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FABRIK&BOLIG

Content

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Introduction

Nordic Industrial Heritage Culture

CASPAR JØRGENSEN

This special issue takes up the formation of industrial heritage in the Nordic and Baltic countries. There have been special issues before and even one in English, back in 1978 on the occasion of the TICCIH (The International Committee for the Conservation of the Industrial Heritage) congress in Stockholm, but normally each issue of Fabrik & Bolig (Factory & Dwelling) is a mixture of different subjects. Here we will analyse one single theme.

Firstly, the focus of this issue will be on de-industrialization and reindustrialization, followed by articles on the listing of industrial heritage as well as on the meanings that are given to industrial cultural heritage. The core will be analyses of which types of industrial buildings have been listed in each of the Nordic and Baltic countries. What was previously, like during the 1980s, considered to be industrial heritage and what is categorized as such in the 2020s? Which agencies produce the categorizations and for what purposes? Are alternative opinions and views considered? In addition, what has been researched? We will approach such questions in the following.[1)]

Over the past forty years, the Nordic countries, like other countries in the "old" industrial world, as well as the Baltic countries have changed their basic character. The number of industrial employees has decreased, while the service sector has increased with jobs that require other professional skills and perform under different conditions. Industrial production is still important for the economy, but it employs less than 20% of the work force compared to c. 35% of 40 years ago. In the 1970s, industrial companies generally had domestic owners and mass-produced standardized goods. Today, companies that survived the economic crises of the 1970s, 1990s and 2008-2009 are highly specialized, high-tech, globally owned and globally linked in supply chains. The COVID pandemic showed how vulnerable this production system is. The risk is great for a new wave of closures of industrial companies. The pertinence of the issues is very specific: Who takes care of these abandoned buildings, remaining documents and people's memories, and how is it done? Or phrased in another way and from another perspective: can the buildings be transformed into a new purpose? The articles in this issue will try to answer those questions.

One of the shale oil workshops from the soviet period in Kohtla-Järve Estonia, run by the Viru Keemia Grupp, which focus on oil shale mining, shale oil, combined heat and power production. Photo CAJ November 2002.

RESEARCH IN DE-INDUSTRIALIZATION AND INDUSTRIAL HERITAGE

The interest in de-industrialization and post-industrial society goes back to the 1970's, although structural change in the manufacturing industry is much older and some would argue that it is an innate trait of the modern economy. One example is "Bruksdöden" or "the Death of the Forges" in Sweden, which implies the decline of the small charcoal blast furnaces and finery forges from around 1850.[2)] The economist Joseph A. Schumpeter used the concept of creative destruction and stated famously *"This process of Creative Destruction is the essential fact about capitalism."* And *"Every piece of business strategy acquires its true significance only against the background of that process and within the situation created by it. It must be seen in its role in the perennial gale of creative destruction... . the problem is usually being visualized is how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them".*[3)] In other words, we are dealing with a long pro-

cess and a dynamic system, which especially has had the attention of economists, but recently increasingly by other social scientists.

In recent years, most authors have maintained the concept of de-industrialization, and there has been a growing concern for its physical and mental manifestations going beyond the purely economic understanding of de-industrialization. What was the social consequences of mass redundancies, population decline and urban blight in general? It was for example the theme of a recent issue of the journal Urban History.[4] On the other hand, de-industrialization has yet to find its way to the standard texts of architectural history, which still avoids disused or reused dockyards, abandoned textile mills and warehouses.[5] Nevertheless, there is an interest in the changing use of buildings and in the gentrification for example of the sweatshop districts of New York since the 1970's.[6] Not only among geographers and sociologist, but also among architects. We know the changes in the built environment in Manchester has been tremendous.[7] For example, over 2400 textile mills and cloth-finishing works were built in the Greater Manchester area before 1924, of which 540 sites were left in 2016.[8] However, we know relatively little about which buildings are being maintained and which are not.[9]

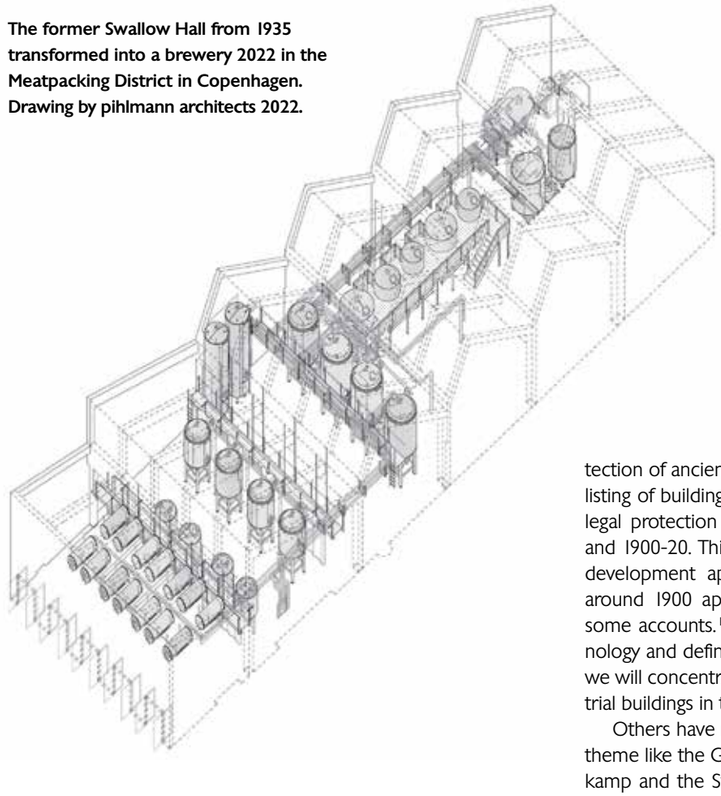
In the historiography of industrial heritage or industrial archaeology, it is quite common to refer to the closing of mills, mines and steel plants as activating the interest in their preservation and to refer to structural change in the economy as part of the background.[10] On the other hand, this connection is less prominent in the growing literature on heritage, which is much broader than the writings on industrial heritage, and looks at heritage from old Egyptians remains and large manor houses to aboriginals' art and the social housing of welfare society.

Since the 1980's several books on heritage have been published. Many of which are based on discourse analysis and social constructivism. Text analysis is widely used, and heritage is in most of the publications understood in a wide sense ranging from ancient monuments and listed buildings to museums and archives, memorial sites and monuments or statues, and extending over landscapes and artefacts to memories and traditions.[11]

In these studies there appears to be a certain consensus on a change in the perception of heritage and the perception of time in the years following the French Revolution under the influence of romanticism. Furthermore, several authors argue that another change in perception of heritage unfolded from the 1960's and the following decades. For example, the American geographer David Lowenthal wrote about a contemporary exponential and global growth in the interest or obsession with the past in 1996.[12] Likewise, the French historian Pierre Nora wrote about a *"current upsurge in memory"* in 2002 as a follow up on the monumental *"Lieux de mémoire"* published 1984-1992.[13] Nora sees France as possibly the first to embark on this "memoralism", followed by Eastern Europe after the fall of the Berlin Wall and the collapse of the Soviet Union and then again followed by the fall of military dictatorships in Latin America and the end of apartheid in South Africa. About France Nora argues, *"that 1975 was the signal moment when the after-effects of the economic crisis, the fallout from the post-de Gaulle era, and the exhaustion of the revolutionary idea most visibly encountered one another."* Concerning the economic crisis Nora underline the uprooting of *"the profound, centuries-old stability of the rural society"*. But is it usually some kind of crisis that triggers interest in the past? And not just change?

Be that as it may, it appears that the interest in heritage among researchers has grown remarkably since the 1990's. The new subject heritage studies was established. *International Journal of Heritage Studies* has been published since 1994, and in the 2010's the formation of the Association of Critical Heritage Studies took place.

Books such as the *Experience Economy* by Joe Pine and Jim Gilmore and *The Rise of the Creative Class* by Richard Florida were published in 1999 and 2001, respectively. Indicating a growing economic interest in heritage and a more business-like approach, English Heritage started to publish Heritage Counts in 2001. Especially the 2010 issue about "the economic impact of investment in the historic environment" underlines the economic approach. Another trend is the growing awareness among university researchers about a rising interest in history or, some would say, memories among the average population or non-academics.[14]



The former Swallow Hall from 1935 transformed into a brewery 2022 in the Meatpacking District in Copenhagen. Drawing by pihlmann architects 2022.

Most of these studies are not about industrial heritage, but there are exceptions. Laurajane Smith's book *Uses of Heritage* from 2006 takes its departure from elderly Aboriginal women telling stories to their daughters as well as from the users of labour history museums. Stefan Berger *Constructing Industrial Pasts* is about historical culture and identity in former industrial regions undergoing structural economic transformation. So there appears also to be a growing interest in industrial heritage among the researchers of heritage. In a recent article in this journal, the author even wonders if the interest in making or creating industrial heritage in latest years has been greater than in studying the factories themselves.[15]

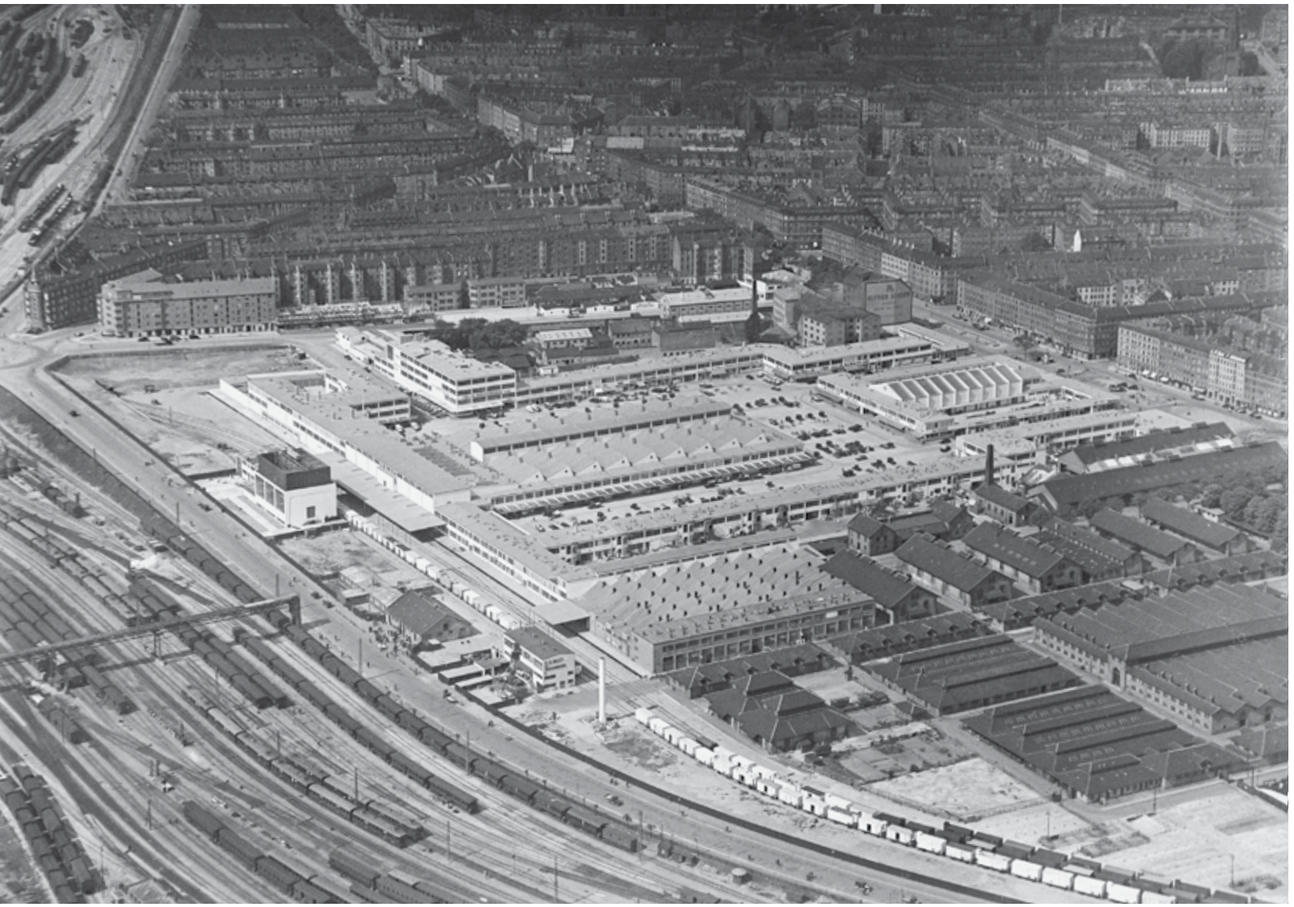
In many of the studies on heritage, the concept is being used in a wide sense, so the observations can be about ancient monuments, museums, experience centres, listed buildings or oral traditions. However, it is useful to distinguish between the process of making and maintaining something into heritage, and the objects and traditions themselves. In the following, we will concentrate on the objects, mainly the buildings. The institutional setup and the diverse regulations are also essential to understand the possibilities and limits for preservation, which is clearly not only driven by marked forces.

In heritage studies it appears some of the chronological accounts are vague, and it is not always clear whether the subject is museums or buildings. For example, the chronology of protection of ancient monuments, protection of churches and the listing of buildings at least in Denmark is quite different as the legal protection were established roughly around 1800, 1860 and 1900-20. This means that the analysis of the chronological development appears unconvincing. For example, the shift around 1900 appears under-researched and even missed in some accounts.[16] We must ask questions regarding the chronology and define both the subject and the place. In this issue, we will concentrate on the listings of factories and other industrial buildings in the Nordic and Baltic countries.

Others have researched a more limited and clearly defined theme like the German professor and historian Winfried Speitkamp and the Swedish professor of architecture and restoration Ola Wetterberg, who have analysed listings in respectively Germany and Sweden during the period ca 1870-1930.[17] Speitkamp concentrates on three themes: the ideas, like the civilization criticism, planning and the establishing of a number of local history associations, the state, like the founding of the German Empire, nationalism and the building of a bureaucracy for administrating the listing of buildings and, finally, the passing of legislation, which made it possible to protect old buildings.

Wetterberg sees several similarities between the perception and protection of heritage in the decades around 1910 and around 1980. He points to the introduction of new materials and new construction technology, which made it difficult to adapt new buildings to existing ones and which elucidated the difference between old and new. Further there were major changes in the use or functions required. This meant that former knowledge about building methods no longer suffice. As a reaction, the qualities of the traditional buildings were underlined and copied, and this reduced the rupture between old and new buildings. Both preservation and research about traditional architecture was a way to influence and form the new. At the same time around 1910, a professionalization of architects and similar fields took place. The state was also in a position to regulate and legislate more. Simultaneously, a specialization among the disciplines at the faculties of arts at the universities took place. Furthermore, the interest in the Swedish building tradition occurred as the task of architects were

The same shale oil workshop in Kohtla-Järve Estonia in 2011. Photo Henry Kuningas.



Aerial view of the Meatpacking District. In the center of the photo, you can see the Swallow Hall. It is gray (yellow bricks) and situated between the white modernistic buildings in Copenhagen of the 1930 and the dark buildings (yellow bricks) of the old "meat city" of approx. 1900. Unknown photographer 1932. KB

extended from official representative architecture to include average buildings and dwellings. Finally, Wetterberg notes that the rationale and critical approaches in cultural history supported each other until around 1930, but then came into conflict.

But none of the above authors have analysed in any detail what was actually listed. This current issue will make up for this deficiency.

As an introduction to the setting, we bring an overview of the economic landscape. This is followed by articles on the listing of industrial heritage in each of the countries and finally a short summary and comparison of the listing of industrial heritage in Nordic and Baltic countries. Some of the articles are presentations of data while others are also reflective and debating, they supplement each other and the reader should see this issue as a totality.

This current issue of Fabrik & Bolig (Factory & Dwelling) is in English, apart from a few reviews, to overcome the language barrier around the Baltic Sea. The articles are one of the results of the project, *Nordic Industrial Heritage Culture in the 2020's*, supported by The NOS-HS (The Joint Committee for Nordic research councils in the Humanities and Social Sciences) and was headed by Susanna Fellman. We thank the NOS-HS for financial support. Further, we would like to use the opportunity to thank the working group of the project, especially Maths Isacson, Marija Dremaite, Pia Olsson, Mart Kalm, Thomas Brandt, Morten Pedersen and Anders Houltz as well as the late Anja Kervanto Nevanlinna for their support and advice.

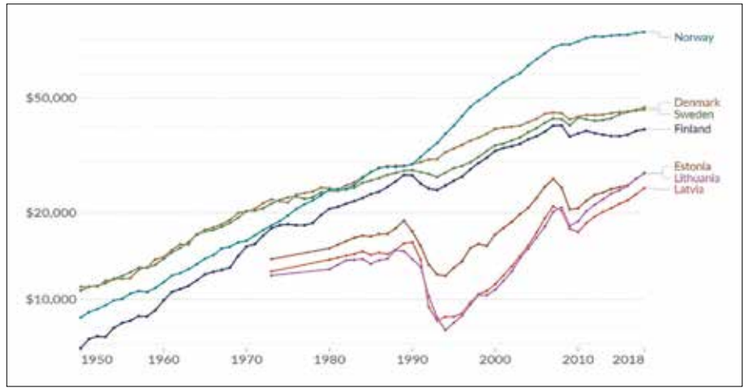
Notes

1) For older overviews see Fabrik og Bolig 1992,1 and Fabrik og Bolig 1997,1.
2) Gösta A. Eriksson, *Bruksdöden i Bergslagen efter År 1850.* Uppsala 1955.
3) Joseph A. Schumpeter, *Capitalism, Socialism and Democracy.* (1942) New York: Harpers Perennial, 2008, p. 83-84. These sentences has often been cited. Etc. Nathan Rosenberg, Joseph Schumpeter: radical economist. *Exploring the block box.* Cambridge University Press 1994, p. 47-61. Sefryn Penrose, Creative Destruction and Neoliberal Landscapes, Post-industrial Archaeologies Beyond Ruins. In Laura McAtackney & Krysta Ryzewski (ed.), *Contemporary archaeology and the city: creativity, ruination, and political action.* Oxford: Oxford University Press, 2017, p. 171-189.
4) Jörg Arnold, Tobias Becker and Otto Saumarez Smith, The de-industrializing city in the UK and Germany: conceptual approaches and empirical findings in comparative perspective. Urban History, 47 (2020), p. 194-198. See also: Moritz Föllmer and Mark B. Smith, Urban Societies in Europe since 1945: Toward a Historical Interpretation. *Contemporary European History,* 24,4 (2015), p. 475-491. Christopher H. Johnson, Introduction: De-Industrialization and Globalization. *International Review of Social History.* Vol. 47, SUPPLEMENT 10: de-industrialization: social, cultural, and political aspects (2002).
5) See for example Kenneth Frampton, *Modern Architecture.* (1980) London: Thames & Hudson, 5. Ed. 2020.
6) Sharon Zukin, *Loft Living.* London: Radius, 1982.
7) Nikki Luke and Maria Kaika, Ripping the Heart out of Ancoats: Collective Action to Defend Infrastructures of Social Reproduction against Gentrification. *Antipode*, 51, 2, p. 579-600.
8) Michael Newell, Saving Manchester's Industrial Past: Regeneration and New Uses of Industrial Archaeology Structures in Greater Manchester, 1980-2018. *Transactions of the Lancashire and Cheshire Antiquarian Society,* 111, 2019.
9) David Edgerton has a chapter on maintenance in his book *The Shock of the Old.* (2006) London: Profile Books 2008, p.75-102.
10) Neil Cossons, Industrial Archaeology: The Challenge of the Evidence. The Antiquaries Journal, 87, 2007, p. 1-52. Marie Nisse, Industriminnen under Hundra År. *Nordisk Museologi* 1996,1, p. 73-82. Anders Holtz, *Teknikens Tempel. Modernitet och Industriarv på Göteborgsutställningen 1923.* Hedemora: Gidlunds Förlag 2003. Anna Storm, *Hope and Rust. Reinterpreting the industrial place in the late 20th century.* Stockholm: KTH 2008. Marina Gasnier, Patrimoine industriel et technique, Perspectives et Retour sur 30 Ans de Politiques au Service des Territoires. *Cahiers du Patrimoine* no. 96, 2011, p.93-112. Axel Föhl, Industriedenkmalpflege in Bundesrepublik Deutschland. *Deutsche Kunst und Denkmalpflege,* 48, 1990, p. 122-133.
11) David Lowenthal, *The Past is a Foreign Country.* Cambridge University Press 1985. Francoise Choay, *The Invention of the Historic Monument.* (1992) Cambridge University Press 2001. Laurajane Smith, *Uses of Heritage.* Abingdon: Routledge 2006. Astrid Swenson, *The Rise of Heritage, Preserving the Past in France, Germany and England 1789-1914.* Cambridge University Press 2013. *Constructing Industrial Pasts, Heritage, Historical Culture and Identity Transformation.* Stefan Berger (ed.). New York Oxford: Berghahn 2020.
12) David Lowenthal, The Heritage Crusade and the Spoils of History, (1996) Cambridge University Press 1998, p. ix.
13) Pierre Nora, Reasons for the current upsurge in memory, 2002. Reasons for the current upsurge in memory | Eurozine.
14) Bernhard Eric Jensen, Læghistorie – status og relevans. *Historisk Tidsskrift* 2021, p. 201-221.
15) Joachim Allouche, Industrial Heritage Studies – en introduction. *Fabrik og Bolig* 2022, p. 50-69.
16) Apart from the writing of Riegel, not much appears to happen around 1900 according to Francoise Choay 2001.
17) Winfried Speitkamp, *Die Verwaltung der Geschichte.* Kritische Studien zur Geschichtswissenschaft 114. Göttingen: Vandenhoeck & Ruprecht 1996. Ola Wetterberg, *Monument & Miljö, Perspektiv på det tidliga 1900-talets byggnadsvård i Sverige.* Göteborg: Chalmers Tekniska Högskola, 1992.

Three Industrial Periods

– and their Significance for Industrial Heritage in the 2020s

SUSANNA FELLMAN & MATHS ISACSON



Graph 1. The development of GDP per capita development in the Nordic and Baltic states, post-war period. Source: Our World in Data, based on Madison's figures.

