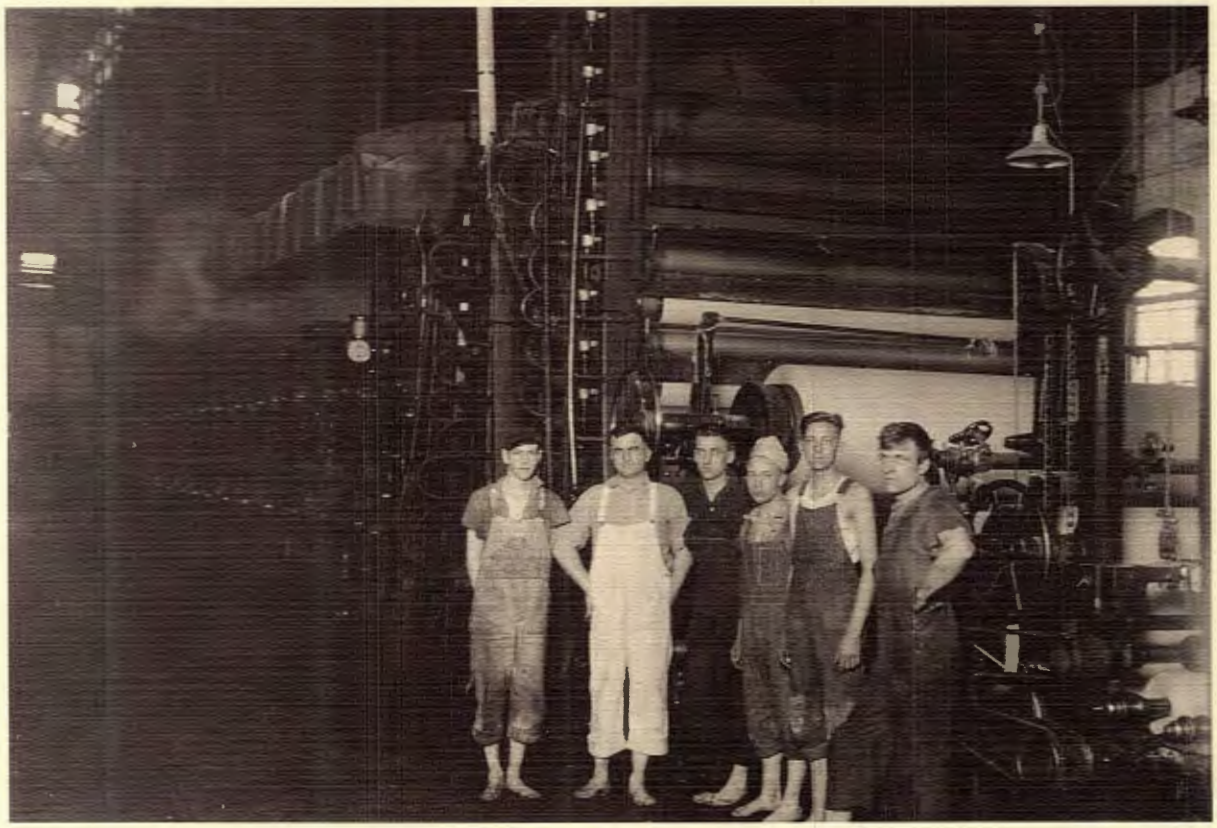
Lewis Alexander was not a paper maker. He was trained as a banker and was a successful businessman, organizer, leader, and manager. He was engaged in several other activities, including Cream City Sash and Door Company, Port Edwards Land and Investment Company, Merchant's and Manufacturer's Bank of Milwaukee, Iroquois Door Company of Buffalo, Two Rivers Company, and Inland Empire Paper Company in Idaho. With all these business activities, it is not surprising that Alexander turned the management of the mill over to Frank Garrison in 1902. Garrison was operating the mill at Centralia. However, he died shortly thereafter, and the resident manager position was then turned over to George F. Steele. Meanwhile, Alexander took up residence in Milwaukee. He would return to Port Edwards later.

With groundwood pulp mills and newsprint paper mills springing up all around the state of Wisconsin at the turn of the century, the price of groundwood pulp plummeted to eighty cents a hundredweight in 1898. A couple of years later, Alexander commented, in a letter to his mother-in-law, the widow Edwards, the following:

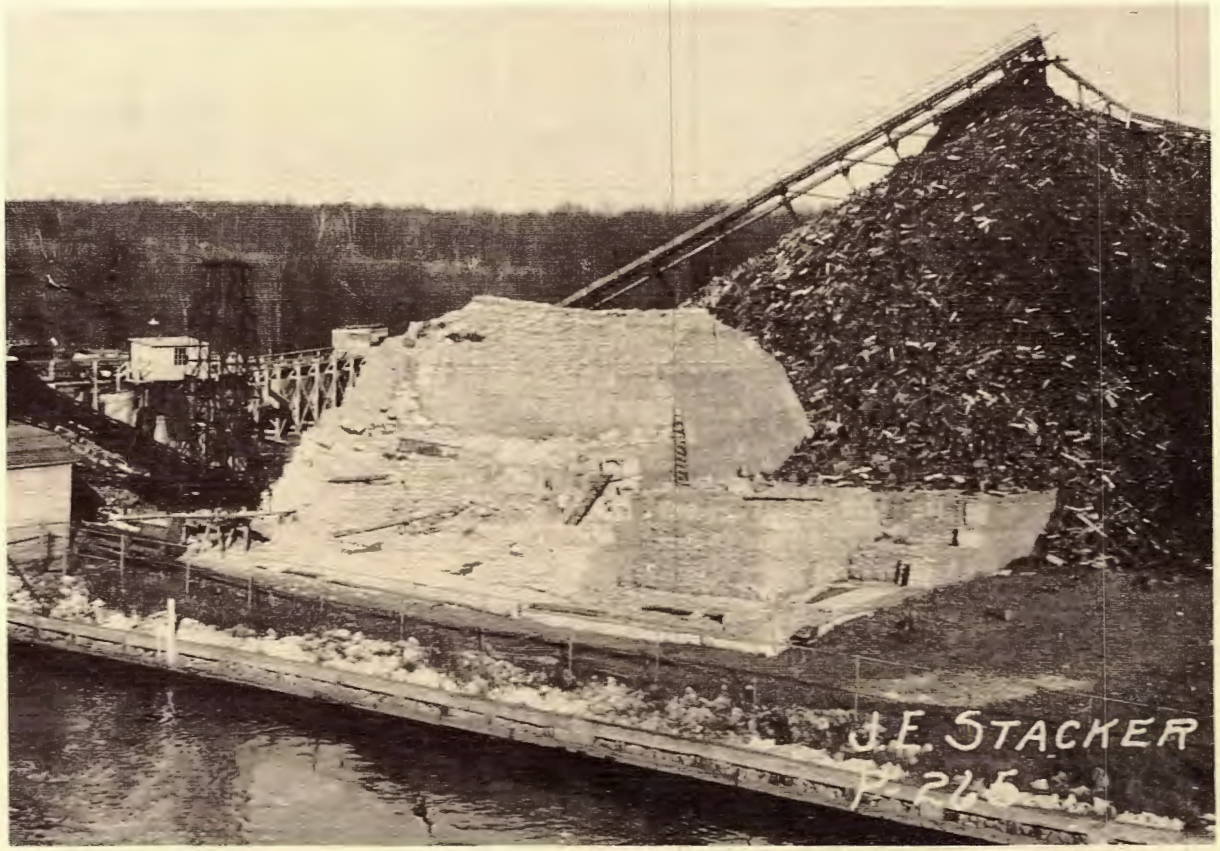
"No dividend will be paid this year because our money is all tied up in a two-year purchase of pulpwood, which we did to preserve relations with the cutters."

There is undercurrent of talk about labor troubles."

"Sometimes I wonder if we should have stayed in lumber."



The crew of Number Five paper machine at John Edwards Manufacturing Company, takes time off from operating the machine to pose for the photographer. Here again, as in other photos of machine crews, the men have elected to go barefoot about their work. Today, all employees in the mills are required to wear safety toe shoes.



