THE PIHLAVA WORKS – SAWN TIMBER, TRACES OF THE INDUSTRIAL PAST AND EMPTY SPACES

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The structural changes that have shaken up European industry in recent decades have led to major changes in many old industrial areas. Several industrial areas built at the turn of the 20th century have been left empty or might be only partially used, waiting new operations. This article focuses on the development of the Pihlava Works, located in the coastal area of western Finland. The Pihlava Works, consisting of a sawmill and a fibreboard factory, is studied both in the context of structural changes and from the point of view of the reuse of industrial areas.

In Finland, the era of industrialization in the late 19th century led to the creation of several industrial areas and industrial communities, many of which were located along the coastal areas of the country. One such company that was established in the 19th century was the A. Ahlström Corporation.[1]

By the early 20th century, the company had large-scale manufacturing plants in eastern and southern Finland as well as two industrial units in the west of the country. One of these units was the Pihlava Works, located in the coastal area of Pori, at the delta of the Kokemäenjoki river, 15 kilometres from Pori city and about 9 kilometres from the port of Mäntyluoto. The Pihlava Works consisted of two main enterprises: sawmill and fibreboard industries.[2]

In this case study, I will examine the Pihlava Works both in the context of structural changes and from the point of view of the reuse of industrial areas. I explain how both the internal decisions of the company and the structural changes in Finnish industry in general have, over recent decades, tested the industrial operations and ownership of the Works and the whole industrial area. Furthermore, I study how the traces of the industrial past can be found in the modern era: How are the industrial plants utilized in the current decade, what are the factors that previously directed their usage and what is the future outlook for the old industrial areas?[3] The research period of the study spans the end of the 19th to the 21st century. The study is based on the corporate histories and personnel magazines of A. Ahlström Corporation as well as on newspaper articles and web-sites produced by the current actors. The study is connected to the project *The Taste and Scent of the Sea*, which aims to identify strengths and potentials, as well as problems and threats, connected to the cultural environment and the cultural heritage of the coastal area of southern and northern Europe.[4]

The structural changes that have shaken up European industry in recent decades have led to significant changes in many old industrial areas. Several industrial areas built at the turn of the 20th century have been left empty or they might be only partially operational, waiting for new operations.[5] Several factors may influence how an industrial area will be reused after the original operations have concluded. In this study, I will apply Swedish business historian Maths Isacson's (2011) studies concerning the reuse of lar-

ge-scale industrial areas and the problems and questions connected to the reuse processes from the 1970s to the 1990s. I have applied Isacson's research because it is, to date, the most comprehensive study concerning the factors and motives behind the reuse of industrial sites.[6]

According to Isacson, there are several possibilities for the reuse of industrial sites. In some instances, a factory's original operations may continue under the direction of new companies, at least on some scale. Further, the industrial areas may also be utilized as industrial hotels or arenas for various cultural activities. Alternatively, former industrial areas may also be utilized as museums, art galleries, theatres, science centres, sport halls, shopping centres, universities, schools, restaurants and even modern residences. Sometimes, industrial areas are abandoned, which may mean that the factories will deteriorate over time. Occasionally, industrial areas are, for a variety of reasons, demolished e.g. for being in poor condition, dangerous to visit and/or costly to repair.[7]

Isacson has also pointed out various possible factors that might direct the reuse of old industrial areas. These factors can be divided into those that mainly reference the *past* and those that reference circumstances in the *present*. Furthermore, the factors can be divided into *tangible* and *intangible* ones. The tangible factors are physically present in the landscape, while the intangible ones are present in personal memories, collective narratives, values and norms. Factors with reference to the past may for instance include: the importance of the industrial area to local community; technology and its scale; the impact of production on the landscape and the environment; the economic and political importance of the industrial area at the regional and national level. Factors with reference to the present and future may, for example, include: the ownership of the area; the physical character and the quality of the area; the location of the area regionally and nationally; the demand for large-scale areas for different purposes; the demand for land for new purposes; the cost of demolition and the preparation of the new use; the process of globalization and its influence on the region and the industrial area.[8]

In this article, I will study what kinds of factors have directed the fate of the industrial units in Pihlava. I will highlight that while there are several factors influencing the reuse processes of the Works, there have also been various factors directing the decisions about whether the original operations continue or not. The company I am studying is a family business and as family businesses can be significant local actors, in the context of a family business, historical values and traditions may direct business decisions more than in non-family enterprises.[9] Thus, in addition to the factors with reference to the present, I will study how the factors with reference to the past have possibly determined the development of the Pihlava Works.