INTRODUCTION

In this introductory chapter we analyse the changes in global industrial and economic development in a long-time perspective, but in particular since the 1980s. We also open the way for some questions concerning how these transformations have affected perceptions of our industrial heritage in the 2020s. We present a three-phase model of the industrial transition that has occurred. We take as our point of departure the High-Industrial Period (HIP) since the 1930s which from about 1980 was followed by a Hyper-Global Industrial Period (H-GIP). During the 2010s, a period with elements of protectionism and a growing regionalization in the global economy emerged. Some even believe that a period of deglobalization will begin again. However, this seems not to be the case, at least not currently. The global economic environment is evidently going through a period of change. To capture the character of this third phase, we introduce the concept of the Multipolar-Global Industrial Period (M-GIP). Our first aim is to address the main characteristics of each phase, and discuss similarities and differences, which leads to the second aim of the chapter, which is to briefly discuss the interest in and direction of work with our industrial cultural heritage in the 2020s. This connects our text to the other chapters in this SI.

We begin with a description of the global economic and industrial transformations from the 1930s to the 2010s, in particular changes in economic and technological development and in industrial production. Shifts in ownership are also important, as well as the increasing use of global value chains and the outsourcing of industrial production from advanced industrial countries to emerging economies in Asia and in the Global South. We will also note changes in the institutional environment.

Our focus is on what happened *after* the HIP, namely the period from the 1980s onwards, when the shift from the HIP to the H-GIP took place in the industrialized world.[1] This shift occurred gradually, and not exactly at the same time, nor to the same extent, in all countries. The HIP has been dated from around the mid-1930s in Sweden, Denmark, Norway, while Finland, Latvia, Estonia, and Lithuania are later in time, that is, after World War II (WWII).[2] In the Nordic countries, the transition to the H-GIP can also be dated earlier; it began in the late 1970s and took place in the 1980s, while in the Baltic states it took place in the 1990s following their independence from the Soviet Union. The foundation of this transition was a shift from an essentially nationally oriented, rigid industrial production system to a flexible one, based on global supply chains and offshoring of production mainly to countries with cheap labour. This is connected to a deindustrialization in the West occurring from the end of the 1970s. However, on a global level, industrial production instead grew considerably from the beginning of the 1980s and onwards. In the West, the changes originated with the oil-producing countries' (OPEC) sharp increase in oil prices in 1973 and 1979. Added to this was increased competition from low-wage countries in Asia and Latin America that were undergoing rapid industrialization. The incipient computerization and deregulation of the financial markets also contributed to the difficulties of many old industrial companies in West. All this led to a subsequent international economic recession followed by a wave of closures of old smokestack industries. During the 1980s, the transitions continued with increasing pace, with extensive shutdown of old industrial companies and staff reductions in remaining corporations implemented by new, often anonymous, financial owners. In the wake of this followed the era of rapid globalization in the economy up to the 2010s. Despite the uncertainty of which path industrial production will take in the future, we believe that there is reason to speak of a new industrial phase. One of our aims is to identify and describe these patterns and discuss differences between the periods.

These structural changes and developments were significant also for industrial heritage policies. Municipalities, which for decades had been able to rely on prosperous large, locally rooted, industrial companies, had to take over closed and dilapidated factory buildings and large industrial areas which, if they were to attract new businesses, needed to be cleaned up and renovated. Such endeavours were possible in expansive towns, but renewal was far from general. Smaller municipalities with a one-sided business structure that had long relied on one or a few large industrial companies often faced a declining and ageing population and a declining tax base. When local politicians realized the difficulty of attracting new large industrial companies within the same or similar industries, willing to invest in the local community and its industrial buildings, some premises were rented out to associations and small businesses. However, large-scale buildings and land areas with environmentally hazardous waste were often left to their own fate, cordoned off with old fences and gates. People who had worked in the industrial enterprises or who for other reasons had memories of the successful industrial companies of the HIP in an emerging local welfare society, saw no or a bleak future. Even though there had been environmental and social problems within traditional manufacturing, the inhabitants of industrial cities and towns often had a strong industrial identity, which gradually dissolved as laid-off industrial workers moved with their families and the service sector increased its share of the workforce. As Nettleingham (2019) notes, "Deindustrialisation is not just the loss of industry. But the undermining of an image of industrial prosperity".[3]

Manufacturing was talked about more and more as no longer representing modernity or progress, but a past form of work, stigmatized as outdated and polluting. On the other hand, with technological and structural progress, manufacturing production took new forms and became often less polluting and involved less hard manual labour. This has also opened for an interesting discussion about the nature of work in the manufacturing industry. Nevertheless, this process affected not only the economy, but had political and social consequences, both for the identities of the population and the perception of our industrial heritage and its role in the society.

INDUSTRIAL PERIODS AND INDUSTRIAL REVOLUTIONS

To understand the shift that we argue took place in the last two decades of the 20th century, we need to clarify the key features of the previous era and its time span.

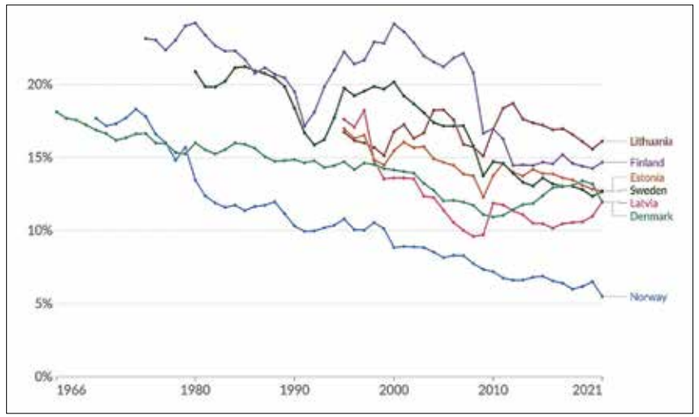
Economic history scholars tend to periodize economic and social development. One common periodization of the last two centuries is the division into three industrial revolutions. When exactly these 'revolutions' took place can vary according to different scholars and is often considered to have occurred at different points of time in different countries.

The basis for these divisions is the breakthroughs of new *core technologies* which in turn were followed by supplementary technological innovations and new social conditions, new social groups, and changes in norms, laws, and regulations. In other words, these revolutions fundamentally changed the way people lived, worked, and socialized with each other.[4]

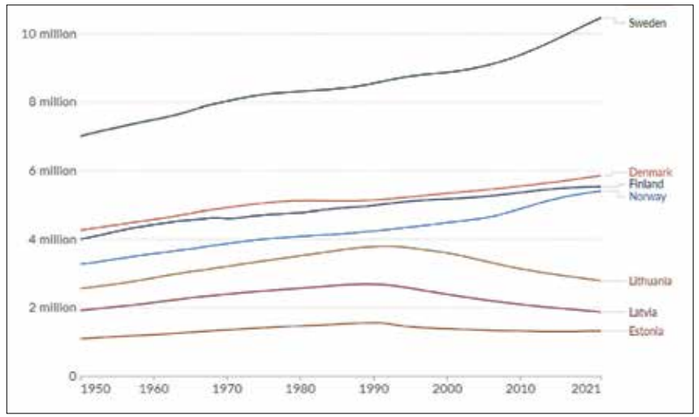
The industrial revolution occurred in Great Britain around the 1770s, which was the first industrialized country in Europe, with Germany, Belgium and France following along with the United States in the early 19th century. During the *first* industrial revolution in Great Britain, steam power and the factory system with their associated division of labour were such core technologies. During the *second* industrial revolution, the internal combustion engine, electricity, telecommunications and rationally organized mass production took on that role. The *third* industrial revolution occurred with data and container technology and the peaceful application of nuclear power. To the three revolutions, the German government in the early 2010s added a strategy for the *fourth* industrial revolution. The German government's term is used today as a designation for the smart, fully digitized factory with Artificial Intelligence, robotics and the Internet of things in our homes. Many scholars are still reluctant to talk about such a fourth industrial revolution, however.

The forces of globalization have also tended to experience different phases. Economic historians usually date a first modern globalization period as starting at the turn of the 20th century, while the second one took place after the end of WWII and continued until the 1990s, when it turned into a hyper-global era. The hyper-global industrial era as a concept is also quite widely used to compare and to contrast with the first period of globalization in the late 19th century, to show that the period in the late 20th century was different from the first globalization period.[5]

In this chapter however, we use different concepts, of which the two first are the HIP and the H-GIP. Both connect to the con-



Graph 2. Manufacturing production as share of GDP in the Nordic and Baltic states, since 1960s. Source: Our World in Data, based on OECD figures.



Graph 3: Population development 1950s-2020. Source: our World in Data, based on UN population prospects.

cept of industrial revolutions when it comes to core technologies. Our concepts, however, are broader. We include all parts of society, not only GDP figures and industrial structure. Our concepts also have greater relevance when interpreting the impacts of industrial cultural heritage. The HIP began with the second industrial revolution and extended up to the beginning of the 1980s. It ends with the third industrial revolution, i.e. it lasted for about 50 years into the 20th century. The third industrial revolution connects to the H-GIP from the 1980s. The *fourth* industrial revolution that some claim began in the early 2010s could be considered to connect to our third concept, the M-GIP. Our three concepts should be understood as a *discourse*, i.e. as a dominant way of organizing, thinking, and talking about economics, politics, and everyday life at specific times in large parts of the industrialized world. Our focus is also first and foremost on how industrial production changes over time and its significance and effects on other parts of the societies in the Nordic and Baltic countries. Therefore, we have chosen to use a concept other than 'industrial revolution' to characterize the changes in industrial society. We want to emphasise that these kinds of periodization are often both schematic and simplified and contested by many, but they can help us to understand the long-term development. We are, however, aware of the complexities.

As we mentioned in the introduction, it is not possible to fit all seven countries in the Nordic-Baltic region exactly into the same pattern and time span when discussing the HIP and its occurrence. One very decisive difference was the institutional basis of these economies, i.e. differences in ownership and the purpose of the industrial companies. From the 1940s, the three Baltic states became part of the Soviet Union and therefore subordinated to the colonialist politics and economy of the Soviet Union. Moscow's political leaders drew up five-year plans with definite targets for the factories' production and sales for the purposes of the Soviet state. Private ownership and free markets were not allowed, more than periodically at the margins. In the four Nordic countries, on the other hand, most industrial companies had private owners who decided what to produce and to whom with the purpose of making a profit. Thus, around the Baltic Sea we had on one side countries with a centralized socialist regime, and relatively independent capitalist companies in democratic countries on the other side.

Another aspect is the pattern and pace of industrial progress. Also, economic and structural factors affect how well some countries fit the description of a high industrial country. A critical question is whether the three Baltic states can be characterized as high industrial at all. Their economic structure was quite different to Sweden for example. Possibly we could argue that Latvia, and especially certain cities such as Riga and Liepaja, can be considered to meet the criteria for a high industrial country, i.e., societies where large-scale, manufacturing production constituted a considerable share of GDP, and overall, an ideology favouring large entities. In Estonia, Tallinn and Narva fall within the concept, as well as Vilnius, Kaunas and Klaipeda in Lithuania; industrial areas and regions existed also in districts primarily considered rural, as 'industrial islands'. However, these three countries relied to a much lesser extent on manufacturing than did Sweden and Finland for example. Nevertheless, we choose to include all seven countries from the 1950s, with a reservation for deviations both in time and in characteristics.

THE HALLMARK OF THE HIP

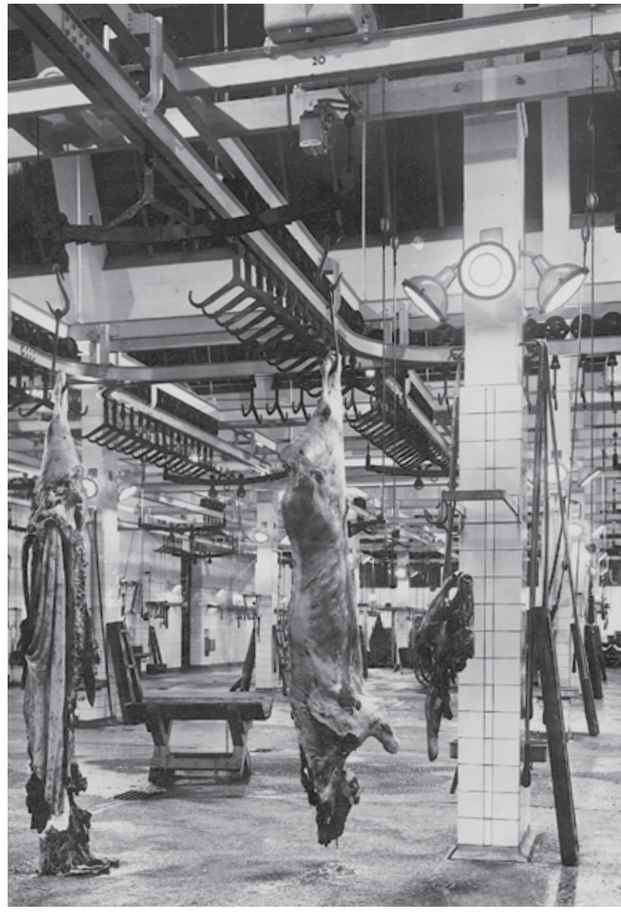
Now let's clarify the most important characteristics of the HIP, from around the mid-1930s until the early 1980s, where the core technologies and their complementary technologies led to sweeping changes in – almost – all areas of working and social life. Since we have previously described the period in more detail in several articles, we refer to them for those who want to delve deeper into this.

The core feature of this period was a preference for the *large scale* and the search for the most *rational way of conducting industrial production* (as well as subsequently all kinds of economic activity), which are two of the most fundamental characteristics of HIP, in the East and West. The importance of the *large-scale* firm is not a new claim. It has long since been empirically verified by business historians.[6] The companies never got as big in the Nordic countries as in the United States, Germany and the United Kingdom because of the smallness of these countries, but also these firms grew, were rationally planned and quite a few became multinational. Both the ideal and the development were similar in all four Nordic countries.[7]

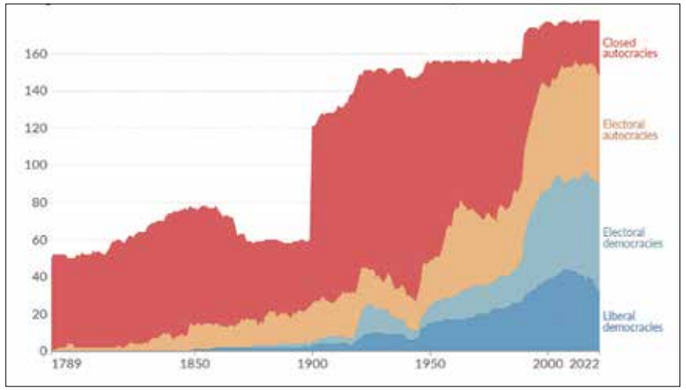
The leaders of the Soviet Empire followed the same ideals in industrialization – and even accentuated the role of the large-scale industry and created gigantic, rationally planned factories in, the Baltic states during the Soviet occupation.

Large, rationally planned factories and offices with people whose task it was to produce *standardized goods* at low unit costs, i.e. in large series with a long-term division of labour and piecework on the factory floor, is thus a central characteristic of HIP. Small-scale private business operations were outcompeted or bought up and incorporated into growing companies. The economic and industrial policies also supported this development. In the Baltic states, private ownership was negligible but existed to a limited extent in the countryside where people employed in kolkhozes were occasionally given private spaces to grow their own produce on a small scale.[8]

At the beginning of the HIP, wage labour primarily applied to men. After the WWII, with the expansion of the welfare state, women's wage labour increased, as did the *gender division of labour.* Women worked primarily in low-paid jobs in trade, service, care, and other welfare sectors and on the assembly lines of factories. Men, on the other hand, worked in leading, more qualified, and better paid positions and in blue-collar work as skilled workers. Men who moved from smaller farms in Sweden were initially assigned a place at an assembly line or were put to work doing other types of simple and lower paid jobs. But after a while they got more responsible and better-paid tasks. Immigrants, those who were not born and raised in the country, however, usually had to take the lower paid jobs, with fewer opportunities to advance.



Kødbyen in Copenhagen. The Swallow Hall 1935. Unknown photographer 1932. Københavns Museum.



Graph 4. Countries that are democracies and autocracies, World Source: Our World in Data.

Another characteristic was *centralized negotiations* in the labour market, without the influence of the state, in the Nordic countries. In the Baltic states, as part of the socialist USSR, the state had obviously a very strong position with power over all parts of economic and social life, while free wage bargaining between workers and employers was not applied.

Another tendency in the Nordic and Baltic countries from the end of the 1940s was *a geographical spread* of mass production to regions within the countries with high unemployment and low wages.[9] In Sweden, Denmark and Norway this occurred from the end of the 1950s and in Finland during the 1960s. This was followed by a continued geographical spread, but now across their national borders. Exposed to competition, mass production moved to countries with lower production costs, for instance in the south of Europe.

THE IMPORTANCE OF THE HIP

During these 50 years of the HIP, there was a shift from agriculture to urban industries, while the technology to mass-produce cheap goods spread to a growing number of producers. Meanwhile the infrastructure, the education system and the welfare system expanded; in the Nordic countries via the tax system, in other developed countries in the West via a greater element of private solutions.[10] The strong economic growth during these fifty years is explained, as Lennart Schön has stated, by "the interaction between automation, motorization and an abundant supply of energy, above all oil". Also, other scholars discussing long-term development have presented similar arguments on core resources. For example, Carlota Perez has labelled the period as the 'Age of Oil' (and Mass Production).[11] International trade grew with larger ships, trucks, and airplanes.[12]

The result was a substantial increase in income and welfare, and reduced income differences. The growing resources were used for shorter working days, longer holidays, better health through the development of medical science and global medical efforts, an improved standard of housing through the demolition of old dilapidated buildings, and extensive new construction and investments in education and transport equipment. The standard of living and life expectancy increased globally, although differences remained between countries and continents.

The world's population increased rapidly from the 1940s. In 1980, 4.5 billion people lived on the Globe, twice as many inhabitants as in the early 1940s. The number of inhabitants in the Nordic region increased from 16 million in 1930 to 22.3 million in 1980. During the same period, the population of the three Baltic states grew from approximately 5.4 to 7.4 million.[13] However, gradually birth rates started to decline with increasing prosperity. With ageing populations, the need for elderly care increased.

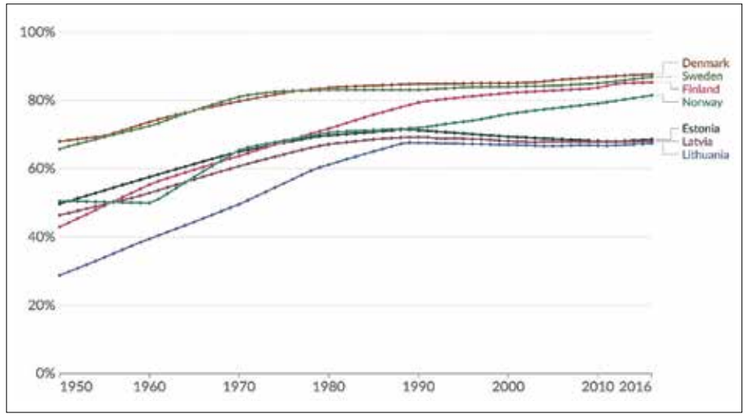
After WWII, the world became divided politically. The number of democratic states increased in some parts of the world, especially in the West, while socialist dictatorships in the East expanded after the occupation of several Eastern European countries. The decolonization of former colonial empires became playing cards in the international politics. The result was both the Cold War with a periodical increase in the threat of nuclear war and growing tensions between the Global North and South. In 1980 however, according to the organization Freedom House, around 65 of the worlds roughly 170 sovereign countries were liberal or partially liberal democracies.[14]

Urbanization and depopulation of the countryside were other consequences of the large-scale production in big companies. In Sweden, the demographic turning point took place in the early 1930s. The pattern was similar in the three other Nordic countries with some delay in Norway and Finland.

The urbanization of the Baltic countries was more complicated than the Nordics because of the Baltic-Germans leaving in 1939, mass emigration to the West in 1944, Soviet mass deportations during the 1940s, and escaping to cities because of collectivization of the farms in 1950s. In Lithuania, urban growth was speedy from the beginning of the 1950s and in 1955 about 35 percent of the population lived in urban areas. In 1970, this figure was 50 percent and 68 percent in 1992. In Estonia, urban dwellers were 47 percent in 1950, and 72 percent in 1988, of the total population.[15]

During the 20th century, Estonia was the world's largest oil producer through extraction in oil shale mines, a production that began in 1921. From 1924, oil shale was used to generate electric power, but the oil gained importance above all after conversion to gas for industrial companies and households in Estonia and in Leningrad. The increased need for electricity in the north-western Soviet Union soon led to the construction of large oil shale-fired power plants. A mining centre was Kohtla-Järve in the northern part of the country. Here, extraction reached its peak in the 1980s. Since then, mines have been closed, dilapidated or turned into museums. Today, Viru Keemia Grup, a private Estonian large-scale industrial company in Kohtla-Järve, conducts oil shale mining, combined with heat and power production as well as production and marketing of fine chemical products. Estonia still has the two largest oil shale-fired power plants in the world. In recent years, production has decreased due to the large emissions of greenhouse gases and of waste that destroys the environment. Photo: Henry Kuningas 2013.

Graph 5. Urbanization in the Nordic and Baltic countries. Source: Our World in Data, based on UN.



On the HIP's *negative account*, we have its environmental problems. The use of toxic substances and emissions of smoke and particles destroyed waterways and land, and its emissions of greenhouse gases causes global warming. *Environmental destruction*, climate change and reduced biological diversity are 'gifts' from the high industrial period to the present and future for all living things on our planet.

Awareness of the threats to the environment on Earth grew gradually during the 1960s. Very important in this was Rachel Carson's book "Silent Spring" published in 1962, which was followed by other books on the same topic in western countries. In June 1972, the first global environmental conference was held in Stockholm under the auspices of the UN. It laid the foundations for future climate conferences, but not much happened on the global level until publication of the Brundtland report "Our common future" in 1987.[16] In the report, the concept of sustainable development was launched. The following year, the UN's Intergovernmental Panel on Climate Change (IPCC) began compiling the state of research on climate change. The awareness was there but the increased emissions of greenhouse gases during the HIP did not stop; quite the opposite, carbon dioxide emissions and the threats to biodiversity increased even faster.