Located on an island in the Wisconsin River, but still connected to the mainland via the John Edwards groundwood pulp mill, was this pulp and pulpwood storage area. The pile of lighter material is groundwood pulp in laps. To the right of that is a pile of groundwood pulp bolts, waiting to be taken into the mill for grinding into pulp.

Wet laps of groundwood pulp became one solid mass in the winter time. Moisture in the pulp freezes, resulting in one large block of pulp. Spring has come to Wisconsin and workers in this picture are using wedges and a sledge hammer to pry apart the laps of pulp.

"Mount Edwards and Pinnacle Point." No, not really but rather a winter view of what can happen to an outside storage pile of pulpwood bolts. Just to the right of the pinnacle are two men about to attempt to dislodge the frozen logs. To do so they will require quick footwork in order to escape the falling logs.

It is interesting to note that Centralia Water Power & Paper Company, Nekoosa Paper Company, and John Edwards Manufacturing Company, were all competing with one another. Yet all three were related to each other through their overlapping leadership and management. As a sideline, it is interesting to note that competition was set aside by other mills in the state when a need arose. As an example, in 1898, when the Park Falls Paper Company needed a pulp grinding stone in a hurry, John Edwards Manufacturing Company loaned them one of their spares; thereby getting the mill back in production much faster than if a supplier were to furnish it.

Newsprint prices improved by 1909, but probably only because of normal inflation, which had already gotten a start in this country. John Edwards Manufacturing Company was producing newsprint at a cost of $39.15 per ton and selling it for $40.15. However, a year later the market price dropped to $39.00 a ton. Something had to be done! As we will see in subsequent chapters, it looked pretty gloomy; but there was a light at the end of the tunnel. The motto became, "convert to higher grades of paper"; a slogan that would echo again some twenty years later.

Groundwood pulp production was phased out in the 1940's when the grinders were removed and sold as scrap iron for the war effort. There was no need for groundwood pulp in the papers that would replace newsprint.

Today there are still a few senior employees in the Port Edwards plant who still refer to the east end of the property as the John Edwards mill, thereby associating it with the original mill of the John Edwards Manufacturing Company.

Number five and six paper machines (originally one and two in the John Edwards Manufacturing Company) are shown here, along with their barefoot operating crews. These two machines were almost twins as far as physical dimensions were concerned.

Chapter Nine: If it Smells Sweet—it's Done

Port Edwards Fiber Company plant at Port Edwards about 1910. Cold acid, made from milk of lime, was used in the three digesters. The architect who designed the mill, had a flare for decorative touches as is illustrated by the crest of the smokestack and the round window toward the top of the digester building. This mill was located only a few hundred feet from the mill of the John Edwards Manufacturing Company.

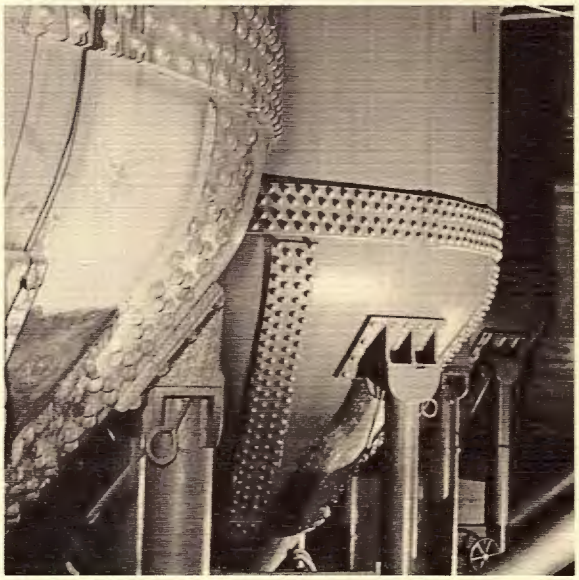
In 1872, Wisconsin's paper production was three tons per day, but by 1900, it had increased to 850 tons a day; a 28,233% increase in only twenty-eight years. That's an average increase in production of a thousand percent each year!

At the turn of the century, paper mills were proliferating all over Wisconsin, but especially along the Fox and Wisconsin Rivers. Most of these were manufacturing groundwood pulp and newsprint paper. It appeared that the market was becoming saturated—and it was just that. Furthermore, spruce pulpwood, the preferred wood for groundwood pulp production, had doubled in cost between 1899 and 1907, now commanding a price of between eleven and twelve dollars a cord. Hardwood, on the other hand, was more reasonable at only three-and-a-half dollars a cord. But hardwoods did not make good groundwood pulp. Something had to be done and the cry became, "Turn to better grades of paper."

In order to fulfill this goal, it was first necessary to have a better quality, stronger and cleaner pulp. In 1906 there were three choices of pulping techniques to choose from, other than groundwood. One of these, the kraft process, produced a very dark colored pulp, which was unsuitable for fine papers. The choice was between sulfite pulp or soda pulp. The three mills in central Wisconsin, John Edwards Manufacturing Company, Nekoosa Paper Company, and Centralia Water Power and Paper Company, all needed a source of better quality pulp. Accordingly, in 1906, the presidents of these three mills put aside their competitive practices, and in turn joined

hands to form a new company, the Port Edwards Fiber Company, whose purpose it would be to build a sulfite pulp mill in Port Edwards. The actual signers of the incorporation papers were Thomas Nash, Lewis Alexander, and J. B. Nash. Tom Nash was elected president, Alexander secretary/treasurer, and George Steele was appointed general manager.

In January of 1906, 2,500 shares of one hundred-dollar par value stock was issued and immediately subscribed to by the Nash family, Alexander, Steele, F. J. Wood, Col. Vilas, and W. MacNaughton. The property and assets of the Nash Lumber Company made up Nash's contribution to the cause, and with these tangible assets, the new company immediately mortgaged the Nash Lumber Company and other land holdings to obtain a loan of $500,000. With the combined funds from stock and loan, the company began the construction of a sulfite pulp mill, right in the front yard of the John Edwards Manufacturing Company, from whom they leased the land and shared joint railway tracks. Even process water was purchased from the "John Edwards mill pond." For these considerations, Port Edwards Fiber Company paid the sum of one hundred dollars a year to John Edwards Manufacturing Company. Quite a bargain!



Three digesters in the pulp mill at Port Edwards were erected in 1905 and are still in use today. The steel shells are about two inches thick but inside are two layers of ceramic brick, which are replaced periodically.

The pulp mill that was erected had three ten-ton digesters with a combined capacity of sixty tons of pulp each day. The cooking liquor used for cooking the wood was a cold, lime-base acid system. It would be converted to a hot acid system in the 1920's, thereby speeding up the cooking time and thus increasing capacity. The pulp was bleached with bleaching powder in a single Bellmar Bleacher. The bleach powder was purchased in steel drums and the empty drums were flattened and sold for their scrap metal value.

As the margin between cost and selling price of pulp becomes smaller, the Port Edwards Fiber Company looked for ways to increase their profit. One such way was to salvage the metal in empty steel drums used for shipping bleach powder and other chemicals to the mill. These men are flattening the drums prior to selling the metal for recycling.

The pulp mill was a separate entity, even to the extent of not being connected to the neighboring paper mill, as is the case today. Instead an outside ramp of about two hundred feet in length connected the two buildings; and pulp was moved on hand-pulled wagons from one building to the other.

In the 1920's, several improvements and expansions took place at the Port Edwards Fiber Company. A fourth digester was added in 1923. A three stage bleach plant replaced the drums of bleach powder. A unique cable-way log loading system spanned the wood storage yard west of the mill.

The milk of lime acid preparation was changed to a method that utilized limestone. It is interesting to note that the sulfite mill at Port Edwards had used calcium base, ammonia base, and sodium base cooking liquors before finally adopting the magnesium base system in use today. A versatile operation!

