

# Vääräkoski Board Mill – One Hundred Years of Cardboard from Ähtäri

**Sirkka-Liisa Sihvonen**



REPORTS OF WEST FINLAND REGIONAL  
ENVIRONMENT CENTRE 3 en | 2008

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**Sirkka-Liisa Sihvonen**

**Vaasa 2008**

**West Finland Regional Environment Centre**





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## FOREWORD

This inventory report is published as part of the renovation project of Vääräkoski Board Mill (Vääräkosken kartonkitehdas). The joint project of the West Finland Regional Environment Centre and the Regional Council of South Ostrobothnia, entitled "Renovation of Vääräkoski Board Mill", was initiated on June 20, 2000, and completed on February 29, 2008. The industrial and architectural review was carried out originally as a report in 2002 and revised in 2005.

Mr Tapani Lehtoluoto from the West Finland Regional Environmental Centre has represented the contractor in the project. Ms Helinä Koskinen from the Department of Monuments and Sites of the National Board of Antiquities has been in charge of planning and supervising the project. I wish to express my sincere thanks to both of them for a supportive and expert supervision. Thanks are also due to the city of Ähtäri, which participated in the inventory work in a number of ways. The mill archives, located at Agentur Sivonen, were made accessible to the author of the report throughout the field work period. The report has also been able to draw on the photo documentation of the mill milieu and its buildings produced by the Department of Monuments and Sites in 1998.

Based on archives and relevant literature, a history of the mill's activities has been produced to serve as a foundation for the inventory task. This survey has covered the events that have taken place during the mill's history, its buildings, machinery and equipment. Most of the source material was found in the archives of the mill. The Vääräkoski mill has not been subject to a great deal of research. Only brief references have been made to it in written documents. The written material was supplemented by an interview with three former employees.

The substantial value of the Vääräkoski mill milieu derives from the entire mill complex, which has retained its range of activities and the largely original buildings and equipment, with the cardboard machine representing one of the few machines in Finland that are more than one hundred years old.

The mill buildings have been renovated during the project in accordance with a protection order. At this time, it appears that the Vääräkoski Board will become a museum. The period of intense stress on increased productivity, in the globalizing world of the new millennium, exerts a very strong pressure. It is to be hoped that it will be possible to safeguard the functionality of the Vääräkoski Board Mill and its entire milieu.

20.2.2008

Pertti Sevola  
Director  
West Finland Regional  
Environment Centre

Sirkka-Liisa Sihvonen  
Building inventor  
Vääräkoski Board Mill Renovation Project

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# History of the Mill

## Founding and its Context

Peränne in Ähtäri was, in the mid-1500s, a remote wilderness area between the parishes of Vesilahti and Pirkkala. In the next century, Peränne had two houses and a flourmill. The mill lay at Vääräkoski on the River Hyvölänjoki, which flows from Ähtärinjärvi Lake to Perännejärvi Lake. The flourmill is first mentioned in the mill registry in 1636. It is likely that the mill was in shared use. Building a mill was a major job with regard to the short period of its use during the year, which means that forces were joined in building mills. There was also a limited supply of suitable mill rivers and rapids.<sup>1</sup>

The first industrial enterprise in Ähtäri was the water-powered saw-mill at Inhanjoki in 1833. In 1854, Inha Ruukki works<sup>2</sup> began its operations at Inhankoski rapids, processing lake and bog iron ore.

The breakthrough in industry took place in Finland during the latter half of the 19th century. The

room for development of the economy was influenced, among other things, by the abolishment of the guild system and the freeing up of trade in 1868. Of particular importance for industry was the improvement in the means of communication. The first railway service was opened in 1862 between Helsinki and Hämeenlinna. By the end of the century, the main railway lines had been completed as well as shorter connections. Before the outbreak of World War I, industry had become the main client of the railroad.

Simultaneously with the saw-mill industry, mechanical wood pulp, cellulose and paper industries emerged. The oldest of these is the wood pulp industry, for which our forest-covered country offered a rich supply of raw material, coupled with strong rapids as a source of energy.<sup>3</sup>

The early paper mills used rag pulp as raw material. A decisive breakthrough in paper making took place, when it was discovered how to grind pulp from wood. The invention was made in the 1840s



Illustration 1. Vääräkoski Board Mill in the early 1900s. Suomen teollisuus ja kauppa, 1928.

by a German, Friedrich Keller, who sold the patent rights to Heinrich Voelter. Voelter developed a grinding machine suitable for industrial use, with the first prototype being completed in 1852.<sup>4</sup>

Finland's first groundwood pulp mill was built in 1859, near the city of Viipuri in the village of Kinteri. The basis for the stabilization of the new technology was laid, however, in the city of Tampere and its vicinity. Engineer Fredrik Idestam set up a wood pulp mill in 1865 (presently the Tako board mill), for which the grinding machines were ordered from Germany. Wood pulp mills began about three years later in Nokia and Mänttä, where work could already be performed with domestic machines, which Idestam had developed in cooperation with the technical director of a company in Tampere, which worked with flaxen and iron, (Tampereen Pellava ja Rauta Teollisuus Oy), Mr Hermann Kauffman. The paper industry in the region of Tampere was further strengthened in 1872, when wood pulp mills were opened in Kyröskoski and Valkeakoski, as well as another mill in Tampere. At about the same time, wood pulp mills were set up on the River Kymenjoki in Inkeroinen, Verla, Kuusankoski and Kymi.

Our groundwood pulp industry developed strongly at the beginning of the 1900s. Whereas there had been 12 wood pulp mills in Finland by the mid-1870s, a total of 19 new mills were built during 1900-1910.

Cardboard was produced until the 1890s, through several separate and time-consuming stages which required manual labour. The first Finnish cardboard machine was acquired in 1897 for the Inkeroinen wood pulp mill. The supplier was the German H. Füllner Engineering Works in Warnbrunn. Transforming the wood pulp into cardboard sheets, drying, polishing and cutting took place mechanically in the cardboard machine, as a continuous process. Four years later, in 1901, Finland's fourth cardboard machine was acquired for the new Vääräkoski mill, this was also constructed by Füllner.<sup>5</sup> Eight cardboard machines altogether were delivered by Füllner to various mills in Finland before World War I.<sup>6</sup>

Finland's first paper mills were set up mainly at energy-producing rapids in the southern and central parts of the country, where it was also easy to float the raw material and which had access to export markets. The breakout of World War I brought hard times, also to saw-mills. The reverse is true of the paper industry, as the war dramatically increased the demand for Finnish paper industry products in Russia. The Russian revolution created a total break in Finnish exports to Russia and the Finnish paper industry began searching

for new export markets in the west. The building of cartels, in the form of sales associations, contributed to the success of the endeavours and already in 1925, production exceeded the peak figures of the war. By 1938, Finland had caught up with Sweden and Canada as the leading exporter of pulp and paper products. World War II broke up the rapid development, even though the degree of capacity utilization could be kept fairly high. After the war, international trade grew at an unexpected pace. The volume of pulp and paper production surpassed the pre-war level in 1948.<sup>7</sup>

Saw-mills and other wood-processing plants were also set up in the inner regions of the country. Ähtäri had large forest areas and rivers, which could be used to float timber and transport the products.

Communications improved with the extension of the railroad connections. The Senate had taken a decision in 1887 to extend the line from Tampere to Vaasa, which was opened up for traffic on September 29, 1883.<sup>8</sup> After this, the transportations from Ähtäri to the rest of the country and to the ports were managed via rail.

Towards the end of the 1890s, two paper industry mills were set up in Ähtäri: the groundwood pulp and cardboard mill in Vääräkoski and the Ryöttö paper mill. At about the same time, two steam saw-mills were founded in the neighbourhood.<sup>9</sup>



Illustration 2. Coasters for tankards were among the latest products at the mill. Company archives.

To the right:

Map 1. The parcelling of Vääräkoski II in 1896. Company archives.





# Karla

äfvor

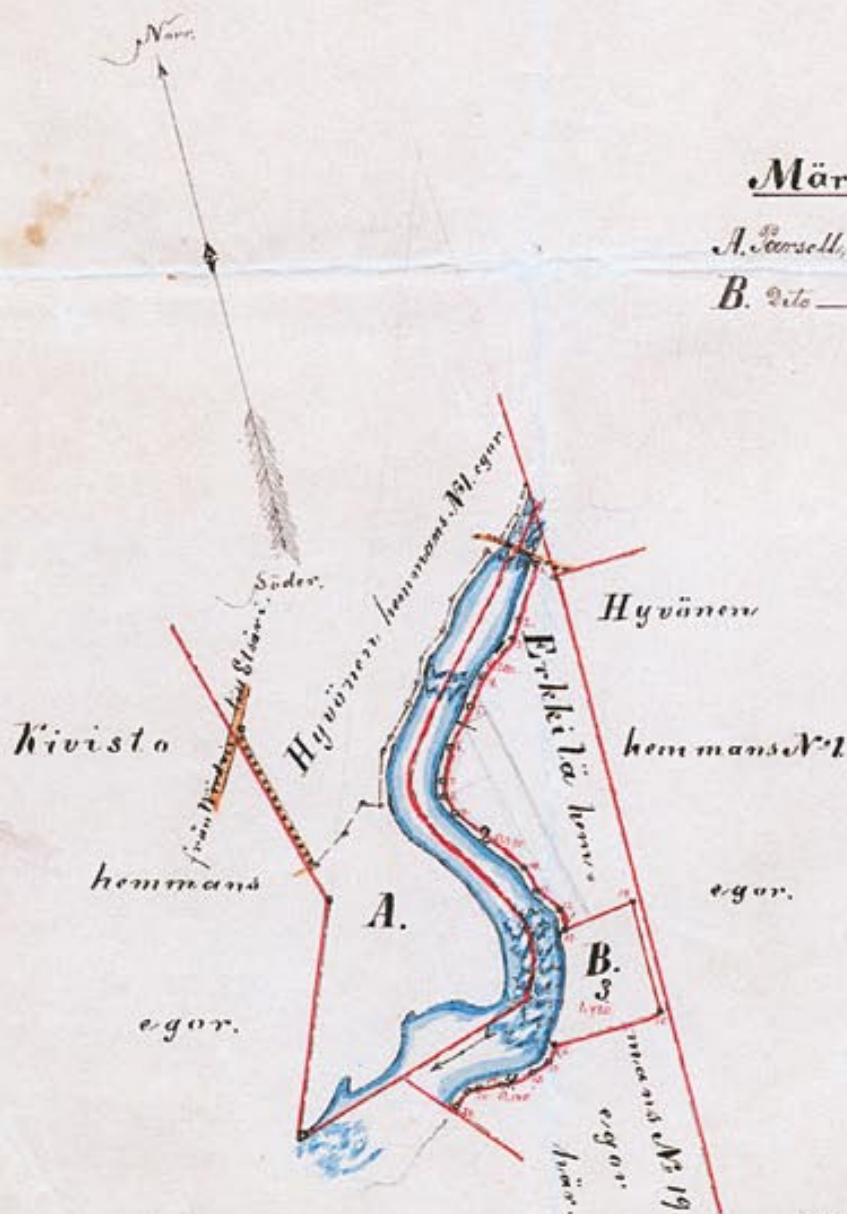
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*Nathan Nordman*  
Sonn. kartläggare.

## Märkens och färgernas betydelse

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## Founder and Changes of Ownership

The founder of Vääräkoski groundwood pulp and cardboard mill was the saw-mill proprietor and entrepreneur Gustav Adolf Lönnqvist (1857-1922), who, in Tampere, owned a successful timber company, two saw-mills, a brick factory and, for a while, a shot tower.<sup>10</sup> Owing to his businesses in Tampere, Lönnqvist was not personally present to start the mill in Ähtäri. The practical arrangements were handled by his agent, Ivar Yltiö, who bought the lands and shares in the rapids from local farm-owners.<sup>11</sup> The most important land purchases took place in 1896, when a piece of land of 5.40 hectares was bought from the Hyvölä farm in the Ouluvesi village of Ähtäri, and a piece of land of 2.11 hectares from the Erkkilä farm in the Peränne village. In the parcelling of the sites, the properties were named Vääräkoski I and Vääräkoski II. About three years later (in 1899), a further piece of land of 10.04 hectares (named Perännekoski) was parcelled for the mill on both sides of the River Hyvölänjoki. The deal also covered the rights to the rapid waters and a mill<sup>12</sup> (Map 1).

When the mill owner G.A. Lönnqvist died on January 9, 1922, Vääräkoski mill was passed on to his inheritors. Lönnqvist had five children of whom two boys Thor Gustav (Gustav) and Karl Harald (Harry) continued running the mill, with the former acting as the managing director. The business was re-organised the same year (1922), when a limited partnership G.A. Lönnqvistin perilliset – G.A. Lönnqvists arvingar was founded. The



G.A.Lönnqvist

Illustration 3. Saw-mill proprietor and businessman G.A. Lönnqvist (1857-1922), who founded the mill. Photocopy from the book *Suomen teollisuus ja kauppa*, 1928.

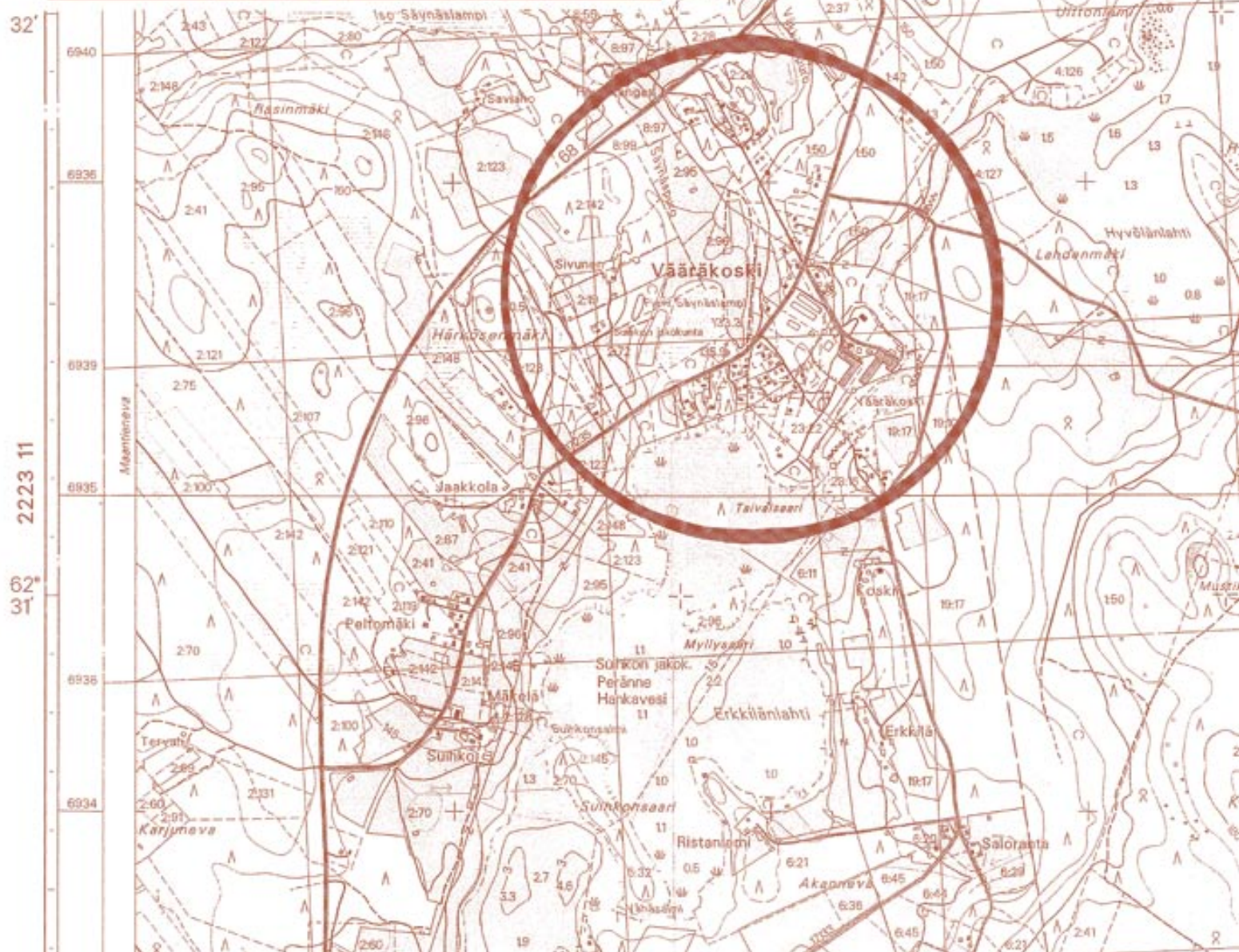
third person in the age rank, Kurt Adolf, was not initially involved in the practical running of the business and the two youngest ones, Birgit (Brita) and Erik were under age.<sup>13</sup>

From the estate of the deceased, three acted as successive managing directors of the company. When Gustav Lönnqvist died in 1941, the directorship was taken over by Kurt Lönnqvist, who had trained to be an engineer, followed by Brita Seraidaris in 1958. Brita's husband, Johannis (Jean) Seraidaris, was also engaged in the business as an export expert and assistant managing director.<sup>14</sup> Their son, Janni (Peppi) Seraidaris, was also involved in the practical running of the mill.<sup>15</sup>



Illustration 4. Jean and Brita Seraidaris at the mill. Company archives.