THE TRANSFORMATION TO AND THE CHARACTERISTICS OF THE H-GIP

The high-industrial model worked relatively well after WWII. Living standards rose, and welfare systems were gradually expanded. But at the end of the 1960s, the ideology of 'large-scale' began to be questioned in the West. Of great significance were the perceived poor working conditions in many factories,[17] large-scale industry's pollution and the broader environmental problems that could not be evaded any longer. Another problem was low economic growth, high unemployment and high inflation (stagflation) in many countries from the middle of 1970s, after the oil-producing countries had sharply increased the price of crude oil. This hit both the industrialised and the lesser developed countries hard due to dependence on this form of energy. The Golden Age of the post-war decades came to an end. In the Nordics countries the oil price increases in 1973 and 1979 also led to the gradual transition towards other energy sources, but as we know, it has been very difficult to detach from fossil fuels. Simultaneously, there was stagnation, or at least slow-down, in traditional industries in many western countries due to increased international competition from low-cost countries and fast-growing economies in new areas.[18]

Other factors also contributed to the stagnation in the international economy, especially the abolishment in 1971 of the international currency system called the Bretton-Woods System. Under this system from 1948 onwards, gold was the basis for the US dollar while other currencies were pegged to the US dollar's value. In 1971, the US terminated the convertibility, and the system came to an end. The system had suffered for some time due to an overvalued dollar, an unwillingness among many countries to stick to the rules, but more structural factors in the global economy had also made the system weaker. The aim had been to form a foundation for stable international economic development after WWII, but in the increasingly problematic economic environment, the system became unsustainable.[19]

The stagflation made traditional economic policies difficult to implement. Previously there had been a trade-off between inflation and economic growth, now there were both weak growth and inflation.

At the same time, a comprehensive deindustrialization in the old industrialised countries began, best characterised as the crises of the 'old smokestack industry'. The service sector grew and gradually took over as the main sector in the economies of the western world. New technology emerged which also furthered structural change in manufacturing industry. This made the model based on large-scale mass-producing companies with an inflexible factory system increasingly obsolete.

The growth-oriented economic and industrial policies adopted after the end of WWII started being questioned too. It was increasingly argued that neither the economic nor the industrial policies that had aimed at enhancing the existing industries and smoothing out cyclical fluctuations solved the problems in the new global economic situation. A shift in economic policy thinking occurred. In the industrialised West, free trade, the liberalization of financial and product markets, and the promotion of innovation and entrepreneurship became the new policy mix to solve the economic problems. The greatest possible flexibility also became a lodestar for all businesses, not least for industrial companies.

Some factors that explain these changes were also to be found in the international economy. Since the beginning of the 1980s, but especially from the 1990s onwards, the global economy transformed, and many less developed economies experienced an era of rapid development and catching up. This occurred first in South-East Asia, but the process spread to other countries and increasingly also to the Global South. The fall of the socialist system in Eastern Europe around 1990 meant that this group of countries also began to catch up, although they suffered a deep crisis during the first years of transition. Unfortunately, an overall shift in the division of labour in the global eco-

The Ignalina nuclear power plant in eastern Lithuania near the border with Belarus was built from 1978 to supply the Soviet empire with electricity. The first reactor was commissioned in 1983 and the second in 1987, while work on the third was suspended in 1988 after the Chernobyl disaster 1986. The power plan was at its time the largest in the world and operated for around 25 years. After Lithuania's liberation from the Soviet Union in 1990, the nuclear power plant became a vulnerable energy resource in the independent country. Money was granted from the European Bank to upgrade and secure the reactors, which, however, was not enough. For the country to become a member of the EU, the union demanded that the poorly maintained and risky plant must be closed, which also happened in 2009. Since then, the city Visaginas, which was built to shelter the workforce, has lost many inhabitants. Today, the nuclear power plant is an "anti-landscape, a wasteland awaiting new investment to bring hope to the community".(Storm 2014, p. 98). A few years into the 2020s, the nuclear power plant is being decommissioned and demolished. Plans exist, however, to create a museum or exhibition around the town of Visaginas and the Ignalina nuclear power plant. Photo Anna Storm 2010.

nomy occurred at the same time as technological development made the outsourcing and relocation of industrial production to less developed regions possible. Countries with firms that produced at significantly lower costs were now successful competitors for market shares.[20)]

The development that occurred in high-income countries at the turn of the millennium was occasionally labelled the 'new economy'.[21)] This was based on an idea that the economic foundations had somehow changed due to structural transformations and the new global environment. Although this was not really the case, the era led to rapid transformations. This phase was built foremost on new technology, especially rapid computerisation, and new communications technologies. Competition intensified globally, in particular with the catch-up of low-cost industrial countries in other parts of the world, and new 'smart IT technologies' for calculation and planning became available, which made offshoring and outsourcing possible and led to a rapidly increasing use of long supply chains.[22)]

Ignalina nuclear power plant. Photo Anna Storm 2010.

Transportation – especially shipping – costs decreased sharply with the fast-growing container technology. This enhanced the relocation of production and the development of a global supply chain system with components that were shipped between countries and continents. At the same time, institutions promoting global economic interaction, and in particular a swift liberalization of the movement of capital and goods, were introduced, which supported this development. This increasingly promoted moving production across national borders, a process that had begun after WWII, when the first global efforts to open borders and free trade were taken. But since the 1990s, this development has gained pace due to faster transportation and improved communication technology. In the Nordic Baltic region, these patterns were strengthened with the fall of the Soviet Union and the independence of the Baltic states around 1990. Globally, the movement of capital and international trade grew rapidly, and the era of what has been called Hyper-Industrial Globalization began.[23)]

In the new millennium, many countries introduced programmes to boost innovation and 'pick the winners' for the future economy, while entrepreneurship, self-employment and subcontracting was considered to be a solution to achieving a more dynamic form of the market economy. The 'network economy' became another mantra alongside the 'new economy'. Instead of large-scale integrated firms, the future was for more loosely integrated relationships and organisational forms.[24)] Small-scale start-ups and networks became indeed more common, especially in new industries, but many industrial companies continued with mass production, were still large and some even grew. This development also occurred in the new high-tech branches. However, these companies were often organized in new ways. Everything that was not considered to belong to their 'core businesses´ was outsourced. The number of employees in direct

Nord Mill's area in central Uppsala 1986. A ship is unloaded at the harbour. Grain is transported via a ship elevator to the silo building. Photo Lennart Engström 1986.

production was reduced when 'side operations' were transferred to other companies and bought in, when necessary, at the best (low) price. Corporate brands, in the form of strong and well-known company and product names, became increasingly valuable assets.

As business operations were spread across the world and linked together with subcontractors and transport companies with the requirement to deliver components or final products at exactly the right time to customers (just-in-time). The factories' own warehouses, which previously tied up capital, were minimized. At the same time, industrial companies became dependent on specialized high-tech producers of components all over the world as well as on transport companies and efficient supply chains. Solving logistics problems became a core competence. The need for own storage and service premises was significantly reduced.[25)]

The geographical spread of manufacturing production that was already established during the HIP grew faster from the beginning of the 1990s. The Baltic countries experienced an important transfer of mass production from the Nordic countries. Old and dilapidated factories in primarily Latvia and Estonia were taken over and put into operation by western industrial groups.[26)]

The investments in the Baltic Sea region became particularly extensive when the Baltic states received EU membership in 2004 and joined the euro area. For example, Estonia became an attractive investment location for foreign capital, and a large share of the foreign direct investments (FDI) in Estonia originated in the late 1990s and early 2000s from the neighbouring Nordic countries.[27)] Finnish investments in Estonia were especially important. The largest foreign-owned manufacturing company in the 1990s and early 2000s, was the Finnish-owned *Elcoteq*. It was the second highest employer in the country.[28)]

When after a while, wages rose in the Baltic countries' factories, the Nordic firms moved their industrial production further east and/or south to countries with lower labour costs, lower requirements for worker protection and weaker – if any at all – trade unions. The new countries were primarily China, India, Bangladesh and Vietnam, but also other former Soviet countries in Eastern Europe – if the companies survived at all in the intensifying global competition.[29)]

The Nordic companies, especially those in the financial sector, faced great difficulties in the Baltic countries during the financial crisis of 2008-2009. Overall, the financial crises hit the small Baltic states hard. Nevertheless, these countries experienced a growth spurt again in the 2010s.[30)] Ownership has also changed and diversified fast. Gradually, it became more interesting to invest in economic activities other than industrial production and both domestic and foreign owners became important in the Baltic states.[31)] The Swedish banking sector is still prominent in the Baltic countries, however.

The independence of the Baltic states after the dissolution of the Soviet Union was here followed by both great difficulties and new opportunities. It has not been easy to build democratic institutions that the majority of citizens' support. On the other hand, the influx of Western capital and business created new jobs after Soviet-led factories were dismantled. But countless dilapidated factories have been left to decay and old industrial towns have lost jobs and population.[32)] In the long run, indepen-

dence meant a substantial loss of population. In 1990, the number of inhabitants was the largest in the three Baltic countries. Since then, there has been a decline, partly because a large share of the Russian-speaking population has moved to Russia, but also because of high death rates and above all because young and middle-aged people have moved to the West for education and work. In 1990, the three countries had 7.93 million inhabitants. By 2020, the number had decreased to 5.94 million, i.e. on par with the number in the early 1930s.[33] Membership in the EU and NATO has simultaneously meant new economic opportunities and security. Sweden, Norway, Denmark and Finland (including Åland) have had a more positive population trend since 1990. In 1990, the number of inhabitants amounted to around 24,4 million. On January 1, 2022, the figure was 27.5 million.[34]

One could conclude that if the HIP was built on a monolith model of large-scale mass production and increasing integration, the H-GIP is marked by fragmentation, decentralisation and a 'palette' of corporate models and ideas and values. This can be assumed to influence industrial heritage culture. Where is the manufacturing production located? What is industry/manufacturing? Who are the owners and are they at all interested in preserving past industrial history? From the 1990s, these features became increasingly complex.

THE SIGNIFICANCE OF AND PROBLEMS WITH THE H-GIP

In purely economic terms, the global economic development of the H-GIP was indisputably favourable for the industrialised world, for the former socialist countries and for many of the new emerging economies; a swift economic development occurred. Manufacturing production of goods as a share of GDP decreased in the Nordic countries, and in the entire western world. On the global level, however, industrial production grew, and more and more countries industrialized. A large share of manufacturing production is often a prerequisite for catching up among late-coming countries. A rapid decline in absolute poverty globally followed. On the other hand, increasing interdependence made countries vulnerable to external shocks, and one such crisis was the global financial crisis of 2008-2009. Since then, there has been a slowdown in the expansion of global trade. The period of hyper-globalisation is over. This has become even more pronounced since the 2016 US-China trade war, the vote for Brexit in the UK, President Trump's statements to bring back production to the US, recently followed by President Joe Biden's very expensive *Inflation Reduction Act* which requires fossil-free technology to be produced in the USA. All this has forced the EU to take measures to limit the relocation of European companies to the US. The COVID-19 pandemic, the full-scale invasion by Russia in Ukraine, and rising geopolitical tensions has meant that countries have become more cautious about outsourcing core production to other countries, especially on other continents.

Thus, during the last decade there has been growing protectionism and regionalism. The geopolitical risks make countries want to decrease dependency on other countries or neighbouring regions (such as the EU). The fast-growing areas outside the western world developed their own regional cooperations and trade agreements. In fact, the increase in both capital flows and global trade is slowing down and changing shape, although not decreasing.[35] The world today is increasingly *multipolar* with several regional power centres. In addition to the EU and the US, other large countries such as Brazil, India, Russia, China, and South Africa (the BRICS countries) have aimed to strengthen their position in the global economy, although Russia and South Africa stagnated economically during the 2010s and the early 2020s. However, India and China are clearly shifting the global economy towards a more multipolar world.

Because of recurring economic crises, there is resurgent desire in Western Europe for more state-led industrial policies, and for alternative economic theories to fight inflation, partly resonating with 1970s policies. This development has been strengthened by growing environmental and social activism. In recent years, partly triggered by social media and a new type of political leader, we have globally seen stronger political polarization, with categorical opinions for or against free trade, broad collaborations, and human freedoms and rights.[36]

But does this have any significance for attitudes to industrial

	HIP 1930s-1980s	H-GIP 1980s-2010s	M-GIP 2010s forward
Industrial production	Standardized manufacturing of bulk goods Private and state-owned companies Mainly domestic owners Localized in small towns and rural areas Domestic owners	Niche production with high economic value Increased share of institutional owners; internationalization of ownership Global value chains and mass production Flexibility and just-in-time	Niche production Mass production in developing regions Institutional owners, international ownership New tendency to "bring home" development and production?
Industrial architecture	The large scale constructed by architects Manifestation of the owner and the company Standardized factories constructed by engineers Headquarters in local society	Anonymous factories in sheet metal unrelated to local traditions Efficient and flexible, spacious buildings Well-designed headquarters in big cities	Factories with limited inventories and a high degree of flexibility Well-designed headquarters in big cities
Industrial labour & work	**Blue collar workers** – in majority Stiff, physical, practical work **White collar workers** – in minority Work in hierarchical organizations Gendered division of labor	**White collar workers** – in majority in the West Digitized construction, design & service **Blue collar workers** – flexible, monitoring digital machine systems, transport and services Ethnic and gender division of labor	AI, intensified robotization Flexible, service-related production for both blue- and white-collar workers
Most important contributions	Increased range of (cheap) goods Prosperity and increased life expectancy Women's entry on labor market in low-paid service jobs	Economic growth and welfare, rapid globalization and urbanization International agreements on tariff and trade	A return of production to the Nordic-Baltic region? Large-scale investments in fossil-free production and transport
Significant problematic elements	Protectionism and domestic production Gender and classes, collectivism Urbanization, de-population in some areas Pollution of water soil and air, use of pesticides	Requirements for higher education Individualism and anti-collectivism Inequality within countries, depopulation of the countryside Carbon emissions high	Migration, anxiety, and mistrust Growing inequality Tensions between global south and north Still high emissions and rising temperature, but green transition begun

Figure 1. The three industrial periods according to main characteristics. Source: Own elaborations.

cultural heritage? The simple answer is yes. Strong right-wing nationalist currents can influence cultural heritage, while the left's attack on global capital – together with the older population's dark memories of former working conditions – can also lead to a questioning of how industrial history is told and what should be preserved. The scaled-up efforts to limit the global temperature rise to the Paris Agreement's 1.5 degrees (or in any case below 2 degrees) and the recently signed global agreement on biological diversity may also have an impact on both the views on and efforts to preserve older polluted industrial remains. Industrial cultural heritage is indeed not a completely unproblematic field or a field without tensions in view of the major contentious issues of the 2020s.

Before moving on to the next phase of industrial development, we need to clarify whether the H-GIP was distinctly different from the HIP or not. The large scale and mass-production, two of the HIP's main characteristics, persisted in many ways. However, as pointed out above the large industrial companies were organized in a different way. Strong, well-known brands became worth their weight in gold. Networks and supply chains tied together flow-like global manufacturing. Wage labour was still strong but decreased as small businesses and self-employment grew. Urbanization continued unabated while the countryside lost inhabitants and economic activity. At the same time, prosperity and living standards improved significantly all over the globe.

On the downside, from the early 1980s decades of economic equalization and narrowing class gaps were replaced in many countries by increased inequality and segregation. The gender division of labour decreased but retained its main features: women still work to a larger extent in low-wage jobs in the service and welfare sectors, while men work more often in the manufacturing sector and in particular hold management positions.

A NEW INDUSTRIAL PHASE?

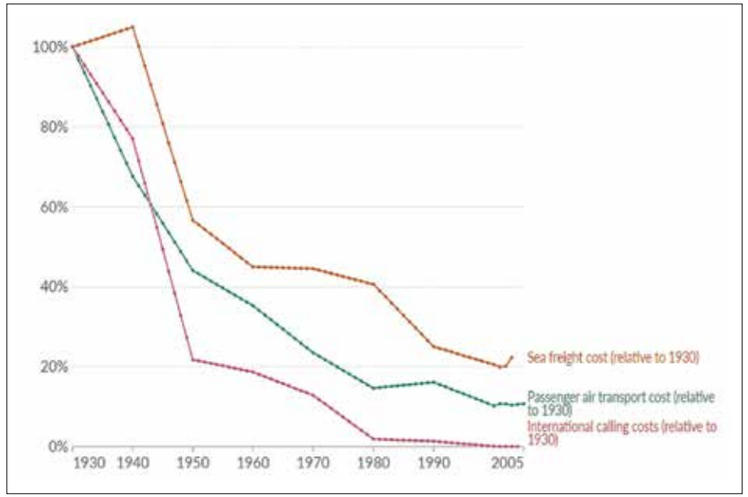
In the early 2020s, a chain of severe crises occurred, as we have mentioned before in the article. This was a new blow to global economic interactions. Are we facing not only a slow-down but an era of de-globalization?

As economic historians, we are not taught to analyse the present and we seldom speculate about the future. However, we are sure that COVID-19 showed the vulnerability of the tightly integrated world economy. The crisis was not a result of political or military hostilities, but despite this, many countries closed borders and prevented exports of crucial, especially medical, supplies. The Russian full-scale invasion in Ukraine, on the other hand, shows that economic interdependence does not prevent wars and energy became again – as in the 1970s – a key player in international politics. Thus, countries' political leaderships have rethought their dependence on other countries. Examples are the EU's and US's ambition to increase the production of key components (e.g. semiconductors) and critical resources in Europe and in the USA to assure their own advanced manufacturing.

Voices urging that countries 'take home' the production of specific key products for preparedness reasons have grown

louder lately. We can also observe a tendency among global companies to bring back part of their previously outsourced production to Europe and the USA to reduce the risk of transport disruptions and to avoid geopolitical risks, but also to better coordinate research, development, production, and sales. However, no full-scale deglobalization has yet occurred.

"Built in 1932 as a modern(istic) large-scale butchery in Copenhagen's meatpacking district, since 1991 it has hosted a range of commercial businesses, today becoming a food production facility 2.0. Located within the city, ÅBEN restores the industrial legacy of the building and turns it inside out by inviting the public into the brewing processes, consequently blurring the contemporary distinction between public and production. Originally, the space functioned as chill hall, where 980 carcasses hung from a robust meat hanging rail system for 12 hours until the caloricity had left their bodies. The rails are still present, but the carcasses are replaced with steel vessels connected by kilometres of exposed piping." Text pihlmann architects 2022. Photo Hampus Berndtson.



Graph 6. Transportation cost development, global development. Source: our World in Data, based on OECD Economic outlook

One clear tendency is that governments are strengthening their existing regional collaborations (the EU is one example) or establishing new ones to stand stronger against China, Russia, the EU, or the USA.[37] What this means in the long term for world trade is difficult to say today, but it may further limit the influence of the old, industrialized countries of the West. Their answer may be even more protectionism and strengthened regionalization of production and trade.

Another interesting question is whether, in the long term, it will also lead to a return of fully integrated companies, i.e., companies that have all their operations gathered in one place, or in any case in a country that was commonly used during the HIP? Or is this a pattern more likely for only a limited number of companies, and if so one that can be interpreted as a tendency towards increasing regionalization?

We should not only blame the geopolitical crises and the pandemic for the recent changes. Economic and technical factors also affect shifts in global trends. Because of automatization, robotization and AI, for example, the demand for cheap labour elsewhere is decreasing.[38] In addition, labour costs in many developing countries are not as low any longer. Overall, trade patterns and foreign capital flows (FDI) are changing due to economic development into new regions, in East Asia and increasingly in some countries in Africa.

Some scholars have concluded that the decline in trade is not so much dependent on protectionism as on the financial crises and structural transformations. There has been a slowdown in trade growth since the financial crises 2008-2009. The growth in international capital movements (FDI) has slowed down even more, while offshoring has been partly replaced by nearshoring and even homeshoring. The risks from the global crises commonly have more direct effects on FDI than on trade flows. Nevertheless, economic experts emphasize that although the hyper-globalization period might be over, a new era of deglobalization is not yet visible globally at full scale in any case.[39] The slow-down in the growth of trade volumes is perhaps a normalization process after an era of hyper-globalisation.

Globalisation affected the localisation of industrial production during the HIP and H-GIP periods. Services are more tied to the place where they are consumed. However, with the swift development in communication technology and the expansion of AI, many services can also be outsourced or outplayed (call centres). Nevertheless, we can also say that the death of the manufacturing industry is greatly over-exaggerated. Lately, reindustrialisation (which does not only include take-home of production) has become a new political focus in the western world, i.e. how (and if) we can renew our industrial base. This question is closely tied to the current aims for transition to green technologies.

Beyond the repercussions from the war in Ukraine and the pandemic, there are more structural factors affecting the future. Shifts in global economic power balances, in population developments, (e.g. India overtaking China as the largest country in terms of population and the rapidly ageing population in China) and the environmental issues will affect economic development in the future. A factor that in recent years has become increasingly important for the localization of industry is the availability of strategic raw materials and even more so of fossil-free energy to reduce greenhouse gas emissions and meet national environmental commitments.

The global economy is an ever-changing process. So, if the world is moving towards a more regionally limited production pattern, towards alliances with 'friends' rather than a globally open production and trade system as during the H-GIP, what should the new period be called? The economic world is still in a global era, but in a regionally more limited industrial era, a period that we prefer to name the *Multipolar-Global Industrial Period (M-GIP).*

Uppsala Nord Mill's area. Silos in cement and sheet metal behind two brick buildings along the street close to Fyrisån. The pumping station to the right will be preserved. Photo: Lennart Engström 2023.

THE MULTIPOLAR GLOBAL INDUSTRIAL PERIOD AND INDUSTRIAL HERITAGE IN THE NORDIC AND BALTIC REGION IN THE 2020s

Our interpretation of the industrial transition during the last decades begs the question if and how the perception of industrial heritage and heritage policies have changed. It is also intriguing to address the question of the ongoing industrial activity, the increase in prosperity and a more open world, alongside the ongoing industrial heritage processes. The prosperity and rise in living standards that have occurred could not have happened without the manufacturing production. On the other hand, it has also contributed to climate change and polluted areas. How can industrial production and its buildings in firms that have both rapidly transformed and, in many cases, outsourced to other countries and regions preserve its significance as heritage in a global world? It is important to investigate what is classified as industrial cultural heritage, which actors drive it, their reasons and which legislation they use in the seven Nordic Baltic countries in the 2020s.

We can assume that differences in heritage practices reflect different perceptions of the role of industrial heritage in different societies and nations. Material remains, such as buildings, technical equipment, places, and monuments, as well as people's memories, declared as heritage have local, national, and transnational dimensions, depending on the site and its place in people's memories. Overall, heritage sites get their meaning and value in that context.[40] Generally, most heritage sites are not industrial remains. Of thirty-seven world heritage sites in the Nordic-Baltic countries (including Iceland), only five are clearly industrial world heritage sites.