In retrospect let's reflect for a moment to those ear-

Each and every log was hand inspected as it moved down the conveyor line in the Port Edwards Fiber Company wood room. If there was bark, rot, or knots on the log, it was cleaned up by the men with the axe, or even taken off the line for a more thorough cleaning later.

Rifflers in the Port Edwards Fiber Company were long troughs in which the pulp slurry flowed. Particles of dirt, bark, sand, slivers, etc., would settle to the bottom while the clean fiber floated off the end. Screens and centracleaners do a much better job today.

The working crew of Port Edwards Fiber Company pose for a picture that just might be valuable some day for a centennial anniversary book. From the dress attire of the men it can be surmised that the mill was not too well heated. Note the somewhat bashful youth peering around the post on the left.

ly days of cooking wood. Imagine a "cook" trying to prepare a ten-ton batch of pulp from twenty tons of raw wood, inside a steel digester where it was impossible to see what was happening. Instrumentation, as we know it today, was not as refined then. How did a "cook" know if the digester was up to temperature? By expectorating a precisely measured amount of saliva toward the top of the digester and observing the time required for evaporation of the "reagent," the cook would know if more steam was needed. Old timers claim that a good cook could tell if a batch of wood was completely cooked by the smell of the cooking liquor. A pungent odor indicated a raw cook, a sweet odor, a finished batch of pulp, and a burnt odor meant overcooked wood.

After a very short life as an independent company, the Port Edwards Fiber Company offered its assets, valued at $400,000 to the newly formed Nekoosa Edwards Paper Company, if the new corporation would assume payment of their $500,000 loan, and other outstanding debts. An agreement was reached and in 1908 the Port Edwards Fiber Company became the Port Edwards pulp mill of Nekoosa Edwards Paper Company. However, formal dissolution of the company did not come until 1921 when papers were submitted to dissolve the company. Why they retained their corporate identity for thirteen years is somewhat of a mystery.

Today the Port Edwards pulp mill and the adjoining paper mill are one common manufacturing facility. Expansions have filled the gap that used to be spanned by a ramp. Two hundred and sixty tons of bleached sulfite hardwood pulp are produced each day for use at Port Edwards and Nekoosa. And sophisticated instruments have replaced the senses of the cook.

Chapter Ten: It Was a Beautiful Fire

Our company has weathered some catastrophes during our first hundred years in the pulp/paper business. These events, mostly fires, cannot be assigned to any specific one of the four time spans covered by this book, since they have occurred throughout the entire course of our history. For that reason, they will be included in this part of this book which covers the time span wherein the greatest conflagration, (the burning of the Centralia mill), occurred in 1912. Other fires and catastrophes will be included on these pages, even though they occurred later in our history, and in one instance, resulted in considerably more costly damage.

The Centralia mill, whose development was covered in a previous chapter, operated two paper machines and a groundwood pulp mill in 1912. Production was twenty-five tons of newsprint each day.

The mill, with the exception of the boiler house and foundations, was of wood construction; in fact, tinder-dry pine lumber—the kind that burns fast!

Now the retirement of an active paper mill is usually a slow, drawn-out procedure, but not for Centralia. At 2:00 a.m. on May 20, 1912, the night watchman, William Snyder, noticed during his tour of duty that the wooden roof of the machine room was afire. He immediately ran to the office, where the only telephone was located, and turned in the alarm. Both the Centralia and Grand Rapids volunteer fire departments responded to the call. Four hours later the retirement ceremony for the mill was completed. Centralia Pulp and Water Power Company, the first paper mill on the Wisconsin River, was out of business. A decision the following day, on the part of the directors, made it permanent.

The steel skeletons of two paper machines stand atop the only remaining portion of the Centralia paper mill after the fire that demolished the mill. The wooden superstructure has been completely burned in the fire. The twisted iron will be sold for scrap, while the foundations will be torn down and the rock used for constructing the flumes of the new hydroelectric plant.

Everyone had done his best to save the mill, but to no avail. The conflagration was quite inaccessible, since it was on the roof of a building located on an island in the river. There were no water mains in that part of the city, and the mill's fire apparatus, including 1,300 feet of hose, five fire pumps, and standpipe, was not sufficient to the need. The metal roofs were of no value in protecting adjoining buildings. A locomotive at Centralia Station was summoned to remove three railroad cars of paper from the mill site. However, it took an hour to raise a head of steam and get to the mill, by which time the three cars of paper had been destroyed.

In spite of these fateful circumstances, the *Wood County Reporter* went on record commending the fire fighters who responded to the call, and especially the role played by the new steam fire engine which pumped water from the river at such pressure that several men were needed to steady the nozzle.

The cause of the $80,000 fire was laid to some electrical wires that were left coiled near the ceiling during a remodeling project of the previous day. Only the brick boiler house and the pulp mill were saved. A corner of the pulp mill caught fire but the flames were extinguished, and the pulp mill was able to resume operations the next day. It is reported that a new electrical interurban line did a thriving business the following day in transporting hundreds of spectators to view the burned-out mill. A local woman who remembers the fire well remarked, "It was a beautiful fire. The whole sky was red like Fourth of July." Incidentally, her family managed a competitive paper mill in Wisconsin Rapids.

Almost as if a restraint, other fires, floods and even a tornado have dealt temporary setbacks to our progressive advances over the years. Lewis Alexander commented to Frank Garrison in a 1904 letter, "I learn with much regret that high water had not only shut you down but that last night, through the carelessness of one of the men breaking an oil lamp, that fire destroyed the clothing on one of the ma-

The steel remains of what was once a carload of newsprint paper, still remains on the rails just outside the burned out Centralia Paper mill. A steam locomotive arrived too late on the scene to remove the cars from the vicinity of the fire. The mill was not as fortunate as John Edwards Manufacturing Company or Nekoosa Paper Company who had their own locomotives. Centralia Paper Company had to rely on common carrier railroads to do their switching.

chines and part of the other and burned the ventilator on the roof."

Two other spectacular fires occurred in Nekoosa Papers' history. The west log yard fire in September of 1922 was Port Edwards' worst fire. It is believed to have been started about noon one hot summer day, by sparks from the steam switch engine. The pulpwood piles were soon ablaze, being fanned by a strong wind out of the south. Sparks and burning embers were blown northward where they settled down on the village. Some twenty houses and other buildings were set afire by the flying embers, most of them resulting in minor roof fires. Village residents took fire watch vigils, sitting on the roofs of their homes with pails of water, waiting to quench a live ember which might have settled on their roof. Port Edwards had no fire protection service at that time, therefore fire fighting equipment was dispatched from Nekoosa, Wisconsin Rapids, Stevens Point and Marshfield.

Nekoosa's third worst fire is more recent, when several thousand acres of forest land and pine plantation were destroyed by fire in Adams county. In addition to these fires, several smaller fires have broken out in the mills during our history. However, a program of safety and fire prevention measures has greatly decreased the seriousness of fires.

One tornado has exhibited its force on our Ashdown mill, and that was on the afternoon of April 2, 1982. Heavy damage was inflicted to buildings, including the paper machine building and pulp drying facility. Collapsed roofs and walls fell onto manufacturing machinery, thereby bringing the mill to a standstill, but not for long. Two paper machines resumed production that same night, while the third started up the following day. With the exception of the pulp dryer, the entire mill was back in operation by April 4; in spite of a loss in excess of five million dollars. Unfortunately, one life was lost due to falling equipment.

Floods have besieged Nekoosa Papers since its inception, the worst being in 1880, when John Edwards and Company lost about a million dollars worth of logs, booms and dams. A river flow of 100,000 cubic feet per second was recorded. Normal river flow is less than 3,000 cubic feet per second.

In 1912 and 1925 severe flood conditions prevailed, and again in 1938, flood waters caused considerable damage to Nekoosa-Edwards dams and caused a temporary shutdown in operations at Nekoosa for a period of twenty-four hours. At Port Edwards, the groundwood mill had fifty-four inches of water standing on the floor. Two paper machines were out of service for forty-eight hours.