The era of steam power creates new industry on the west coast

The 1860's can be regarded as a watershed in Finland's history. This was the starting point for the industrialization and urbanization of the Finnish agrarian society. The breakthrough of steam power in particular, was essential to the country's industrial development.[10] In the late 19th century, when the rapid advances of technology had reached the point in which water power was replaced by steam, the sawmill industry started to move from the inland areas towards the coastal zones. This tendency applied especially to the districts on or around the mouths of larger rivers, down which the

Floating logs waiting for sawing at Pihlava Bay in the late 1940s. Photo: AAOy.

timber could be floated to the sawmills. This phenomenon was also typical in the case of the river Kokemäenjoki. Several sawmills were established by the river, one of which was the Pihlava Sawmill.[11] Industrial activity started in Pihlava in 1875 when a steam-powered sawmill was erected there by a firm called Fredriksfors Ab. In 1889, the sawmill was then bought by the renowned businessman, Antti Ahlström. At that time, Ahlström owned thirteen sawmills, most of which were situated in the Satakunta region.[12]

During the late 19th century, the Finnish sawmill industry grew rapidly. However, the volatile market trends of that time could quickly slow down a sawmill's production. Along with the declining market trends, perhaps some of the worst threats to sawmills were fires, which could destroy an industrial area in the blink of an eye. In 1900, the Pihlava Sawmill suffered this unfortunate fate. Although the Pihlava Sawmill burned to the ground, within the same year, a new, larger and more modern and efficient sawmill was erected on the same site. The two-storey framed building was equipped with four frames, two of which were double.[13] After the rebuild, the new sawmill was for some years the largest and most modern industrial plant of the company.

During World War I, in 1916, the sawmill was enlarged according to a plan drafted by Bolinders, a Swedish engineering firm that was specialized in sawmill industry equipment. A new four-frame sawmill was built beside the old mill and the two were then merged. After the reconstruction, the sawmill was equipped with a total of eight frames.[14] The era of the Finnish Civil War meant a temporary interruption in production when the Finnish Red Guards stopped the operations at the sawmill in April 1918. However, the war did not cause any material damages to the sawmill and it continued its operations in autumn that same year.[15]

The early 1900's was the era of Antti Ahlström´s heirs, while at the same time, the first structural changes in the company's history took place. Before World War I, the company was one of the largest industrial companies in Finland. During that time, the company started to concentrate primarily on the paper industry and several sawmills were closed by the early 1920s. Although the Pihlava Sawmill was one of the few that continued its operations, on the other hand, the focus of company´s operations began, however, shifting to Varkaus and Karhula. The role of Pihlava was further lessened as the company decided to build its new plywood mill in Varkaus instead of Pihlava. Nonetheless, Pihlava was still important because all the company's other western sawmills had been closed. From 1925–1928, the Pihlava Sawmill employed between 1,150 to 1,200 workers.[16]

Workers at the Pihlava Sawmill in 1920s after the 1916 enlargement. Photo: AAOy.

After the 1930s depression, the sawmill was again thoroughly reorganized in 1937 and five new frames were acquired from the company's Karhula engineering factory. These frames were so called Otso-frames. The reform process also involved the transportation and handling of the timber within the mill as well as sorting, which was automatized. This all was quite unique in Finland at that time.[17] The sawmill's power plant was also rebuilt in 1938 and a new turbine was acquired, after which, the sawmill started to utilize electric power thus relegating the era of steam power to history.[18]

In connection with the sawmill, there was also a pram workshop where the factory´s prams were built. The prams were needed to transport the sawn timber to Reposaari harbour to be loaded. In 1894, the old pram workshop was converted into a machine shop and afterwards, the machine shop served the company´s western sawmills as a repair shop where steam generators and other machines were repaired. In 1905, a new dockyard was added to the machine shop, which manufactured towboats and other smaller boats.[19]

World War I[20] led to an upturn in production at the company's machine shops in Pihlava and Varkaus because of large orders placed by the Russians. After the war, the

The machine shop and towboats in the late 19th century. Photo: AAOy.7

Pihlava machine shop merely served as an ordinary repair shop until it was once again called into action after the Winter War[21] when the company began construction on six towboats ordered by the Soviet Union, which required the reconstruction of the machine shop. New parts were built in Varkaus and the parts were then assembled in Pihlava. When the Continuation War broke out in 1941, the order was then transferred to the Finnish government and after the war to the Military Industrial Contingent, *Soteva*.[22]