We recognize that the different industrial and economic natures of the Nordic and Baltic countries affect how industrial heritage is perceived, and that this has also changed extensively. Firms on the eastern side of the Baltic Sea were owned or managed for a long time by 'outsiders' (the Soviet Union during the socialist period, foreign owners from the West after the transition) or by the state. In the Nordic countries, many of the leading companies had visible owners for decades. The differences in ownership and the status of industrial production have had, and still have, an impact on people's perceptions of – and work with – industrial remains. An interesting question today in both the Nordic and Baltic countries is whether the interest in preserving modern industrial heritage has changed now that the companies in both regions are no longer domestically owned but owned by, for instance, anonymous global funds or transnational large corporations.

Rapid political transformations can also have extensive effects. In the Nordic countries, industrial companies usually represent a proud part of national history. In the Baltic states, on the other hand, industrial remains represent the domination and oppression of a neighbouring country. In Estonia, for example, there have been attempts to require by law the removal of not only 'Red monuments' but all Soviet symbolism on buildings that encompass industrial heritage.[41] Thus, "... industrial identity and memory of a place can be selectively reworked for the needs of the hour".[42]

And even in the Nordic context, there is ambivalence. Old industrial companies with anonymous owners that have bought and modernized local firms and their production units since the 1990s represent on the one hand something new and positive for a city or a region, but at the same time they often inflicted hard-to-heal wounds on many local communities because the transformation of ownership often meant fewer employees and closed premises. As Anna Storm writes in her analysis of industrial areas shut down in Europe, this left many "post-industrial landscape scars".[43]

Industrial heritage studies have often focused on industrial heartlands and on key industries, like mining, steelworks, sawmills, railways, and textile factories from early industrialization, and to a lesser extent the HIP after 1945. It has been difficult to include recent large-scale dirty, less architecturally beautiful industrial buildings on the fringes of urban areas, as well as other types of artefacts, in the accounts of the industrial heritage of local communities from the HIP and the H-GIP.

Industrial production and its legacy have been considered important and worth preserving when it represented something distant, in particular when it belonged to a period when these countries took the step from agrarian poverty to welfare state, but less so when the remains came from the modern welfare era after the 1980s. On the other hand, identities are negotiated and renegotiated over time. Thus, newer sites can also be appreciated. Moreover, both successful industrial operations and industrial heritage can co-exist at the same time in the same place.

All in all, the perception of industrial heritage and its role for the local community, regions or nations varies depending on which area, which country and which period we investigate. If we want to understand how the different actors at central, regional, and local levels in the 'heritage industry' look at industrial heritage and preservation, we also need to address small-scale industries, high-tech production, warehouses, office buildings, services, all of which are less visible than the monumental factories from the last hundred years. As industry changes, industrial identities will be rewritten, reinterpreted and reconstructed.[44]

Uppsala the ongoing transformation of Nord Mill's large area in central Uppsala into housing and offices. A "high scraper" starts from the top of the silo and works its way down. It has a sort of claw/pincer at the top and a bendable arm. It slowly "digs" into the concrete building, gripping and breaking the concrete, freeing and cutting/pulling out rebar and sheet metal. Photo Lennart Engström 2023.

The historical flour warehouse of the Rotermann industrial complex in the heart of Tallinn was built in 1904. The warehouse was reconstructed and an extension was added in 2009 (HG Arhitektuur, architects Hanno Grossschmidt, Tomomi Hayashi). Photo: Henry Kuningas 2012.

Notes

1) The era of hyper-globalization has been discussed by many, see e.g. Richard Baldwin (2022), The Peak Globalization Myth 1-4. VoxEU Working paper.
2) Fellman, Susanna & Isacson, Maths (2007), The High-Industrial Period in the Nordic and Baltic Countries, Kervanto Nevanlinna, Anja (ed.) (2007), *Industry and Modernism. Companies Architecture, and Identity in the Nordic and Baltic Countries during the High-Industrial Period.* Helsinki, Studia Fennica, pp 41-65; Isacson, Maths, Highly Industrial Period in the Nordic and Baltic Countries? *Finnish Journal of Urban Studies* 2003:3, s. 32-41; Isacson, Maths, *Industrisamhället Sverige. Arbete, ideal och kulturarv,* kap 2 Industrialismens faser, Lund: Studentlitteratur 2007; Isacson, Maths & Nisser, Marie, Industrial Transformation and Industrial Heritage – An Introduction, in Nisser, M., Isacson, M., Lundgren, A. & Cinis, A. (eds.) (2012), *Industrial Heritage Around the Baltic Sea.* Uppsala Studies in Economic History 92.
3) Nettleingham, David (2019), Beyond the heartlands: deindustrialization, naturalization and the meaning of an 'industrial' tradition *The British Journal of Sociology* Vol.70 (2), p. 610-626.
4) Stearns, Peter N. (2013), *The Industrial Revolution in World History.* 4th Edition. Westview Press. For another similar analysis see Carlota Perez identifies different eras which depended on some dominant core technologies. Perez, Carlota (2002), *Technological revolutions and financial capital: the dynamics of bubbles and golden ages.* Cheltenham: Edward Elgar; Schön, Lennart (2010), *Vår världs ekonomiska historia. Den industriella tiden.* Stockholm: SNS Förlag.
5) Baldwin (2022).
6) Chandler, Alfred D (1990), *Scale and scope. The dynamics of industrial capitalism.* Cambridge, Mass. Belknap Press.
7) Kervanto Nevanlinna (2007); Nisser, Isacson, Lundgren & Cinis (2012); De Geer, Hans (1982), *Job studies and industrial releations. Ideas about effiency and relations between parties of the labour market in Sweden 1920-1950.* Stockholm: Almqvist & Wiksell; Noble, David F. (1984), *Forces of Production. A social History of Industrial Automation.* New Yourk: Knopf.
8) Kalm, Mart, The Oasis of the Industrialised Countryside in Soviet Estonia, in Kervanto Nevanlinna (2007).
9) Andersson, Roger & Malmberg, Anders (eds) (1988), Regional struktur och industriella strategier i Norden. *Nordisk samhällsgeografisk Tidskrift,* Uppsala; See articles in Kervanto Nevanlinna (2007).
10) Peter H. Lindert (2004), *Growing public and social spending and economic growth since the eighteenth century,* vol 1 and 2. Cambridge Univesity Press.
11) Carlota Perez, Technological revolutions and techno-economic paradigms. *Cambridge Journal of Economics,* Vol. 34, No. 1 (January 2010), pp. 185-202
12) Schön, Lennart (2010), *Vår världs ekonomiska historia. Den industriella tiden,* p. 431. Stockholm: SNS Förlag.
13) Maddison, Angus, *The World Economy. A Millennial Perspective* (2001), published by OECD, pp. 183, 268-269; Maddison Project Database 2020 (University of Groningen); *Statista,* figures on the population of three Baltic countries. Aaron O'Neill (2022),Population of the Baltic States 1950-2020. Statista.com.
14) https://www.freedomhouse.org/sites/default/files/FIW%20All%20Scores,%20Countries,%201973-2012%20(FINAL).xls
15) See Drémaité, Cinis and Kalm in Kervanto Nevanlina (2007).
16) The name of the report after the chairperson of the Commission Gro Harlem Brundtland, a Norwegian social democratic politician who served three terms as the prime minister of Norway (1981, 1986–89, and 1990–96).
17) Isacson, Maths (2019), Humanization of Work in Scandinavia, 1960-1990. Strategies Against Problems of the Modern Industrial Work, in Kleinöder, Nina, Muller, Stefan & Uhl, Karsten, *Humaniserung Der Arbeit. Aufbruche und Konflikte in der rationalisierten Arbeitswelt des 20. Jahrunderts.* Bielefeld: (transcript) Histoire.
18) There is a large literture on this, see eg Baldwin Richard (2016) *The great Convergence: Information Technology and the New Globalization,* Cambridge, Mass: Belknap Press; Findlay Ronald & O'Rourke Kevin (2007), *Power and Plenty. Trade War, and the World Economy in the Second Millennium.* Princeton &Oxford: Princeton University Press., esp. chapter 10.
19) For the European economic troubles of the 1960s and the Bretton Woods, see chapter 8 in Eichengreen, Barry (2006), *The European Economy since 1945. Coordinated Capitalism and Beyond.* Princeton & Oxford: Princeton University press.
20) Lennart Schön (2010) p. 491 ff; Stern (2013).
21) Debates on the new economy at the turn of the millennium concerned the macro perspective, especially the computerization and its effects on productivity and new modes of productions see e.g. Gordon Robert (2001), Does the "New Economy" Measure up to the Great Inventions of the Past? *The Journal of Economic Perspectives* vol. 14 (4), pp. 49-74. Scholars also discussed its effects and implications on organizations, outsourcing and new modes of production, and a transition to a more entrepreneurial economy. See e.g. David Audretsch & A. Roy Thurik (2001), What's New about the New Economy? Sources of Growth in the Managed and Entrepreneurial Economies, *Industrial and Corporate Change*, vol 10 (1), pp 267-315.
22) Baldwin Richard & Javier Lopez-Gonzalez (2015), Supply-chain trade: A portrait of Global patterns and Several Testable Hypotheses. *World Economy,* 1682-1721.
23) There is extensive literature on this, see e.g. Baldwin Richard (2016), *The Great Convergence information technology and the new globalization.* Cambridge, Mass. Belknap Press; Fitzgerald Robert (2015), *The rise of the global company: multinationals and the making of the modern world.* Cambridge: Cambridge University Press; UNCTAD, Trade and Development Report 2018: Power, Platforms and the Free Trade Delusion (unctad. org).
24) Manuel Castells published three influential books 1996-2000 on the information age and its economy, society and culture which among many aspects highlights networks. Volume 1 has the subtitle *The Rise of the Network Society,* volume 2 *The Power of Identity* and Volume 3 *End of Millennium.* Oxford.
25) Richard E. Baldwin (2016), *The great convergence: information technology and the new globalization,* Cambridge, Mass. Belknap Press;
26) In 1994, for example, *Borås Wäfveri* bought Estonia's largest textile company, *Krenholm Holding Ltd,* (founded 1857) in Narva close to the Russian border. Production was gradually moved from the company's two Swedish factories to Narva, where almost 1,000 people were employed, and production in Sweden was wound down.
27) In 2006, among the 30 largest companies there were six Finnish-owned and six Swedish-owned. The largest foreign-owned company was *Hansapank* owned by Sweden's *Swedbank,* which in turn was ranked second in the list of largest companies. The largest was Eesti Energy. Kalvet Timo, Large Corporations in the Estonian Economy, in Pontus Braunerhjem et al. (2010), *Large firm dynamics on the Nordic-Baltic scene Implications for innovation and growth.* CESIS Working Paper. https://static.sys.kth.se/itm/wp/cesis/cesiswp244.pdf.(Table A, Appendix, p. 128).
28) Markku Kotilainen – Nuutti Nikula (2010) *Why do firms invest in the Baltic Sea Region?* ETLA Discussion Paper no 1229/2010; Kalvet Timo, Large Corporations in the Estonian Economy, in Pontus Braunerhjem et al. (2010), *Large firm dynamics on the Nordic-Baltic scene Implications for innovation and growth.* CESIS Working Paper. https://static.sys.kth.se/itm/wp/cesis/cesiswp244.pdf.
29) In 2010, the Swedish company *Borås Wäfveri* went bankrupt and 450 workers in Narva lost their jobs. In parallel, the company's remaining factory in Sweden closed. *Borås Tidning* 24 December 2006; Göteborgs-Posten 3 November 2010.
30) Þór Hilmarsson, Hilmar (2020), *The Economic Crisis and its Aftermath in the Nordic and Baltic Countries.* Routledge.
31) The largest company in 2019 in Estonia was the state-owned *Eesti Energy* and the largest foreign owned was Ericsson's Estonia subsidiary. In Lithuania and Latvia, on the other hand, large domestic retail companies currently top the list of the largest firms (measured by employment) and many of the biggest foreign-owned firms are from outside the Nordics. Oja, T. (2020), Estonian top-100 companies, an exclusive club. 18 November, *Postimees.* Available at: Estonian top 100 companies an exclusive club (postimees.ee)
32) See articles in Nisser, Isacson, Lundgren & Cinis (2012).
33) See footnote 14.
34) Startside | Nordiskt samarbete (norden.org).
35) The discussion if there is a deglobalization going on is extensive. Baldwin, Richard (2022), *The Peak Globalization Myth 1-4.* VoxEU Working paper; Uri Dadusch (2022), *Deglobalization and Protectionism.* Bruegel Working Paper 18/2022; Antràs Pol (2020), *Deglobalizaton Global Value Chains in the Post-Covid-19 Age.* NBER Working Paper 2020.
36) Sapir, Andre (2022) Is globalisation really doomed? Globalisation is under attack; to preserve its benefits, healthy domestic social contracts are essential. *Bruegel Blog Post* 03 November, 2022. Available at: https://www.bruegel.org/blog-post/globalisation-really-doomed
37) One example is the Tripartite Free Trade Agreement (TFTA) with 26 African countries. Another is the Regional Comprehensive Economic Partnership (RCEP) with ten countries in the Southeast Asian organization ASEAN plus China, Japan, South Korea, Australia, and New Zealand.
38) For example, the global consultancy firm McKinsey discussed this in the context of the clothing industry where robotization is forecast to have extensive effects on the demand for cheap labour during the coming decades. Andersson et al. (2018), *Is apparel manufacturing coming home? Nearshoring, automation, and sustainability – establishing a demand-focused apparel value chain.* McKinsey report October.
39) Dadush (2022); Baldwin (2022); Antràs (2020).
40) Harrison, Rodney (2015), Heritage and Globalization, in *The Palgrave Handbook of Contemporary Heritage Research.* Edited by E. Waterton and S. Watson. Palgrave-Macmillan, pp.297-311.
41) Altosaar, Aimar (2022), Decision made on nearly all Red monuments; Maarjamäe is a special case Postimees 20 November 2022. Available at: https://news.postimees.ee/7655780/decision-made-on-nearly-all-red-monuments-maarjamae-is-a-special-case.
42) Nettleingham, David (2019), Beyond the heartlands: deindustrialization, naturalization, and the meaning of an 'industrial' tradition. *The British Journal of Sociology* vol 70, iss.2, p. 610.
43) Storm, Anna (2014), *Post-Industrial Landscape Scars.* Palgrave Macmillan.
44) Nettleingham (2019).

The Listed Industrial Heritage in Denmark 1918-2023

CASPAR JØRGENSEN

Denmark is by many seen as a country dominated by agriculture. Nevertheless, industrial heritage has always been part of Danish listing practice. The number of listed industrial plants rose from 2 in 1918, when the first listing act was adopted, to 8 in 1970 to 53 in 2021 or from 10 to 118 to 374 if we count the listed industrial heritage in a broader sense. The initial count only includes factories whereas the second set includes bridges, railway stations, lighthouses, power plants and workers dwellings etc. However, it is only a paradox if we assume that Denmark was an agricultural country, and that listing does record and reflect important developments of the society and that industry was without any significance, and therefore should not have been listed. Part of the answer is that Denmark in fact underwent several waves of industrialization from 1840 if not before, and today is marked by industry.

NLMK Dansteel in Frederiksværk. The buildings are not listed, but the whole town was declared a industrial site of national value. The steelwork started production in 1943 and was taken over by Russian interests in 2002. Photo CAJ 2007.

While there are several overviews of the preservation of industrial heritage in Denmark it is fair to say, that they have been written as part of an argument for research in and preservation of this heritage.[1] Listing and preservation of industrial heritage has not been analysed in a broader perspective or seen as a part of the development of Danish society. This lack of analysis of industrial heritage also characterises the two books published as part of centenary jubilee of the listing act in 2018.[2] The one was celebrating the history of listing in Denmark seen from an official point of view, the other was more critical especially concerning the development during the last twenty years and the review of the listed buildings carried out in the period from 2010 (*fredningsgennemgangen).* Without going into a full-scale analysis, the economic historian, Ole Hyldtoft, has pointed to a number of courses. He suggests economic growth, physical restructuring and the declining role of agricultural export value since the middle of the 1950's, as well as the expansion of higher education and rising funds for research and museums in addition to inspiration from Marxism from the 1960's as a part of the explanation for the rising interest in industrial heritage in 1970's.[3]

METHODS AND MATERIAL

How do we analyse this increased focus on industrial heritage? Here I will see the rise from three different points of view.[4] The changes can be seen as a reaction to external and often recurrent transformations, such as the change from one technical paradigm to another, which at the micro level will be manifested in events such as the closing of companies, the demolition of buildings and destruction of landscapes as well as the introduction of new building technics, new materials and new layouts.[5] At the same time, the changes can also be seen as structural changes in mentalities of different actors. Here the changes appear to be internal among the actors as the result of new ways of seeing and of new interests. To use the art historian Gombrich's old concept *schemata,* the new interest in industrial heritage can be analysed as the discovery and correction of a new set of schemata.[6] Examples are the introduction and development of industrial archaeology, new ideals among architects and planners such as the classicising interest in silos and the local building tradition *(Bedre Byggeskik),* functionalism and the interest in machines, the interest in "architecture without architects" and the interest in reuse/sustainability. The mental changes may also concern other groups than historians or architects such as workers, employers and owners or trade unions and other organizations like political parties or municipalities and be part of their use of history, memorialization, and identity building.[7] Thirdly, the institutional frame should be included in the analysis. In a Danish context, for example one could hardly imagine the regulation of private property such as the listing of buildings in the liberal era following 1848. That first became a possibility after 1900, when the planning and regulation of larger systems and units had proven its worth. The tree approaches clearly supplement each other and do not presuppose a process of identity building or memorialization among the actors nor a change to a post-industrial condition but does not rule out such explanations either.[8]

The aim of the present article is to present and analyse the number of listed industrial buildings in Denmark and thereby to some extent measure the awareness of industrial heritage or at least a part of it. How many buildings were listed, when, and by who? That is, who proposed the listings, who carried them out and how did the owners react? So, the goal is to indicate what has been done by looking at the material structures. Furthermore, the aim is to indicate what has been written about the history of factory buildings, while leaving out the literature on economic and social history, working class culture and business history. The purpose is very briefly to indicate what kind of schemata was available to guide the exploration in the unknown urban landscape, because the layout of factories was and is not common knowledge nor is it part of architectural historiy or historical works. In addition, the growing interest in reuse will be indicated. Finally, the number of industrial museums and their visitors, as far as it is known, will be included. On the other hand, I cannot include an overview of preservation of industrial buildings by planning measures, because no such overview exists on a national level. The same goes for memories and artefacts

PRESERVATION ACTS IN DENMARK (SIMPLIFIED)

1807 Ancient monuments
The Royal Commission for The Preservation of Ancient Artefacts 1807 and voluntary listing of ancient monuments. From 1937 the new nature preservation act includes mandatory listing of ancient monuments

1861 Evangelical Lutheran Church in Denmark
The board of maintenance of public churches 1861

1918 Buildings including churches owned by other religious communities
Listed Buildings Act 1918 regulates the entire building inside and outside

1925 Buildings and areas
Planning act 1925 it becomes a possibility to regulate the outside of buildings (changed several times)

SIGNIFICANT CHANGES IN THE LISTED BUILDINGS ACT

1918 A and B listings (a permission is required both for exterior and interior changesif the building is an A-listing, whereas on a B-listed buildings notifying the authorities is sufficient). Buildings can be listed if they are of significant architectural or historical value and are over 100 years old with few exceptions

1966 The requirements for A-listing remain unchanged, but B-listing now require permission for exterior works on the facades

1980 A-listings and B-listing are reduced to one listing, which states that works on either the exterior or the interior require permission. Buildings of exceptional value can be listed if they are younger than 100 years old

1997 Buildings older than 50 years can be listed

2010 Landscape architectural works can be listed. A reevaluation project including all listed buildings is commenced

2012 Changes of minor significance on listed buildings are no longer obliged to apply for permission but are only subject to informing the authorities

2018 Specific changes in the interior of approx. 600 listed buildings can be undertaken without prior information or permission

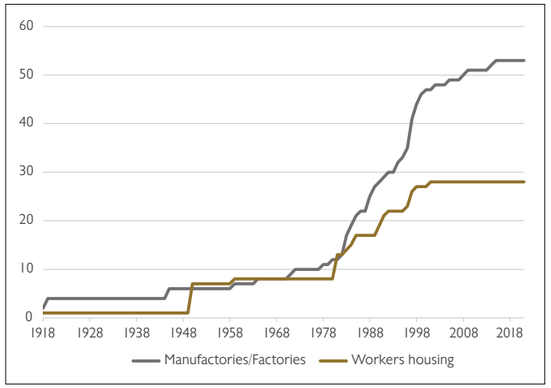


Figure 1. Listed manufactories, factories and Workers housing in Denmark. *Source: FBB, Slots- og Kulturstyrelsen, Center for bevaring.*

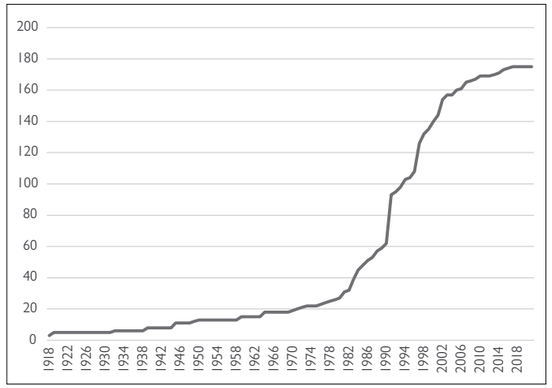


Figure 2. Listed Manufactories, factories, bridges, railway stations and lighthouses in Denmark. *Source: FBB, Slots- og Kulturstyrelsen, Center for bevaring.*

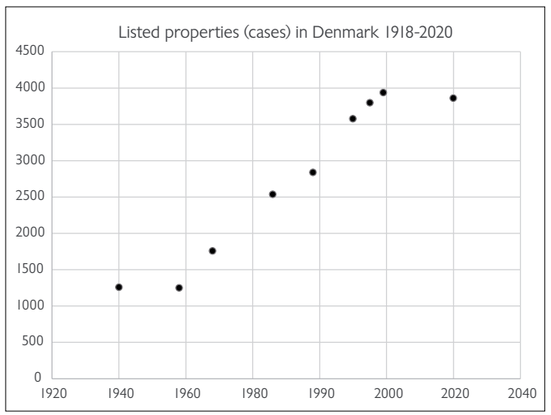


Figure 3. Listed properties (cases) in Denmark 1918-2020. *Source: Fredningslisterne and FBB at Slots- og Kulturstyrelsen, Centret for bevaring.*

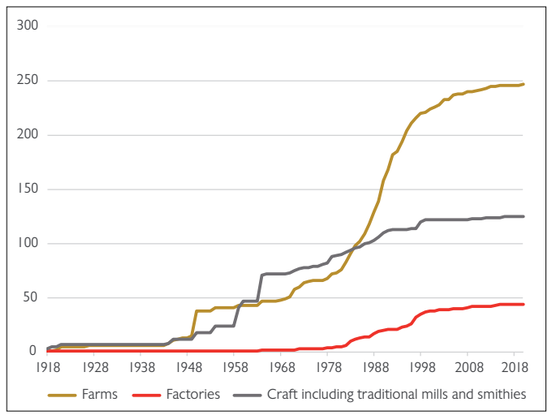


Figure 4. Listed properties (cases) in Denmark 1918-2020. *Source: Fredningslisterne and FBB at Slots- og Kulturstyrelsen, Centret for bevaring.*

Errindlev Dairy was listed in 2000. This small butter factory was established in 1886, but the main building was renewed in 1913. The gable is characteristic for the second-generation dairies. The gable and ventilator cowl indicates the milk reception and separator hall. Photo CAJ 2007

collected by the museums. Concerning the changing paradigms and the related changes in the built environment, it would transgress the space allowed in this article to describe it in any detail.