High water had been an annual spring and fall occurrence. As the river rose, it was often necessary to suspend operations due to the mill basements being flooded. Boats were often used for getting around in the basement of the mills. From these boats, electricians would disconnect motors and remove them to dry places. However, the improved dams, the building of reservoirs on the river, and the redesigning of mill sewer systems has practically eliminated the annual spring damages due to floods.

Nekoosa Papers Inc. was very much involved with the organization of fire protection service in the Village of Port Edwards. In 1902, L. M. Alexander appeared before the board of trustees of the Village of Port Edwards, offering the use of the mill water tower and the mill fire pump for fire protection, provided the village would lay the necessary water mains. This arrangement was carried out and sufficed for several years. Hose carts and ladder wagons were strategically located around the mill, log yards and village.

However, in 1922, the inadequateness of the system was shown during the log yard fire of that year. Consequently, a group of volunteers organized the Nepco Fire Department in 1923. An old company truck, the Reo Speed Wagon, was donated to the group, to be converted into a fire truck. This conversion was made by maintenance crews in their spare time.

In 1924, the department acquired its most romantic piece of apparatus. This was the old 1912 model 66 Pierce Arrow. Originally bought in 1912 as a touring car by L. M. Alexander, it was used for that purpose until 1919 when it was sold to a Wisconsin Rapids car dealer. It was later purchased by Nekoosa-Edwards. Nicknamed the "Green Dragon," the Company in 1924 donated this car to the fire department. This vehicle had played a colorful role during a strike in 1919.

Rebuilt and outfitted as a fire truck, it was used successfully until 1949. The Pierce Arrow was sold to a used car dealer who in turn sold it to an antique auto collector.

The village of Port Edwards, the paper mill and the adjoining log yards were first protected from the destruction of fire by this simple ladder wagon and equally crude hose carts that could be hand pulled.

The Reo Speed Truck was replaced in 1925 by a Dodge truck. The truck chassis was purchased new by Nekoosa-Edwards and company crews added the body. This truck was replaced in 1937. The Dodge was turned over to the village mosquito control program, and spent its last days aiding in the abatement of mosquitos.

Up to 1955 the fire department was located in the rear of the Port Edwards mill clockhouse. Then, the company built and donated to the village, the modern brick garage and fire station located on Wisconsin River Drive. Also in that year, they donated their share in the Nepco-Port Edwards Fire Department to the village, and the volunteer fire department became a village project.

The Nepco-Port Edwards Fire Department proudly poses with their two trucks, just prior to entering them in a parade, promoting fire protection. The white uniforms are not their fire combating uniforms. The truck in the lead is the famous Pierce Arrow and the rear one, the Dodge. Both were outfitted at the Port Edwards mill.

However, even at this writing, Nekoosa Papers still has a hand in local fire fighting in Port Edwards. The company's telephone switchboard is still the dispatcher for fire calls, and the mill whistle is still sounded in Port Edwards and Nekoosa as a "call to arms" for the volunteer firemen. The Nekoosa mill whistle still retains its mournful wailing, or siren effect, that unmistakably says, "FIRE."

The combined Port Edwards and Nekoosa fire departments display their equipment outside the Port Edwards mill. Both communities had arrangements with the mills, whereby firemen could leave their work when the fire alarm was sounded.

Chapter Eleven: One + One + One = ONE

"United we stand; divided we fall." Such was the slogan that may not have originated with the paper industry, but certainly became the slogan for several small independent paper mills in Wisconsin. It was a buyer's market at the turn of the century caused by a glut of newsprint paper on the market. Money invested in paper mills would have been better invested in one of those new telephone companies that were springing up. And each time mill managers coped with the problem, they came up with the same solution — merge!

In 1897 five mills in Wisconsin (Nekoosa Paper, John Edwards Manufacturing, Centralia Water Power and Pulp, Port Edwards Fiber, and Grand Rapids Pulp and Paper), joined hands to form the Northern Paper Company. Officers were Tom Nash, George Steele, and L. M. Alexander; names that have appeared several times previously in these pages.

Northern Paper Company accomplished only one profit-improving achievement. Through its efforts in consolidating purchasing power of member mills, it became the primary pulpwood contractor for the mills. No paper sales were made, and no mill management was undertaken. All that Northern did was purchase pulpwood. The arrangement lasted until 1909 when the Northern Paper Company was officially dissolved, the property and assets being sold to L. M. Alexander.

In 1897 a group of mills, including those in Port Edwards and Centralia (but not Nekoosa), formed a combine whose primary purpose was to market the paper of the member mills. Manufacturer's Paper Company represented mills in the eastern part of the country as well as in the Midwest. Nash's Nekoosa Paper Company did not go along with the group and was referred to as the "obstreperous minority." All the member mills were small, eleven being from Wisconsin. They joined hands with competitive mills in Manufacturer's Paper Company and turned their entire production over to the conglomerate to contract the price and make sales to printers. Included in the sales company were such prominent names as St. Regis, Kimberly Clarke, Gould Paper, and Imperial of Canada. A three percent commission was charged by Manufacturer's Paper Company to the member mills on the sale of their tonnage. They also became involved in group purchases for member mills, somewhat similar to the way Northern Paper Company was purchasing pulpwood.

In 1900, unhappy with the efforts being made by Manufacturer's Paper Company, fourteen Wisconsin mills withdrew. Their dissension was that Manufacturer's Paper Company was favoring the eastern mills in sales of newsprint. Thus, in July of 1900, a group of Wisconsin and Minnesota mills formed a new sales company to handle exclusive sales of their products. The General Paper Company was incorporated with L. M. Alexander serving as secretary and treasurer.

In 1902 General Paper Company and Manufacturer's Paper Company entered into an agreement whereby Manufacturer's would sell only east of the Mississippi River, while General would sell only west of the Mississippi, plus the state of Wisconsin. General now acquired other mills increasing its ranks to twenty-three member mills, including Nekoosa Paper Company, John Edwards Manufacturing Company, Centralia Water Power and Pulp Company, and Port Edwards Fiber Company. General would decide who would sell to which markets, the price, and terms of the sale.

With business proceedings such as these, it is not surprising that in December of 1904 the Minnesota Circuit Court issued a restraining order against General Paper Company, charging them with violation of the Federal Anti-Trust laws. By court order, the General Paper Company was dissolved on May 10, 1906.

The paper mills were not finished yet. Sixty mills throughout the United States threatened to consolidate into one company; not just for sales, but a full-fledged merger. This was their way of retaliating

against the court order. The new company would be known as International Paper Company, and although International Paper Company did become a reality, the five mills in Central Wisconsin decided at the last minute against joining.

So here we are in 1903 with several small mills once more competing with one another. Prices were still falling while costs were mounting, and merger was still the byword.

In June of 1907 the mills in Nekoosa, Port Edwards, and South Centralia once again looked at merger prospects; the merger to include two mills in the Fox River Valley, Outagami Paper Company, and Patten Paper Company. Both of these mills were managed by gentlemen who were also financially involved with the Central Wisconsin mills. However, their proposed marriage to the Wisconsin River mills did not become consummated.