Map 2. Location of the Vääräkoski Board Mill. In close-up, the mill buildings are marked with green. The maps are reproduced by the permission of the National Land Survey of Finland, permit no. 7/MML/08.



The last of the five children, Brita Seraidaris, died in 1977, after which the company was re-organised to set up a joint-stock company named Vääräkoski. The city of Ähtäri was also initially one of the owners and it improved the company's operational foundation e.g. by purchasing land from the Lönqvist limited company. The company passed, in 1978, to the ownership of Raimo Lamminaho, Ensio Niemelä and Ahti Hintsa. Niemelä acted as the Chairman of the Board and Lamminaho as the Managing Director. The new owners decided to expand the operations of the company and at the turn of the 1980s, built a saw-mill next to the cardboard mill. The Lönqvist land property, which in addition to Vääräkoski I and II and the Perännekoski mill area consisted of about thirty other pieces of land, was merged into one property named Vääräkoski. From this, a plot was parcelled out for a saw-mill called Suursaha. The saw-mill had problems from the very beginning and the investment soon proved to have been a mistake. Attempts were made to improve productivity by selling land property. About twenty new plots were parcelled from Vääräkoski in the 1980s. These included the former Lönqvist family villas, plots sold to new entrepreneurs and former workers' housing. The latter were sold mainly to their inhabitants, the former employees.<sup>16</sup>

The saw-mill market crashed and the company filed a bankruptcy petition in the mid-1980s. After this, the saw-mill was sold to the Mancon development company and the bank (Skop) shouldered

the credit losses, however the cardboard mill could continue its operations. The shareholders bought the cardboard mill from the bankrupt's estate in 1986, after which the company was named Vääräkosken Pahvi Oy. One of the owners changed when Ahti Hintsa was replaced by Markku Seppälä, who became the Chief Engineer of the company.<sup>17</sup> From 1993, the company was Raimo Lamminmäki's family company. A bankruptcy petition was filed in October 1998, when the company was passed on to the state property management company Kapiteeli Oy. Kapiteeli sold the mill and the accompanying land to local entrepreneurs Risto Sivonen, Esko Kilponen and Timo Nyyssölä. The power station and the rights to the rapids were sold to the local electricity company Halox Oy, which sold them to Keski-Suomen Valo Oy, which sold them further onwards to Vattenfall.<sup>18</sup> The lower mill still continues as a power station and the small amount of electricity that is fed into the national power grid has a role to play as a peak power plant.

The land property of the cardboard mill has been parcelled into five different plots. The cardboard mill, the repair shop and the old office building are located in a plot called Pahvi. The lower mill and the power station of the cardboard mill are located on the Vääräkoski plot. The new office building is on the Toimisto plot. The saw-mill buildings are located on the Suursaha and Aristo plots. The director's residence is on the Rothin pytinki plot (Map 2).

Illustration 5. The Vääräkoski rapids 1998. Matti Huuhka, Museokuva, MV.



## History of Operations

The cardboard mill and the groundwood pulp mill were founded in 1897 at the Vääräkoski rapids on the site of a former flourmill. Construction work began the following year and was completed in 1901, which was also the first year of operation. The products of the company were brown and white cardboard from the company's own wood pulp. The energy required for the operation came from the Vääräkoski rapids, whose water power was transformed into electricity by water turbines. As the production grew, another wood pulp mill and a mill were constructed during 1905-1906, a little lower down the river at the Perännekoski rapids. The company expanded in 1927 by purchasing the Ryöttö paper mill, located a few kilometres away from the G. A. Serlachius company.<sup>19</sup>

Johan Boesl moved in 1904, with his wife Maria (née Walden), a master paper maker from Tampere to become the Managing Director of the Vääräkoski groundwood pulp mill and cardboard mill. The family lived in the newly built office and apartment building.<sup>20</sup> There were thirty employees during the first year, 24 men of whom five were below the age of 18. There were eight women, four of whom were under 18. In the 1910s, there were 41-54 employees but in 1923 there were as many as seventy.<sup>21</sup> The cardboard mill had grown into a major employer. The daily working hours were from 6 in the morning until 6 in the evening, 10 hours of work a day and 60 hours a week. In addition to the day shift, there was a night shift which was worked mainly by younger employees. There was only one supervisor until 1911. The following year, he was given a clerk to assist him, in addition to another clerk in 1913. All of these were male.<sup>22</sup> G. A. Lönnqvist managed his Vääräkoski company from Tampere.<sup>23</sup> He may have considered moving to Vääräkoski at the turn of the 1920s. At least he began constructing a house for the director. It was completed in 1922, the same year when he passed away.

The old manufacturing process was actually only updated in the 1980s by modernizing the machinery and equipment. The intention was to upgrade the volume of production. However, the number of employees was cut at the same time and more attention had to be paid to the protection of the environment. Sewage water had to be treated, which meant investments in environmental protection. In order to rationalize the energy supply, it was necessary to build a new heating plant which used wood waste.

The cardboard factory at Vääräkoski was in operation for almost a hundred years. The main prod-

uct was always wood paper or cardboard, which was produced by the single cardboard machine at 1000-1400 tons a year. Until the 1960s, the mill also made thin and thick building paper. Other products were cardboard used for the Klubi-cigarette packs and pastry packs. Over the last two decades, production was focused on thick brown cardboard. Brown cardboard of varying thickness was produced mainly for making coasters for beer bottles and tankards. To a more limited extent, board was also produced to be used in tightening bottle lids and backings for posters.<sup>24</sup>

The majority of the Vääräkoski output was exported. The sales were managed by Finland's Cardboard Association and from 1943 by Finnboard. In 1944, the mill employed 72 people of whom 46 were on the production line.<sup>25</sup> Until the 1960s, the products were transported by barges or hauled by horses to Ostola, i.e. Ähtäri railway station, which was about four kilometres from the mill. Later on, the transportations were managed by trucks. The products were transported to the exporting ports from the station.

The operations of the mill continued with the old methods and machinery until the 1980s. The time for renovations began in 1978 with the new owners. As mentioned earlier, a saw-mill was built on the site, but it soon turned out to be mistaken investment.

The changes in the cardboard mill were largely due to external factors. Waste water had to be treated, which meant that coagulation basins had to be built. Product quality suffered when process water was recycled and when cheaper and lower-quality wood ("pit props") was used as the raw material for the pulp.<sup>26</sup> A new power station and a new heating plant had to be built. Machinery and equipment were modernised. The number of employees was cut, which created a need to increase automation. A new automatic debarking line was bought. The intention was to raise the production output and there were plans to buy a second cardboard machine. The acquisition, however, became topical for another reason. There was an explosion in the drying cylinder in 1991, after the Christmas shutdown, which meant that the entire cylinder group had to be replaced.

In 1963, there were 54 employees, in 1978 over 60, towards the end of the 1980s 38 and during the last few years fourteen.<sup>27</sup> The operation of the cardboard mill ended due to bankruptcy in 1998.

The mill area was not entirely shut down after the bankruptcy. The new office building is still in use, as well as the former director's residence. The same is true of the former saw-mills, which house several enterprises.

# Building

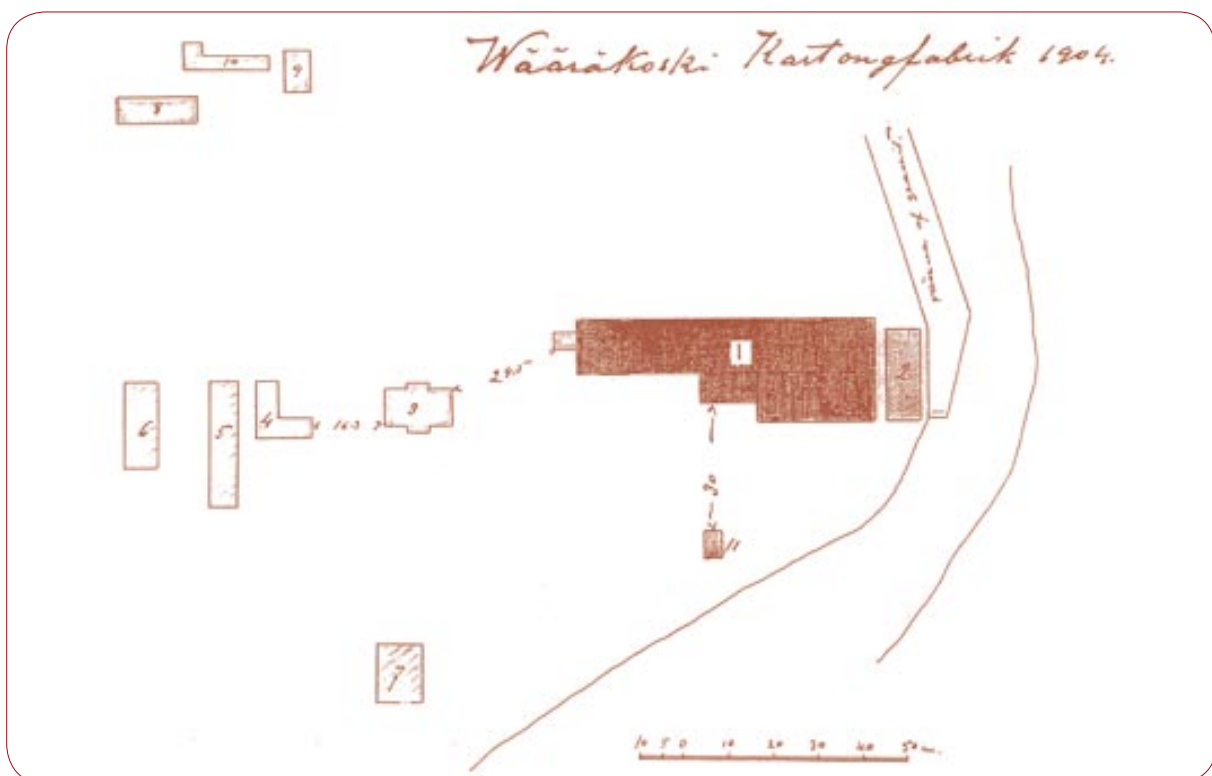
## Cardboard Mill

The groundwood pulp mill and the cardboard mill were built in 1899-1901, by the Vääräkoski rapids, at the site of a former flourmill. The designer is not known, but based on the quality; the drawings were made by an experienced industrial architect. The models for contemporary industrial architecture were, in any case, derived from abroad. The first machines and equipment were also ordered from abroad.

The mill was built with burned bricks that were probably manufactured in Ähtäri. Lönnqvist had a brick factory in Tampere at about the same time, but it is unlikely that the bricks were transported

from that far away. According to land registers, there used to be a clay quarry<sup>28</sup> close to Vääräkoski and it is likely that the bricks required for the construction of the mill were manufactured and burnt in the neighbourhood.

The first building phase also included a turbine plant, an office and residential building, a smithy, a tenement for male workers, a sauna, an outhouse, three storehouses and a shed, which were all completed by 1904 (Map 3).<sup>29</sup> The foundations and other stonework were completed by Antti Kivelä (1865-1941), a skilled stone carver from Alastaipale in Ähtäri. People called him "Kivi-Antti" (Stone-Antti).<sup>30</sup>



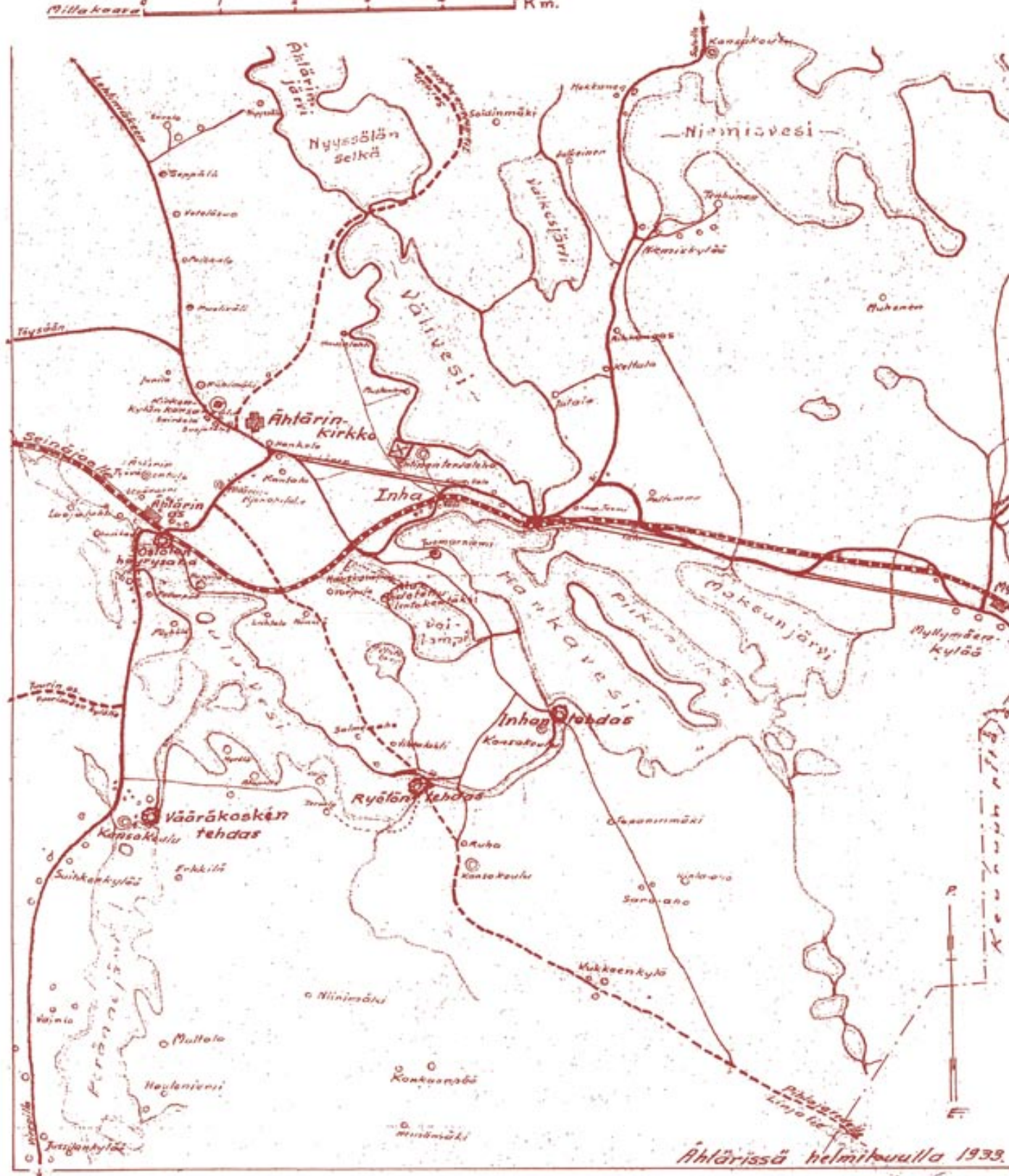
Map 3. The mill (1) and the old office building (3) are the only remaining buildings from this layout plan, depicted from 1904. Company archives.



jäljennös

# Osa Ähtärin pitäjän karttaa

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Map 4. A copy showing a section of the Ähtäri municipality in 1933. Company archives.

## Mill Area and Lower Mill

The cardboard mill, the office, and the other buildings that were required to run the mill were built on the western bank of the Vääräkoski rapids on the River Hyvölänjoki, in close proximity to the Virrat-Ähtäri road. The raw material, wood, was stored in a field out of doors - the largest storage field was to the south of the board mill. One of the smaller storage fields was to the north of the mill, and the other one was on the eastern bank of the river. The storage field, on the other side of the river, was probably only used during the first few decades of the mill.<sup>31</sup> The groundwood board mill used mainly spruce as its raw material during its entire existence. In the early days, a smaller amount of aspen was also used, and over the last few decades, recycled paper was also used. The logs were cut and debarked by hand in the storage fields and transported in trolleys on narrow gauge rails to the pulp mill.<sup>32</sup>

About 200 metres from the mill, lay the Perännekoski rapids, where the second pulp and flourmill was built in 1905-1906. Both the workers and other villagers were allowed to use the flourmill. Some farms were granted continual free milling rights for this flourmill, when they had sold their milling right to the Vääräkoski Board Mill.<sup>33</sup>

This pulp and flourmill building is called the Lower Mill. There is a wing with a saddleback roof on the northern flank of the building. A water chute, built with logs, is located on the north-western corner of the building.