The material used here is the register over Listed Buildings and Buildings Worthy of Preservation *(Fredede og Bevaringsværdige Bygninger)* the so called FBB Register, as well as the individual cases of listing or restauration of industrial buildings at the Agency for Culture and Palaces *(Slots- og Kulturstyrelsen)*. The focus will be on the listed buildings *(fredede bygninger)* and not on the buildings worthy of preservation *(bevaringsværdige bygninger)*. Furthermore, it should be noted, that the material so to say represents the authorized heritage discourse in Denmark to use Laurajane Smith's phrase. The material is produced top-down, although everybody can propose a listing and the owners have a great say. In the last instance, it is the Minister for Culture who decides whether a building is listed.

One detail should also be noted. "A building" can be understood in surprisingly many ways and therefore it is problematic to establish an overview of the number of listed buildings. Instead, I have used the number of cases, which until now has been the unit of measurement in the administration. A case normally equals a property, and a property can comprise of one or several buildings, or it may be a construction, e.g., a statue or a crane. A case typical represents one owner and thereby one negotiating partner.

Finally, to understand the Danish context it is necessary to be aware of the ongoing debate about the position of agriculture, versus industry and service, where the dominating narrative has been, that the democratic and down to earth peasant-farmers drove the modernizing of the Danish society. Accordingly, the roots of Danish national identity should be that of a peasant-farmer.[9] This narrative has been challenged many times but is still prominent. If we were to follow that argument there should not be many listed industrial buildings in Denmark, again provided listing reflects the history of the whole society. Further, it should be noted, that the size of the main economic sectors is roughly the same as in our neighbouring countries like Sweden and Germany, although the industrial sector was and is slightly smaller. However, compared with our neighbours a significant difference is that there are only few areas dominated solely by industry in Denmark. As much as around half of Danish industry was located in greater Copenhagen until 1950, the processing of food is a comparative large industry and finally many firms are small or medium sized.[10]

NUMBER OF LISTED FACTORIES – THE NUMBER OF CASES

Elsewhere I have suggested that there was a growing historical awareness of the technical and industrial development in Denmark in the years around 1900 like the better-known increasing interest in folk museums and outdoor museums during the same period.[11] This was a new phenomenon. It seems that the model collection of the polytechnic school (established 1829) from the late 1800's was used to illustrate historical development for the students and later the general public, for which the collection became open in 1907. At the same time, other more or less technical collections were established: The Post-and Telegraph Museum and The Railway Museum, both in Copenhagen and in 1907, The Maritime Museum in Elsinore in 1914. The point being that in the years around 1900 this kind of practical and promotional materials were for the first time used to demonstrate a historical development concerning technology.

1918 was the year when a broad coalition ranging from the conservatives over the liberals to the social democratic party in the Danish Parliament adopted the first Listed Buildings Act. The act made it possible to list builds of significant historical or architectural value and of more than 100 years of age, but with almost no economic support for maintenance purposes and with an expectation that the listed buildings should still be in use/inhabited. Supported by the Association for the Protection of Old Buildings *(Foreningen til Bevaring af Gamle Bygninger)*, historians and architects at the National Museum and the Royal Academy of fine Arts had proposed the act to the Danish parlament. Even the first listing *(see figure 1, 2 and 4)* included some traditional mills, manufactories, and the rigging shears at Holmen (the naval base in Copenhagen). This is worth underlining as listing at times

is reduced to a listing containing solely of palaces and manor houses. While in fact, the listing predominantly consisted of old townhouses besides the examples of early production buildings. The listing authority aimed at having all types of buildings represented on the list, and if possible to form clusters of listed buildings, cultural environments, or townscapes as the phrase were, instead of listing isolated buildings regardless of their surroundings as the listing act actually required.[12] The selection of the rigging shears was probably a reaction from the listing authority to the historical interest or identity building among navy officers at the time, which also meant that the Ministry of Naval Affairs allocated funds for repairing the crane. Simultaneously there appears to be a parallel to, or maybe inspired by, the protection of old cranes in Germany.[13] We know there were some contacts between the engineers of Deutsches Museum in Munich and the cultural historians at the National Museum in Denmark in 1914, when Oskar von Miller, the director of the Deutsches Museum, visited Copenhagen on his way to Stockholm and the open-air museum, Skansen. In 1932 both the rigging shears in Copenhagen and a herring smokehouse at Bornholm were used as illustrations in the book of Matschoss and Linder: "Technische Kulturdenkmale".[14]

Several "craft buildings," that is buildings related to craft-production, were listed from the 1940's, especially smithies in villages and at manors. During the 1950's and 1960's traditional wind and water mills were added *(see figure 4)*. All located in the rural parts of Denmark and listed as a parallel to the growing number of traditional farms, which were being listed. This was probably a result of a large registration and documentation project of traditional farms, which the National Museum carried out at the same time.[15] It is interesting to note that the listing of traditional farms (not the housing of agricultural workers) continued even after the museum project had ended, because it illustrates that listing takes time.

However, it was from the middle of 1970's the number of listed factories increased significantly. It lasted until 1998, when the number of new listings generally was reduced substantially. Part of the explanation for this slowdown in new listings was the preparation 1997-2010 and the implementation 2010-16 of a revision and new descriptions of all listings enacted before 1990 *(see figure 3)*.[16] This was followed by a special effort for improved maintenance of buildings observed to have been rundown or mismanaged, as well as delisting of some buildings, among those one industrial plant, a brewery in the town of Faaborg, and the only listed grain elevator, which stands in the Copenhagen Freeport. Both had been reused to an extent that did not leave much to tell about the former functions. Nevertheless, some factories were listed after 2000, but not many. The general picture is clear: a few industrial plants were listed around 1920, and the majority in the period 1978-1998. If we add technical facilities like lighthouses, bridges, hydroelectric plants, and railway stations the period of high activity is extended a couple of years, but the general picture remains the same *(see figure 2)*.

As of May 2021, there were 3.861 listed properties of which 208 were classified as present or former production facilities and a further 47 as technical facilities.

STRUCTURAL CHANGE IN THE INDUSTRIAL ENVIRONMENT

Looking at the chronology of the industrial listings it appears probable to understand the two waves – the first exiguous and the second a little larger – as reactions to physical changes in the built environment of industry. The first listings can be seen as provoked by the renewal and relocations following the Second Industrial Revolution, the Age of Steel, Electricity and Heavy Engineering according to Carlota Perez or maybe even better to the broader concept of High Industrial Period according to Fellman and Isacson (in this issue).[17] During this period many companies reorganized their production space according to a kind of production or transportation line concept, they used larger buildings and more space. They still had their own power plant but preferred to locate near railways and harbour facilities, which meant a change of location from the old part to the new parts inside the urban area. It was in this period the planned industrial districts were introduced, the first being in the Copenhagen Free Port of 1894. Most industries stayed in the towns of the traditio-

The Naval Dock Yard, Copenhagen, the Rigging Shears of 1750 and the Guard Building of 1745, both listed in 1918. Photo CAJ 2020.

Kongens Bryghus – the Royal Brewery – listed in 1945, built 1618, rebuilt after fires in 1632 and 1767. In the background, you can see a part of the Arsenal of 1611, listed in 1918, and the Royal Library of 1906. Photo CAJ 2007.

nal urban system, although a new layer was added to the urban system in the form of many small new towns, where the fine masked net of small cooperative dairies were established. This meant that many of the first-generation production facilities from the 1840's or earlier were closed, sold, or reused. These changes have not been thoroughly researched. Therefore, I can only give examples such as the old Carlsberg Brewery, which the company put in moth bay around 1920. The two plants of Danish Distillers in Aalborg were concentrated in a single new plant at the harbour around 1930. In Copenhagen, the engineering shops of Burmeister & Wain, which were established in the 1840's, were rebuilt in the years around 1900 at the same place in the inner harbour. Their competitors, Caspersens Mekaniske Etablissement, had closed already in the 1860's and the area reused for dwelling for old seamen and their widows. In the 1930's flats replaced one of the largest textile factories in Copenhagen, Rubens Fabrikker built in the 1850's.

During the Third Industrial Revolution, or the Age of Oil, the Automobile and Mass Production, many of the characteristics already introduced intensified. The number of planned industrial parks or districts multiplied, as well as mass-produced single storied production buildings and new multi storied administration buildings. Further, the biggest concentration of industry moved from the Greater Copenhagen area to Jutland. In many ways, the changes concerning the buildings were the same as in the preceding period.

During the Fourth Industrial Revolution, the Age of Information and Telecommunications or the Hyper-Global Industrial Period, many companies continued to close their plants. Fewer opened new production facilities in Denmark, but the buildings became often more concentrated and larger than before. Storage and service expanded relatively; it was in this period the business introduced high storage. Besides, the introduction of containers and the accompanying changes in the ports, the Danish state established the motorway network after 1970. New bridges (Storebæltsbroen 1997-98 and Øresundsbroen 2000) eased the connections further. Following the growth of the service sector, some of the industrial parks in Greater Copenhagen like "Avedøre Industrikvarter" were never used for industrial production as they were planned but accommodated instead service industries. This later use spread to the rest of Denmark, especially East Jutland. One of the most visible signs of the changes were the gradual transformations of many harbour areas into dwellings and offices as the new container terminals moved further out near deep water. The electrification of the railway mainlines came late in Denmark, it began in the 1980's and is not yet completed. Several goods yards have been closed and sold for redevelopment. The central railway works in Aarhus was closed in 2009 and the works in Copenhagen are currently under redevelopment.

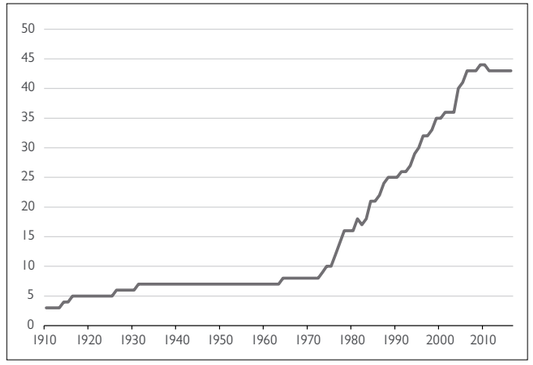


Figure 5. Number of industrial museums in Denmark 1910-2016. *Source: Danmarks Statistik.*

This sketch of the development in the built environment is not as well founded as it should be, however in Denmark the history of buildings including factories has traditionally been concentrated towards the designing and construction of the new buildings, more than on the development of the buildings after construction or whether the building has been reused. With this reservation, it appears, that structural changes in the industry – understood as both change in the individual building and in the entire system or paradigm of production – lead to demands for preservation. But it is also clear, that not every change triggers such a wish. The structural change around the Second Industrial Revolution seems as comprehensive as during the Third Industrial Revolution, while the number of listings during the Second Revolution was very modest compared to the Third Revolution. Therefore, we also must look elsewhere.

WHAT TO LOOK FOR – THE LITERATURE ON INDUSTRIAL BUILDINGS

In the 1920's and 1930's there was a growing interest in economic, social and labour history among historians as well as a fascination of modern technical objects such as grain elevators, motorcars and aeroplanes among some Danish architects.[18] The latter was more or less copied from the Werkbund-yearbook, the writings of the architects around Bauhaus and from Corbusier. But only a few took an interest in the history of industrial buildings, and the interest seems to have died away in the late 1940's. Building histories of the Carlsberg Breweries, the Danish Distillers and the navy dockyard were carried out. The last one formed the thesis in 1933 of Christian Elling (1901-1974), who became the first professor in art history at the University of Copenhagen.[19] All three studies were published in connection with major restructurings and building projects. The first two studies were short texts sketching the building history of each of the two firms. The last one was an analysis of the planning and building history of the naval base especially during the 1700s using stylistic analysis in the context of baroque planning, but without much attention to the technical side of this military industrial complex. But later on, most of the buildings described by Elling have been listed like parts of the brewery and distillers. Although none of the texts saw their subject in relation to a general history of the layout of industrial plants, at least not in any detail, you could argue that a kind of schemata for analysing and evaluating industrial plants was created in this period.

A partial attempt to include industrial buildings in the history of Danish architecture was the book *"Danish way of building around 1792 and 1942"* from 1942 but focused on the two years mentioned. The art historian Harald Langberg (1919-2003), who headed the small staff of the Historic Buildings Council (*Det Sær-*

lige Bygningssyn) 1944-1967, wrote the first part. Langberg also published an overview in 1955 of Danish building culture from the Iron Age until the present, which included analysis of farmhouses and lower class urban housing as well as a few illustrations of factories, but without trying to analyse the latter.[20] Another book about Danish architecture in the period 1850-1950 from 1951, which was ground breaking as an early upgrading of historicism and because of the diversity of dwellings included, had not much to say about factories.[21] Nevertheless, it is important in this context because it breaks with the classical order and thereby opens up for analysing all sorts of buildings including factories. The editor of the book was the architect Kay Fisker (1893-1965), who was a professor and a leading figure at the school of architecture at the Royal Academy. In the 1930's he had supervised investigations of working class housing in Copenhagen with the aim of establishing the history of their layout as well as constructing new layouts for future public housing of which he designed several. In 1950 he presented the concept of "the functional tradition" for the Danish architects, a concept which had just been introduced by the British journal The Architectural Review.[22] Fisker used the concept to characterise a line in Danish architecture and indirectly his own work. In The Architectural Review the concept was illustrated by an analysis of artefacts from the harbour of Cobb at Lyme Regis demonstrating the beauty and functionality of the seawall and other maritime objects. The analysis was developed in 1957 by using warehouses and factory buildings as examples. However, this industrial side of the functional tradition was not transmitted to Denmark at the time. Instead Fisker and his associates had presented Denmark to their foreign colleagues as a country dominated by farmers, old village churches and modern welfare housing as well as Danish Design. No sooner than 1968 a small salute to the functional tradition, a pocket photobook showing traditional brickworks, was issued.[23]

It was not until 1979 an overview "The Buildings of Work" was published by the architect Jørgen Sestoft (1934-96) of the Royal Academy in a six volume series on Danish Architecture edited by the art historian Hakon Lund (1928-2013).[24] This seminal work had a relatively broad influence by giving an overview and demonstrating, that also buildings may tell about industrial development and work conditions and thereby further developing the schemata of what to look for.[25] Compared to an earlier and shorter essay the overview is much more specific about the layout and decoration of the buildings.[26] Sestoft uses the typology apparently developed at the German polytechnic high schools during the 1800's while the overall frame is chronological, in contrast to most of the English introductions to industrial archaeology. Sestoft also considers the use of decoration and suggests that especially joint-stock companies preferred decoration on their buildings to impress shareholders.

The book was linked to a research project called "Industrial Buildings and Dwellings", which was carried out 1974-79, financed by the Danish Research Council for the Humanities and initiated by Kristof Glamann (1923-2013), the first professor in economic history in Denmark, and with assistant professor Ole Hyldtoft (1943-) as daily leader.[27] The focus was on social and economic history, but a significant part of the energy was used on registration of factories and dwellings constructed in 1840-1940. To that end the project had already in 1973 arranged a seminar, where the British experiences with industrial archaeology as well as the work going on in Sweden were presented. The registration was later conducted in cooperation with the National Museum and the local historical museums. Here it must be noted that the administration of listings had just been transferred from the National Museum under the Ministry of Culture to a new agency under the Ministry of Environment, which first began to get involved from the mid-1980s. Meanwhile, some of the registrations were reworked into articles often inspired by the new British industrial archaeology or the Swedish "dig where you stand" movement with its "bottom up" approach and published in the newsletter of the research project – which was transformed into the present journal in 1979.

At the time there was a focus on growth or development theory among economic historians inspired by and to some extent in competition with the social sciences. As part of that, the interest in industrialization measured in quantitative terms

Bies Bryggeri – a brewery in Holstebro built 1859-1904 and listed 1986. Photo CAJ 2011.

was growing as well as the interest in the social context and consequences. These lines of research did not use the physical environment as a source. However, it is interesting to note that artefacts such as models of steam engines and films of industrial production were introduced in the teaching at Institute of Economic History during the 1960's.[28] The background was that the students had to offer a number of "non-written sources", to use the characteristic phrase, beside written sources for examination. During the 1970's and even prior to this there was no industrial archaeology in Denmark. Therefore, it was for good reasons that the project sought inspiration from the British Industrial Archaeology as developed in the 1960's and the activities in Sweden as personified by Marie Nisser. The connection to mainstream archaeology was weak or non-existent at the time, and still Danish archaeology has not moved much closer to the present times than the 1600's, although that may be changing.[29]

The interest in workers and the environment of work as opposed to traditional political history had a broad appeal, even at the political level, and in regard to listing and preservation it was expressed in the reformulation of the purpose of the listing act. Here the purpose clause was revised in 1980 to stipulate that cultural historic values also include buildings, as they can relate about living, working and production conditions. But as I have argued above, that had already been the ambition since the first listings in 1918. The difference was that this aim was now applied to buildings from the later part of the 1800's besides being stated directly in the law. In addition, another significant difference was that the administration of the listing act was supplied with more funds and manpower in the 1980's as far as it can be judged.[30]

A little later, the focus was directed towards the reuse of factories among engineers, planners, and architects. For example, a report from 1980 argued that reuse of factories would cost half the price of demolition and building of new ones.[31] In 1985 Sestoft published a booklet on the subject for the listing authority, and in 1996 another booklet on the adoption for office use of the grain elevator – Silopakhus B – in the Copenhagen Free Port. In 1997 the listing authority initiated a model study of transformation of the railway workshops in Aarhus, and before that some listed factories had been converted to office space, such as the textile plant, Usserød Klædefabrik.[32] The most influential and successful transformation was the reuse of another textile plant, Brandts Klædefabrik in Odense as a cultural centre and a commercial space, carried out in 1980-87 at the suggestion and after the design of the architect Kristian Isager (1946-) and financed by private investors and the municipality.[33] The role of the former CEO of the company as well as the former workers were also important.[34] It was not a listed building, but protected by local planning and the partial use of it by cultural institutions was supported by the city of Odense. Part of the picture is also the transformation of the large old warehouses at the Copenhagen harbour front such as the facilities of the East Indian Trade Company by the Foreign Ministry back in the 1970's, which demonstrated that reuse at that scale was possible. In the same period – the 1970' and 1980's – there was a reaction against big planning and slum-clearance both among the public and among many planners.[35]

From around 1980 there seems to be a growing interest in historic architecture within the architectural profession or part of it, although the interest was not new as implied above. Besides the work of Sestoft, Hans Peter Svendler, a former co-owner of the architect firm 3xNielsen, published on "Bedre Byggeskik", a society for a better local building tradition established in 1915.[36] Jørn Ørum-Nielsen, an active architect too, wrote about row houses.[37] The architect and later professor Gert Bech-Nielsen was engaged in investigating the industrialisation of the town of Horsens together with the historian Jacob B. Jensen and the architect Ernst B. Kallesøe, as well as making building registrations in many municipalities.[38] Finally, Kristian Isager made building registrations of Odense and Svendborg.

At the same time, a change in the meaning of artistic work also followed. Where a classic work was seen as done and finished by one artist, the architect, and nothing therefore could be added or subtracted, this view was challenged by the wish to include the users, for example.[39] Besides, many architects realized that a work – or a simple house – might include several building phases and different layers, just like in archaeology. These changing views must have eased the appreciation of industrial plants as well as enhanced the prestige of reusing among architects. Later it has become common to use the term "transformation" instead of "restoration" at the two schools of Architecture in Denmark.[40]

In 1990 the non-governmental organization The Association for Building and Landscape Culture published an issue of their journal, which argued for the values of industrial environments as well as presented examples of preserved plants and encouraged to establish private institutions for the maintenance and running of industrial monuments.[41] In fact, voluntary groups have maintained a few plants with preserved machinery: Højer Mill (established 1976-78), Bruunshåb (1979-86), the Hammermill at Hellebæk (1982), Godthaab (1987-88), Fjerritslev Brewery (1983-84) and the Danish Energy Museum (1984), as well as some plants in connection with state supported museums: The Works Museum (1982-84), Cathrinesminde Tile Works (1981-93) and Hjort's Terracotta Factory (1995).

Concerning the listing praxis, a number of theme reviews was produced in the 1990's with short overviews and presentations of candidates for listing. They included: factories in industrial districts in Copenhagen Municipality 1992 – inspired by the equivalent in Stockholm, lime kilns and lime works in Denmark 1996, steel and concrete bridges in Denmark 1840-1900, 1996, cooperative dairies in Denmark 1880-1965, 1996, waterworks in Copenhagen 1999, small hydroelectric plants 2000 and state owned lighthouses 2001.