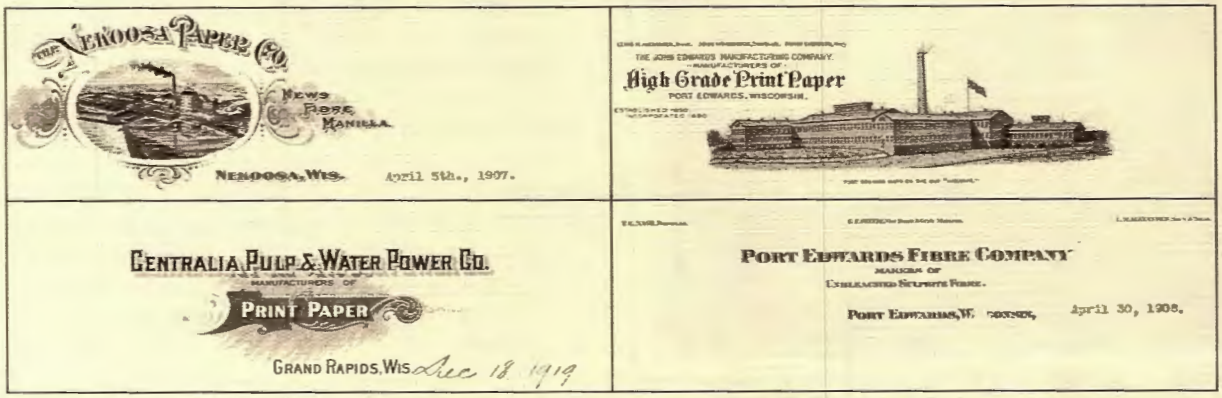
This brings us up to a merger that would last for sixty-two years, when it would be superseded by a larger one. On June 19, 1908, a group of nineteen interested investors met in the law offices of Goggins, Brazeau and Briere in Grand Rapids. It was 8:30 a.m. In person or by proxy, ninety tentative shareholders had indicated a willingness to invest in a new company. They had collectively subscribed to a stock offering being proposed by the new company, Nekoosa-Edwards Paper Company. Some had pledged to purchase as little as one share, while others would commit to as many as 5,661 shares, with some family groups controlling even more of the $2,800,000.00 of proposed stock.

The attorney read the articles of incorporation that had been signed by, (you guessed it!), Tom Nash, L. M. Alexander, and George Steele. The articles of incorporation stated the purpose of the company:

> *"...incorporated for the purpose of dealing in real estate, timber lands, timber of all kinds, sawmills, planning mills, mills for the manufacturing of sulfite fiber, groundwood, and paper and paper products; contract keep and maintain business blocks, apartment houses, dwellings, buildings and structures of all kinds; for sale, rent or lease. To create, buy, and sell electricity. To sell and hold personal property, implements and machinery. To buy and sell goods as merchants. To construct and operate railroads, trams or other forms of transportation. To engage in logging and operating camps. To acquire water powers. To build and maintain dams. To hold stock in other corporations engaged in similar business."*

At this first shareholders meeting, one of the first duties was to collect the funds represented by the stock subscribed to. It was duly ordered that the shares of stock subscribed to should be paid by June 30, 1908, eleven days hence. However, since all subscribers were represented and expressed a desire to pay at once, a ten-minute recess was called, during which $2,800,000.00 was collected as payment of the subscribed stock.

Next, a board of directors was elected, said board immediately ordering a director's meeting at which Tom Nash was elected president; L. M. Alexander,



There will be no need for four letterheads any longer, since they represent companies that no longer existed after the 1908 merger.

However, Centralia Pulp and Water Power Company did use their letterheads as late as 1919 as is indicated in the illustration.

vice president; and George Steele, secretary. Now the board appointed three negotiating committees whose purpose it was to come to agreement with the Nekoosa Paper Company, The John Edwards Manufacturing Company, and the Port Edwards Fiber Company to sell their respective mills to the newly formed Nekoosa-Edwards Paper Company. Another recess was called, and the meeting was resumed at 3:00 p.m., at which time the three committees reported the following terms of sale had been reached:

Nekoosa Paper Company - $1,942,134.76
John Edwards Manufacturing Company - $1,238,167.89
*Port Edwards Fiber Company - $400,000.00**
**plus assuming payment of a bond of indebtedness of $500,000.00*

Horrors! This totaled $780,000 more than the shareholders had paid in that morning. Evidently, the ten-minute recess for collecting the cash that morning should have been extended to fifteen minutes. The directors, therefore, levied a twenty-five percent assessment on the stock, and it too was immediately paid; thereby making the purchase of the three mills a reality. Thus, two small mills, in Nekoosa and Port Edwards, plus one pulp mill, became one competitive giant in the paper world of 1908!

Financial certificates from the four independent companies that formed Nekoosa Edwards Paper Company are illustrated in this photo. All were surrendered to the new company in exchange for shares of stock in NEPCO.

Nekoosa Edwards Paper Company was as well known by their nickname, NEPCO, as they were by their corporate name. In this photo, they have proudly worked the name into the brickwork of a new smokestack. The letters are actually a white brick that still show up today.

But the new board of directors was not finished with their work. The next order of business was to approve a million dollar bond issue, putting up the mills of the new company as security. With these additional funds, payment of the old Port Edwards Fiber Company's bonds would be accomplished, as well as other debts of the member mills being paid.

Another order of business for the day was to place a restriction on mill management, limiting their expenditures for repairs to $150.00 per occurrence, and requiring executive committee approval for any expenditure over $500.00. Furthermore, any salary change for an employee who received $100.00 or more a month had to have approval of the executive committee.

And with that, the directors adjourned their meeting at 11:00 p.m. Quite a day's undertaking!

Nekoosa-Edwards Paper Company was too much of a mouthful to say, so the company became well known as Nepco.

In 1917 the shareholders of Centralia Water power and Pulp Company approached Nekoosa-Edwards Paper Company offering the sale of their hydroelectric plant and groundwood pulp mill for $300,000.00, plus Nepco to assume payment of their outstanding debts of $250,000.00. You will recall that Centralia had lost its paper mill in a fire about five years prior and had replaced it with a hydroelectric generating plant. Nekoosa-Edwards issued 2,000 shares of $100.00 per value stock, which really sold for $150.00 a share, thereby raising $300,000.00. Said funds were used to purchase the Centralia facility, making it a part of Nekoosa-Edwards Paper Company.

Now the new company was ready to cope with the second facet of survival, a conversion to a higher grade of paper that would command a higher selling price. Wrapping papers was the choice.

The White City Band could not afford uniforms in 1908 but members did wear their Sunday Best suits when performing. The band was sponsored by Nekoosa Edwards Paper Company and was made up of employees of the company. The sign on the building has not been changed to show the new name of Nekoosa Edwards Paper Company.

Chapter Twelve: Impossible to Use Wisconsin River Water

The old adage that you can't wash a white shirt in dirty water can be paraphrased to state, "You can't make white paper using dirty water." John Alexander, serving as Nepco general manager in 1927, stated in his annual report to shareholders,

> *"You will all appreciate that in getting into our higher grades of paper, we discovered that it was impossible to use Wisconsin River water, and we were forced to look for a clean water supply."*

And where did Nepco's engineers look? The Port Edwards and Nekoosa municipal sources were investigated, but the domestic demands were already taxing the wells. Underground wells were not reliable as two neighboring mills in the area suffered water shortages when their deep wells went dry. Although the Wisconsin River was adjacent to the mills and could be treated to make it suitable, the cost became prohibitive. Two natural streams, Moccasin Creek, just west of Port Edwards, and Four Mile Creek, to the east of the village, were the remaining considerations. Moccasin Creek's flow was erratic and unreliable, so the water "diviners" selected Four Mile Creek.

Whereas the river had a comparative color of 170, Four Mile Creek water was only 60. Another way of relating these two sources of water is to say that

From this small stream will come the water to flood the cleared landscape in this picture and thereby create Nepco Lake. This photo might have been taken from the 'lamp post' tree seen in another photo in this section.

Four Mile Creek water contained only a third of the amount of color that was in river water. Furthermore, the stream, which originates in the Buena Vista marsh area, drains a 150 square mile watershed, and is intersected by an elaborate system of drainage ditches.

In July of 1925, tests were conducted in a pilot plant located on the bank of the creek. After treating the water with alum, and allowing it to flocculate, settle, and filter, the final results were conclusive. Accordingly, 1,200 acres of land were purchased, of which 350 acres were cleared of trees and brush in preparation for flooding. The expanse of land to be eventually covered with water would be close to 400 acres.

Clearing of land was begun in September of 1925, and at the same time earth moving was started to create a 2,000-foot dike at the west end of the proposed lake. Additional work was being carried on to create a twelve-acre settling basin, power house, dam, and chemical feeding building.