The lower pulp mill produced more pulp than the upper mill. Up to the 1970s, the pulp was lead along a wooden duct from the lower to the upper mill. The 150-metre duct first travelled along the riverbed and then rose above the water after the Perännekoski dam. In its final leg, the duct was suspended above the ground at a height of a couple of metres. The wooden duct crossed the river close to the sauna. One three-way supporting pole remains standing in the middle.<sup>34</sup>

## Ryöttö

The Ryöttö mill lies on the former ground of the Ruha ancestral estate. Ivar Yltiö bought a 7.41-hectare parcel called Ryötönkoski from the Ruha estate in the village of Ouluvesi in 1897, and the parcels called Pohjoinen Ryötönkoski and Eteläinen Ryötönkoski, comprising 6.56 hectares and 7.25 hectares, respectively, the following year. The ac-

quisition covered all the rapids, water, and milling rights pertaining to the Ryötönkoski rapids, which is located on the River Inhanjoki that flows from Lake Hankavesi to Lake Ouluvesi. Ryöttö Paper Mill (Ryötön Paperitehdas Oy) was established by Johan Johansson and Kustaa Emil Lönnqvist, who were relations of G.A.Lönnqvist. The building of a groundwood pulp mill was completed in 1898. The building of the actual paper mill was cancelled once it became clear that the Ryötönkoski rapids did not yield enough waterpower for a more substantial production. The production of the wood pulp mill did not, however, go as planned and in 1914, Ryöttö was sold to G.A.Serlachius Oy from Mänttä.<sup>35</sup>

Ryöttö wood pulp mill produced pulp of a value of 120,000 Finnish marks in 1898. Two water turbines, generating 415 hp, provided the power source. During the early years, barges full of pulp were towed by a boat called the Ryöttö to Ostola, i.e. Ähtäri railway station, five kilometres away, where the pulp was transferred to railway carriages to be transported to paper mills further away. Later on, the pulp barges were towed by a boat called the Tyne.

In 1927, the majority of the shares in Ryöttö Paper Mill were obtained by the heirs of G.A. Lönnqvist.<sup>36</sup> Thereafter, most of the production at the Ryöttö mill was used at Vääräkoski Board Mill, about four kilometres away.<sup>37</sup>

A power plant was built on Ryöttö Paper Mill in 1934. This power plant generated 1,750,000 kWh and began, in around 1937, to distribute electricity along high voltage cables to Vääräkoski Board Mill.<sup>38</sup> In 1935, the Ryöttö mill had 21 male and 10 female employees. It used 6,000 m<sup>3</sup> of spruce as its raw material, and produced 1,800 tons of pulp.<sup>39</sup> A decision on dissolving Ryöttö Paper Mill Ltd was taken in 1942 as after share acquisitions, all the shares in Ryöttö had ended up with the same owner, a limited partnership firm called Lönnqvistin perilliset. The dissolving of the Ryöttö Paper Mill Ltd was officially and finally completed in 1944.<sup>40</sup>

The Ryöttö pulp mill operated for forty years, until 1937. It employed, all in all, about thirty workers. There were two big residential houses, called barracks, in the actual mill area. The long barrack had dwellings of two rooms each, for eight families, and the smaller one accommodated three families. There was also a three-room house for one family in the same row of buildings. The latter was used as a dwelling for the longest period, up to the 1970s. There was a fairly large "Engineer's building" by the bridge, which contained an office and the director's home. Additionally, there was





Illustration 6. The former Director's Residence in 1998. Matti Huuhka, MV.

a sauna and horse stable, as well as a bakery for shared use. This bakery building was also used as a post office and a venue for dances and parties.<sup>41</sup> (Appendix 2)

According to the activity report from 1978, the Ryöttö power plant had, at that time, two Francis water turbines, each with its own shaft, with a nominal output of 275 kW per turbine. They were driven by two 5 kV generators with a nominal output of 525 and 210 kW, respectively. The electric power was distributed at 5 kV to the Board Mill. The power plant employed four workers. In 1979, it was automated and operated unmanned, after start-up. Safety fittings and automatic control systems attended to the controlling measures and, when needed, controlled the shutdown of the plant. It was estimated that the plant would have to be inspected once daily.<sup>42</sup>

After the power plant was built, the workers of the Ryöttö pulp mill began to move away and the houses emptied one by one. In the late 1970s, all the buildings in the Ryöttö area were still standing but mostly uninhabited and empty. They were pulled down during the 1980s. At present, there is only the power plant<sup>43</sup> in the mill area. In 1998, it was sold with its plot and water rights to Keski-Suomen Valo Oy.<sup>44</sup>

## Director's Residence

The Director's Residence, designed by Björklund and Mynt Architects' Office from Vaasa, was built in the Board area in the early 1920s. The actual

plans were drawn up by architect Matti Visanti (up to 1936, his family name was Björklund). The residence, planned for G.A. Lönnqvist, is considered one of Matti Vihanti's greatest designs of that period. It represents the soft neoclassicism of the early 1920s.<sup>45</sup> In the parcelling, carried out in the 1980s, the plot was called "Rothin pytinki" (Roth's building). Roth was the family name of the owner at that time. In the late 1980s, the residence was bought by Villa Hintsä Oy.

The director's residence is a wide-frame log building, which rests on an ashlar foundation. It has a mansard roof and frontispieces and moulded tympana under a saddleback roof on both sides. There are garret windows on each pane of the roof. Facing to the south-west, there is an open veranda with its pillars supporting the upstairs balcony. The building is clad in vertical shuttering and it has six-light windows. The roof material was replaced in 1978, the windows and boarding in 1993. The present owner has also refurbished the interior.

By the riverside, there is a changing hut built before the war, and a storehouse built during the early decades of the 20th century. The old sauna was located near the storehouse, but it was probably already pulled down in the 1960s.<sup>46</sup>

The board mill had a gardener from 1931-1937, Elli Laurila, who was a gardening and home economics advisor from Lapua. Her main task was to tend to the garden surrounding the director's residence.<sup>47</sup> The garden and the area around the mill were also well-kept later on. Workers were, from time to time, sent to work in the garden, providing a welcome change from the factory work.<sup>48</sup>

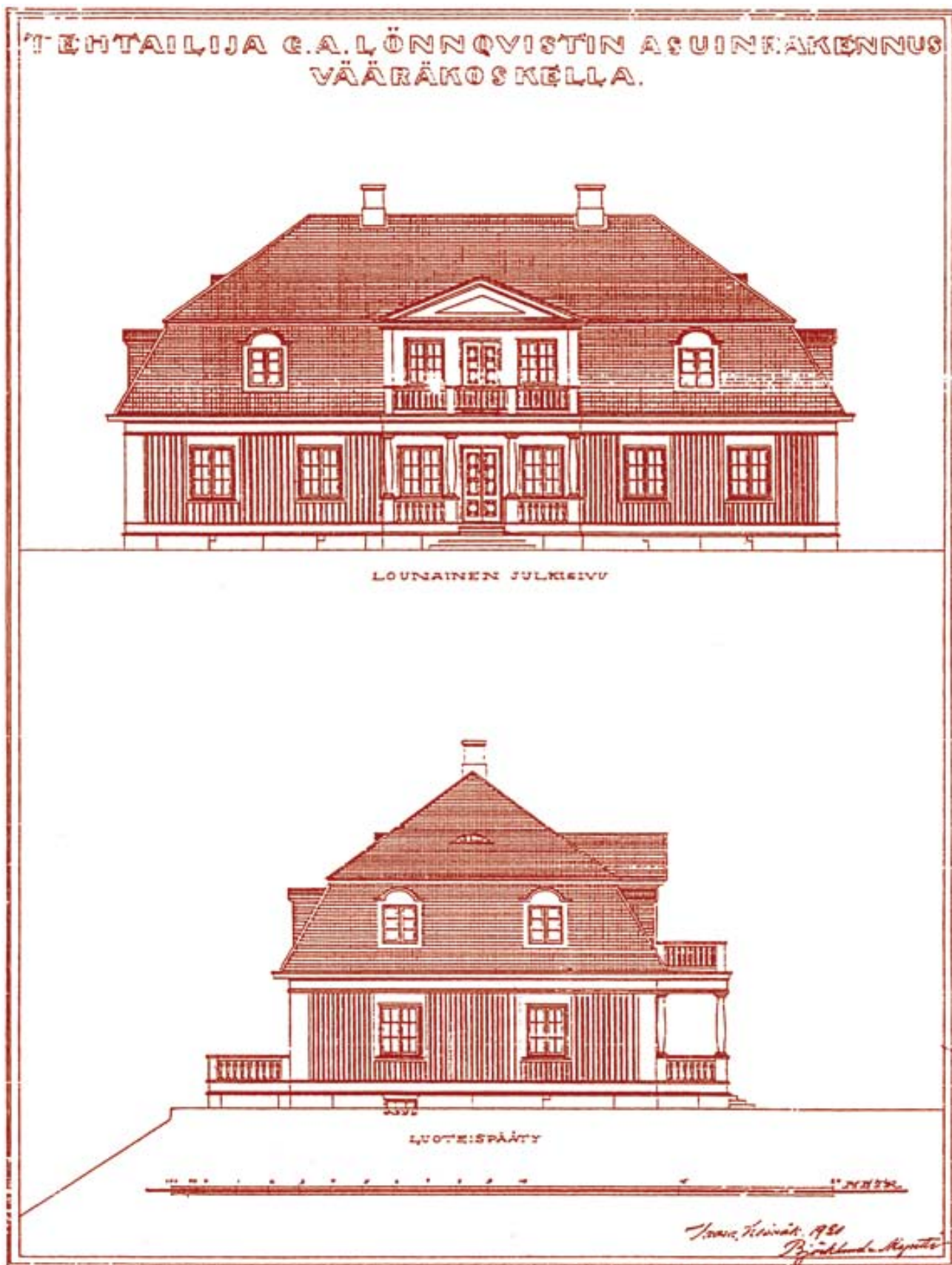


Illustration 7. Elevation drawings of the residence of manufacturer G.A. Lönnqvist from 1921. (Mäkelä, Riitta 1985: 21).



## Workers' Dwellings

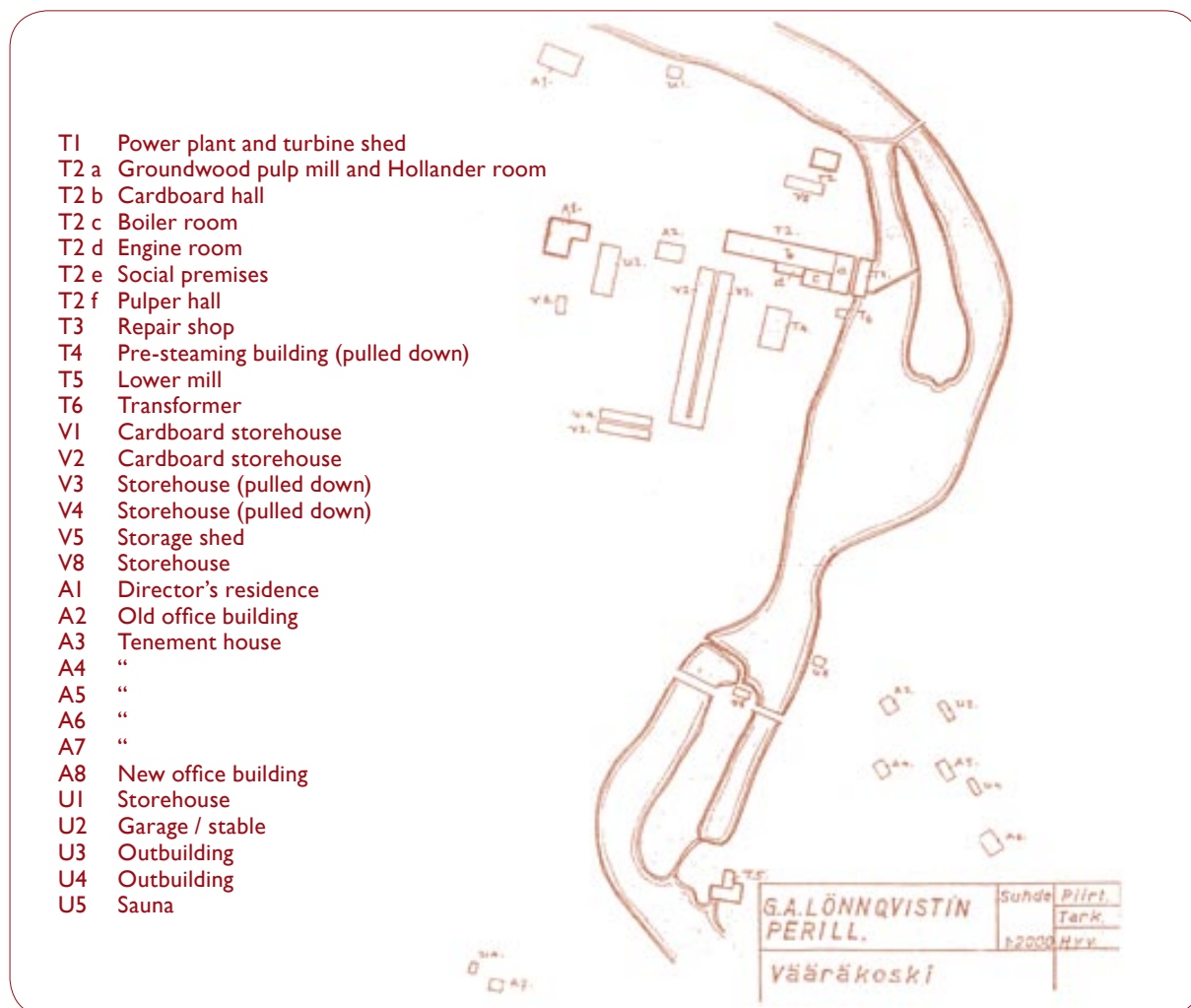
Factory workers usually settled down close to their workplace.<sup>49</sup> The workers of the Vääräkoski Board Mill lived in tenement buildings in the mill area, in other houses provided by the mill, or in their own cottages close to the mill. The mill area consisted of three plots. During the first decade of the 20th century, the plot, Vääräkoski I, housed the master paperman and his family, two heaters, the groom, his wife, and five children, plus six workers - some of whom were housed with their family. The other plot, Vääräkoski II, housed a farmer, a crofter, 14 unemployed, and a crippled old soldier called Heikki Riikkola, who is remembered as the folk artist Riikku-Heikki.

So far, no exact data is available on the workers' dwellings. Former dwellings for workers have been preserved, at least in the neighbourhood of the crossroads leading to the mill and close to the lower mill on the eastern river bank. Since the 1930s, documents also mention a plot called Sirola as being

a workers' dwelling, which at that time housed 17 adults and 10 children. In the 1940s, in addition to Sirola, the documents also mention the following as dwellings for workers, Lehtisalo, which housed 11 families, Lamminperä, which housed four families, and Rantamaa, which housed seven families. Lamminperä was a former croft of the Hyvölä farm.<sup>50</sup>

In the early 1940s, the mill area (Vääräkoski I and Vääräkoski II) housed seven fairly small buildings intended for workers, whereof Järvinen (A3), Ylänen (A4), Lahtinen (A5), Niskala (A6), and Majaniemi (A7) were located close to the lower mill. (Map 5)

The buildings were named after the families that lived there at that time. The houses Lahtinen and Niskala were built in 1919, Järvinen and Ylänen in 1923, and Majaniemi in 1925. The location of the oldest workers' dwellings, built in 1910 and 1911, is not known. In addition, the Board Mill owned, at that time, seven plots which housed workers' dwellings. These plots were Kortessalmi, Hautakangas, Rinne, Sirola, Mäkirinne, Ulappaniemi, Kämpä, and Metsämaa.<sup>51</sup>



Map 5. Layout plan from 1943. Company archives.



# Machinery and Equipment

## At the Time of Founding and at Present

The cardboard machine and the first steam engine were bought from H. Füllner Engineering Works in Warnbrunn, Germany. The fire insurance policy, signed in 1910, gives an idea of the contemporary means of production. In addition to the above-mentioned machines, the cardboard hall included a cutting machine, a manual cutting machine, two centrifugal sorters, two reserve cylinders, a hydraulic turn-press with a turntable and carriage, two scales, two belt tensioners (machon and spindel), a pasting machine and press, and three blowers.