Mechanization and automatization of the sawmill industry

The sawmill industry, the traditional backbone of the Satakunta region's industrial business, reached a turning point before other industry in area. The automatization and mechanization of logging, sawmilling, wood handling and the drying of timber already led to a decline employment in the sawmill industry between the 1950s and 1970s. In 1950, the sawmill and wood industries employed approximately 5,000 employees in the Satakunta region, but twenty years later, there were only 3,000 jobs left. Furthermore, the sawmill industry was gradually dwarfed by the growing sectors of forestry, paper and pulp industries.[23]

In the early 1960s, the Pihlava Sawmill operated with three lines of frame saws and the handling of the timber was mechanized. The new dry kiln was completed in 1954 and soon after, the whole output from the factors was kiln-dried, which meant that the stacks of timber eventually disappeared from the industrial landscape. In the beginning of the 1950s, a huge timber-framed shed was also built. And, after the shipping channel from Pihlava to Mäntyluoto was dredged, loading could take place from the factory's own wharves. Sawn timber was loaded directly from the shed onto waiting ships. In the shed, 3,000 Petrograd standards[24] of timber could be stored at a time in the shed that was known as *Isosuuli* (large shed). However, a few years later, the company gave up its port operations. Apparently, the main reasons for the cessation of shipping were due to the shallowness of Pihlava Bay, which was further complicated by the increasing size of the transport ships. The transportation of sawn timber was also gradually shifted to road transportation and [25] in the autumn of 1966, one more significant change occurred in Pihlava when the final log float was hauled in from the sea on the 19th of September 1966. This event marked the era in which the vehicular shipping of timber became the norm.[26]

Before World War Two, A. Ahlström Corporation owned four large sawmills. By the early 1960s, however, the company had only two sawmills, in Pihlava and in Varkaus. The structural change had meant that the company had given up most of its sawmills. However, the company still aimed to produce well-trodden, high-quality timber in addition to its interests in the paper industry.[27]

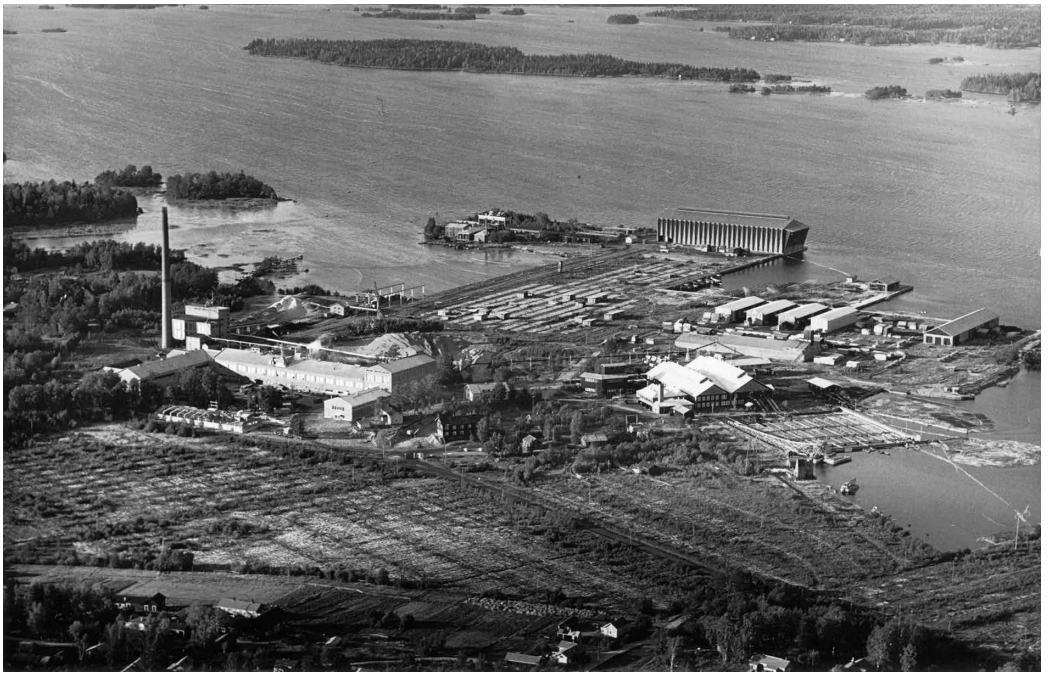
From 1950 to 1970, the Pihlava Sawmill was one of the largest sawmills in the Satakunta region along with the Oy Rosenlew Ab-owned Seikku Sawmill, Pori's Reposaari Sawmill and the Rauma-Repola Sawmill in Rauma. However, the mechanization and automatization of sawmill operations meant that the number of employees decreased significantly: Before World War II, the sawmill employed about 620 workers. In the early 1950s, the sawmill had 477 employees but during 1967–1968, the number was only 107. While this change was substantial, it also affected the entire sawmill industry, not only the Pihlava Sawmill.[28]