The next wave of interest in the industrial environment was generated by the cultural history museums and the newly formed Heritage Agency under the Ministry of Culture and was announced in 2003. The goal was to support research by the museums and especially establishing overviews of heritage interests to ease the coordination and prioritizing.[42] As a culmination of the effort, an outreach to the public was decided by the museums to be carried out in 2007, mainly in the form of exhibitions, talks and walks. In addition, the Heritage Agency published a book presenting 25 industrial environments of national significance from the period 1840-1970. This prioritizing was based on 161 industries of regional significance selected by cultural museums and regional culture environment boards. In 2008 an analysis of the ports of industrial society 1840-1970 followed, and in 2009 a theme issue of a historical journal, which was translated into the book "Industrial Heritage in Denmark" and published in 2014.[43] Further a number of smaller research projects at museums has been carried out developing certain themes like cement production, sugar works or industrial districts laid out after 1940, and the historian Henrik Harnow published an overview of Danish industrial environments in 2011.[44] It should also be mentioned that new booklets on reuse of factories and harbours were published in 2007 and 2010. Most of these initiatives were financed by a special grant by the Danish Parliament. Today the municipalities have inscribed 17 out of the 25 industrial environments of national significance in their local planning as cultural environments, but only one third of the 161 industrial environments of regional significance.[45] This has generated several analyses of industrial landscapes and districts.[46]

Usserød Klædefabrik – Textile Mill, built 1803-1950 and listed 1982. Photo CAJ 2003.

	Total	agency	museums	societies	private	municipalities
-1970	2	2				
1970-79	4		1	1	1	1
1980-89	15	4	5	1	5	
1990-99	23	19		4		
2000-09	4	1		2	1	
2010-20	2	1		1		
total	**50**	**27**	**6**	**9**	**7**	**1**

Table 1. Who proposed the listings of factories?
Source: Sagsarkiv, Slots- og Kulturstyrelsen.

There has also been a growing interest in the space between the buildings and its reuse as industrial parks especially by the architect and professor Ellen Braae and art historian Svava Riesto at the Copenhagen University, department of Landscape Architecture.[47] For example the landscape of Frederiksværk, one of the few mono-industrial small towns in Denmark, and the Carlsberg property in Copenhagen have been analysed. This appears to be connected to the growth of the discipline of landscape architecture in the last decades. The architect Thomas Birket-Smith, working in the planning department of the Aalborg municipality, has initiated books on the industrial architecture of Aalborg in 2002 and industrial architecture in Denmark in 2010.[48] Finally, the listing authority has repeated the study of the potential reuse of an industrial plant: a part of the naval dockyard at Holmen in Copenhagen.[49] The result is clearly more detailed and specific compared to the study of the locomotive works in Aarhus from 1997.

As we have seen the number of new listings was rather limited after 2000, but that was part of a general trend because of the preparation and execution of a re-evaluation of listed buildings. Therefore, you might argue that the effect of the last 20 years research remains to be seen. The increasing numbers of industrial museums and the number of their visitors as well as the number of publications indicates a growing interest in the subject.

To summarise: as of today there are 175 listed manufactories, factories, bridges, railway stations and lighthouses in Denmark, of which 44 are factory plants proper, almost all built before 1940. There are three exceptions: the car repairing shop in Aalborg from 1956 designed by the architect Arne Jacobsen, the coffee roaster in a high-rise glasshouse from 1968 outside Copenhagen and the torpedo workshop from 1954 at the naval dockyard. If you take the changing industrial structure during the period between 1840 and 1940 as a basis for evaluating, what has been listed, iron foundries and machine shops from the early period are missing as well as the small textile workshops at the moor in Jutland, and there is only one brickwork. From the second industrial revolution, there are listed five dairies, but none from the first generation of the 1880's. This is a reminder of the apparent paradox, that a leading selection criterion for listing has been and still is a buildings authenticity, while the listed building should also have a use in the future, which in most cases imply reuse and physical changes. Small electrical power stations from the first phase of electrification have been listed, but only one driven by a diesel engine, which was the standard and as much as five driven by water, which was the exception. None of the slaughterhouses outside Copenhagen, which were so characteristic of the Danish industrial structure, are listed. And most of the buildings of the dominant firm of the period, the shipyard Burmeister & Wain, as well as the Ford assembly plant, both in Copenhagen, have been demolished. The listing of buildings from the golden age of Danish industry or the second part of the high industrial period remains to be seen, not to say industrial districts, which according to the present legislation cannot be listed as areas.

In conclusion, the main point is, that research in industrial heritage since the 1930's and especially after 1970 as well as the interest from around 1980 in reuse has eased the listing. While the research at the museums between the years of approx. 2000-2010 was only followed by very few listings.

WHO PROPOSED THE LISTINGS? – AND THE GENERAL APPRECIATION OF INDUSTRIAL HERITAGE

Most of the listings of factories were proposed by the listing authority or by museums, preservation societies or private persons *(see table 1)*. The majority participated in the project "Industrial Buildings and Dwellings" or with institutions, which were or had been involved. On the other hand, there was only one proposal by a private owner of a former brickwork, and the absence of engineers and companies are worth noticing as well.[50] The absence of the owners as proposers of listing can also be found among farm buildings, but not to the same extreme degree, and it is in marked contrast to owners of townhouses for living, where a majority of the listings were proposed by the owners themselves, at least after 1988.[51] This does not mean that factory owners, workers or trade unions have not taken an interest in industrial heritage, museums have been established and books published by these participants, but their engagement in listing has been minimal.

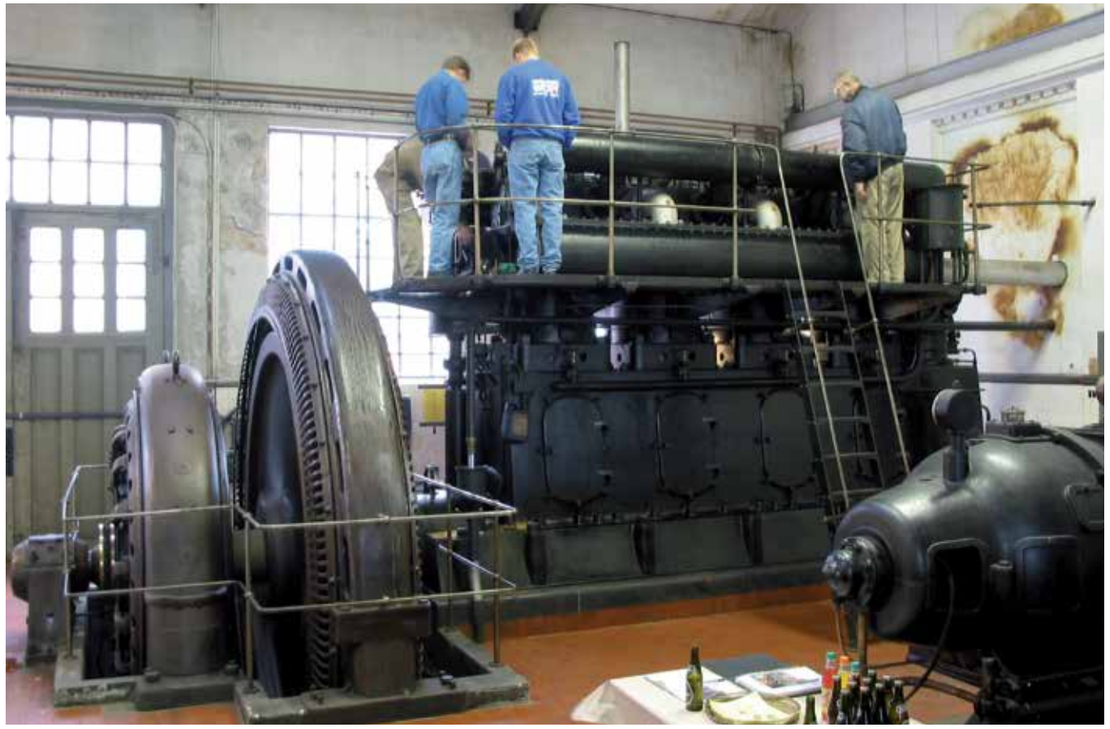
Irma Kafferisteri – coffee roasting plant, built 1967 and listed without machinery in 2014. Photo Slots- og Kulturstyrelsen 2014.

The development of the general appreciation of industrial heritage is of considerable interest. However, we only have a few attempts of measuring the interest and they are all from the last decade. The attempts have been made as part of the so-called cultural habit surrey (kulturvaneundersøgelse) and have been included in the survey because of the special focus on industrial heritage by the former Heritage Agency. According to these questionnaires, 14-16 % of the quested had visited a historic industrial site within the last year in respectively 2012 and 2023. This is a rather large share, when we compare with the 43 % questioned, who had visited a traditional town centre, the 41 % who had visited a palace or an old church in 2023 or the 16 % who had visited manor houses. Based on this material it appears that the public has accepted older industrial environments as heritage.

THE INSTITUTIONAL FRAME

The listing act itself has not been changed fundamentally since 1918. As mentioned above it was formulated by the Danish parliament in 1980 that listing of buildings of architectural or cultural historic significance should illuminate dwelling, work, and production conditions. In 1997 the age limit for listed buildings was reduced from 100 to 50 years, although it was and still is possible to list younger buildings in exceptional cases. In addition, delisting became easier. This was under a social democratic minister in a social democratic-liberal government. In 2010 it became possible to list works of landscape architecture as standalone objects. Prior to this, works of landscape architecture might only be listed as surroundings to listed buildings. Finally, the last change in the listing legislation until now has been the possibility of limiting a listing to the exterior and the main structure of a minor group of buildings. This alteration was introduced in 2018 under a liberal minister in a liberal right-wing government.[53]

The change of the age limit did not affect the listing of industrial heritage in any significant way. The few factories younger than 100 years listed after 1997 did not counter the general slowdown or loss of momentum in the new listings. Both the revi-



Thriges Kraftcentral – the small power plant of Thrige in Odense, built 1916 and listed with machinery in 2005. Photo CAJ 2002.

sions in 1997, 2010 and 2018 may be understood as deregulation and reductions of public interference in private property rights, or as a tiding up to control and upkeep the remaining listings in a better way.

Back in 1980 a substantial rise in the funds as well as staff was perhaps more important than the declaration of intentions, although the funds were not targeted particularly at industrial heritage. The other substantial rise in 2003-2011 was a temporary grant targeted at the museums – not the listing authority. However, the grant, which maybe had the greatest impact, was the grant in 1974-79 from the Danish Research Council for the Humanities directed at the universities, which appears to have restarted the interest in the industrial heritage among museums and some university teachers. This also formed the background for the establishing in 1979 of the society for the protection of industrial environments.

For the listing authority at least two other projects have had higher priority. At first the registration of preservation values (bevaringsværdier) in cooperation with the municipalities (1987-2001) and secondly the revision of the listed buildings (2010-2016).[54)]

It should also be noted that the tax reductions, which are meant to support the maintenance of listed properties, work to the advantage of the owners of dwellings in contrast to the industrial firms.[55)]

Finally, the Historic Buildings Council *(Det Særlige Bygningssyn)* has recently proposed a strategy, which recommends concentrating on the development after 1945 and focusing on nine themes of interest for future listings. One of them is business and industry, and another is energy and mobility.[56)]

DISCUSSION

At first it is worth looking into listing as a reaction to physical change. The argument that a building or object will vanish if it is not protected was and is often heard, at the time when listing was introduced and today. The argument fits somewhat with the data. The first small wave of listings of industrial heritage was carried out around 1920 that is in the years after the Second Industrial Revolution, which in general terms involved new layouts and locations of industrial plants as well as abandonment of plants built during the First Industrial Revolution.[57)] The second substantial wave of listings of industrial heritage occurred in 1979-2000. That is after the passing of the Third Industrial Revolution and during the unfolding of the IT-revolution, which also involved major changes in layout and location as well as in transportation, especially the abandonment of harbours and railways and the construction of motorways. The major changes in the building technology from 1950's should also be noted.

It is obvious that the argument has its limitation. Not every structural change or, on the micro-level, every abandoned building causes listing or preservation. Above I have argued for the importance of research among cultural historians and the growing interest in reuse among architects, especially during the 1970's and 1980's for the listing of industrial heritage 1979-2000. It developed interest, questions, and schemata through which industrial buildings of the 1840-1940-period might be appreciated. And as the architect Ola Wetterberg has argued in 1992 concerning Sweden both periods 1900-1920 and 1960-1990 saw an interest in "non-academic architecture", "folk-architecture" or "local-architecture" and thereby also an interest in cultural history as well as reuse, the environment and a sustainable future. This is also a part of the explanation of the few industrial listings before 1970. Beside the lack of knowledge about the layout of factories among historians and architectural historians, the artistic style of the period, when the factories were built, was not highly regarded. The change of attitude began with the book by Millech and Fisker from 1951 and culminated with "Danmarks Arkitektur" from 1979-81.

Furthermore, it should be noted that many of the listings were suggested by people with connection to the research project "Industrial Buildings and Dwellings," while engineers were absent in contrast to for example the USA, and that very few of the owners proposed listing, in fact only one.

It is likely that the institutional frame may explain the lack of proposals from the owners. Listing is a public regulation of private property without direct compensation. However, the regulation is to a degree compensated by tax reductions for expenses to maintenance as well as to property tax for dwellings. Nevertheless, this compensation appears to have only a minor effect for production buildings.

Furthermore, the institutional frame is also in all likelihood showing itself as a neoliberal deregulation of listing after 2000, which resulted in only a few listings of industrial heritage and delisting of other building types in contrast to growing knowledge of the schemata of industry as well as the growing public appreciation of industrial heritage. Alternatively, the stopping up might be understood as a necessary tiding up and not as a kind of deregulation resulting in fewer restrictions. In fact, the path was laid out in 1997 before the change of government in 2001 from a social democratic to a liberal-conservative government.

The institutional frame in the form of the listing act must also be part of the explanation of the few listings of factories before 1970. Most or at least many factories, which the owners closed before 1970, were not 100 years old, and according to the law only buildings older than 100 years could be listed until 1980 as a main rule. Thereafter it became easier to list younger building as an exception, and from 1997 the age criterion was reduced to 50 years, still with the possibility of listing younger building as an exception.

The overall conclusion must be that the interest and protection of industrial heritage is characteristic of the period 1970-2000 and that it distinguishes this period from the preceding years. Also, that there was an interest in technical heritage from the 1890's, but with few listings. Finally, the period 2000-2023 appears to be characterised by a growing appreciation of industrial heritage in the Danish public, but also characterised by deregulation in the form of fewer public funds and fewer new listings of industrial environments and buildings.

Notes

1) Ole Hyldtoft, Den industrielle kulturarv i Danmark i 30 år. *Fabrik og Bolig* 2004, p. 11-28. Henrik Harnow, *Danmarks Industrielle Miljøer.* Odense: Syddansk Universitetsforlag 2011, p. 11-56, Caspar Jørgensen, Industrial Heritage in Denmark, *Industrial Heritage in Denmark – Landscapes, Environments and Historical Archaeology,* Caspar Jørgensen and Morten Pedersen (eds.). Aarhus Universitets Forlag og Kulturstyrelsen 2014, p. 257-283.
2) There are two relative new books about listing in Denmark: Jannie Rosenberg Bendsen and Mogens Andreassen Morgen, *Fredet Bygningsfredning i Danmark 1918-2018.* Copenhagen: Strandberg Publishing 2018. Allan Tønnesen etc., *Hele samfundets eje Bygningsfredning i 100 år.* Odense: Syddansk Universitetsforlag 2018. As well as an old one, which still is essential: *Bygningsfredning gennem 25 Aar.* København: Det Særlige Bygningssyn 1943. But all three have an internalistic approach.
3) Ole Hyldtoft 2004, p. 11.
4) To a certain degree the following is inspired by Winfried Speitkamp, *Die Verwaltung der Geschichte.* Kritische Studien zur Geschichtswissenschaft 114. Göttingen: Vandenhoeck & Ruprecht 1996, as well as by Ola Wetterberg, *Monument & Miljö, Perspektiv på det tidliga 1900-talets byggnadsvård i Sverige.* Göteborg: Chalmers Tekniska Högskola, 1992, and the discussion of Braudel by Lucas: Gavin Lucas, *Making Time, the archaeology of time revisited.* London and New York: Routledge 2021, p.56-60.

5) See Anders Holtz, *Teknikens Tempel. Modernitet och Industriarv på Göteborgutställningen 1923*. Hedemora: Gidlunds Förlag 2003. Anna Storm, *Hope and Rust. Reinterpreting the industrial place in the late 20th century.* Stockholm: KTH 2008 pp. 35-36.
6) E.H. Gombrich, Art and Illustion. A study in the psychology of pictorial representation, (1960) London: Phaidon Press 5. ed. 1977.
7) You might also use the concept discourse; see for example Heike Oevermann and Harald A. Mieg (eds.), *Industrial Heritage Sites in Transformation Clash of Discourses*. New York and London: Routledge 2015, where they look at three discourses: heritage conservation, urban development and architectural production.
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Protection of industrial heritage in Estonia

HENRY KUNINGAS

The topic of industrial heritage protection in Estonia is multifaceted. Undoubtedly, one positive aspect is that the most important part of the large-scale industry before the Second World War has been taken under state protection in Estonia, and especially in Tallinn there are now numerous different examples of the revitalization of historical industrial buildings, the amount of examples and distance in time already allows to assess restoration practice so far. On the other hand, the heritage policy of the last two decades regarding the preservation of industrial heritage probably needs a critical analysis. This could also be one of the starting points for creating a perspective based industrial culture heritage policy concept, which, unfortunately, currently does not exist. Due to the limited volume, this article focuses on the topic of industrial heritage protection, its development and contemporary situation.

DEVELOPMENT OF INDUSTRIAL HERITAGE PROTECTION

In Estonia, the National Heritage Board, which reports to the Ministry of Culture, is responsible for the listing of industrial heritage. To the extent that the National Heritage Board is limited in its composition and capabilities, the Board has not paid much attention to industrial heritage as a specific and at the same time very multifaceted heritage. It is possible that this has also been influenced by the fact that the National Heritage Board has transferred national heritage protection-related tasks to city governments in major Estonian cities – Tallinn, Tartu, Narva. However, it is precisely in these cities that the largest and most prominent part of Estonia's industrial heritage is located.

The Valga railway station on the Estonian-Latvian border was completed in 1949. Project by Leningrad Transport Design Office, architect V. Tsipulin. The building was placed under heritage protection in 2017. Photo: Henry Kuningas 2012.

A more academic interest in Estonian industrial heritage emerged in the 1980s. In 1984, the National Design Institute of Cultural Monuments, which dealt with the research and design of historical buildings, started the national inventory of Estonian industrial heritage for the first time, which lasted until 1991. The work, with varying success, was extensive and covered a wide variety of industrial heritage, from factories and railway stations to mills and lime kilns, with a particular focus on rural areas. Since Estonia was still part of the Soviet Union in the 1980s, and even though the country's socialist economy was disintegrating at an increasingly rapid pace, industrialization, especially large-scale and heavy industry, continued to be the ideological cornerstone of the country. Among other things, this meant that essentially all historical industrial complexes, especially large-scale industries, were still in operation and the access to them for researchers was difficult. The inventory of industrial heritage, including photography, was essentially excluded in industrial complexes considered strategically important, e.g. classified so-called "number" factories, i.e. factories under the direct control of Moscow ministries. Therefore, it must be recognized that the inventory undertaken in the 1980s mainly dealt with railway architecture, bridges and small production companies located in the countryside, unfortunately this did not provide an exhaustive overview of large industries and the state of industries located in cities. The main organizer of the inventory was Tõnu Hagelberg, whose aim was to create a continuous presentation of Estonia's diverse industrial heritage for the general public with the help of the press.[1)]

On his initiative, the Kasari reinforced concrete bridge (1903-04, according to the Hennebique system by the engineering and construction company "Monicourt & Egger"[2)]) and Tallinn's seaplane hangars (1916-17, Danish engineering firm Christiani & Nielsen[3)]) were taken under national protection as outstanding historical engineering constructions.

An overwhelming part of Estonian monuments, including its industrial heritage, were listed in the newly independent Republic of Estonia in 1995-1997,[4)] and several important industrial complexes - e.g. the Sindi and Kreenholm textile factories in addition to the complex of surrounding buildings – continued to be added vigorously to the protection lists until 2000. In the following years, the pace of industrial heritage protection slowed down. Analysing the process retrospectively, critically it must be noted that until the beginning of the 2000s, the preparation of protection lists took place without sufficient basic research and expertise, including inventory. Due to the lack of administrative capacity, the decisions to protect important buildings were mostly made with "cabinet silence", without involving either the owners or the wider public, which is why there were occasionally curious situations when the owners found out only years later, or by accident, that the building they owned was a monument. At the same time, the process of that time cannot be criticized based on today's attitudes and practices, the economic and socio-political context of the newly independent country must be taken into account. Among other things, heritage protection was clearly underdeveloped and underfunded in the 1990s, at a time when it was urgently necessary to implement the new heritage protection law and establish new protection lists. This was, unfortunately, an overwhelming task. Likewise, it must be recognized that the rules for the implementation of correct administrative procedures were still being developed, and in several areas the transition from soviet-based management was still taking place.

BRIEF OVERVIEW OF THE HISTORY OF ESTONIAN HERITAGE PROTECTION ACTS

Protection of ancient monuments

1666 - Royal Placat by the Charles XI, King of Sweden and at the time, also of Estonia and Livonia. Since the Royal Placat focused on Sweden, the king's decree was not carried out in Estonia.

1925 - Act on the Protection of Antiquities was adopted in the newly created Republic of Estonia and was renewed in 1936. The goal was mainly the protection of ancient objects, ruins and to a lesser extent also medieval buildings.

Institutionalization of heritage protection

1947 - local, i.e. Estonian SSR, regulation "On Measures for the Preservation and Restoration of Architectural Heritage" was adopted, which also included a list of architectural monuments under protection, mainly from the 14th-17th century.

1961 - Estonian SSR was the first in the USSR to adopt a Heritage Protection Act containing the principles of modern heritage movement.

1966 - the protection zone of Tallinn's Old Town was established, which was the first conservation area in the USSR.

1978 - the All-Union Heritage Protection Act from 1977 came into force in the Estonian SSR, which remained in force until 1994. Practically the entire Soviet period, the gradation of monuments into monuments of local, national and all-Union importance was valid. During the Soviet period, heritage protection became institutionalized and specialized in heritage research, protection and restoration branches.

1988 - the first outstanding objects of industrial heritage were taken under protection.

1994 - a new Heritage Protection Act was imposed, which was based on international conventions and took into account the radical restructuring of society. Among other, the gradation of monuments was abolished.

2019 – a new Heritage Protection Act aims to be more flexible and take into account the interests of the owners of the monument.