At the onset of the 20th century, the ground-wood plant comprised of two Hollanders, three pulp-grinding machines, a steam engine (Somers af Hällström & Waldens), three white water devices, a pulp pump, a pulp mixer, three water pumps, a Papp machine, two centrifugal sorters, an iron lathe, and a drilling machine.

The boiler room had two masonry steam boilers, two feeder pumps, and a Eureka pump to extinguish the fire.

The turbine room had three turbines, and the pre-steaming building contained two pig iron vats. The wood room included a debarking machine, a washer, a saw, and a pulley.<sup>52</sup>

Only the cardboard machine remains from the original machinery. The hardwood cogwheel of the water turbine is from 1925. In the turbine room, two of the three vertical turbines are from 1914, and the oldest is from 1912.<sup>53</sup>

Illustration 8. The main shaft in the cardboard hall, distributing power to the press rolls and the drying cylinders. Matti Huuhka 1998, Museokuva, MV.





Illustration 9. The interior of the turbine room built in the 1980s. The wooden cogwheel of the water turbine is at the front. Matti Huuhka 1998, Museokuva, MV.

## What Was Purchased, When, Where, and from Which Supplier

According to taxation data regarding the 1920s, the mill also purchased a steam boiler, a pre-steaming boiler, a centrifugal sorter, a refiner groundwood mill, and three centrifugal pulp pumps.

Another steam and pre-steaming boiler was bought in the 1930s. Füllner's 50 hp steam engine was replaced by a new 75 hp steam engine in 1939. Two box machines, two belt tensioners, and a packaging press were purchased for the cardboard hall during the same decade.

The mill machinery was also updated during the war. In 1940, a new vacuum pump, a dewatering machine, and a cut-off saw were purchased and placed in the cardboard hall in 1940. In 1943, another dewatering machine was purchased for the cardboard hall, a 50 hp generator for the power plant, and three coarse sorters for the Hollander room.<sup>54</sup> Wood felt was used in the cardboard machine until the 1960s. These lasted only about three months when used continuously, and in the 1970s, they were replaced by a more durable synthetic felt, which was ordered from Sweden.<sup>55</sup>

## The Influence of Machinery and Equipment Purchases on the Mill Area

The purchases of machinery and equipment directed and dictated building activities and influenced the emergence of the mill area as a whole. These renewals included, for example, the building of a

second groundwood pulp mill at Perännekoski in 1906, resulting in a larger mill area.

As the demand of building paper grew in the 1920s, a timber pre-steaming house was built to the south of the mill in 1927. When the demand subsided, the building served as a timber workshop until it was pulled down in the 1960s. The cardboard hall was expanded in the late 1930s, probably because of the purchase of a new box packaging machine which took up a great deal of space.

The Ryöttö power plant began to also supply the Vääräkoski mill with electricity in the late 1930s, resulting in a major improvement in the mill operation. A new power plant building was also erected at Vääräkoski.

The following major changes in the mill area took place in the 1980s, when the saw-mill was built. The field between the old cardboard mill and Vääräkoskentie road was then transformed into a modern industrial site, filled with saw-mill and storehouse buildings.

A more efficient use of waste cardboard gave rise to visible changes in the cardboard mill. It was not, however, possible to house two pulper machines in the mill premises and, consequently, a new pulper hall was built in 1987. The purchasing of an automatic debarking machine changed the south elevation. The log hauling track was led from the yard, through a window, to the groundwood mill on the second floor.

# River and Power Generation

## The Significance of the River and Power Generation

The Ähtäri water system is, via the River Kokemäenjoki, part of the waterway that empties into the Gulf of Bothnia. The water system originates from Ähtärinjärvi Lake, and then flows to Hankavesi Lake, via the Inhankoski and Ryötönkoski rapids to Ouluvesi Lake, and from there via the Oulukoski, Vääräkoski, and Perännekoski rapids to Perännejärvi Lake. From Perännejärvi, the water empties into Toisvesi Lake in the neighbouring community, and further via Näsijärvi Lake into the River Kokemäenjoki.

The Vääräkoski rapids were harnessed by building a dam, when the cardboard mill and pulp mill

were built. The Governor's Office granted permission to build a dam in August 1898. The permission included instructions for the release of water, according to which the gates of the dam had to be opened to discharge excess water, when the water level in the dam rose too high. The Vääräkoski rapids were 260 metres long and the height of its fall was 2.8 metres. The hydroelectric power was regulated by keeping the dam closed to let the water collect up to the desired height, in order to obtain uniform water power.<sup>56</sup> The Perännekoski rapids, about two hundred metres down the stream in the River Hyvölänjoki, were utilized by building a second groundwood pulp mill there in 1906. A flourmill was attached to this building, and it was used by the villagers until the late 1940s. The Perännekoski rapids were 210 metres long and the

Illustration 10. The mill viewed from the dam. The turbine house, built in the 1980s, on the left. Behind it, the power plant. In the middle, the groundwood pulp mill, and on the right, the cardboard hall. Matti Huuhka 1998, Museokuva, MV.







Illustration 11. The Perännekoski dam viewed from the south. Matti Huuhka 1998, Museokuva, MV.

height of its fall was 3.6 metres. In the 1920s, the output of the Vääräkoski pulp mill was 373 hp and that of the Perännekoski pulp mill was 480 hp.<sup>57</sup>

During its entire operation, the Vääräkoski Board Mill was dependent on waterpower. The cardboard mill was established at Vääräkoski, far out in Ähtäri, because of the rapids. Energy was generated by the means of three water turbines that rotated around vertical axes. One of the turbines was connected to the groundwood pulp mill and used throughout the entire operation of the mill. Most of the required energy was generated by the turbines, but in the early days, two steam engines were also used. In 1902, the water turbines generated 650 hp and the two steam engines 70 hp. At the same time, the mill used 500 m<sup>3</sup> of domestic wood, and produced 1,000 tons of groundwood pulp paper. This production was worth about 15,000 marks.<sup>58</sup> Farmer Kustaa Jaakola had started a flourmill by the Perännekoski rapids below Vääräkoski in 1873, and the output of its water turbine in 1902 was 8 hp.<sup>59</sup>

Since 1938, the Ryöttö power plant generated electricity also for the cardboard mill. At the same time, a power plant building was erected at the mill, to transform the electricity from Ryöttö down to suitable voltage at the mill. In the last decades of the 20th century, all the electricity generated by the Ryöttö power plant was used at the Vääräkoski Board Mill. Except for one pulp-grinding machine, connected to a water turbine, all the machinery at the Vääräkoski mill were run by means of electrical energy generated at Ryöttö and, since 1979, at the lower mill.<sup>60</sup>

The cardboard mill is located on the cape at the onset of the Vääräkoski rapids, on the western bank of the River Hyvölänjoki. The lower mill is located further down south, on the eastern bank. A wooden bridge for pedestrians connects the two riverbanks. The bridge crosses the river by a small island. Prior to the present bridge, there was another bridge at the same site and could also

be accessed from a local road (Myllytie). The old bridge was in poor condition and it was already replaced by the present one during the Lönnqvist era. The present bridge can only be accessed from the mill area.

The Vääräkoski concrete and timber dam is located by the power plant. The present dam was probably built when the Vääräkoski rapids were cleared in the late 1930s. During the period, 1936–1939, the water level of the lakes in Ähtäri was lowered and the rapids – also Vääräkoski – were cleared.<sup>61</sup> The water is directed above the dam, along the power plant channel, underneath the turbine building and the power plant. In the days of timber rafting, there was also a quay and a log chute on the mill bank. The dam structure, at the repair shop, is of later origin. The purpose of this dam, called a “wood screen”, is to screen out ice and larger objects, e.g. occasional logs, in the river and prevent them from entering the power plant channel and further onwards to the iron screens in front of the turbines.<sup>62</sup>

The Perännekoski dam is located on the northern side of a small island, in the eastern branch of the river. According to inventory data, the channel of the lower mill and the other channel next to it were built in 1925, followed by its two dams in 1933 and 1940.<sup>63</sup> The Perännekoski dam is probably of later origin. The foundation of the dam and its supporting framework is made of concrete. The superstructures of all the dams have been renewed several times over the years. These repairs have often been confined to merely the replacement of rotted parts or lost floodgates. The wooden superstructure of the water channel, by the side of the lower mill, was last replaced in the late 1960s.<sup>64</sup>

Entrenchment work, carried out by Russians before the revolution, also covered Vääräkoski in Ähtäri. They built a chain of entrenchments at Vääräkoski, on the eastern side of the river, from the lower mill through Oukarinmäki and Lahdenmäki down to the shore of Ouluvesi Lake.<sup>65</sup>

## Environmental Impact

The Ähtäri waters flow through Ähtärinjärvi, Hankavesi, Ouluvesi, and Vääräkoski to Perännejärvi Lake, which has suffered from eutrophication for several decades now. This is particularly true in regards to the northern part of the lake. The Vääräkoski cardboard mill has discharged its effluent and the Town of Ähtäri has released its purified water, from the wastewater treatment plant, via Väkkäräpuro, into Perännejärvi Lake.

The effluent wastewater of the cardboard mill was first remarked upon in 1967, when the Kokemäenjoki Water Protection Association carried out measurements of water quality. At that time, wood fibres from the mill wastewater were found in the northern parts of the Perännejärvi Lake.

The measurements in 1973 detected a significant increase in the amount of suspended matter and the mill was prompted to embark on measures to purify its wastewater.<sup>66</sup> Consequently, 1600 m<sup>3</sup> precipitation and earth basins were built to the

south of the board mill, and the wastewater was led through these basins. In its opinion, expressed after the inspection in 1976, the Water Court did not, however, consider the treatment of wastewater at the mill sufficient. The Court found that the fishing industry had suffered from significant damage in the northern parts of the Perännejärvi Lake, and the board mill was ordered to carry out a restocking of fish.<sup>67</sup> The pollution load that consumes oxygen in the lake water, was significantly reduced after 1990 when the mill added chemical precipitation into its wastewater treatment programme.<sup>68</sup>

The nature survey of 1998 found that the cardboard mill has influenced the tree stand in the Vääräkoski area. The course of the river was changed through excavations, resulting in old riverbeds developing rich and varied vegetation. Vääräkoski is a grove-like area with birch, rowan, and aspen as the predominant wood species. Other wood species include spruce and pine on drier spots, and bird cherry, willow, and alder by the waters.<sup>69</sup>

Illustration 12. The river between the cardboard hall and the lower mill. Matti Huuhka 1998, Museokuva, MV.





# Survey of Buildings

## Cardboard Mill

### Premises and Steps in Building Them

In this report, the cardboard mill denotes the building complex composed of the premises of the cardboard mill, the groundwood pulp mill, and the power plant. In 1965, the premises within the mill were named as follows: the paper hall, engine room, groundwood pulp mill (2nd floor), pallet workshop, dining room, and boiler room (steam engine).<sup>70</sup> Based on interviews, carried out during the inventory process, the following names are used in this report: groundwood pulp mill, Hollander room, cardboard hall, boiler room, engine room, social premises, pulper hall, power plant, and turbine house. (Illustration 26)

The cardboard mill stands, apparently, in its original form in the photo published in 1928 (Figure 1). The mill building consists of a one-storey factory hall, plus a two-storey wing. A log-frame turbine house stands on the eastern end of the mill building, and its elevation to the river has four saddleback-roofed frontispieces. A flèche with a quadrilateral pavilion roof topped with a flagpole, stood on the roof of the groundwood pulp mill. The timber flèche can no longer be seen in the painting by F. Hautala (1933), depicting the Vääräkoski mill (Illustration 13).<sup>71</sup>



Illustration 13. A painting of the Vääräkoski Board Mill by F. Hautala, 1933. Matti Huuhka 1998, Museokuva, MV.

Illustration 14. The yard in the direction of the board mill. At the flank of the cardboard mill, the wing formed by the pulper hall and the storage hall. Matti Huuhka 1998, Museokuva, MV.





The mill was refurbished in 1937, when the old turbine house was replaced by a brick power plant. At the same time, small shed-like structures were erected to protect the water turbines. A couple of years later, a 17-metre extension was built on the western end of the mill.<sup>72</sup> These new additions can be seen in the aerial photograph on the title page of this report (p. X), taken in 1953. Later on, the pulp mill received a new saddleback roof.

The following refurbishment of the cardboard mill took place in 1980, when a steel-frame, timber-clad turbine shed was built at one gable. The roof structure of the cardboard hall was replaced after a fire in 1987. The middle section of the roof and the north wall had to be repaired after the explosion of a drying cylinder in the summer of 1991. The chimney was pulled down the same year.

The main entrance to the mill was, originally, located in the gable facing west. When the extension to the cardboard hall was built in the late 1930s, the entrance was moved to the south elevation. A timber-frame porch with vertical timber boarding and a pitched roof was built at the entrance. The porch was pulled down in 1987, when the new pulper hall with its saddleback roof was built.

All the walls of the cardboard mill, inside and outside, are of burnt bricks. The foundation is made of large ashlar, except in the later power plant where the ashlar are smaller. Originally, the mill building had a felt-covered roof, but it was already replaced with sheet roofing in the late 1930s. The sheet roofing was replaced by corrugated iron roofing in the late 1980s. The mill building has high small-paned windows with slightly curved rusticated brick headings. On the south elevation, the windows in the lower section are in brick bays, the upper part of which displays the same kind of dented pattern as in the cornices. In the ground-wood pulp section, the downstairs windows are lower than the upstairs ones. There are two smallish six-light windows at the eastern gable of the power plant building, and a large small-paned window on the south elevation.

Illustration 15. In the middle, the lower part of the mill chimney. Matti Huuhka 1998, Museokuva, MV.





Illustration 16. Groundwood pulp mill, power plant, and turbine shed. The power plant channel on the right, and the transformer house on the left. Matti Huuhka 1998, Museokuva, MV.

## Groundwood Pulp Mill

The groundwood pulp mill (T2 a upstairs) has the interior dimensions of 23 x 12 x 8.8 metres. The interior walls are plastered smooth and painted in beige and brown hues, so that the lower part of the wall is darker than the upper. The hues meet at a height of approx. 1.5 metres, and are marked by a dark line of paint. The floor is made of reinforced concrete.

The pulp mill has a timber ceiling, supported by eight cast-iron columns filled with concrete. They replaced the previous one during the roof repair carried out in 1987. The support poles were originally made of wood. The north elevation has a high two-leafed door, and there is a wooden ramp outside for vehicles. There is a smaller two-leafed door in the eastern gable, as well as a doorway to the power plant building; however, it has been sealed later on.

The interior was renovated in the 1980s, when, for example, the windows in the eastern gable were bricked up. A light-structured restroom was built from wallboards against the southern gable-wall of the pulp mill. The restroom has a one-piece window and a paned window of the same size.

## Machinery and Equipment

The groundwood pulp mill has three hot-grinder pulp machines, manufactured by Tampella, dating from 1945-1949.<sup>73</sup> One-metre-long logs were manually fed into the machines. Originally, the logs had to be sawn down to half a metre but after improvements in the machinery in the 1970s, it became possible to use longer one-metre logs. The technology of the pulp-grinding machines was updated by casting new parts in the mill smithy. There are rails on the floor, and timber carriages were used to transport the logs to the machines. Earlier, the logs

Illustration 17. Interior of the pulp mill. Matti Huuhka 1998, Museokuva, MV.





were transported on the rails from the debarking plant, but since the 1980s, the rails and carriages were also used for transportation inside the pulp mill. The rails out in the mill yard were used up until the 1970s.

The automatic log debarking machine, which was installed in the 1980s, takes up about one half of the pulp mill floorage, and it also cuts the logs down to a suitable size. There are two metal water tanks in the pulp mill. The larger one is a whitewater tank, where water that has circulated through the cardboard machine once, is gathered for recycling. The smaller tank collects thick slimy water, generated in the cardboard process, which is added to the pulp in the ensuing processes. The recycling of slimy water and whitewater began at Vääräkoski in the 1980s. The tanks are from the same period.

Close to the pulp-grinding machines, there is a cast-iron pulley suspended on a wooden framework. The pulley was used to transport the heavy grinder stones. The last stones used in the pulp-grinding machines, were ceramic and made in Finland. They were replaced every 3-4 years. Previously, the machines had natural English grinder stones, which had to be replaced much more frequently.<sup>74</sup>

## Hollander Room

The Hollander room (T2 a downstairs) is located underneath the groundwood pulp mill. Its walls are roughly plastered and unpainted. The Hollander room, also called the lower grinder room, has an arched ceiling made out of reinforced concrete and strengthened with railway rails and supported with ten pig-iron columns. This ceiling can better bear the weight of the upstairs pulp-grinding machines than a mere reinforced concrete ceiling. The columns stand in two rows in the south-north direction. There is a cubicle which was probably built in the 1980s, housing the main distribution board, in the south-eastern corner of this room. There is a two-leafed door on the southern wall, and a door leading to the cardboard hall on the western wall. Most of the outer wall windows have been bricked up. The Hollander room has a concrete floor with a groove, through which wastewater is led away. For pulp, there are also concrete basins with sheet metal shutters on the floor. Originally, four big wooden vats, secured with iron hoops, were reserved for this purpose, and the pulp was mixed and separated in these. There are narrow rails on the floor of the Hollander room, and pulp was transported earlier, from one place to another, in trolleys on the rails.