A FIBREBOARD FACTORY INCREASES PRODUCTION

In 1948, the Pihlava Sawmill was supplemented by a new plant that manufactured fibreboard. The new factory was built to utilize both the sawmill waste and small timber more economically than was the case when the waste was merely used for fuel. The waste produced by the sawmill was thus converted into a product of high value. The factory produced both porous and hard board, with an annual capacity of 10,000 tons of porous board and 15,000 tons of hard board. At the same time, a new steam power plant was also built alongside the fibreboard factory, which supplied both steam for the board factory and produced reserve power if needed. Sawdust that could not be used in board production, as well as some coal, were used as fuel.[29]

The establishment of the fibreboard factory also meant an administrative change for the company. Until that point, the sawmill and the machine shop had been two separate manufacturing plants that had been managed by the company's headquarters in Noormarkku. After the establishment of the fibreboard factory, the old manufacturing plants and the new fibreboard factory were consolidated into a new unit that was called the Pihlava Works. Along with these changes, the Pihlava Works acquired its own office building and management department. In the late 1940s, the fibreboard factory employed close to 110 workers.[30]

Throughout the 1960s, the fibreboard factory was constantly remodelled and ex-



The Pihlava Works area in the early 1960s. The fibreboard factory is on the left and the power station behind it. The sawmill and the log pond appear on the right. The huge timber-framed shed is on the coast. As the sawn timber was kiln-dried, the former piles disappeared from the industrial landscape and only the traces of the stacks can be seen on the ground. Photo: SKOy.

tended. During 1959–1960, a new refining plant was also built. The new unit produced acoustic *Pihla* ceiling boards. In 1964, the company purchased Mani Oy's painting line for the production of tile-imitation panels made from fibreboard. However, this proved to be unprofitable and the Mani line expanded to include the painting of hardboard. In 1966, the factory´s power station was renovated and a new high-pressure boiler with essential turbines and generators was installed. In 1973, the factory began to produce stone-based Ahlström Mineral roof sheets, which were produced until 1982. In 1974, the processing factory was expanded as were the office premises. In the early 1970s, the factory already employed about 210 workers. In 1979, the power station was again renovated when the first Hans Ahlström Laboratory[31] developed Pyroflow boiler was installed in the fibreboard factory.[32]

During the 1980s and 1990s, the ownership of the fibreboard factory underwent several changes. In 1984, the factory became the property of Finnish Fibreboard Ltd. (Suomen Kuitulevy Oy) after a joint venture between Enso-Gutzeit Oy and Ahlström. Enso-Gutzeit owned 60 per cent and Ahlström 40 per cent of the new company. The company had three factories: Heinola, Karhula and Pihlava. In 1990, another change was to come when Enso-Gutzeit sold its share to Oy Wilhelm Schauman Ab[33], which was the leading producer of plywood and chipboard. After this deal was completed, Schauman became the main owner of the company. In 1997, the company ceased operating the power station, which was sold to the town of Pori, as the company wanted to concentrate on producing fibreboard.[34]

The employees saving 'the last one'.

During the 1970s and 1990s, industry in the Satakunta region underwent drastic structural changes caused by globalization, deep recession and cost escalation. This was an especially dark era for large-scale industry in the Pori region. Pori had been one of the most industrialized towns in Finland at the beginning of the 1970s, however, the situation changed significantly from 1974 to 1993 when factory jobs decreased 49 percent, which meant that approximately 7,990 jobs disappeared. The corresponding percentage in the entire Satakunta region was 25 per cent.[35]