Since the Wisconsin winter was encroaching, work was carried out around the clock using horse drawn wagons in the daytime and tractors at night. As many as three hundred men and thirty teams of horses were engaged in the project. Some of the men resided in a temporary boarding house built on the site, and the teams of horses were kept in a barn next door. A blacksmith practiced his trade in a temporary blacksmith shop. A camp of about fifty Indians, who preferred to live with their families, set up a camp on a hill overlooking the Wisconsin River. This promontory is still referred to as Indian Camp Hill. Large floodlights illuminated the area to facilitate night work.

Still another crew of men were engaged in laying a thirty-inch diameter iron pipeline from the lake to the Port Edwards mill, crossing the Wisconsin

Earth moving equipment used for building the dams and dikes at Nepco Lake was primarily horse and wagon as seen in this picture taken during the lake construction. The lone tree would eventually be removed but here it serves as a support for several flood lights which illuminated the area at night so that work could be carried on around the clock.

It was no easy job to cross the river with the NEPCO Lake pipeline during the coldest of winter months. Here, the river has been sectioned off with temporary dams and a trench excavated in the river bed. It appears from this picture, that the coffer dams did not hold out the water which has filled in the area and frozen.

River enroute. The river crossing was a challenge that was met during the coldest winter months. A third of the river's width was dammed up by temporary coffer dams. The water was pumped out, and a trench was excavated in the rocky river bed to a depth of about four feet. After placing the thirty-inch diameter pipe in the trench, it was covered over with backfill and then the dam was removed. The entire procedure was repeated two more times in order to complete the crossing.

By February 6, 1926, 3,750 feet of pipe had been laid, and water was introduced into the system—only five months after the project had been initiated!

There was no lake yet, but water was pumped directly from the creek into the intake building via two pumps, mounted on a barge floating in the creek. Incidentally, there was a question originally as to whether an actual lake was needed, or could the water be diverted directly from the creek to the mill. The proponents for a lake won out with their argument that the lake itself would serve as a four hundred acre primary settling basin; thus reducing the workload on the rest of the treatment facilities.

On April 1, 1926, the dam gates were closed, and the filling of the lake was under way. On April 15, aided by the spring runoff, there was sufficient water in the lake to operate the generator and supply power to the pumping operations. The spring runoff of 1927 enabled Nepco engineers to add an additional three feet of headwater to the lake. Two later raises in head elevation added another 5½ feet to the lake. Ten thousand gallons of water a minute could be treated and pumped to the mill. Treatment included chemical flocculating, settling for forty-eight to seventy-two hours, screening, chlorinating, and finally, filtering through sand filter beds.

The original plan for the project called for excess water to be passed through a hydroelectric unit which would provide the necessary power to operate

the pumps. However, the increased demand for water in subsequent years would bring an end to this practice. The 300 kilowatt generator was unloaded from a railroad car in the Port Edwards island log yard. It was then placed on skids, and pulled to Nepco Lake on the snow and across the Wisconsin River on the frozen ice.

In the spring of 1930, work was begun on the building of a 48" concrete pipeline to the Nekoosa mill. The 19,000 feet of concrete pipe were built at Nekoosa; the Lock Joint Pipe Company establishing a temporary plant there. The first water to Nekoosa was pumped on November 24, 1930.

In the spring of 1926, Nepco built a fish hatchery at Nepco Lake. Rainbow trout eggs were supplied by the State Conservation Department. Nepco personnel nursed the eggs through the summer months; and in the fall, half of the young trout were taken by the state, the other half were placed in Nepco Lake. This program was discontinued in 1930.

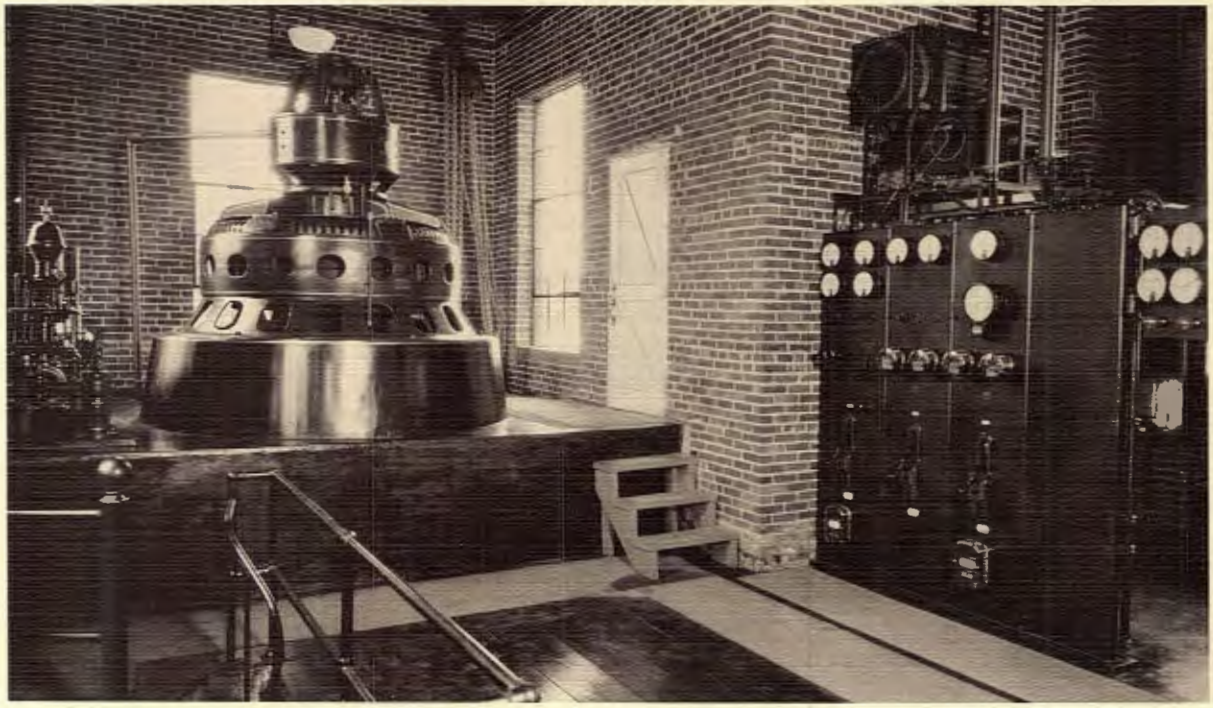
In the fall of 1953, a need for additional water brought about the building of a ditch and pipeline to bring the water of the Five Mile Creek into Nepco Lake. In September of 1953, two 8000 GPM pumps began pumping this water into the lake.

In the summer of 1954, a public beach and picnic ground were opened on the north shore of the lake. A modern bath house, a safe beach, and a well-equipped picnic area are a sharp contrast to the earlier beach and picnic area opened in 1926.

Final cost of the lake project, not including pipelines, was about $350,000.00.

Our man-made lake is truly a vital link in the papermaking process. To satisfy her many pumps, two separate power lines from two different sources, feed her control board. Should one line go out of service, it would be only a matter of seconds until the other line would be pressed into service. Should both lines fail, she can still satisfy 65% of her own power needs by using her hydroelectric generator.

An incident worth mentioning is one which occur-



The interior of the Nepco Lake pumping station and hydroelectric plant. The pumps for transferring the water from the lake to the mill are located in the basement. This is the electrical generating unit that supplied operating electric power when the lake was built. However, in later years, there was not enough water for the mills and hydro unit. Accordingly, it only operates during periods of excessive flow.