PRIVATIZATION AND DEINDUSTRIALIZATION

In the 1990s, there was a property reform that deeply affected the whole economy and society of Estonia, centering on the privatization of companies. This can be considered the most important upheaval affecting industry in Estonia since 1940, when the Soviet Union nationalized businesses and introduced a socialist command economy. After the collapse of the Soviet economic model, the privatization of companies was started with the idealistic goal of securing company owners, who could modernize these companies and make them work effectively with new investments. However, as with to the period after Estonia's independence in the 1920s, it turned out that local industries suddenly lost both access to cheap Russian raw materials and production and to the large Russian market. At the same time, production was not yet competitive in the Western market. As a result, a large number of facilities were already forced to stop production in the 1990s, while some large industries – e.g. the Kreenholm Manufactory in Narva and the Baltic Cotton Manufactory in Tallinn – managed to survive until the 2000s. Unfortunately, as far as we know, no quantitative economic historical study of this interesting period has been published, but it can be assumed that in the period 1991-2001, the majority of factories in production at the end of the 1980s closed. Thus, the process of listing industries often coincided directly with a wave of deindustrialization.

Table I. The table includes auxiliary and residential buildings of industries, railway buildings (88), manor industry (72), lighthouses and their auxiliary buildings (72).

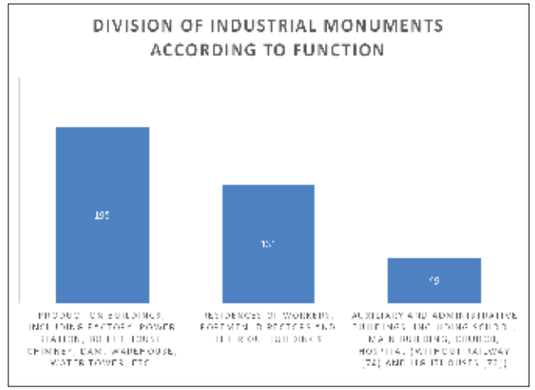


Table 2. Industrial monuments are divided into buildings directly related to production and residential and auxiliary buildings. Railway and lighthouse buildings are not reflected in the table.

STATISTICS COVERING ESTONIA'S PROTECTED INDUSTRIAL HERITAGE

Defining industrial heritage both typologically and chronologically can be complex and dependent on both historical and socio-economic context. A cultural centre or church can play an important role in shaping workers' identities and as a community centre, despite not being an essential building for the operation of industry. The classification of residential buildings as industrial heritage can be equally complicated, especially if the industry has long since disappeared – such as the residences of the masters of the Maarjamäe sugar factory built at the beginning of the 19th century, which were adapted as auxiliary buildings of the representative's mansion built in place of the factory, which had already been demolished in the 1870s. At the same time, the charter of Nizhny Tagil, adopted in 2003 by the expert organization of industrial heritage TICCIH, defines industrial heritage quite broadly: "***Industrial heritage*** consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education".[5)]

Based on this definition, auxiliary buildings of industries, including residential and administrative buildings of industrial settlements, have also been included in the statistical overview (table 1)

Oil shale mining in Kiviõli started in 1922 on the basis of a concession belonging to German capital, in 1925 the first oil factory started working. By the end of the 1930s, the monofunctional town of Kiviõli grew next to the factory. During the German occupation 1941-44, the expansion of the factory was started, which was completed after the war during the Soviet era. The oil factory continues to operate. Photo: Henry Kuningas 2020.

of Estonia's protected industrial heritage. Since industrial heritage is not distinguished in the Heritage Protection Act, most of the protected industrial heritage in Estonia is classified as architectural monuments, which is why the collection of source data for quantitative analysis turned out to be so difficult. In accordance with the charter, the industrial heritage also includes numerous protected railway buildings, lighthouses and their auxiliary buildings, which are indispensable for the operation of sea transport, and peculiarly to Estonia, the pre- First World War manor based industries, whose main production was spirits.

As Table 1 vividly illustrates, by far the largest part – 80% – of the protected industrial heritage belongs to the period of the Russian Empire, i.e. before World War I, 15% to the period of the Republic of Estonia, and only 5% to the period of Soviet occupation after World War II. On the one hand, this relationship is understandable, because relatively little post-World War II architectural heritage has been recognized as worthy of national protection. At the same time, the periodical distribution of protected industrial heritage does not reflect the fact that the most extensive industrialization in the history of Estonia took place during the Soviet period and profoundly affected the entire society.

Table 2 shows the distribution of industrial monuments between buildings and facilities directly related to production, such as factories, hydro and power plants, boiler houses, chimneys, warehouses, depots, dams, water towers; housing for workers, foremen and management built by large industries; and auxiliary and administrative buildings of large industrial sites: hospitals, main buildings of factories, churches, fire brigade buildings and schools. For the sake of clarity, this table does not reflect the different categories of buildings pertaining to railways and lighthouses.

Table 3 provides an overview of the distribution of industrial monuments by production areas. As expected, the largest category, 120 or 23% of all industrial monuments, is related to the textile industry. This is understandable, as the textile industry

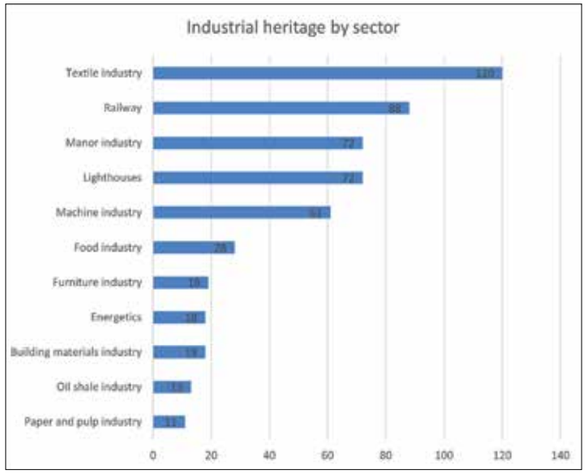


Table 3. Industrial Heritage by sector.

has historically been the largest industry in Estonia, led by the giant Kreenholm manufactory in Narva, both during the Russian Empire, the Republic of Estonia and the Soviet Union. Actually 11 textile factories are directly listed, and the remaining 109 buildings are domestic, auxiliary and administrative buildings related to the textile industry. Estonia also has a large number of railway buildings under protection – 88 monuments, of which 34 are station buildings. Inasmuch as there are many manor complexes under protection in Estonia, where a lot of raw spirits were produced, 72 manor distilleries are also under protection, several of which are in ruins today. Equally many – 72 – lighthouses and their auxiliary buildings have been recognized as monuments in Estonia. In the second half of the 19th century, especially just before the First World War, the metal and mechanical engineering industry, mainly oriented towards the Russian market, developed rapidly, mainly in Tallinn, the most important examples of this industry are also mostly protected, a total of 61 buildings and facilities. There are far fewer monuments than those mentioned above in the categories of the food industry, furniture industry, paper and pulp industry, energy and building materials industry. Compared to the Estonian textile and machine industries, fewer historic large-scale industrial companies have been preserved in these sectors. The oil shale industry has remained an orphan, which will be discussed separately below.

In Estonia, technical monuments constitute a separate type of industrial monument, which include very diverse production, ranging from rifles to locomotives. True, this is a rather marginal category of monument, which includes only 35 examples; therefore, most of Estonia's technical heritage is preserved in museums in stead. Although there is no technical museum in Estonia, there are numerous regional and field museums in Estonia, in which, depending on the size and character of the museum, the development of local industries and various aspects accompanying industrialization are reflected.

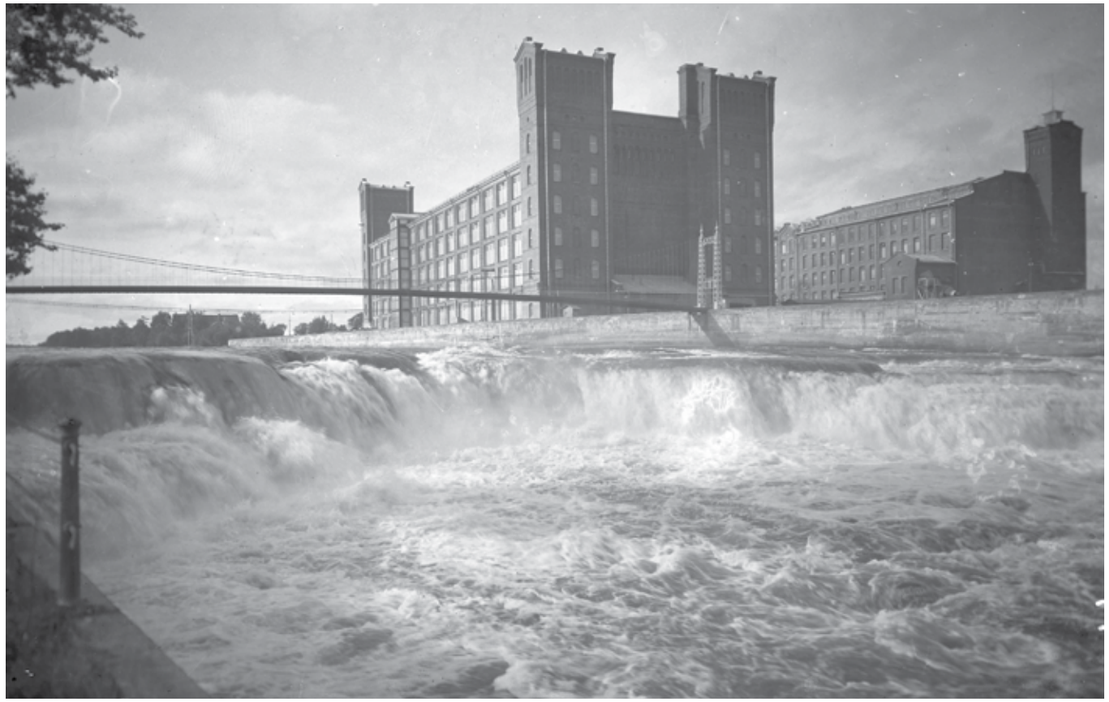
INVENTORY OF 20TH CENTURY ARCHITECTURAL HERITAGE

In the period 2007-2013, under the leadership of the Estonian Academy of Arts, the project "Mapping and Analysis of the Valuable Architecture of Estonia of the 20th Century (1870-1991)" was carried out, during which the industrial heritage, including infrastructure facilities, and residential architecture inseparably related to it, e.g. monofunctional industrial settlements, were studied. The goal of the project was, among other things, to submit proposals for protection. For this purpose, 15 regional overviews and four basis studies were carried out, one of which – railway stations of the 20th century – can also be classified in the field of industrial heritage. In total, more than 2,000 examples were identified, and then 129 more detailed studies were made on 200 different buildings or facilities, several of which specifically dealt with industrial heritage and buildings inseparably connected with it, including administrative buildings, auxiliary buildings, etc. In summary, a proposal was submitted to the National Heritage Board and the Ministry of Culture to place 113 buildings and structures, including several examples of industrial heritage, under state protection. The initial enthusiasm, supported by the thorough research work of many researchers, allowed us to attain much greater attention from the state than previously, ensuring the preservation of the highly diverse architectural heritage of the turbulent 20th century. This excitement has now subsided in the machinery of cultural bureaucracy and also with legal cases contesting the protection of a couple of buildings, which is why the proposal to supplement the list of monuments has been augmented by few additional examples, and only a few buildings and facilities in the field of industrial heritage: Linnamäe and Tudulinna hydroelectric plants and three railway station (Narva, Tapa, Valga) buildings. The most obvious example of this tendency is the process of designating Sillamäe as a heritage conservation area.

SILLAMÄE URANIUM PLANT

Although the first infamous atomic bomb was dropped on Hiroshima on August 6th, 1945, when the hostilities in Europe had already ended, the leadership of the Soviet Union was probably already aware of the successful US nuclear program and decided to build an atomic bomb as quickly as possible. One potentially promising source for obtaining the uranium needed to build a nuclear bomb was graptolite argillite in the recently occupied Northeastern Estonia. However, the uranium content in the layer deposited under the oil shale is not very high, only approximately 0.028%, i.e. 28 grams of uranium per 1 ton of graptolite argillite.[6)]

The first factory of the state-owned Kohtla-Järve oil shale factory was completed in 1924. The continuously operating factory grew into the largest oil factory in Estonia during the Soviet period. Photo: Henry Kuningas 2011



The view across the Narva River to the Kreenholm Manufacture´s Georgi (1899, architect Paul Alisch) and Joala (1884, architect Roman Heinrichen; 1890, architect Paul Alisch) factories. Photo: Karl Akel 1939. Estonian National Archives photo collection EFA.10.4.2255

In 1946, it was decided to build an industrial complex to produce uranium under the name Kombinat No. 7 in North-East Estonia.[7] The construction of the new secret Sillamäe uranium enrichment plant and the attendant city with its Stalinist planning and architecture, closed to the rest of the world, continued until 1949 utilising the labour of tens of thousands of prisoners of war. Since the production of uranium from local raw material turned out to be too expensive and inefficient, it was repurposed from 1952 to the processing of ore imported from Eastern Europe. Until 1991, approximately 100,000 tons of uranium were produced at Sillamäe. Since the factory was privatized, the complex has become one of the few plants producing rare metals and rare earth metals outside of China.[8]

The creation of the Sillamäe heritage conservation area was first proposed by Estonian Academy of Arts professor Lilian Hansar in 2008 in the Ida-Viru county inventory of regional architecture prepared during the project "Mapping and analysis of the valuable architecture of the 20th century (1870-1991) in Estonia".[9] In 2012, L. Hansar specified the historical architectural development of Sillamäe, the objectives of the protected area and the reasons for its formation in the expert assessment of the heritage protected area.[10] Unfortunately, for both works, the only starting point is that the architectural-historical principles, according to which the city centre built at the end of the 1940s, the apogee of Stalinist architecture, deserves protection above all else. Based on this, the National Heritage Board prepared the 2019-2021 Sillamäe heritage protection area draft protection order, involving, among other interests, the local community.[11] At the time of writing this article, the process of creating a heritage conservation area has been halted.

Although the multi-faceted buildings of the factory, dating from different decades, are not a masterpiece from an architectural point of view, the Sillamäe Uranium Factory played a significant role in the Soviet Union's effort to build an atomic bomb and holds an undeniably important place in the post-war development of Ida-Virumaa. The fact that the uranium plant was the only reason the town was built that is not considered by the proposal for the heritage site. Considering the economic and military-historical importance of the uranium factory, the building of the factory would need to be thoroughly investigated and consideration should be given to preserving at least part of it as a characteristic sign of historical processes. Otherwise, the approach adopted in Soviet times, when the existence of the Uranium Plant was shrouded by secrecy would, ironically end up being repeated. As far as is known, no assesment has been made of the factory's industrial and military historical heritage. It is unknown whether the inclusion of the factory site in the planned heritage protection area was abandoned due to the strategic importance of the factory, opposition from foreign owners or for some other reason. Of course, it is clear that reconciling the preservation of industrial heritage with the needs of a working factory is a process that is more complicated than the usual situation and requires compromises.

THE LEGACY OF THE OIL SHALE INDUSTRY

During the past decade, especially in recent years, there has been an increasing public debate about the uncertain future of the Estonian oil shale industry. Above all, this has been motivated by the goal set in the European Union's Green Deal to reduce greenhouse gas emissions by 55% by 2030 and achieve carbon neutrality in the European Union by 2050. Among other things, this would lead to a significant decline in the oil shale industry and the end of oil shale energy.

On one side of the "front line" of the debate are increasingly strict environmental requirements, on the other is the largest industrial sector of Ida-Virumaa; to a much lesser extent, the pro-

Part of the cotton spinning and weaving Kreenholm Manufacture complex in Narva. The very first spinning factory, completed in 1858, is located on Kreenholm island. In the background of the photo, on the right bank of the Narva river, the Stieglitz flax factory and the Narva cloth factory were located. Most of the historical buildings of the Kreenholm Manufacture and its settlement are under heritage protection. Photo: aerial photo 1932. Estonian National Archives photo collection EFA.66.4.5750

Rotermann factories bread factory (1912) and grain elevator (1904, 1930) are under heritage protection. The new obtrusive addition and extension to the bread factory with a glass facade dates from 2021 (KOKO Arhitektid). Photo: Henry Kuningas 2022

The barley mill (1905) of Rotermann factories burned out in 2000 and was restored by 2007 (Teigar Sova Arhitektid). Photo: Henry Kuningas 2022

blems of preserving the physical environment of the oil shale industry, including heritage buildings, have been analysed during these discussions or alongside them. Is it worth preserving, and if so, to what extent, in what way and for what purpose?

Some dates in brief. The year 1916 is generally considered to mark the beginning of the Estonian oil shale industry, when oil shale mining began in Kohtla, Järve village and Kukrus due to the fuel crisis in Russia. Immediately after the War of Independence, the newly created Repuplic of Estonia initiated comprehensive and industrial exploitation of oil shale as Estonia's main mineral resource, both in energy and in the chemical industry. In addition, oil shale was used as fuel for trains, which were the main means of transport at the time. The leader of the field was the Kohtla-Järve oil plant of the State Oil Shale Industry, however already in the mid-1920s, several private companies also started mining oil shale and extracting oil based on concessions granted by the state. After 1929, the production of Kiviõli, Sillamäe and Kohtla oil factories owned by foreign capital already exceeded the production of the state-owned company.

After the re-occupation of Estonia in 1944, the State Defense Committee of the USSR demanded the restoration of all mines destroyed in the Estonian war by 1948 and the construction of 11 new mines.[12] One of its most important goals was to supply oil shale to the oil shale gas plant built on the territory of the Kohtla-Järve oil plant in 1948, which began to supply Leningrad with oil shale gas via a 260 km long gas pipeline. In addition, the shale oil production plan called for an increase in the production of shale oil to 8.4 million tons per year by 1950.[13] After the Second World War, the energy industry became the main consumer of oil shale, especially after the completion of the world's largest oil shale-fuelled power plants, the Baltic (1st block 1959, completed 1965) and Estonian 1st block 1969, completed 1974) thermal power plants. During the Soviet period, the oil shale industry grew into the largest industry in Estonia.

The reconstruction and expansion of the oil shale basin in such a short period of time in the post-war years was an undertaking of unprecedented scale in Estonia. Thanks to forced development, nowhere else in the world does the oil shale industry form such a weighty part of the country's economy and society. This is the only industrial sector in which Estonia has been the world's largest producer, processor and also consumer during the last seventy years. At the peak of mining in 1980, 47 million tons of oil shale were mined worldwide, of which as much as 31 million tons came from Estonia. In the field of oil shale industry, Estonia continues to be one of the major global producers.

During the last hundred years, the Estonian oil shale industry has built numerous buildings and facilities. There were 19 mines and quarries alone in Estonia until the regaining of independence. There were four oil factories in Estonia: Kohtla, Sillamäe, Kohtla-Järve and Kiviõli, of which the Kiviõli and Kohtla-Järve oil factories are still in production. Historically, there have been numerous shale-fuelled power plants, both public and industrial. Not including the Auvere power plant, which was put into operation in 2015, the older oil shale-fired thermal power plant; Kohtla-Järve, Balti and Estonian thermal power plants are still partially operational. In summary, hundreds of buildings, from utilitarian warehouses to representative administrative buildings, have been built for the use of mines, quarries, oil plants and power plants.

Therefore, it is easy to get the impression that the construction legacy of the oil shale industry will not end anytime soon. Unfortunately, during the last ten years, a large proportion of the buildings and facilities of quarries and mines built during the Soviet period and gradually closed since the 1990s have been demolished, and several thermal power plants that worked on oil shale have also been demolished. In one of the flagships of the Estonian oil shale industry, the Kiviõli oil plant, more than ten buildings from the 1930s-1950s have been demolished since 2009, including a historic gasoline factory from the 1930s in 2018.[14]

Only one building of the oil shale industry is under protection as a building monument – the Sompa mine's (mine no. 6) main building completed in 1948 according to the "Giprošaht" standard project of the design institute of the Ministry of Coal Industry of the USSR, but unlike the main buildings of other mines, it is a building with outer walls made of natural stone. The building looks eye-catching, resonating due to the use of building materials associated with the industrial buildings of the historicist period, e.g. the Mõisaküla railway factory from the turn of the century, raising the question of the reason for its distinctive exterior. The standard design envisages a plastered building with classicist decor. The reason for the difference is said to be quite prosaic: namely, that there was a shortage of building materials during the construction of the administrative building, and at the suggestion of the construction site manager, natural stones collected from nearby fields were used to clad the walls of the building.[15] Since several other main mine buildings, built according to the same standard design, were still in good condition in the year of protection, i.e. 1997, it can be assumed that the decision favoured of Sompa precisely because of its unusual exterior. Thus, an otherwise standard building that does not conform to the standard design has been protected in an exceptional way.

It is certainly worth noting that, in addition to the main building, the Sompa mine complex included a number of other buildings in the 1990s, including the shale sorting factory completed in 1963. As the other buildings in the mine were not protected, they were demolished after mining ceased and other buildings were sold in 2000. Today, however, the main building of the mine has become a ruin, with only picturesque walls surviving.

An extraordinary engineering achievement, the Tallinn seaplane hangars was completed as part of the unfinished giant project of the Tallinn military port of the Russian Empire in 1917 according to the project of the Danish company Christiani & Nielsen. Photo: 1920s. Estonian National Archives photo collection EFA.114.A.335.365

Sillamäe uranium plant with its town in the background. Photo: 1996. Estonian National Archives photo collection EFA.564.0.185253

SUMMARY

The country's heritage policy cannot be separated from its broader cultural policy and the context of the economic and social policy of its society. The protection of industrial heritage exemplifies the emphases of Estonian heritage policy and societal expectations of heritage; perhaps looking critically at the passivity in the field of heritage protection when dealing with large-scale and difficult heritage, which in many ways characterizes precisely Soviet industrial heritage.

The Sillamäe uranium enrichment plant and oil shale industry described above belong to this difficult heritage for several reasons. First of all, we can mention historical and emotional reasons: both embody the economic colonialism and large-scale russification of the Soviet Union, as well as the careless exploitation of the natural resources of Ida-Virumaa, including mineral resources, and the transformation of the landscape during the Soviet period. The protection of industrial heritage has also generated opposition for commercial and socio-economic reasons: it is considered an obstacle to the modernization of working industries, and the preservation of facilities and buildings that have lost their function is considered too burdensome.