The period from the 1970s to 1990s was also hard on the Pihlava Sawmill. The market trades alternated, lay-offs hindered production from time to time and working weeks were shortened. But despite the depression, many investments and renovations were also made. The end of 1982 ushered in a massive change for both the sawmill and its industrial landscape: The last log was lifted from the log pond along the old transporter inside the sawmill. Afterwards, the log pond was filled and dammed and in the beginning of 1983, a new log field was ready. A new log board was also built in the place of the former transporter.[36]

In the 1980s, the wider Finnish sawmill industry struggled with profitability problems, a challenge which could also be seen at Pihlava. Although the company renovated and invested in machinery, the downturn in sawn timber markets tested the sawmill's operations. In the beginning of the 1980s, the Pihlava sawmill business was in the red and in 1986, the company had no other choice than to suspend production. At that time, the sawmill had approximately 80 employees, who were all about to receive a layoff notice. The whole existence of the sawmill hung in the balance. At the

The Pihlava Sawmill in autumn 2013. The building is over a hundred years-old and the machinery has been renewed completely. Photo: Maarit Grahn, 2013.

same time, the sawmill's parent company was undergoing a historically significant structural change. After making some tough decisions, the company sold the whole forestry industry of Varkaus to Enso-Gutzeit in 1987. Closing down the Pihlava Sawmill would have been a natural continuum for this development[37] as its historical importance began to decline after several unprofitable years.

However, the difficulties that the sawmill faced were eventually overcome due to the resilience of the mill's employees. Additionally, perhaps the company's management also had a shared interest in attempting to continue operations because after the sale of the Varkaus mill, the Pihlava Sawmill was the company's last sawmill and the company had operated it for almost a hundred years. At the behest of the mill's personnel, sawmill production was continued for one year as a special project. A project group was established, and it found several remedies and financial measures concerning technical improvements, raw material and energy saving and workforce restructuring in particular, which were later utilized and thus alleviated the situation. Over the course of one year, results improved, short-term targets were achieved and the company was able to start planning the future.[38]

The sawing process was completely modernized in the early 1990s. The old frame saws were used for the final time at the end of 1991. Subsequently, all the old machinery was removed, and both the ground floor and upper floor were demolished. After the gutting of the factory, nothing remained but the walls and roof. The sawmill then began to use circular saws, which were manufactured at Ahlström's own machine shop in Heinola, instead of frame saws. By March 1992, the sawmill was operational again and the era of information technology had begun.[39]

An eye to industrial heritage

Industrial areas in Finland began to draw interest from cultural environment authorities in the 1970s after many of the first Finnish factories were closed down.[40] In the late 1970s, an inventory report concerning built heritage was compiled in the Satakunta region for a new regional plan. This report included 600 objects, including several industrial environments. However, the Pihlava Works was not included at that time as it was merely regarded as an operational manufacturing plant.[41]

However, the Pihlava Works began to interest authorities in the end of the 1980s, and in 1990, the Work's area was included in the inventory report as a cultural-historically-valuable industrial environment.[42] A. Ahlström Corporation also started to be

concerned about the condition of the old sawmill building after the machines were renewed in the early 1990s. Above all, their aims were to guarantee that the mill's intended usage could continue and to stop the decay of the wooden base floor and 'skeleton frames'.[43]

In 1997, the company applied for renovation funds from the Regional Council of Satakunta (*Satakuntaliitto*). The application was then transferred to the Ministry of Education and from there to a project called the Project for the Maintenance of Building Heritage in the Satakunta Region (*Satakunnan rakennusperinnön hoito*).[44] In spring 1998, the sawmill building was one of the first projects that were financed. The renovation project was carried out together with the Satakunta Museum. With the help of this project, the conservation of the sawmill building was guaranteed, and essential repairs also started. The final renovations were completed during 1999.[45]

In the era of industrialization, the sawmill buildings, painted with earth red, became symbols of Finland's development. However, several sawmills in the Satakunta region, as well as in other parts of Finland, operated only briefly and had already disappeared in the early 1900s. The fates of those sawmills that have remained vary greatly. It is usually difficult to find new usage for these lightweight and unheated buildings. For instance, the Isosanta sawmill in the centre of Pori is deteriorating due to a lack of usage despite it being a listed building.[46] Compared to many other sawmill buildings, the state of the Pihlava Sawmill is exceptionally good as sawmill production continues in this listed building, albeit using renewed equipment. Today, the sawmill building is the only still operating, large-scale sawmill in Finland that was built in the era of steam-powered sawmills.[47] In the latest inventory report, made between 2003 to 2005, the Pihlava Works area was declared as part of a nationally important cultural environment.[48]