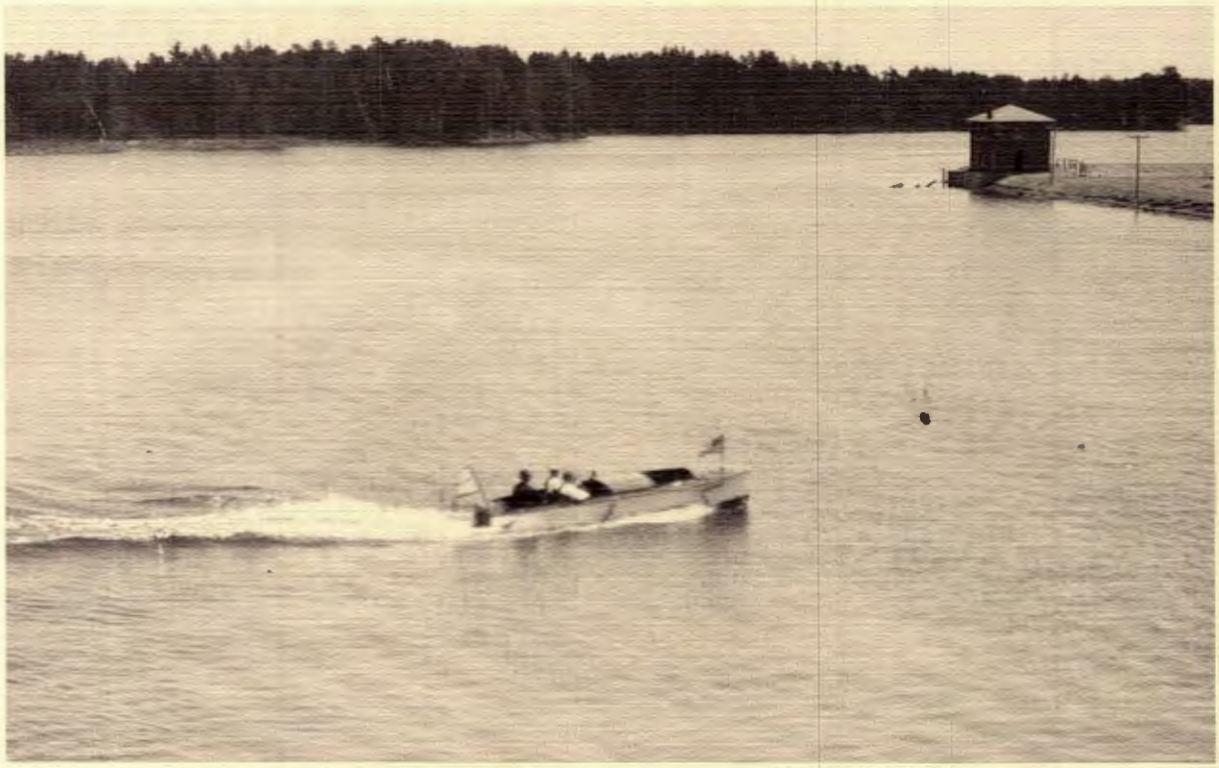
When Nepco Lake was new, Nekoosa Edwards Paper Company, in cooperation with the State of Wisconsin, planted young fish in the lake. This fish hatchery was built by NEPCO, at the west end of the lake. Here eggs were hatched and the fish cared for until such time that they were old enough to survive in the lake.

Weed and algae control is being practiced in this photo. Water from the lake is pumped to the wooden barrels, mixed with copper sulfate and then sprayed back into the lake through the fire hose. The entire lake was treated several times each summer, using this method.

red in 1948 at Nepco Lake. The settling basins, which are lower than the lake level, had been emptied for cleaning in the summer of 1948. The intake building, a 16' x 35' brick building which admitted water and chemicals to the settling basins, was acting as a stopper in the dike, holding an eighteen-foot head of lake water out of the basins. A crew of men was about to begin work on the footings in the basement of the building, when one of the windows shattered. Moments later, the entire building was catapulted into the air and over onto its side in the settling basin.

The settling basins filled up in a matter of miniutes, and began to overflow, thereby threatening to wash out the dikes. The dam was immediately opened and the lake level pulled down. Nepco Lake crews worked round the clock for several days, hauling dirt to fill in the gap left by the intake building.

Should Nekoosa's supply of pulpwood be suddenly severed, the mills could continue to operate for perhaps three months by utilizing the wood in storage in the mill yards. However, should the supply of water be turned off, mill operations would cease in about three minutes. Truly then, water is the lifeblood of the paper industry.



The brick building in this illustration is the water intake building. Through this building, lake water entered the settling basins, after first being treated with alum to facilitate the removal of impurities. It is this building that capsized into the lake.

Chapter Thirteen: Three Connections Without Meters

In the preparation of this series of historical sketches, many subjects cannot be told in their entirety since they are ongoing right up to the present. However, the story of the Nekoosa Edwards Light and Power Company is a "closed book" covering a period of thirty-nine years in our company's history.

Actually, the story of the electric light in this area dates back to 1896. When the John Edwards Manufacturing Company built the pulp and paper mill at Port Edwards, one of the flumes, which contained the water turbines for driving the wood grinders, was also equipped with a small turbine for driving a Smith and Vale direct current generator. The power generated was used in and about the mill for lighting purposes only.

A short time later, Nepco President and General Manager, L. M. Alexander, had a line installed to his home from the mill. This line, about one block long, was the beginning of a public utility venture on the part of the Nekoosa-Edwards Paper Company.

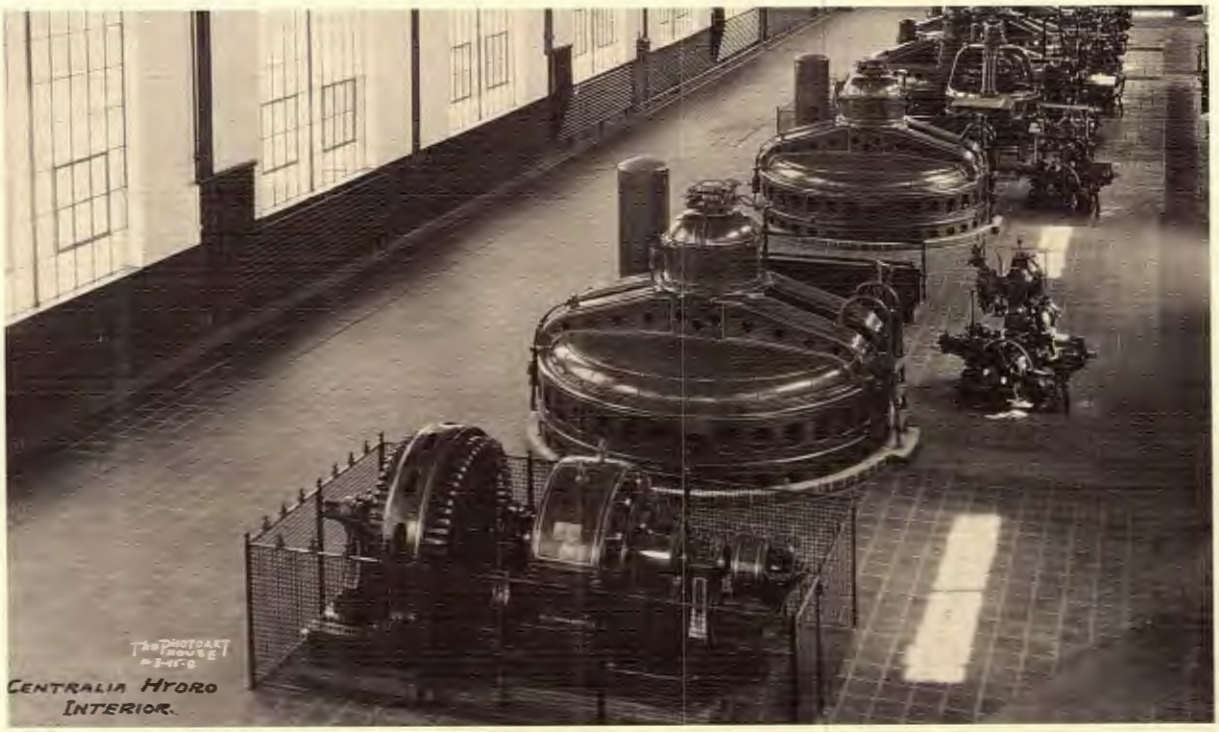
At Nekoosa, streets, business places and a few homes were being lit by gaslight, gas being manufactured by the Nekoosa Gas-Light Company. This company was established in 1910 but was out of business by 1915.