There are two steel pulp beaters dating from the 1980s in the Hollander room. They had replaced the old-fashioned Hollander beaters. Close to the beaters, there are sorting sieves which helped control the coarseness of the pulp. The drive motors for the beaters are located close to the door leading to the cardboard hall. Pulp pipes, made of metal, were used since the 1970s. The previous pulp pipes were made of wood. In the Hollander room, sliver sieves represent old mill equipment. These simple perforated metal plates were used to roughly sieve the pulp, coming from the pulp-grinding machines.<sup>75</sup>



Illustration 18. Pulp-grinding machines viewed from the side. Spruce logs on the left. Behind the row of columns, at the back, is a light-structured restroom. Matti Huuhka 1998, Museokuva, MV.



Illustration 19. Hollander room. The drive motors of the pulp-grinding machines on the right. Matti Huuhka 1998, Museokuva, MV.

## Cardboard Hall

The cardboard hall (T2 b) is a fairly long hall, with the dimensions 70 x 11 x 5.4 metres. It has a concrete floor. The interior walls are plastered smooth and painted in beige and brown hues, so that the lower part of the wall is darker than the upper. The hues meet at a height of approx. 1.5 metres, and are marked by a dark line of paint. The cardboard hall has a ceiling of reinforced concrete, supported by a row of ten angular columns of reinforced concrete. There is a massive concrete beam in the middle of the ceiling, running in the direction of the gable. The columns were reinforced in the renovation of 1991, whereupon two round steel pillars were attached to each column. At the same time, cast-iron straightening beams were added to support the north wall, and the parts of the wall and east-end ceiling that were damaged in the explosion, were repaired. The new ceiling section is covered with

gypsum boards and insulated with mineral wool. Some of the ceiling boards are missing. They have either never been installed or fallen down quite soon after installation.<sup>76</sup>

The main shaft remains from the original mill equipment, and it is attached to the south wall of the cardboard hall. It was used to distribute power to the press rolls and drying cylinders, by means of V-belts.

There are three lightweight cubicles against the wall, by the drying cylinders - a smoking room, laboratory, and restroom, which were probably built in the 1970s. The cubicles, made out of chipboard, were painted white and equipped with large windows. The same material was used to build tables and shelves in the laboratory, a table in the smoking room, and a long table and benches in the restroom. There is also a refrigerator standing on the restroom floor.

Illustration 20. A view from the back of the cardboard hall, at the wet end. The wooden stairs leading to the groundwood pulp mill and a vat in the background. Matti Huuhka 1998, Museokuva, MV.







Illustration 21. The cardboard hall in the 1970s. Company archives.



Illustration 22. The wet end of the cardboard machine in the 1970s. Company archives.

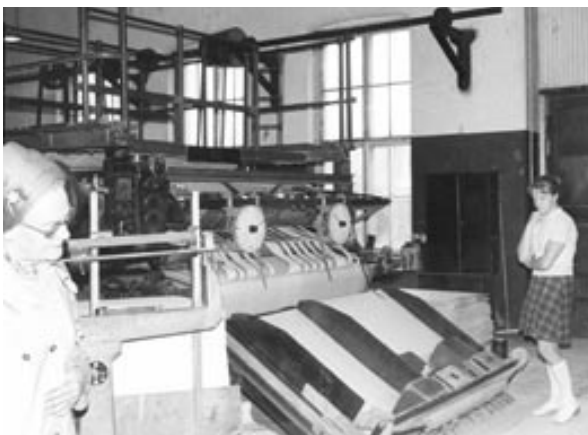


Illustration 23. The sheet cutter in the 1970s. Company archives.

In the cardboard hall, there is one of the oldest cardboard machines in Finland. It was manufactured by German H. Füllner Maschinenfabrik in Warnbrunn.<sup>77</sup> The wet end, where sheet board is formed out of wood pulp, remains from the original cardboard machine, whose effective width was 170 centimetres. The wet end was updated in 1935. The cardboard machine has seven control cylinders, thirteen drying cylinders, and two calenders.<sup>78</sup> The drying cylinders were replaced after the explosion in 1991.<sup>79</sup> The new cylinders were bought second-hand from Stockfors pulp-grinding mill in Pyhtää. The drying cylinders had originally been used at the Kaukaa paper mill to dry up wood cellulose.

The plan was to carry out a more extensive updating of the mill in the early 1990s. The cardboard machine fill was to be increased, as the new drying section was about twenty centimetres wider than the wet end. The updating began with the purchase of the third cardboard machine from the Inkeroinen mill. It was manufactured by the same Füllner Engineering Works in 1915. Only the calenders were used in Vääräkoski, and they were installed after the drying cylinders.<sup>80</sup> The cutting section consisted of a German sheet cutter from 1951, manufactured by Gustav Cöckel Maschinenfabrik in Darmstadt.<sup>81</sup>

Half way up the cardboard hall, by the drying cylinders, there is a steam hood. The purpose of this hood, consisting of a canopy and cut-off walls, is to retain the drying steam by the cylinders for as long as possible. The cut-off walls have narrow brackets and large sliding doors that can be moved along slide rails. The doors are covered with thin aluminium sheets.

Illustration 24. A view from the front of the cardboard hall. Matti Huuhka 1998, Museokuva, MV.



There are concrete plate stands underneath the drying cylinders, and the edges that run along the cardboard machine are reinforced with railway rails. Tables, welded out of steel pipes, were added alongside the cardboard machine in the 1980s.

There is a rolling-up machine for building paper, bought in 1934, in the cardboard hall, as well as wooden roll-up sleeves of various sizes.<sup>82</sup> The platform, above the wet end of the cardboard machine, is called the upper part of the vat. There used to be a slanting sieve, through which the pulp from the Hollanders ran to the vats. Earlier, there were two large containers or vats, but in the 1980s, they were replaced by three steel vats.

Two sliver sieves, bought in 1987, for sieving the pulp, stand at the far end of the cardboard hall, by the wooden stairs. The 1970s saw the gradual transformation of the cardboard machine into electrical operation, as separate drive motors were installed for various sections. A control panel or cabinet for the drive motors was installed by the smoking room at around the turn of the 1980s.<sup>83</sup>

## Boiler Room

The former boiler room (T2 c) lies along the south wall of the cardboard mill, to the east of the chimney. Its dimensions are 11.5 x 13 x 8.8 metres. At first, it was called a steam boiler room, and this name is also used in the plant layout from 1929. The boiler room has two masonry steam boilers, a concrete water tank, two feeder pumps, and a Eureka pump.<sup>84</sup> The masonry steam boilers were replaced later by metal boilers. In the early 1970s, the boiler room was converted into a heating boiler room, where all the heat required in the mill was generated by heavy fuel oil. One of the steam boilers was discarded around 1979, when a bark plant was built on its site. The other steam boiler was discarded in the mid-1990s, when a whitewater filter was installed in the room.

The heating plant, built in the boiler room, became redundant in the early 1980s when a bark-burning plant was built to the south of the mill. Thereafter, the bark residue and sawdust that is formed, when the logs are debarked and sawn, could be utilized by burning them and generating heat in the bark-burning plant. The old heating plant served as the wastewater purification plant after the mid-1990s.

Illustration 25. Cardboard hall. On the left, the cut-off wall of the drying cylinders, covered with steel plates. On the right, a section of the restroom wall. Matti Huuhka 1998, Museokuva, MV.





## Engine Room

The engine room (T2 d) lies along the south wall of the cardboard mill, to the west of the chimney. Its dimensions are 6 x 8.6 x 4.6 metres. It has also been called the steam engine room, as it housed a 75-hp steam engine up to 1969.<sup>85</sup> The engine room has the original tiled floor, where the black and white tiles are laid out like a checker board. The interior walls are plastered smooth and painted in beige and brown hues, so that the lower part of the wall is darker than the upper. There is a dark line of paint where the hues meet. The ceiling is made out of reinforced concrete.

At present, the engine room is called the electricity room since the DC drive of the cardboard machine was controlled from this room.

## Social Premises

Originally, the only social premises (T2 e) in the mill building consisted of a dining-room on the second floor, by the chimney. Underneath it, on the first floor, was a pallet workshop which was also called a pallet hut.<sup>86</sup> The latrines for the workers were located to the south of the old office building.<sup>87</sup> The dining-room, by the chimney, was converted into sanitary premises in the 1970s, also containing showers. It was rather difficult to use these premises, as one could access them only from the outside.

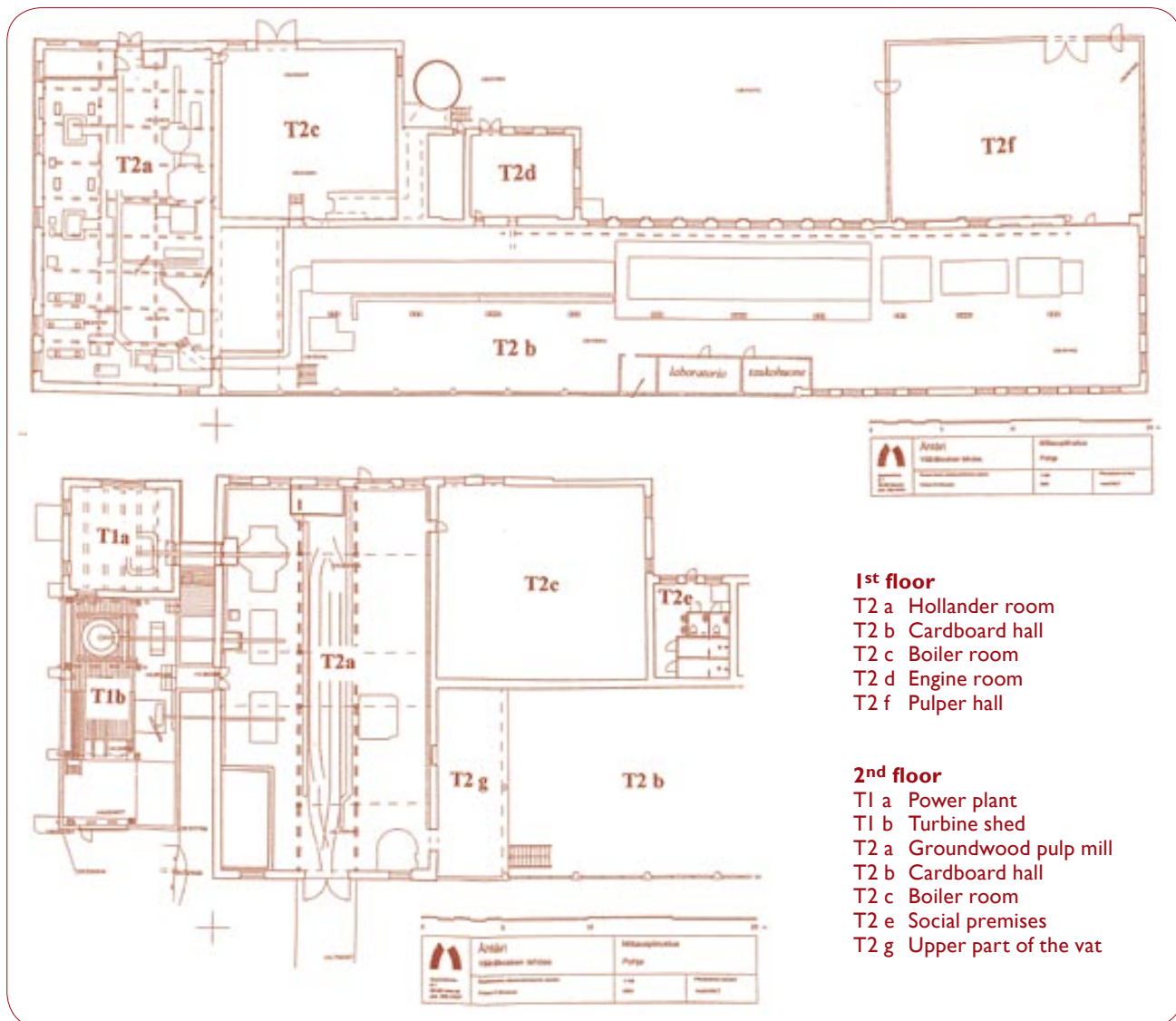


Illustration 26. A photocopy of dimensioned drawings. National Board of Antiquities, Dept. of Building History, 2002.



## Pulper Hall

The pulper hall (T2 f) was built alongside the cardboard hall so that the outside wall of the cardboard hall is, at the same time, a partition wall of a length of 14 metres. The dimensions of the pulper hall, built in 1987, are 17.85 x 12.20 metres.

The four windows on the partition wall were bricked up and the wall on the pulper hall side was painted white. The other wall and the ceiling are made of building boards, painted white. The pulper hall has a plaster floor, with the west elevation having a row of low windows. The entrance at the gable wall is equipped with outer and inner doors.

The outer doors are wooden two-leafed doors that are asymmetric as to their width, and the inner doors are similar but made out of metal. Additionally, there is a large two-leafed door lead-

ing straight to the storage room at the gable wall. The third entrance, equipped with outer and inner doors, is located on the eastern elevation.

There used to be a wide doorway, as high as the wall, between the pulper hall and the cardboard hall. Before the pulper hall was built, there were two large adjacent two-leafed doors in the same place, leading to the vestibule.

After 1998, a partition wall has been built with building boards and insulated with rock wool at the site of the doorway, and the finishing on both sides is not particularly neat. The partition wall has a wooden, unfinished prefabricated door. The above was carried out as a result of energy efficiency, to cut down the heating cost.

The pulper hall houses two reject pulpers, equipped with Strömberg drive motors with a nominal output of 31 and 37 kW, respectively.<sup>88</sup>

Illustration 27. The pulper hall in the foreground, the cardboard hall behind the opening. Matti Huuhka 1998, Museokuva, MV.



## Power Plant

The power plant (T1 a), built for the cardboard mill in 1937, has the original tiled floor where the layout of black and white tiles resembles a checker board. The interior walls are plastered smooth and painted in beige and brown hues, so that the lower part of the wall is darker than the upper. There is a dark line of paint, where the hues meet. The ceiling is made out of reinforced concrete.

The power plant is now the powerhouse of the groundwood plant. The power plant has an 800-hp three-phase synchronous motor, dating from 1937, as well as its switch and starter rheostat from the same year. The motor is connected to the larger pulp-grinding machine with a shaft, providing it with electricity. There is a small turbine under the

power plant floor, and it was used for power generation for the village from the late 1930s. During the last decades of the mill, the turbine was only used occasionally, e.g. for the duration of shutdowns. The old 50 hp generator is no longer to be found in the power plant.

## Turbine Shed

The turbine shed (T1 b), built at the turn of the 1980s at the gable-end of the mill, is a steel-framed, timber-clad building. It houses 75-, 130-, and 200-hp turbines. The shed also stores an old guillotine cutter. It was occasionally used, also through the last decades of the mill, in cutting small A4 size sample sheets.

Illustration 28. The interior of the power plant. The three-phase synchronous motor and the tin control panel in the photo. Matti Huuhka 1998, Museokuva, MV.





## Special Features and Preservation

The exterior of the cardboard mill exhibits some typical features of the time of its erection, manifesting the industrial architecture of those days. These special features include, for example, high small-paned windows, regular fenestration, and prominent dentils underneath the cornices and on the tympana. The exterior was taken into account, e.g. when the groundwood plant was updated in the 1940s. The new tympana of the groundwood plant received the same type of dentils as in the old mill.

The exterior of the cardboard mill has been mainly preserved in its original format, although there are some manifestations of more recent structures. The mid-section of the northern elevation and the roof had to be wholly replaced after the fire in 1991. The southern elevation houses the pulper hall, built in the 1980s. Both of these new structures differ from the old mill building in regards to their style and building materials.

The southern elevation experienced a great deal of refurbishments and repairs in the 1990s. The brick chimney was pulled down, except for its lowest part. The hauling track of the debarking machine was directed, via a window opening, to the groundwood plant. One of the windows in the pulp plant was changed, and it is now different in its style and model. It is a three-pane window.

Despite the changes and renewals, the building still exhibits the brick architecture of the time of its erection. The renewals manifest the different eras and strata of building, and the decisions taken in later days. The decisions were made in a financially weak period and reflected the minimum requirements needed to keep the mill running.