The era of new actors

In 2001, the globalized A. Ahlström Corporation split into three separate companies and the manufacturing businesses began focusing on specialty papers and nonwovens. Manufacturing businesses were then transferred to the new global Ahlstrom Corporation. The other two companies established after the division were the private holding company Ahström Capital Oy and the new A. Ahlström Corporation. The latter of which took over the real estate and forest reserves owned by the Ahlström family.[49]

The decision to concentrate on specialty papers and to abandon the original forest industry meant changes for the Pihlava Sawmill when the company sold its last sawmill to new owners. The A. Ahlström Corporation sold the business operations, machines and facilities to the current management of the sawmill. The cultural historically valuable buildings, however, remained the possession of Ahlström. The MBO (management buyout) was completed in 2004. Giving up the sawmill industry that had been historically important was a significant milestone for the company. That is why it was crucial for the company to find a new owner that would continue sawing operations at Pihlava. In the sawmill industry, long-term client relationships both abroad and at home are important. The Pihlava Sawmill had had international clients for over 50 years and that was the legacy Ahlström offered the mill's new owners. The over 100 years-old shipping marks ARF and ARG[50], which had been important for the company and were familiar to company's clients, were also part of this legacy.[51]

In 2013, the Pihlava Sawmill gained a new owner when another family business,

The industrial area of the Pihlava Sawmill in summer 2017. The log field and the log board have replaced the log pond and the former transporter. Over recent decades several additions have been added on. Photo: Jussi Miikkulainen, 2017.

Westas Group, bought the sawmill business. Included in that deal, Ahlström sold the property to Westas Group but remained a minority shareholder in the business.[52] For the new owner, the continuation of operations has been an obvious goal. An indicator of this commitment can be seen in the new investments in Pihlava that its new owner has made.[53]

Changes also took place in the ownership of the fibreboard factory. In 2002, Finnish Fibreboard Ltd. took control of Ahlström's shares in the company, which was also a part of the streamlining process of Ahlström's businesses that occurred in the early 2000s. After the sale, operations at the fibreboard factory continued for some ten years. In 2013, Finnish Fibreboard Ltd. announced that it would close the fibreboard factory. The main reasons for the shutdown were weak demand for fibreboard and foreign competition. Along with the shutdown, approximately 30 people lost their jobs.[54]

The shutdown of the fibreboard factory can be considered as the end of one era. In 2018, Westas Group still owns the land where the factory is located but the manufacturing plants are the property of Finnish Fibreboard Ltd. While one of the factory's production halls is rented out to a local sawmill company, the rest of the manufacturing plant is empty.[55]

Conclusions

The mechanical wood industry has shaped the landscape of Finland's west-coast area since the late 19th century. The traces of the industrial past can still be seen in the 2010s, although the role of the wood industry has decreased after wider structural changes in Finnish industry. The changes and reuse processes that have tested the industrial areas of the Pihlava Works are global phenomena and share similar characteristics as noted in Isacson's studies. The usage of the Works area includes several features typical of the reuse processes of industrial areas but at the same time the case also has some exceptional features. The fate of the Pihlava Works is twofold. The Works is both an example of continuity and empty spaces. The old sawmill building is still in original use. On the other hand, the fibreboard factory is almost empty and awaits new users.

The Pihlava Works is categorized as part of a nationally-valuable built environment. However, this is not a guarantee of appropriate (re)use. The broader structural change in industry has changed the ownership structures of the Pihlava industrial areas although the sawmill and the fibreboard factory have different histories. The sawmill was owned by the same company for over one hundred years, while the ownership structure of the fibreboard factory changed along with the 1980s structural changes. The market trends of the fibreboard industry and the decisions made by the new owner resulted in the shutdown of the factory. In 2017, the fibreboard factory's current situation is quite typical of factories in many other industrial areas where original plant operations have ended. The factors with reference to the present and future determine the fate of the factory. Parts of the industrial area are used as warehouses, other parts empty and for rent. The situation for the estates located in Pori's outskirts is challenging because there are already a plenty of premises available for rent in the area.