Perhaps the most contributing factor to the decline of gas lighting in Nekoosa was the incorporation in February 1913 of the Nekoosa Edwards Light and Power Company. The village of Port Edwards granted a franchise to service that area in 1913, and Nekoosa followed a short time later with similar franchise for the Nekoosa area.

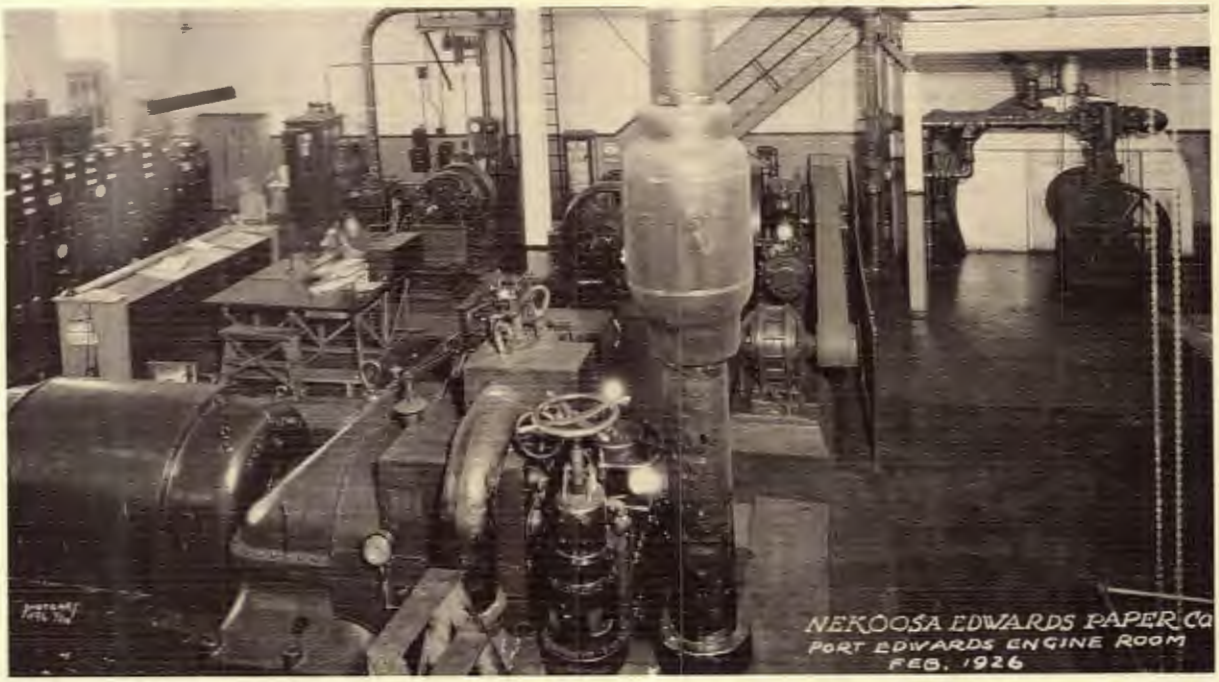
From that date on, the lines of N.E.L. & P. Co. were pushed outward. Port Edwards, Nekoosa, Cranmoor, the towns of Grand Rapids, and Seneca, all benefited by the service offered by N.E.L. & P. Co. N.E.L. & P. Co. owned no electricity generating equipment. It purchased all its power from its parent company, Nekoosa Edwards Paper Company. At first the new utility was going to put its distribution lines on the same poles that supported the telephone transmission lines. However, the local telephone company, after thinking it over, decided that electric lines and telephone lines were not compatible on the same post; and that the electric lines would interfere with good telephone service. Thus N.E.L. & P. Co. was forced to incur the added expense of setting their own posts for their lines.

To supply the electricity for the growing utility, as well as the demands of the mills, Nekoosa-Edwards Paper Company operated its water turbines and steam turbines during the day when the demand was the greatest. Then in the evening, steam only was used until midnight, at which time the steam turbines were shut down and the water turbines used until 7:00 a.m. It sounds complicated, but there must have been some good rational for doing so. The electricity supplied to the utility, and subsequently to the consumers, was 220 volt direct current. However, this was changed after only one year of operation to the standard 110 volt alternating current in use today. The reason for the change was two-fold. As electric lines were extended, the direct current had a tendency to drop in voltage. The further one was from the source of power, the lower the voltage became. Secondly, it was just not compatible with other electric systems. An inconvenience was put on patrons when moving into or out of the area since their appliances, lamps, etc., required conversion from one voltage to the other.

During the second year of operation, 1914, the new utility reported a profit of $1,800, $1,200 having come from customers in Port Edwards and $600 from the city of Nekoosa. Remember, Nekoosa still had a gaslight utility in 1914. It might also be pointed out that this annual report stated that they were servicing nine customers who were not being metered! However, they promised to correct this by connecting six of them leaving only three "charity" cases, which were the Methodist Church, the village bandstand, and the street car waiting station.



An interior view of the Centralia Hydroelectric plant showing six generating units. Most of the power distributed by the Nekoosa Edwards Light & Power Company was produced on these units, but supplemented by additional facilities in the Port Edwards and Nekoosa mills.



Not all electric power was generated from water power. There were, and still are times when river flow is not sufficient to provide the power needed. The picture shows one of the steam turbine generators in the Port Edwards mill. The unit in the left foreground has been replaced by a much larger unit. Nekoosa mill also depends upon hydro and steam generated electric power.

This is a good time to insert a few paragraphs illustrating Nekoosa's traditional foresightedness. In January of 1934 a Sunday newspaper supplement carried a photo of Dr. E. O. Laurence of the University of California, sitting alongside of his electromagnetic atom smasher. For his work in this field he would be awarded a Nobel prize in 1939.

Lewis M. Alexander, President of Nekoosa-Edwards Paper Company, noted the photo, read the caption under it, and then clipped the picture from the paper. A few days later he directed a letter of some length to Dr. Laurence inquiring as to the possibility of harnessing the power of the atom's structure.

Dr. Laurence was working in a different field, that of utilizing the new power for medical treatment of cancer. Alexander saw great potential in atomic power if it could only be harnessed. In his letter to Dr. Laurence he wrote:

"I have been led to believe, however, that contained in the atom is great power; and although recently I have noted there is some doubt of the general belief along that line, I am sure your experiences must have lead you into some very definite conclusions along that line.

The question I would like to ask you, and if it is not inconsistent with your policy of disseminating information, is as to the value of the atom as a power unit in a commercial sense and if, in your judgment, it contains enough encouragement in that direction to attempt something in the line of development besides its wonder and possible usefulness in the laboratory and the sciences."

Mr. Alexander then closed his letter with an invitation to Dr. Laurence to further discuss the subject with him, indicating his willingness to participate and mentioning that he had several contacts that might prove to be helpful.

The line crew of Nekoosa Edwards Light & Power Company take a moment to have this photo made of their service truck. The rear wheels are equipped with chains to make sure the vehicle will respond to any emergency, regardless how deep the snow gets.

The employees of N.E.L. & P. Co. apparently liked to have their picture taken in the winter months. Note that the servicemen wore black bow ties, while the linemen dressed appropriately for their outdoor work.

Alexander was about twenty years ahead of his time; but his words indicate that Nekoosa Papers Inc., has always kept abreast of modern technology.

Nepco, in order to meet the demands of the public utility, as well as its own growing demands, had been continually adding generating capacity. There was the building of the hydroelectric plant at Port Edwards in 1926, the building of the Centralia hydro plant in 1913, the addition to this plant in 1923, and the installation of the Nepco Lake generator in 1926. In addition to these hydroelectric plants, steam turbine generators were also being added to the mills.

Eventually, Nepco did not have generating capacity enough to supply the utility and still take care of its own needs. Therefore, on November 30, 1952, Nepco sold its wholly-owned subsidiary to the Wisconsin Power and Light Company. The bill of sale included all transmission equipment, a few pieces of office equipment, franchises, and seven motor vehicles.

On January 2, 1953, articles of dissolution were filed with the state, and the 39-year history of the Nekoosa Edwards Light and Power Company was brought to a close.