The general condition of the mill building has, so far, remained good. There are, however, a few threats. The most serious of the threats is the soaking of rain water and melt water into the mill foundation and walls. The north wall and the west gable-end are lower than the surrounding terrain – consequently, water has access to the mill construction, causing damage by moisture and frost heaving. The corners of the north wall already show some signs of these phenomena. The corner lets moisture into the Hollander hall, and the floor is constantly wet. Soil, next to the wall of the cardboard hall, also remains moist because of the willows that took over this area in the 1990s.

Illustration 29. The Lower Mill viewed from the south. On the right, the entrance and the wooden bridge. Matti Huuhka 1998, Museokuva, MV.

## Lower Mill

The lower mill was built in 1906, as a groundwood pulp and flourmill at the Perännekoski rapids. It ceased operations in the late 1940s. In 1979, the pulp mill was turned into an electrical power plant, and the mill machinery and equipment were replaced by a generator, which had been purchased from Ostola's steam saw-mill in Ähtäri. The building was named the Lower Power Plant but it is usually still referred to by its old name, the Lower Mill.<sup>89</sup>

The lower mill is a two-storey brick building, with lower wings on the western and northern flanks. It has a saddleback tin roof. Apart from the eastern gable, the roof is hipped. Part of the roof was replaced with corrugated iron, after a fire in the 1980s.<sup>90</sup> The windows are small-paned, narrow, and high, and sectioned into groups of three windows. The main entrance, with a pair of doors, is located at the eastern gable. There is a wide wooden bridge leading to the two-leafed door. The wooden power plant channel, leading to the turbines, lies at the northern flank of the mill.

The immediate surroundings of the building have gradually turned into a wetland, resembling a riverbed, and nowadays, the ground floor of the building resembles an empty basement. The river used to run further away from the mill, but it flows at present right alongside the building, which has turned the ground into a wetland.







Illustration 30. The Lower Mill viewed from the north. In the centre, the flourmill wing and the power plant channel. Matti Huuhka 1998, Museokuva, MV.



Illustration 31. The generator in the Lower Mill. Matti Huuhka 1998, Museokuva, MV.

Most of the interior dates back to the era, when the building served as a groundwood pulp mill. The power plant is located in an open space, as a combination of two separate rooms, and only a section of the original partition wall that used to separate the rooms, remains. The ceiling and walls, made out of reinforced concrete, are plastered white. Railway rails were bolted onto the middle of the ceiling, as a support for when machinery or its parts had to be moved. In 1979, the entrance door and the interior door openings had to be enlarged, in order to gain access for the present generator. Afterwards, the doorways were restored to their previous size, but the masonry was not finished or tidied up. The power plant section has a floor of reinforced concrete with e.g. three manholes with timber lids. In the western wing, there is a small door leading to the platform that overlooks the channel.

A former carpenter's shop stands next to the power plant section, and it now serves as a storehouse for goods mainly from private households. All of the structures in the carpenter's shop have been pulled down, and the premises are unheated. The door, adjoining the power plant and the carpenter's shop, has three panels and a profiled brass handle. It probably originates from an old residential building; as such a door cannot have been made for a pulp mill. There used to be windows on the wall between the power plant and the carpenter's shop, but they were bricked up during the renovation carried out in 1979.

The ceiling and other structures of the unused flourmill section have, over the years, rotted and decayed, and it is no longer possible to examine the interior due to safety hazards.



## Offices

### The Old Office Building

The old log-framed office building (A2) was completed in 1904.<sup>91</sup> Its measurements are 15.5 x 9.5 x 5.5 metres. At the time of this inventory, it had a red tile roof but in the summer of 2002, the tiles were replaced by a new tin roof. Underneath the eaves, there are moulded brackets.

The foundation is built of sturdy ashlars. There is a stone basement with a saddleback roofed timber staircase over the entrance.

The windows are T-paned, and some of the glazing is old and handmade. The top casing of the windows is slightly curved, and equipped with wooden rhomb ornaments. The weatherboarding is divided into zones, by means of mouldings. The upper and lower zones have vertical tongue-and-groove boarding, and the middle zone has horizontal rebate-joint boarding.

The office building is painted white and its ornaments green. It has a cross-gable with a saddleback roof, protruding about one metre outside both the long façades. The north cross-gable has a profiled ornament.

The north-eastern corner houses a recessed veranda connected to an open porch. The bottom part of the veranda consists of a low classicistic row of columns, and the top part of tight diagonal lattice-work. The corners of the pilasters, under the lat-

ticework, are decorated with sawn ornaments. The veranda is equipped with large-paned windows which, when fitted, turn the open veranda into a glazed one, which withstands the fluctuations of the weather better.

The upper part of the porch is decorated with the same pattern of ornaments, as in the veranda. The curved roof and the railings of the porch stand on pilaster. The southern elevation has a porch with a pitched roof. It has narrow three-paned windows on the top and on both sides of the two-leafed door. Both the entrance doors are two-leafed and have three panels.

Downstairs, there are five rooms and a hall in the office building. The layout of the rooms in this wide-framed building have remained intact. The two rooms facing north (1 and 2) were probably office premises, and the other rooms were residential. The two rooms facing south (3 and 4) were converted in the 1970s into a restroom for field workers. Four of the rooms and the hall have tile-covered stoves and, consequently, it is likely that the kitchen was originally located in the corner room (3). There are four white stoves with friezes on the top. The largest room (1) has a large green stove with colourful ornaments depicting pine trees. The tiles of the brown stove, resembling a fireplace, in the restroom (4), are of two different shades.

Illustration 32. The old office building viewed from the mill. The new office building is in the background. Matti Huuhka 1998, Museokuva, MV.



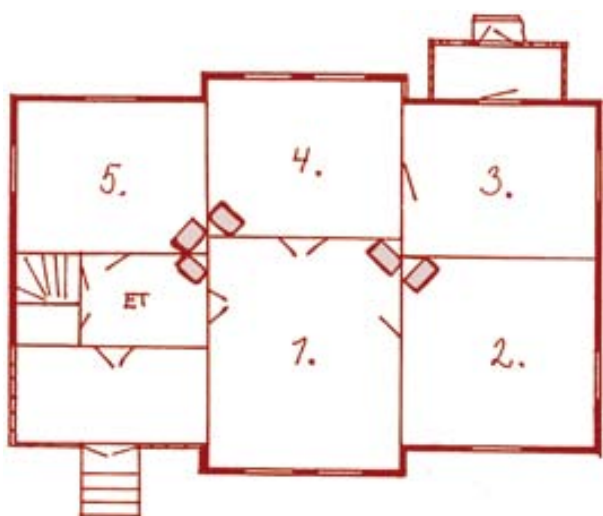


Illustration 33. The old office building viewed from the south-west. Matti Huuhka 1998, Museokuva, MV.

The doors have three panels and original handles, apart from a couple of exceptions. The office rooms (1 and 2) have high three-panelled double doors. The doors have wide moulded architraves with flute ornaments. The architraves are of two different types. The walls of three of the rooms (1, 2, and 5) plus the hall are covered first with thick building paper and then with wallpaper. The ceilings are of white-painted building paper. The largest room (1) has green wallpaper with a narrow border with gold-painted ornaments running at the top. The wallpapers in the other rooms are

of different shades of broken white and beige. The patterns originate from the plant kingdom. The borders are of different sizes and have different patterns in each room. The walls and ceilings of the field workers' restrooms (3 and 4) have been furnished with building boards, which have been painted in dark colours.

The skirting boards are wide and moulded, except in the field workers' restrooms, where the skirting and cornices are narrow. The floors are made from boards. In the corner room (5) and the hall, vinyl flooring has been added on top of the



#### The old office, 1<sup>st</sup> floor

ET Hall

- 1 Large office room
- 2 Small office room
- 3 Fieldworkers' restroom (kitchen?)
- 4 Fieldworkers' restroom
- 5 ?

Illustration 34. A sketched layout of the downstairs room of the old office building. S-L Sihvonen.



boards probably in the 1950s. In the large office room (1), hardboard flooring has been added. The board flooring in the small office room (2) has been painted. The restrooms of the field workers have vinyl flooring.

There are two narrow two-leafed doors on the east wall in the hall. One of them leads to the upstairs flight of stairs, and the other to a cupboard underneath the stairs. The cupboard walls have narrow groove-and-tongue boarding. The wooden stairs leading upstairs are unpainted and the log walls are bare. There are three chambers upstairs – two in the mid-section and the third in the western gable. There is an open attic in the western gable. There is no ceiling in the attic. The floor is covered with board planking. Part of the attic has been turned into a cupboard by means of lightweight walls. There are also shelves in the cupboard. Thick building paper from the mill has been used in the wall structures. It has been fastened by a "framework" of strips with nails.

The wallpapers in the upstairs chambers have dark flower and nature motifs, and there are also borders. The wallpapers are clearly older than those of the rooms downstairs, from the early decades of the 20th century. Underneath the present wallpapers in all the chambers, there are old wallpapers. One of the chambers has a boarded floor, which has been painted dark blue; the two other rooms have vinyl flooring on top of the floor-boards. All the doors upstairs have three panels. The doors are of different sizes. The door in the mid-section of the house is older than the building itself, a French panel door, with prominently moulded panels and architraves. Apparently, it has been transferred to its present place from a house dating from the 19th century. The door between the attic and the first chamber is an "ordinary" panel door, and the door

to the third chamber is a narrow panel door, resembling that of the cupboard. All the skirting boards and cornices upstairs are wide and moulded. There is only one fireplace upstairs, an iron stove ("porinmatti" type) that has been fitted later in the gable chamber. In the other chambers, the sites where the fireplaces used to stand, are visible. There are no indications that there would have been a kitchen upstairs.

The interior stands, by and large, in its original format. The original partition doors and fireplaces have been preserved. The rooms have boarded floors, walls and ceilings covered with boarding paper, except for the two rooms (3 and 4) which were converted into restrooms. The structures have probably been so well preserved because the building has been used so little. When the new office building was completed, the older one was used as a residence. Later on, it served as a warehouse and a restroom. The interior has only been painted and wallpapered, with no extensive renovations made. The tile stoves are of particular interest. In the largest room, the stove with a pine-tree motif is probably the best-known stove model from the Turun Kaakelitehdas (Turku Tile Factory). The said model, no. 162, was first presented in the factory catalogue in 1903. The top frieze was replaced by an ornamental relief tile, depicting an open fire between two pine-trees. The top corners of the stove are elevated and have the relief of a pine-tree branch. This stove was ordered for the most representative room of the mill office, probably at the time of its construction. The other tile stoves in the office building are probably also from the Turun Kaakelitehdas. For instance, the stove in room 5 resembles model no. 98, with the exception that the frieze on the Vääräkoski stove is simpler than on the original model.<sup>92</sup>

Illustration 35. The workers' restroom in the old office building. Matti Huuhka 1998, Museokuva, MV.





Illustration 36. The new office building viewed from the north. Matti Huuhka 1998, Museokuva, MV.

## New Office Building

The new office (A8) was built in the late 1930s, according to the drawings of architect Marius af Schultén in 1937.<sup>93</sup> (Illustration 40). It is a brick house with a hipped roof and a lower wing in the south-west flank. The dimensions are 18.2 x 12 metres, and those of the wing are 6.8 x 8 metres. The outside walls are plastered and the roof is covered with red tiles. The one-paned windows have a narrow vent sash.

The elevation facing the road is strictly symmetrical. The main entrance is decorated with an arched ashlar portal and concrete stairs. The two-leafed entrance door is massive and has embossed square panelling. There is a radial lunette above the door. There are similar panelled doors on both sides of the wing, and three-part lintel windows above the doors. The door on the western gable is also decorated with an ashlar portal. The doors, with portals, have lantern-like lamps on each side.

## Interior

Originally, the new office building also contained the director's residence. The layout of the rooms has remained intact. The office part had a meeting room, two office rooms, and two other rooms.

The residential section had four rooms and a kitchen. The residential and office parts were later separated by a light partition wall. The interior walls and ceilings were plastered and painted. A brown line of paint on the upper part of the walls separated the different shades of paint.

The corner between the wall and the ceiling in the meeting room is highlighted with a concrete step-like cornice strip. The interior window sills are wide and massive. In the 1980s, the original large heating elements were equipped with new thermostats. The building has its original veneer doors, with a narrow groove along the edges. Some of the doors are glazed. The chandeliers and sconces, which had been designed for the meeting room, were sold in the bankruptcy auction at the turn of the millennium.

In addition to the boiler room and a fairly large coke storage room, the basement housed a smaller and a larger storage room for firewood, a vegetable and wine cellar, and three storage rooms of various sizes.

In the 1980s, some of the basement was converted into a sauna and a lounge, where there is an open fireplace. The mill archives are placed in the former coke and firewood storage rooms. The heating system has been updated.

Illustration 37. The new office building viewed from the south. Matti Huuhka 1998, Museokuva, MV.





It is likely that the old office building only had rooms downstairs to begin with, as the rooms upstairs were mentioned for the first time in the inventory of property in 1929.<sup>94</sup> The mill office was located in the old building until 1940, when the new office building was completed. Upon its completion, the basement was used as a safe haven for paintings from the Ateneum Art Museum and drama costumes from the Finnish National Theatre in Helsinki.<sup>95</sup>

At the turn of the millennium, the residential section of the building was converted into an office – with minor alterations, e.g. by closing the entrance to the old office with a light partition wall. The kitchen was updated and one partition wall was removed at the same time.

Later use of the old office building is not very well known. At least up to the 1950s, it was used as a dwelling for workers. The former offices were mainly used as storage rooms, and mixed goods ranging from finished products to tools were kept there.

The corner room (which probably was a kitchen originally) and the chamber next to it, were converted to restrooms for workers in the 1970s. At that time, the entrance from these rooms to the office premises was closed, by covering the chamber wall with chipboards. The restrooms were used up to the very end, until the mill was closed.



Illustration 38. The office. Matti Huuhka 1998, Museokuva, MV.



Illustration 39. The meeting room in the new office building. Matti Huuhka 1998, Museokuva, MV.

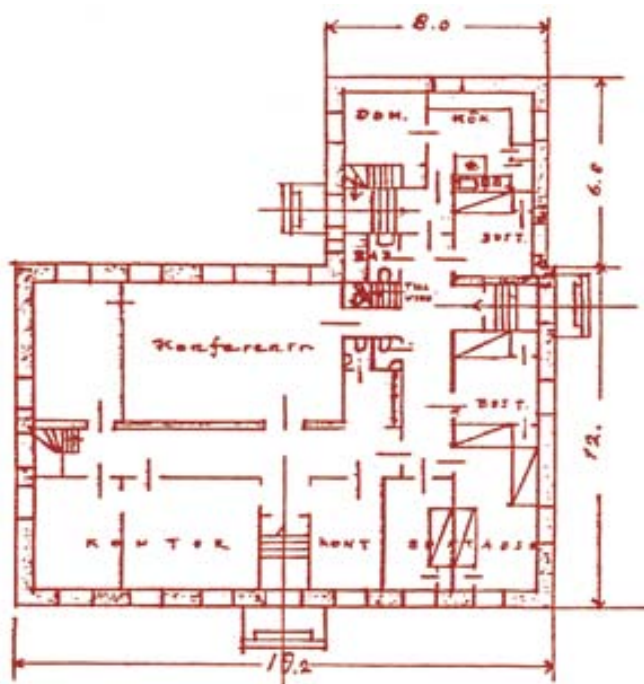


Illustration 40. Drawings for the new office building, 1937. Company archives.

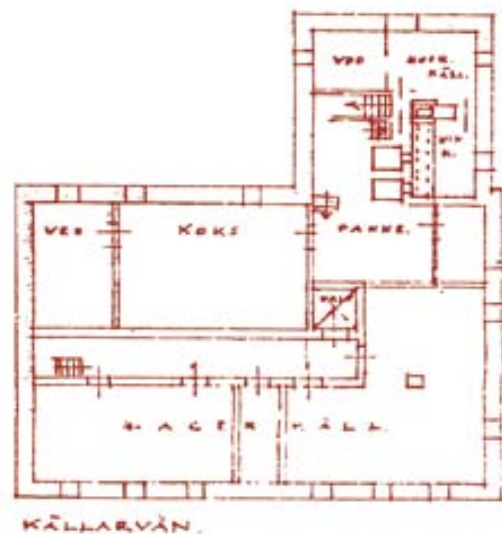






Illustration 41. The repair shop. Matti Huuhka 1998, Museokuva, MV.

## Repair Shop

The repair shop (T3) was built in 1924.<sup>96</sup> It is a two-storey brick building, which stands on a foundation of ashlars and has a saddleback tin roof. The dimensions are 15.5 x 14.9 x 7 metres. The building has massive eaves and four symmetrically sited tin-covered chimneys on the roof. The elevations are divided by vertical columns into sections.