According to Isacson, the factors that reference the past can also direct the reuse and maintenance of an old industrial site. The historical importance of the site for the local community or for the owners may influence why some areas may be preserved and perhaps renewed. This case demonstrates that historical values can also influence the decisions connected to the continuation of industrial activity. In the case of the Pihlava Sawmill, the historical importance of the factory to the family business behind it, helped to determine fate of the factory. Because of the historical background of the sawmill, the A. Ahlström Corporation maintained the sawmill building and continued sawmill operations for decades after the company's other sawmills were closed. The roots of the family business are in the Finnish west coast and this has at least partly guided the company's decisions. The sawmill industry was its springboard to success. The Pihlava Sawmill was important because it held traces of the company's successful past and at the same time, it was A. Ahlström's last working saw mill.

In 2017, the new owner of the sawmill made significant investments and the future of the sawmill currently looks bright. However, the future of the sawmill raises an important question: What would happen if production suddenly ended? Could a new usage for the sawmill building be easily found or would it be left empty as a memorial to the industrial past, like the Isosanta sawmill located in the centre of Pori?

The development of the Finnish sawmill industry has involved many kinds of threats and challenges. In Pihlava as well, unpredictable market trends and unexpected fires have several times threatened sawmill production. However, sawmill production has continued in Pihlava for over 140 years. The history of this exceptional

sawmill shows that nothing will remain if left on its own and that the maintenance of an industrial site requires conscious and appropriate usage.

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[1] The company was established by Antti Ahlström (1827–1896). Ahlström was born in Merikarvia, which is located on the west coast of Finland, and started his business in 1851. In the beginning, shipping was the prime concern of his ventures, however, over the following decades, he expanded the business substantially buying or starting up new sawmills. The heirs of Antti Ahlström continued developing the business, and during the 20th century, A. Ahlström Corporation became one of the largest Finnish industrial corporations. Schybergson, 1992.

[2] The company's two large-scale industrial units were located in Varkaus and Karhula. The other western unit, the Kauttua Works, was located in the interior of the Satakunta region, in the municipality of Eura.

[3] A significant industrial community also arose around the Pihlava Works. However, in this study, I will not concentrate on the features or the life of the industrial community.

[4] An industrial heritage research group called the Taste and Scent of the Sea is looking into the dynamics and interaction of coastal industrial landscapes in southern and northern Europe. The Taste and Scent of the Sea is a project of the Degree Programme in Cultural Production and Landscape Studies at the University of Turku. http://www.utu.fi/en/sites/Taste-and-Scent-of-Sea/Pages/home.aspx.

[5] Isacson 2011; See also Grahn 2017.

[6] Isacson 2011. The Finnish studies related to industrial heritage and to the reuse of industrial sites are mainly case studies. The problems Isacson has pointed out in his studies are global phenomena.

[7] Isacson 2011, 57–58.

[8] See Isacson 2011, 58.

[9] See e.g. Elo-Pärssinen 2007.

[10] Rasila 1982, 13–15, 22.

[11] A. Ahlström Osakeyhtiö 1963.

[12] The other sawmills were situated in Noormarkku, Lankoski, Lamppi, Kauttua, Kaunissaari, Leineperi, Pori/Isosanta, Strömfors, Haminahoma, Santalahti, Niemi and Palosaari.

[13] A double frame was a gang saw that could be used for sawing logs side-by-side. The benefit of the double frame was that one gang saw could be used for sawing large timber and the other for small timber. The drawback was that, particularly during maintenance and repairs, both gang saws needed to be shut down. In the late 1800s, the sawmill industry started using single frames. Ahvenainen 1984, 1985.

[14] Tallqvist 1949, 100; Karvinen 1976, 10. In 1919 the production of the Pihlava Sawmill was 5,870 standards, which accounted for approximately 58 percent of company's total sawmill production.

[15] Mattila 1975, 19.

[16] Karvinen 1976, 13; Mattila 1975, 25; Schybergson 1992, 118–119. The other large sawmills that continued operating were in Varkaus, Suursaari and Strömfors.

[17] Karvinen 1976, 13; Tallqvist 1949, 100.

[18] Sjöblom 2008, 92.

[19] Karvinen 1976, 11.

[20] From 1809 and up to independence in 1917, Finland formed an autonomous grand duchy in the Russian Empire.

[21] The Winter War was a military conflict between the Soviet Union and Finland during 1939–1940.

[22] Karvinen 1976, 4, 11, 12; Schybergson 1992, 182; Mattila 1975, 30. *Soteva* (*Sotateollisuuden valtuuskunta*) the Military Industrial Contingent was responsible for reparations paid to the Soviet Union. Between 1905 and the late 1940s, the number of the workers at the machine shop fluctuated from between 50 to 80 workers.

[23] Koivuniemi 2011, 164.

[24] The Petrograd Standard is an old Nordic measure for sawn timber. It measures 4,672 m3. See Hoffman 1980, 23.

[25] A. Ahlström Osakeyhtiö 1963; Sjöblom 2008, 105.

[26] Mattila 1975, 35.

[27] Ahlström 1971, 26.

[28] Mattila 1975, 37; Koivuniemi 2011, 165. The Reposaari steam-powered sawmill was closed in 1974.

[29] Tallqvist 1949, 25, 100.

[30] Mattila 1975, 37.

[31] The Hans Ahlström Laboratory (HAL) was established in the late 1960s in the Karhula Works. HAL was the centre for the research and development

of Ahlström's engineering. Schybergson 1992, 239.

[32] Mattila 1975, 37; Lääperi 1998, 39–41, 96–97. Mani line-imitation panels were utilized e.g. as back planes for cupboards or in bathroom walls.

[33] Oy Wilhelm Schauman later became part of UPM-Kymmene.

[34] Lääperi 1998, 35.

[35] Sivula 2010, 33; Koivuniemi 2011, 172–174.

[36] For instance, the packaging plant was completed in 1972, the barking plant was renovated in 1974 and a new battening plant was readied in 1976. Two of the frames installed in 1937 were also removed in the late 1970s. Sjöblom 2008, 107–109, 111–113.

[37] See e. g. Grahn 2014, 98.

[38] Me Kaikki 1986/1; Me Kaikki 1987/2, 8–9.

[39] Sjöblom 2008, 122–123. The machine shop in Karhula was called Heinolan Sahakoneet Oy.

[40] See e.g. Sivula 2014.

[41] Putkonen 1979.

[42] Ahtola et al. 1990.

[43] Linnala 2000, 115–116.

[44] The Project for the Maintenance of Built Heritage in the Satakunta region was an EU-project that was partly financed with help of the EU structural fund. National funding for the project was handled by the Ministry of Education. The aim of the project was to develop the regional maintenance work of building heritage. The concrete aim was to restore regional cultural environments and especially valuable objects in built-up areas. The project was implemented by the Museum of Satakunta. See Linnala & Nummelin 2000.

[45] Linnala 2000, 115–116.

[46] Nummelin 2012, 63.

[47] Nummelin 2012, 63.

[48] Uusi-Seppä 2012.

[49] See e. g. Grahn 2010, 126. The company's forest reserves are mainly located in western Finland.

[50] ARF and ARG referred to Ahlström Reposaari-fur (Fur is Swedish and means pine in English) and Ahlström Reposaari-gran (Gran is Swedish and means spruce in English).

[51] Vanhatalo 2007, 10–11. A. Ahlström Corporation remained as a minority shareholder in the sawmill business.

[52] "Pekka Koprasta länsirannikon sahakuningas". Kauppalehti, 25.9.2013. https://www.kauppalehti.fi/uutiset/pekka-koprasta-lansirannikon-sahakuningas/sUqWVrjZ.

[53] In 2016, Westas Group invested three million euros in the extension of the sawmill to increase the production capacity of the mill. "Westas Group investoi Pihlavan sahaan kolme miljoonaa euroa." Metsälehti, 27.10.2016. https://www.metsalehti.fi/uutiset/westas-group-investoi-pihlavan-sahaan-kolme-miljoonaa-euroa/; In 2017, the annual production of the sawmill stood at approximately 230.000 m3 (both spruce and pine sawn timber) and the sawmill employs approximately 50 people. Westas. Westas Pihlava. http://www.westas.fi/sahatavara/westas-pihlava/.

[54] After selling its shares in 2002, Ahlström maintained a 10 per cent shareholding in the factory. Suomen Kuitulevy Oy. Yritys. Historia. http://www.suomenkuitulevy.fi/fi/yritys/historia.; "Porin Pihlavan kuitulevytehdas kiinni maanantaina." Yle. Uutiset, 10.4.2013. https://yle.fi/uutiset/3-6572805.

[55] Sihvonen, Taimi 26.9.2017. The local sawmill company operating in one part of the fibreboard factory is Meri-Porin Saha Oy. The company is utilizing the space for planing.

ABBREVIATIONS

AAOy = The archive of A. Ahlström Corporation, Noormarkku (Pori).

SKOy = The archive of Finnish Fibreboard Ltd. (Suomen Kuitulevy Oy), Heinola.

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