The windows are small-paned, and the upstairs windows are lower than the downstairs ones. The riverside gable of the repair shop has a two-leafed door and a tin smoke flue, which passes through the wall at the site of the hearth. The flue is of later origin. The other gable has a two-leafed door, originally equipped with a ramp. There are white plastered lintels, made out of concrete, above the door and window openings.

There used to be a metal workshop downstairs and a carpenter's shop upstairs. The metal workshop is an open space with concrete stairs equipped with wrought-iron railings, in the corner near the door. The inside walls are plastered. The ceiling is supported by quadrilateral concrete columns, with chamfered edges, in two rows. The south wall

houses a blower from the 1980s. It was used for carrying heat from the boiler plant to the workshop. The sites of the former fireplaces are still visible in the west-end corner.

The ceiling and the wall of the carpenter's shop are plastered. The ceiling is supported by columns that are similar to those of downstairs. One corner is separated by partition walls to form a storage room. These walls are panelled with groove-and-joint boards in the carpenter's shop. The stairs leading to the attic stand at the west gable. There is no fireplace in the carpenter's shop, but deducting from the walls, there has been one previously, at least in the mill-side corner at the east gable.

The intermediate floor is made of reinforced concrete. The ceiling is divided by diagonal concrete beams into four identical zones, each of which has a round hole in the middle covered with a wooden lid. These holes are connected to the original heating system. There used to be spherical copper containers by the holes. The purpose was to burn straw in the containers, but apparently, the system was never used. The repairman, who provided this piece of information, remembers, however, that the containers were still connected to the shop ceiling in the 1950s.<sup>97</sup>





Illustration 42. The metal workshop. The hearth is in the background. Matti Huuhka 1998, Museokuva, MV.

Many times, the running of the mill depended on the ability of the smiths and repairmen to manufacture the appropriate spare parts for the machinery and equipment. The repairmen were kept busy with annual maintenance and a great deal of repairs.

A concrete-coated hearth at one end is all that remains from the industrial structures in the metal workshop. There is a high hood, of welded metal sheets, above the hearth. An anvil is fastened to the floor with iron bolts in front of the hearth, and alongside the anvil, there is a casting pit covered with a timber lid. There are also narrow rails on

the floor. In transportation, carriages were pushed between the factory and the repair shop.

### **Special Features, Preservation, and General Condition**

The original appearance of the repair shop has been well preserved. The cardboard mill and the repair shop, which is about twenty years younger, have similar small-paned windows. The chimneys in the corners of the repair shop are special. The hearth has been preserved.

Illustration 43. The carpenter's shop. Matti Huuhka 1998, Museokuva, MV.







Illustration 44. On the right, the transformer house standing alongside the board mill. Matti Huuhka 1998, Museokuva, MV.

## Storehouses and Other Buildings

Two large storehouses (V1 and V2) were built to the south of the cardboard mill in 1930. They were called cardboard storehouses.<sup>98</sup> One was intended for storing cardboard in rolls, and the other one for cardboard in sheets.

The names "building paper storehouse" and "sheet storehouse" were in use up to the closing of the mill, although building paper had not been manufactured over the last decades of operation.<sup>99</sup> The timber storehouses were erected on ashlar pillars. The dimensions of the storehouses are 79 x 8 x 3 metres.

The window-less buildings stand next to each other, and share a wall. They have saddleback tin roofs. Cardboard was stored in rolls, in bales, or on pallets. Narrow and thick rolls of cardboard were packed on pallets. They were fastened to the wooden platform with iron hoops.

Between the repair shop and the cardboard mill, stands a storehouse (V8) which was built after 1936. It is a timber building on a concrete foundation, and it has a saddleback roof covered with red tiles. There are two-leafed doors at both the storehouse gables. Along the long walls, there are the remains of old storage shelves.<sup>100</sup>

By the side of the cardboard mill, stands a transformer house (T6) built in 1940. It is a fairly small timber building on a concrete foundation. The red

Illustration 45. The garage/stable. Matti Huuhka 1998, Museokuva, MV.



transformer building has vertical boarding and a saddleback roof with red tiles. There is a two-leafed door with horizontal panelling at the end of the building.

A garage (U2), built in 1914, stands between the old and new office buildings. It was originally a stable. The mill had as many as six horses for transportation purposes. In the early days, horses either pulled the logs close to the rafting flute or straight to the mill. Trucks took over the transportations in the early 1930s. As trucks became more and more commonplace, horses were no longer required for this task. The mill bought its own truck after the war. At one time, there were two trucks. The mill dispensed with its own trucks in the 1970s, whereupon the garage was used as a shelter for passenger cars. The south gable houses a hall-like workshop that was used for production since the 1980s. From time to time, a rolling-up machine was used in this workshop. It is the old rolling-up machine from the Kyröskoski mill, and brought to Vääräkoski in the 1980s. Premises required by the pallet workshop, were later added to the gable of the garage.<sup>101</sup> The oldest part of the garage was built with logs; however the more recent parts are timber. The foundation is of ashlar. The garage has a vertical board lining, and its saddleback roof is covered with burnt brick tiles. It has small-paned windows. Apparently, the garage end was built later.

The mill sauna (U5) is located across the river, about 50 metres from the mill. It is a red log building built in the 1930s. It rests on a concrete founda-

tion and has a saddleback roof covered with concrete tiles. The exterior is horizontal rebate-joint boarding. The sauna-end foundation has been renovated later by the replacement of the lowest tiers of logs, which had rotted, with a higher concrete foundation. The windows are six-light, except in the sauna-end, which has a three-light window. There are two entrance doors to the building. On the riverside, the door leads to a washhouse, which has e.g. two large water cauldrons and a pipe leading to the sauna. The door to the sauna and the dressing room is on the yard-side. The previous old sauna building was located close to the director's residence.

A large timber woodshed stands next to the sauna, resting on cornerstones and intermediate stones. It has vertical boarding and a saddleback roof covered with wood shingles. The woodshed has an earth floor. By the bridge, leading over the river, stands a fairly small timber shed, with a wood shingle roof (V5). It has two-leafed doors on both sides.

The heat, required in the mill, was for a long time generated by means of one steam boiler. Later on, a boiler room was built and heavy burning oil was the only fuel used. This was given up in the mid-1980s, when a burning plant was built to the south of the mill. This plant used wood waste from the debarking plant and saw-mill as its fuel. The bark-burning plant is a frame-structured hall on a concrete foundation. Its external lining and roof are of corrugated sheet metal. There is a large two-leafed glazed door at the gable.

Illustration 46. The sauna. Matti Huuhka 1998, Museokuva, MV.





# Summary

The cardboard mill at the Vääräkoski rapids on the River Hyvöläkoski in Ähtäri, established in 1898, operated for nearly one hundred years. Throughout its operation, the mill concentrated on the manufacture of cardboard. The mill's one and only cardboard machine produced 1000–4000 tons of cardboard a year. The mill used its old production methods and machines up until the 1990s. In addition to bleak market conditions, a weakening of export prospects, and errors in investments, the mill's fate was doomed when it embarked on modernization. The expenses incurred in the modernization were not in relation to the benefits gained. The mill was declared bankrupt in October 1998.

The National Board of Antiquities proposed to the West Finland Regional Environment Centre on February 23, 2001 that the mill area and buildings of Vääräkoski be preserved on the basis of the Act on the Protection of Buildings. The purpose was to preserve the functional whole of the Vääräkoski groundwood pulp and cardboard mill, with its

buildings and machinery, power plant channel and dam.<sup>102</sup>

The West Finland Regional Environment Centre passed the decision to protect Vääräkoski on May 8, 2002. The protection order contains detailed provisions to guide and instruct in prospective constructions, repairs, and alterations within the area. The measures must be adjusted to values pertaining to the cultural history, scenery, and industrial history of the area, and they must be approved by the National Board of Antiquities.<sup>103</sup>

The exterior of the cardboard mill building has been preserved, for the most part, in its original format. The cardboard mill denotes a building complex including the cardboard mill, the groundwood pulp mill, and the power plant (now the powerhouse). It is not known who planned the construction but, by all accounts, it must have been one of the industrial architects of that time. The repairs and renovations carried out in the 1980s and 1990s altered the exterior. The modifications were

Illustration 47. The cardboard mill. Matti Huuhka 1998, Museokuva, MV.





Illustration 48. The repair shop. Matti Huuhka 1998, Museokuva, MV.

carried out at an economically bad time for the mill and, consequently, they were performed as cheap as possible. The new additions are mainly seen on the south elevation, where a pulper hall and a bark-burning plant were built. The flèche, standing on the groundwood pulp mill, was pulled down, and some of the windows have been altered. More than half of the north wall of the cardboard hall has been totally renewed.

As for its interior, the building is a fully functional cardboard mill and it is even quite possible to restart the machines. The wet end of the original Füllner cardboard machine has been preserved. The drying cylinder group dates back to the early decades of the 20th century, the calenders are from 1915, and the cutter from 1951. The cardboard machine at Vääräkoski is one of the oldest in existence in Finland. It is also unlikely that there are other cardboard machines of the same age in the other Nordic countries. In addition, the mill has many other machines and devices from the first half of the 20th century. For instance, the water turbines, pulp-grinding machines, and their drive motors were in use right up until the mill was closed.

The structures of the repair shop, built in 1922, by the river, have been better preserved than those of the cardboard mill. Downstairs, there is a hall-

like metal workshop, where the old hearth and rails embedded into the concrete floor have been preserved. Upstairs, there was a carpenter's shop.

The old office and residential building, standing in its original format, next to the cardboard mill, is the real pearl of the mill area. It was built in 1904 and was used as a dwelling up to the 1950s, and after that as a storehouse. Two of the downstairs rooms were converted into restrooms for workers in the 1970s. The building structures are in good condition, and it can be refurbished for year-round use.

There are two important buildings for the mill milieu by the side of the old mill area along the road - the new office building and the former director's residence. The new office building serves as a kind of elegant lodge for the old mill area. The director's residence gives an idea on how the mill directors used to live.

In the 1860s, the transition from rags to groundwood pulp also stood as a turning point in the forest industry in Finland. By the mid-1870s, twelve groundwood pulp mills had been established in our country. The wood pulp industry lived through an era of technical reforms, when the Vääräkoski mill was established. All in all, nineteen new wood pulp mills were built during the first decade of the 20th



century. Simultaneously, in the late 1890s, the cardboard manufacturing technology also progressed. Cardboard manufacture, which earlier had been carried out manually and in many phases, now transformed into a continuous process carried out by machines. The first five cardboard machines were ordered in Finland in 1897-1901, also including the one in Vääräkoski. Most of the machines came from the German Füllner workshop. The first Finnish cardboard machine was manufactured at Karhulan Konepaja (Karhula Engineering Works) in 1908.

The early buildings, machinery, and equipment for cardboard making in Finland are preserved only at the Verla groundwood pulp and cardboard mill at Jaala, the old Inkeroinen cardboard mill at Anjalankoski, and at Vääräkoski in Ähtäri. Verla represents a production technology that was still largely based on manual labour. The first continuous cardboard machine was purchased in 1897 for the Inkeroinen mill. This cardboard machine is the only section of the entire production chain that has been preserved at Inkeroinen, and it is - after an

overhaul – displayed at the Ankkapurha Industrial Museum, established by Stora Enso in 1997. The Verla groundwood pulp and cardboard mill are protected on the basis of the Act on the Protection of Buildings. Verla, now a famous sight, has been accepted into the Unesco World Heritage list.

Vääräkoski's value, in the terms of cultural history, is based on a mill complex that has maintained its multi-faceted character, buildings and machinery that have been preserved in almost their original format - the cardboard machine, in particular, is unique in terms of industrial history. The mill operated on the same original scale throughout its existence – one of the reasons why it is an unparalleled example of a typical wood-processing plant of the early 20th century.

The Vääräkoski mill area is of considerable national significance in terms of cultural history, from the perspective of industrial history, environment, and the unique machinery that has been preserved up till now.<sup>104</sup> The value of the Vääräkoski mill milieu is further enhanced by the surrounding nature, with the river as a central element.

Illustration 49. Vääräkoski Board Mill in the 1970s. Company archives.



## SOURCES

### Sourcereferences

- <sup>1</sup> Söyrinki, Luho & Jokipii (1959). Vanhan Ruoveden historia: 247–249.
- <sup>2</sup> Viertola, Juhani (1988). Ähtärin historia 1865–1918: 189, 203.
- <sup>3</sup> Seppälä, Risto (1983). Teollisuus, Vihko 241, 2, Suomen kartasto II.
- <sup>4</sup> Sourander, Ingwald & Erik Solitander (1943). Suomen puuhiomoyhdistys.1892–1942: 5-8, 10-15.
- <sup>5</sup> Koskinen, Helinä & Antti Metsäkylä (1999). Vääräkosken puuhiomo ja kartonkitehdas, Muistomerkki, rakennetun historian ulottuvuuksia: 155.
- <sup>6</sup> Sourander & Solitander 1943, 78–83.
- <sup>7</sup> Seppälä 1983, 11.
- <sup>8</sup> Tusa, Esko (1990). Kallenkosken kolme patruunaa: 11.
- <sup>9</sup> Viertola 1988, 208–217.
- <sup>10</sup> Koskinen & Metsäkylä 1999, 155.
- <sup>11</sup> List of the persons who have moved away, Ähtäri parish.
- <sup>12</sup> Land register, Vaasan maanmittaustoimisto.
- <sup>13</sup> Census register, Ähtäri town archives.
- <sup>14</sup> Harry Lönnqvist passed away in 1935. Erik Lönnqvist, who was a graduate engineer, moved to Canada as a young man and remained there until his death. Church books 1901-1940, Ähtäri parish archives.
- <sup>15</sup> Mr Veikko Sipilä, interview.
- <sup>16</sup> Company archives.
- <sup>17</sup> Iivonen, Jyrki (1988). Pahvia oluen ystäville. Turun Sanomat.
- <sup>18</sup> Parcelling documents, Technical dept. of the town of Ähtäri.
- <sup>19</sup> Suomen teollisuus ja kauppa 1928. Finsk industri och handel III, 36.
- <sup>20</sup> List of the persons who have moved away, Ähtäri parish archives.
- <sup>21</sup> Suomenmaa VII, Vaasan lääni, 383.
- <sup>22</sup> Viertola 1988, 216–217.
- <sup>23</sup> List of the persons who have moved away, Ähtäri parish.
- <sup>24</sup> Mr Jouko Rapo, interview.
- <sup>25</sup> Company archives. Statistical data. Production: ...
- <sup>26</sup> Mr Jouko Rapo, interview.
- <sup>27</sup> Iivonen (1988). Pahvia oluen ystäville.
- <sup>28</sup> Ähtäri land register, Vaasa Local Surveying Office.
- <sup>29</sup> Company archives. Layout of the mill area in 1904.
- <sup>30</sup> Pakari, Erkki (1984). Henkilökuvia. Ympyräinen. Ähtäri-Seuran perinnelehti nro 1/1984, 22.
- <sup>31</sup> Company archives. Layout of the mill area in 1937.
- <sup>32</sup> Mr Veikko Sipilä, interview.
- <sup>33</sup> Company archives, Deed of Sale.
- <sup>34</sup> Company archives, drawing.
- <sup>35</sup> Viertola 1988, 208–9.
- <sup>36</sup> Voionmaa, Veikko (1932). Tampereen kaupungin historia III: 73.
- <sup>37</sup> Viertola 1988, 212–213.
- <sup>38</sup> Company archives, documents from Ryöttö.
- <sup>39</sup> Viertola, Juhani (1989). Ähtärin historia 1918–1980: 56,90–91.
- <sup>40</sup> Company archives, minutes of Board meeting.
- <sup>41</sup> Ylänen, Elli (1984). Ryötön pakaritupa – monitoimitalo, Muis- telma vuodelta 1976. Ympyräinen 1/1984, 12–13.
- <sup>42</sup> Company archives, refurbishment plan for Vääräkoski Board Mill in 1978.
- <sup>43</sup> Mr Veikko Sipilä, interview.
- <sup>44</sup> Mr Jouko Rapo, interview.
- <sup>45</sup> Mäkelä, Riitta (1985). Matti Visanti kuvataiteiden monitaitaja: 21–22, 36.
- <sup>46</sup> Mr Veikko Sipilä, interview.
- <sup>47</sup> Church records on confirmation classes in 1931-1940.
- <sup>48</sup> Mr Veikko Sipilä, interview.
- <sup>49</sup> Talve, Ilmar 1979, Suomen kansankulttuuri, 267–268.
- <sup>50</sup> Church records on confirmation classes in 1900-1910, 1931-1940.
- <sup>51</sup> Company archives, Property inventory and fire insurance policy from 1943.
- <sup>52</sup> Tehtaan arkisto, Värdering av Vääräkoski kartonfabrik i Ätsäri socken av Wasa län. Teollisuuden palo 1910.
- <sup>53</sup> Company archives, Taxation data from 1943.
- <sup>54</sup> Company archives, Taxation data from 1943.
- <sup>55</sup> Mr Jouko Rapo, interview.
- <sup>56</sup> Company archives.
- <sup>57</sup> Suomenmaa VII 1925, Vaasan lääni, 383.
- <sup>58</sup> Trade register index, dissolved companies. National Archives of Finland.
- <sup>59</sup> Governor's accounts. National Archives of Finland.
- <sup>60</sup> Mr Olavi Kiilunen, interview.
- <sup>61</sup> Pakari Erkki (1985). Vesistöjen perkaus ja lasku, Ympyräinen nro 2/1985, 15.
- <sup>62</sup> Mr Olavi Kiilunen, interview.
- <sup>63</sup> Company archives, inventory in 1943.
- <sup>64</sup> Kiilunen Olavi, tiedonanto.
- <sup>65</sup> Leppävuori Pauli 1984, Vallityöt, Ympyräinen 1/1984, 35.
- <sup>66</sup> Rantilä Outi 1999, Ähtärin ympäristön tila, 39–40.
- <sup>67</sup> Company archives. Decision by Western Finland Water Court on September 17, 1979.
- <sup>68</sup> Rantilä, Outi 1999, 39–40.
- <sup>69</sup> Ähtärin Perännejärven rantaosayleiskaavan luontoselvitys 1998, Ähtärin kaupunki, Ostra Boreko Oy 1998.
- <sup>70</sup> Company archives. List of buildings for a fire insurance company, 1965.
- <sup>71</sup> The painting hung in the meeting room wall until 1998. It was auctioned to a private person during the bankruptcy sale.
- <sup>72</sup> Company archives. Fire insurance evaluation, 1943.
- <sup>73</sup> Company archives. Vääräkoski Oy. A description of production in the early 1980s.
- <sup>74</sup> Mr Veikko Sipilä, interview.
- <sup>75</sup> Mr Veikko Sipilä, interview, and Mr Jouko Rapo, interview.
- <sup>76</sup> Building permits. Building inspector's archives, Ähtäri town.
- <sup>77</sup> Sourander & Solitander 1943, 78–81.
- <sup>78</sup> Company archives. Estate inventory in 1943.
- <sup>79</sup> The explosion on May 1 disrupted the mill for two months.
- <sup>80</sup> The other machine parts were left rusting in the Vääräkoski mill yard and, eventually, they were dispatched to a scrap yard.
- <sup>81</sup> The year of manufacture and the name of the manufacturer were written on the plate attached to the cutter.



- <sup>82</sup> Company archives. Estate inventory in 1943.
- <sup>83</sup> Mr Jouko Rapo, interview.
- <sup>84</sup> Company archives. Estate inventory in 1943 and fire insurance policies in 1910.
- <sup>85</sup> Mr Jouko Rapo, interview.
- <sup>86</sup> Mr Olavi Kiilunen, interview.
- <sup>87</sup> Sipilä Veikko, haastattelu.
- <sup>88</sup> Company archives. List of equipment.
- <sup>89</sup> Mr Veikko Sipilä, interview.
- <sup>90</sup> Mr Olavi Kiilunen, interview.
- <sup>91</sup> Company archives. Layout from 1904.
- <sup>92</sup> Soiri-Snellman, Helena (2003). Turun kaakelin kakluunit: 131–135.
- <sup>93</sup> Company archives. Copies of drawings.
- <sup>94</sup> Company archives. Estate appraisals from 1910 and 1929.
- <sup>95</sup> Mr Veikko Sipilä, interview.
- <sup>96</sup> Company archives. Estate inventory in 1943.
- <sup>97</sup> Mr Veikko Sipilä, interview.
- <sup>98</sup> Company archives. Inventory documents.
- <sup>99</sup> Mr Veikko Sipilä, interview.
- <sup>100</sup> Mr Veikko Sipilä, interview.
- <sup>101</sup> Mr Veikko Sipilä, interview.
- <sup>102</sup> The proposal by the National Board of Antiquities, to protect the Vääräkoski mill area and its buildings, on the basis of the Act on the Protection of Buildings, February 23, 2001.
- <sup>103</sup> Protection order H22A-164 on May 8, 2002, by the West Finland Regional Environment Centre.
- <sup>104</sup> The proposal by the National Board of Antiquities, to protect the Vääräkoski mill area and its buildings, on the basis of the Act on the Protection of Buildings, February 23, 2001.

## Interviews

- Mr Olavi Kiilunen, repair manager. Worked at the mill from 1985. Now the caretaker of the Lower Mill. Interview on July 25, 2002.
- Mr Jouko Rapo, a former machine operator. Born on August 9, 1948. He worked at the mill from 1969–1998. Interview on July 5, 2002.
- Mr Veikko Sipilä, a former repairman and smith, chief shop steward. Born on February 11, 1933. He worked at the mill from 1951–1993. Interview on July 9, 2002.

## Archives

- National Archives of Finland, Archives of the Industry Board, Municipal maps.
- National Board of Antiquities (MV), photograph archives.
- National Board of Antiquities, Dept. of Building History, drawings and protection archives.
- Company archives, Ähtäri, Vääräkoski.
- Archives of the Province of Vaasa, Governor's accounts, Judgment books.
- Vaasa Local Surveying Office, land register, parcelling maps and documents.
- Ähtäri town, archives of the building inspector.
- Ähtäri parish archives, records of confirmation classes, list of those who moved away from the parish.

## Newspapers and Journals

- Iivonen, Jyrki, Pahvia oluen ystäville. Helsingin Sanomat 1.12.1987.
- Ympyräinen, Ähtäri-Seuran perinnelehti nro 1/1984 ja nro 2/1985.

## Unpublished Sources

- Räntilä, Outi 1999, Ähtäriin ympäristön tila. Moniste.
- Ähtäriin kaupunki 1998, Ähtäriin Perännejärven rantaosayleiskaavan luontoselvitys 1998. Ostra Boreko Oy. Moniste.

## Literature

- Koskinen, Helinä & Antti Metsänkylä (1999). Vääräkosken puuhiomo ja kartonkitehdas, Muistomerkki – Rakennetun historian ulottuvuuksia. Museovirasto.
- Mäkelä, Riitta (1985). Matti Visanti kuvataiteiden monitaitaja. Oulu.
- Soiri-Snellman, Helena (2003). Turun kaakelin kakluunit. Turku.
- Sourander, Ingwall & Erik Solitander (1943). Suomen puuhiomoyhdistys 1892–1942. Helsinki.
- Suomen kartasto II (1983). Teollisuus. Vihko 241. Helsinki.
- Suomenmaa VI (1925). Vaasan lääni. Porvoo.
- Suomen teollisuus II (1983). Teollisuus, Vihko 241. Helsinki.
- Suomen teollisuus ja kauppa – Finsk industri och handel III (1928). Helsinki.
- Söyrinki, Niilo, Luho, Ville & Mauno Jokipii (1959). Vanhan Ruoveden historia I. Jyväskylä.
- Viertola, Juhani (1988). Ähtäriin historia 1865–1918. Jyväskylä.
- Viertola, Juhani (1989). Ähtäriin historia 1918–1980. Jyväskylä.
- Voionmaa, Väinö (1932). Tampereen kaupungin historia III. Tampere.

**Appendices 1a and 1b. Dimensioned drawings of the Vääräkoski Board Mill. National Board of Antiquities, Dept. of Building History, 2002.**

Appendix 1a

Architectural floor plan of a building, likely a school or office, showing various rooms, corridors, and structural elements. The plan includes a large central hall, several smaller rooms, and a staircase. Dimensions and room numbers are indicated throughout the drawing.

Scale: 0 5 10 20

Project Name: Ähtäri vääräkosken tehdas

Project Number: 1100

Project Name: Mittauspiirustus

Project Number: 2002

Project Name: Puhutuspiirustus

Project Number: AutoCAD LT

Project Name: Suunnittelija

Project Number: 00180 Helsinki

Project Name: P. Mäkelä P. Mäkelä

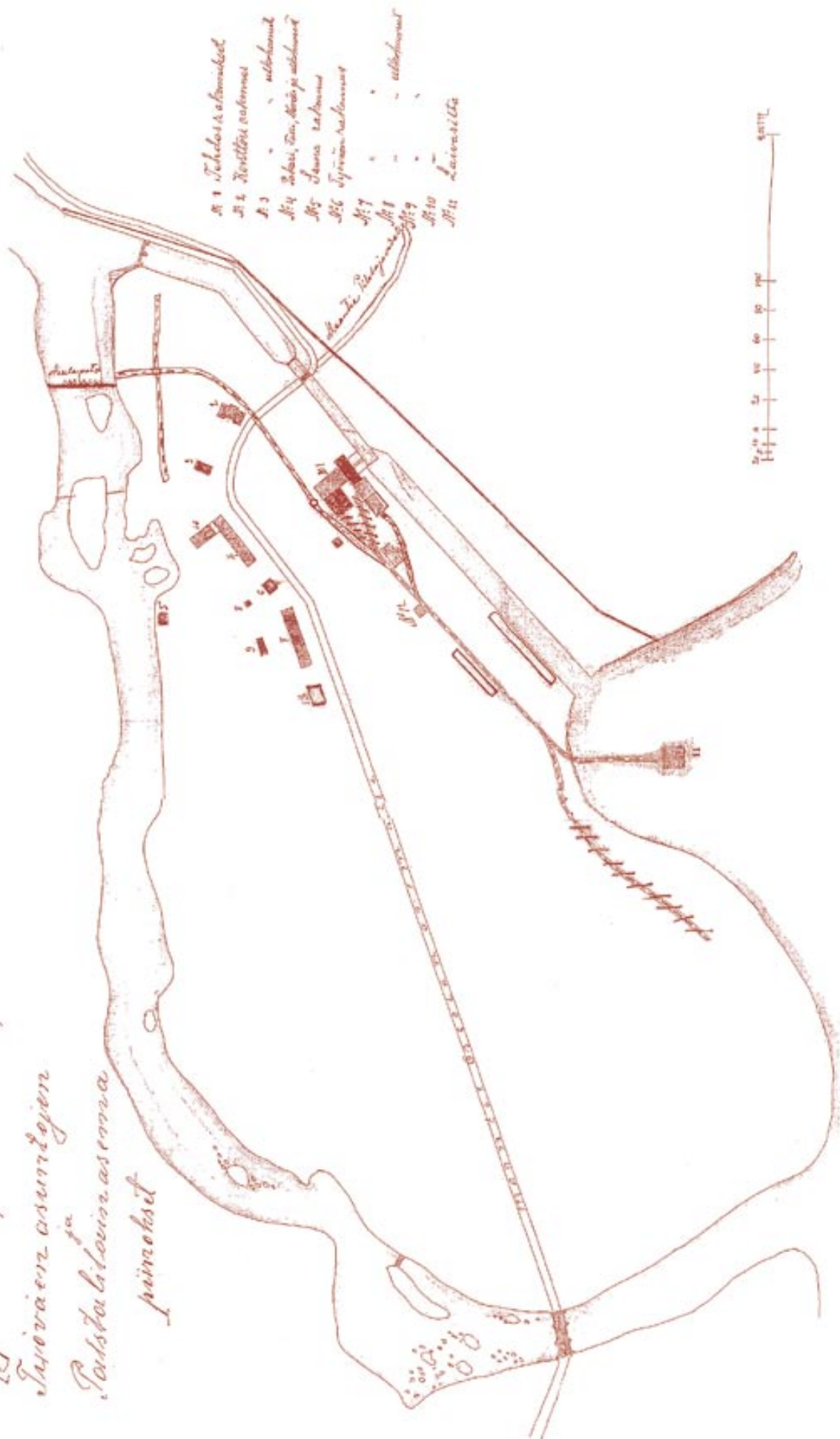
Project Number: 009140001

	<b>Ähtäri</b> <b>vääräkosken tehdäs</b>	<b>Mittauspiirustus</b> <b>Pohja</b>	1/100 2002	Piirustuksen tekijä Antti Oksanen
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<i>Abstract</i>	<p>Vääräkoski, along the River Hyvölänjoki in Ähtäri, was a busy industrial site for roughly one hundred years. Founded in 1898, beside the Vääräkoski rapids, the Board Mill was declared bankrupt in 1998. The Vääräkoski Board Mill was classified as a nationally significant environment in terms of its cultural history, in a report titled "Rakennettu kulttuuriympäristö" published by the National Board of Antiquities and the Ministry of the Environment in 1993. A protection order was issued for the mill buildings and machinery, pursuant to the Act on the Protection of Buildings, in 2002.</p> <p>The transition from rags to ground wood pulp also stood as a turning point for the forest industry in Finland in the 1860s. It meant the birth of the ground wood pulp industry. The technology of cardboard manufacturing developed in the late 1890s, as a result of technical innovations. Previously, the labour-intensive cardboard manufacture, including many different work phases, took a decisive step towards mechanical process industry. The first cardboard machine was purchased by the mill at Inkeroinen, from Germany in 1897. The cardboard machine bought by Vääräkoski in 1901 was the fifth in Finland. Vääräkoski Board Mill was small on the Finnish scale, and its production remained relatively constant up until the end. The mill specialized in cardboard, and Vääräkoski's only cardboard machine annually produced 1000 – 4000 tons of cardboard.</p> <p>The value of Vääräkoski is based on the mill complex that has retained its many-faceted nature and on its buildings and machinery that have been preserved in almost their original format – e.g. the cardboard machine is one of the few machines in our industrial history that is a hundred years old. This inventory report is published to leave something for the future generations to read on the Vääräkoski Board Mill.</p>			
<i>Keywords</i>	Rapids, paper, mills, cardboard manufacture, cardboard machine, industry, countryside, community, objects of protection, building heritage, inventory			
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Julkaisun nimi	<b>Vääräkosken kartonkitehdas</b>			
Julkaisusarjan nimi ja numero	Länsi-Suomen ympäristökeskuksen raportteja 3/2008			
Julkaisun teema				
Julkaisun osat/ muut saman projektin tuottamat julkaisut				
Tiivistelmä	<p>Ähtärissä Hyvöläänjoen varrella oleva Vääräkoski oli teollisen toiminnan keskuksena pyöreät sata vuotta. Kosken partaalle vuonna 1898 perustetun kartonkitehtaan toiminta päättyi vararikoon vuonna 1998. Vääräkosken kartonkitehdas luokiteltiin valtakunnallisesti arvokkaaksi kulttuurihistorialliseksi ympäristöksi Museoviraston ja ympäristöministeriön julkaisemassa selvityksessä ”Rakennettu kulttuuriympäristö” (1993). Tehtaan rakennukset ja laitteet suojeltiin rakennussuojelulailla vuonna 2002.</p> <p>Siirtyminen lumpun käytöstä puumassaan merkitsi metsäteollisuuden murrosta 1860-luvulla myös Suomessa. Muutos merkitsi puuhiomoteollisuuden syntymistä. Pahvinvalmistusteknologia kehittyi 1890-luvun lopulla teknisten keksintöjen seurauksena. Käsityövaltaisesta, monta erillistä vaihetta vaatineesta pahvin valmistuksesta voitiin siirtyä koneelliseen prosessiteollisuuteen. Ensimmäinen kartonkikone hankittiin Saksasta 1897 Inkeröisten tehtaalte. Vääräkosken kartonkitehtaalte vuonna 1901 tilattu kartonkikone oli järjestysnumeroltaan viides Suomessa. Vääräkosken kartonkitehdas oli maan mittakaavassa pieni ja sen toiminta pysyi suunnilleen samansuuruisena aina päättymiseensä asti. Tuotanto keskittyi kartonkiin, jota tehtaan ainoa kartonkikone valmisti 1000–4000 tonnia vuodessa.</p> <p>Vääräkosken tehdasympäristön arvo perustuu monipuolisuutensa säilyttäneeseen tehdaskokonaisuuteen, lähes alkuperäisinä säilyneisiin rakennuksiin ja laitteisiin, joista kartonkikone on teollisuushistoriamme ainoita yli sata vuotta iaita. Tämä inventointiraportti julkaistaan, jotta Vääräkosken kartonkitehtaalte jäisi edes jotakin luettavaa historian kirjoihin.</p>			
Asiasanat	Kosket, paperi, tehtaat, kartongin valmistus, kartonkikone, teollisuus, maaseutu, yhteisö, suojelukohteet, rakennusperintö, inventointi			
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