The definition of industrial heritage as architectural heritage has inevitably led to an unjustified substantive and formal narrowing of this type of heritage. Among other things, the classification of industrial heritage exclusively in the field of architectural heritage has almost completely neglected the equipment and infrastructure of mines and factories, which is why the equipment from the factories under protection is being liquidated to this day.

At the same time, it is clear that in the assessment of industrial heritage, other aspects, including the historical, technological or social importance of the factory, may prove to be much more important than the architectural-historical or aesthetic aspects. Therefore, in addition to the architectural historians and architects who generally make value judgments in the field of heritage protection, a wider circle of historians and specialists could also be involved in the case of industrial heritage.

Notes

1) I Including introductions of various objects on inside the front covers of the magazine „Tehnika ja Tootmine" (Technology and Production) published in 1988-1991; T. Hagelberg, Tööstus – ja tehnikamälestistest Eestis ning mujal maailmas (Industrial and technical monuments in Estonia and other parts of the world). – Tehnika ja Tootmine, 5, 1990, p. 20-22.
2) T. Hagelberg, Kasari jõe raudbetoonsilla ajalooline öiend (A historical overview of the reinforced concrete bridge over the Kasari River). Tallinn, 1986. National Archives: ERA. T-76.1.11806
3) M. Mändel, O. Orro, The marvellous reinforced concrete shells of Tallinn seaplane hangars in the context of early concrete architecture in Estonia. – Construction History, 27, 2012, p. 65-85.
4) R. Alatalu, Muinsuskaitse siirdeühiskonnas 1986-2002: rahvuslikust südametunnistusest Eesti NSV-s omaniku ahistajaks Eesti Vabariigis: doktoritöö (Heritage Protection in Transitional Society 1986-2002 : From Nation's Conscience in the Estonian SSR into the Harasser of Private Owner in the Republic of Estonia: Doctoral Thesis). Tallinn: Estonian Academy of Arts, 2012, p. 68.
5) The Nizhny Tagil Charter For The Industrial Heritage / July, 2003. https://ticcih.org/about/charter/
6) E. Maremäe, Sillamäe uraanitehase asutamine ja töö aastatel 1946-1952 (Establishment and work of the Sillamäe uranium plant in 1946-1952). – Akadeemia, 3, 2000, lk 478.
7) A. Cinis, M. Dremaite, M. Kalm. Mono-industrial towns in the Soviet Baltic Republics in the 1950s-1980s. – Scandinavian Journal of History, 33, 3, 2008, p. 230,231.
8) Today NPM Silmet AS.
9) L. Hansar, Ida-Virumaa. 20. sajandi arhitektuuri inventeerimine (Ida-Virumaa. Inventory of 20th century architecture). Tallinn, 2008. In the archive of the National Heritage Board: ERA.5025.2.8982, p 3.
10) L. Hansar, Sillamäe kesklinna muinsuskaitseala eksperdihinnang mälestise tunnustele vastavuse kohta (Expert assessment of Sillamäe city center heritage conservation area on compliance with the characteristics of the monument). Tallinn, 2012. In the archive of the National Heritage Board: ERA.5025.2.12360.
11) Additional materials on the website of the National Heritage Board: https://www.muinsuskaitseamet.ee/et/sillamae-muinsuskaitseala-kaitse-korra-koostamine.
12) 90 aastat põlevkivi kaevandamist Eestis: tehnoloogia ja inimesed (90 years of oil shale mining in Estonia: technology and people). Compiled: N. Varb, Ü. Tambet. Tallinn: GeoTrail KS, 2008, p 382.
13) M. Pihlamägi, Policy of Transition: Industry in the Estonian SSR During the First Post-War Five-Year Plan (1946-1950). Acta Historica Tallinnensia. Tallinn: Teaduste Akadeemia Kirjastus, 2010, 15, p 149.
14) In 2004, Eva Laarmann prepared the expertise and proposals for the protection of Kiviõli's oil shale factory historic buildings on the order of the National Heritage Board, including preserving the buildings of the oil factory built in the 1930s and 1950s. So far, no buildings on the territory of the oil factory have been listed.
15) L. Zarin, V. Nakonetšnõi, Kaevanduse nr. 6 ajalugu (Mine no. 6 history). – 50 aastat põlevkivi kaevandamist Eesti NSV-s. Tallinn: Valgus, 1968, p 192.

Preserving industrial heritage in Finland from 1970s to 2020s

JOHANNA BJÖRKMAN

This article introduces Finnish industrial heritage work from 1970s to 2020s, focusing on the process and system of listing and protecting buildings and sites. The perspective in the following text pertains to the heritage process, wherein role of experts and administrative work are essential aspects to the process of *heritagization.*[1)]

THE BEGINNING OF INDUSTRIAL HERITAGE WORK

The biggest industrial actors amongst the Finnish have been - going back to the 1860s – the sawmill industry, paper and wood processing industries, mining and metal industries, textile industry, and growing to eventually encompassing culinary industries and beyond. At the beginning of the twentieth century, Finland was predominantly agricultural land, with most inhabitants living in the countryside or under similarly rural conditions. Urbanization progressed slowly throughout the country. A few larger cities such as Helsinki and Tampere witnessed strong currents of industrialization in the early twentieth century, where rapid population growth precipitated poor housing conditions for ordinary workers. However, the primary axis of Finland's industrialization occurred in its countryside. The forest industry took hold in both coastal areas possessing ample shipping opportunities, as well as further inland by the raw resources themselves. Especially in forests accessible by water routes. Several industrial communities – towns in the making – were born in and around forest industry sites.[2)]

Cable Factory in Helsinki was built in in three faces: first part in 1943, and two extensions in 1947-48 and 1952-54. The factory became part of Nokia in the 1960s and the site was in use until 1990s. Finally, after many steps, the large factory was preserved and was transformed into cultural uses: museums, artist's studios, physical training etc. Foto: Sakari Kiuru/Helsinki City Museum 2013.

Finland has industrialized late when compared to other European countries, and it deindustrialized late as well. The structural changes in industrial planning in the 1960s and 1970s left behind buildings, machinery and sites empty and abandoned in many urban environments. Prior to that, when factories were still running, the cultural historical or aesthetical values of industry itself were mostly absent from people's minds. The imagery associated with factory work were mostly negative.[3)]

However, there was a much earlier effort to legitimize industrial buildings as architecture by architects from the 1920s onwards, as an interesting field for them to design, and not to leave it exclusively to the function-centric engineers. In 1927, architect Marius af Schultén presented industrial buildings worthy of assignments for architects to design. Schultén used here the term *industrial architecture*. He argued that factories should not be considered only as technical assignments, but rather an architect should plan out the buildings from the start; in fact preferably at the earlier stage of city planning itself. It could be interesting to study whether this legitimization influenced the canon of industrial architecture in the architectural histories, and how this in turn affected the cultural historical valuations later attached to *heritagization.*

The first general publication about Finnish industrial architecture was published in 1952 by the Finnish association of architects. In its introduction, architect Viljo Rewell clarified the motivation behind publishing the book: Industrial architecture needed to be

HERITAGE PROTECTION LEGISLATION IN FINLAND

The first **Town Planning Act** of 1931 and the building regulations gave the first legal opportunity to protect historically or artistically valuable buildings and cityscapes in Finland.

The **Building Protection Act** in Finland was enacted in 1964. The act was renewed only twenty years later. The renewed act from 1985, **Act on the Protection of Buildings**, shifted the responsibility of building protection to the municipalities, as they were now obligated to implement heritage concerns at the fundamental level of town planning. The act was renewed again in 2010 by the **Act on the Protection of the Built Heritage**, which protects the built-up cultural environment and preserves its special characteristics and features. Based on the act, the protection may cover structures, building groups and developed areas, in addition to individual buildings.

Besides the Town Planning Act there was a **Building Act** given in 1958, in which special regulations concerning protecting buildings could be provided, too. The two acts were put together in 1999 when the **Land Use and Building Act** was given. This act steers land-use planning and building, but also the preservation and change of the cultural environment. Land use planning is conducted by designing land use plans, which require adequate, updated studies and surveys. These include inventories on ancient relics and built heritage. It is possible to render protection orders in a detail plan that may cover larger areas and even landscapes, but also individual buildings and structures, interiors, yard areas and gardens. The Land Use and Building Act from 1999 is currently under renewal: in 2025 there will be a separate Building Act. Also, the Land Use Act is under revision.

In Finland, the **Antiquities Act** from 1963 protects fixed relics. The law is being renewed and a proposal was given 2023. The Antiquities Act has been in use almost 60 years and there have been major structural changes in society, and also regulations regarding environmental use, official activities and administrative procedures have been significantly reformed.

There are separate laws on the protection of church buildings in both the Church Act concerning the Evangelical Lutheran Church (2023) and the Act on the Orthodox Church (985/2006). The purpose of conservation legislation is to ensure that church buildings are maintained and repaired in an appropriate manner.

A Finnish consumer co-op Elanto's old Bread Factory in the inner courtyard of the Elanto block in Sörnäinen, Helsinki. The bakery moved out late 1990 and the property was converted into an office building. Foto: Tuula Sipilä/Helsinki City Museum 2023.

legitimized as a design field for architects, not a separate assignment, with architects relegated to designing the exteriors or the shell. The publication also showed recently built factories and sites, yet mostly still focusing on modern industrial architecture, and especially on workers' housing.[4)] A few examples, such as Alvar Aalto's designed Sunila pulp mill and residential area in Kotka, were presented in this publication. Besides these, few industrial sites were present in architectural journals or other publications. The discussion about industrial architecture had no direct significance for heritagization at the time, but it had an impact on valuing building's architectural quality, and thus led to a certain *canonisation*. The process of heritagisation has been connected with canonisation, as they can be claimed to be identical processes.[5)]

The case of Verkatehdas [the Baize factory] in Tampere in the 1970s marks a turning point in Finnish building protection, and in the recognition of larger industrial sites as culturally/historically significant enough to warrant inclusion in the public, Finnish heritage. Verkatehdas was a centrally located industrial site in Tampere, which had relocated its operations in 1960s to the outskirts of the city, and thus the company and the city of Tampere wanted to demolish the existing industrial buildings, meaning to use the plot for other purposes. A long battle for its preservation ensued. Eventually, following a court ruling, it was permitted to demolish the buildings. Symbolically, the long chimney was torn down first in 1977 and the rest of the site by 1981. Two buildings of Verkatehdas site remained, and a high-rise hotel Ilves (1986), a shopping mall Koskikeskus (1988) and residential housing were built on the plot.[6)] The singular case of Verkatehdas was significant for the wide public debate, and recognition of industrial heritage in Finnish building preservation, it facilitated.

STUDIES AND INVENTORIES OF INDUSTRIAL HERITAGE

One of the starting points in industrial heritage work in Finland was to recognize, map and conduct inventories of industries to evaluate candidates for cultural historically valuable sites and buildings.

The first (pre-) industrial sector, which was studied, were the ironworks: Erkki Härö's study included 80 sites. Prior to taking inventory, there had been an exhibition in 1979 about the ironworks in the Finnish architectural museum where 18 ironworks and their close-by environments were presented. Two years later the museum displayed worker's housing, studied by Merja Härö.[7)] Iron mills play a special role in Finnish heritage work, as they were formally recognized quite early, in part because of widespread recognition of ironworking as a Finnish historical practice. The iron mills were communities, which besides the industrial activities included the upper-class manor culture led by the patron, church and worker's housing and farming.

Industrial archaeology had earlier roots in Finland than industrial heritage preservation. The first excavation of industrial site (a tar pit) occurred in 1932. Several other, yet sporadic excavations happened in the following decades, but systematic industrial archaeological excavations did not begin until the 1980s, with studies into traces of glass and faience factories. The Finnish Glass Museum, founded in 1961, mapped 58 historical glass factories. Industrial archaeology was institutionalized in the 1990s and research grew increasingly diverse. The fieldwork remained managed primarily by the National Board of Antiquities.[8)]

Participation in industrial heritage discussion came via Nordic co-operation, which began in Finland in the 1970s. TICCIH (the International Committee for the Conservation of the Industrial Heritage) was founded in 1973, at the first international conference of industrial heritage sites at Ironbridge, Great Britain. There were no Finnish delegates attending at the time, but they joined a conference in Stockholm in 1978. In this conference, the term industrial heritage came to replace industrial archaeology, term used from the 1960s onwards.[9)] Sweden was a role model to Finland in terms of industrial heritage practice, with Sweden already pioneering the practice internationally. The Finnish TICCIH-Finland (Teollisuusperinteen seura ry) was founded in 1985.

Some of the most seminal writings discussing and introducing industrial heritage in Finland are from the 1980s. This includes architect Maire Mattinen's *Teollisuusympäristöt: Teollisuusympäristöjen dokumentointi, tutkimus ja suojelu* [Industrial environments: Documentation, research, and protection in Finland] in 1985. This report was the first analysis of Finnish industrial environments as a totality. The work had been initiated by a worker's tradition group, funded by Ministry of Education, and was monitored by the Finnish TICCIH group. The objective of the study was document the inventory of Finnish industrial environments, and especially delineate exactly what had already been studied and documented by the mid 1980's. In the publication, it is claimed that industrial sites were not appreciated very much, but this is seen understood as a consequence of lacking the inventories and studies prerequisite for such an appreciation.

The report took up the listing of nationally important cultural historical environments from 1979, which had included industrial sites. The listing of 1979 totaled 1309 cultural historically important environments of which 124 were industrial sites. This list was not exhaustive as there were both too few studies and the studies were insufficient in covering all the different industrial sectors at the time. In Mattinen's report, there was an annex of listing 500 industrial sites, put together based on regional planning organizations' own internal listings. However, the report acknowledges that this listing was not comprehensive either: for instance, the older inventories did not include sites from the industrialized time, only pre-industrial times were included (e.g. iron mills).[10)]

Mattinen has also written some other articles about industrial buildings and environments to promote them as general heritage, and to pinpoint the necessity of mapping and researching industrial history and its heritage – material and immaterial. One article was about the process of an industrial building raised to the status of a cultural monument. Back in the 1980s, the reality of legally protecting this heritage meant that comprehensively preserving industrial monuments simply could not be achieved. Instead, an effective way to promote industrial heritage, as suggested in the article, would be to be raise general interest in it, and inventively re-using the industrial building stock.[11)]

Another seminal writing from the 1980's is Lauri Putkonen's report *Kulttuurihistoriallisesti arvokkaat teollisuusympäristöt* [Cultural historically valuable industrial environments]. The Ministry of Environment with the National Board of Antiquities requested the report. The study provided an overview on the different sectors of Finnish industries and their building stock. It listed ca. 200 industrial sites all over Finland, pointing out the specific characteristics of individual industries and architectural values of industrial buildings. Sources for the first national list of Finnish industrial sites of cultural historic value came from the regional planning organizations, an inquiry made in 1986 regarding them, and from municipalities and sector inventories produced earlier in time. The biggest industrial sectors in the inventory were metal industry and mechanical engineering, wood processing industry, textile industry and food industry. In the report, the current planning situation of the site was recorded relative to the results of the earlier inquiry, and it furthermore contained information on whether the site was protected by planning authorities.[12)]

The Sunila Pulp Mill and a nearby residential area in Kotka were designed by Alvar Aalto in the years 1936-1939. The industrial site has had many changes because of the expansion in the mill's production capacity and changes in the processes, but most of the original Aalto buildings are still existing. In 2023 Stora Enso who has been owner since 2009 decided to shut down the production and is going to sell the site. Foto: Soile Tirilä/Finnish Heritage Agency 1997.

There were also some local inventories done early in the 1980s of industrial buildings and sites throughout the country. For instance, in downtown Helsinki the industrial sites of 1850-1946 were studied. When the inventory project started, the role of Helsinki as a significant industrial city had already changed: Industries had moved away from the city, and the transformation processes of the industrial sites were going on.[13] Similar inventories were conducted in Turku and regionally in Kymenlaakso, Satakunta and Keski-Suomi.

It is noteworthy that these inventories were not listings in a sense that would indicate juridical protection, but they were an essential part of heritagization and official heritage work. In Finland, the *official heritage* – a concept by Harrison – can be defined as a set of professional practices that are authorized by the state, and motivated by legislation or some kind of written statement.[14] These practices include inventories that have later a clear impact on what should be preserved and protected.

Within heritage studies, there is a differentiation made between official and unofficial heritage. *Unofficial heritage* meaning practices that are represented in the language of heritage, but are not recognized in current legislation.[15] In a Finnish context, this would be industrial buildings and sites that are significant to individuals and/or communities, but do not enjoy formal protection. Back in the 1980s there was a lot of interest in workers' own history and in collecting traditions, with volunteers studying industrial heritage, inventory work and research, and even with concrete attempts to maintain or repair old industrial buildings.

HERITAGE PROTECTION LEGISLATION

In Finland, there are several laws that serve to protect industrial heritage. Protecting heritage is typically achieved at the planning stage, and it can be done in different plan levels such as detail plan, master plan or regional land-use plan. Buildings can also be specifically protected by law. For heritage to become *official*, it must be successfully perceived as worthy of protection, and in turn legitimized through corresponding planning and legislation systems.

The first *building protection act* in Finland was enacted in 1964.[16] The act was renewed only twenty years later, as it was not in active use. Altogether, only 40 buildings were protected by this act, and no more than four buildings that had at least some degree of industrial heritage values. These were an old factory school in Forssa, a worker's house in Kannus, Koivaro mill in Kittilä and Siilikangas mill and industrial buildings in Pieksämäki. Besides these, several attempts to list other industrial buildings were made and rejected.[17]

The renewed act from 1985, *Act on the Protection of Buildings*, shifted the responsibility of building protection to the municipalities, as they were now obligated to implement heritage concerns at the fundamental level of town planning, with only special cases going through the act itself.[18] Only a handful of industrial sites was protected by the renewed act, for example the ironworks of Fagervik in Inkoo, Verla groundwood and board mill in Jaala, the Hankala flax works in Hämeenlinna, and the Keretti mine shaft in Outokumpu.[19]

This act was renewed again in 2010 by the *Act on the Protection of the Built Heritage,* which protects the built-up cultural environment and preserves its special characteristics and features. Based on the act, the protection may cover structures, building groups and developed areas, in addition to individual buildings. The protection may cover only a part of the building, the fixed interiors, and structures.[20] It is the Centers for Economic Development, Transport and the Environment (ELY Centers), and the Finnish Heritage Agency, that promote and monitor the preservation of the built heritage in accordance with this act. In urban areas subject to detail planning, it is consistently weighed whether the protection may take place under detail planning or the Act on the Protection of the Built Heritage. The primary means of protection remains as of yet detail planning, but the Act on the Protection of the Built Heritage can also be used if the building or a site is of national importance, and if its preservation and protection cannot be ensured through the Land Use and Building Act, or if there are special reasons for protecting the site because of the planning situation. These two laws, Act on the Protection of Buildings (1985) and Act on the Protection of the Built Heritage (2010) have successfully protected altogether approximately 20 industrial sites.[21]

Sunila residential area near the sulphate pulp mill was designed by Alvar Aalto (began 1937, finished in 1954). The area belongs to the proposal of series of Aalto's 13 works on the UNESCO World Heritage List is due to be completed in 2025. Foto: Soile Tirilä/Finnish Heritage Agency 2001.

The first *Town Planning Act* was enacted in 1931.[22] It was followed by a *Building Act* (1958), in which special regulations concerning protecting buildings could also be provided. An early example of industrial heritage protection was the Strömfors iron works in southeastern Finland, whose protection was included in a detail plan from 1969.

The *Land Use and Building Act* (1999) steers land-use planning and building, but also the preservation and change of the cultural environment. Land use planning is conducted by designing land use plans, which require adequate, updated studies and surveys. These include inventories on ancient relics and built heritage. It is possible to render protection orders in a detail plan that may cover larger areas and even landscapes, but also individual buildings and structures, interiors, yard areas and gardens.[23]

In Finland, the *Antiquities Act* from 1963 protects fixed relics.[24] The law is outdated and undergoing revision at this time. The act considers industrial and ancient remains thus: "Remains of dwellings from ancient times, as well as places of residence and work, as well as formations that have arisen from the use of such dwellings or places." ¨

There are roughly two groups of pre-industrial period and early industrial time related ancient remains based on their energy source. One being industries operated with hydropower (such as water saws or mills), and the other group consisting of production plants that have developed furnace or similarly controlled, high-temperature heat sources (such as glass or ceramic factories, brick and lime kilns or sugar factories).[25] Among the many types of industrial historical ancient remains, the best-protected ones are the iron works. It is noteworthy that only very small proportion of industrial heritage is formally protected, and that for the most part, industrial buildings and sites have been protected by the Land Use and Building Act. The communities and cities themselves carry out the planning in which protections are part, and as such, there is no data available covering the totality of protected industrial heritage.

INDUSTRIAL HERITAGIZATION

Industrial heritage became official heritage when industrial historical monuments and labor tradition was recognized as an aspect of world cultural history. An evident example of this recognition was the articulation of a UNESCO world heritage policy,

In Tampere, the banks of the Tammerkoski-river are among the oldest industrial areas in Finland. The former Finlayson textile mill and the former metal and textile factory Tampella were transformed into new uses in the 1990s. Foto: Timo-Pekka Heima/ Finnish Heritage Agency 2008.

when the first industrial heritage sites were listed as World Heritage Sites: In 1978 Wieliczka and Bochnia Royal Salt Mines in Poland were listed as some of the very first, followed by Røros Mining Town and the Circumference in Norway in 1980.[26)]

Verla Groundwood and Board Mill, situated in southeastern Finland, was added to the World Heritage List in 1995 as the first – and as of yet the only – Finnish industrial heritage representative. The listing was based on the following criterion: Verla Groundwood and Board Mill and its associated habitation are an outstanding and remarkably well-preserved example of the small-scale rural industrial settlement associated with pulp and board production that flourished in northern Europe and North America in the 19th and early 20th centuries, of which only a handful survive to the present day. Verla was well preserved, as it had already been musealized in 1972. The production came to a stop there in 1964. Verla is a unique industrial site, because it largely preserved its 19th century state with buildings, machinery, and processes, and resisting the forces of modernization. Authenticity was the most valuable criterion for listing Verla as UNESCO world heritage.[27)]

Former Rope Factory in Turku was converted into a conservatory and art academy in the 1990s. Foto: Timo-Pekka Heima/Finnish Heritage Agency 2007.

Furthermore, the 1990s marked the beginning of an extensive administrative work on industrial heritage. National Board of Antiquities (today Finnish Heritage Agency) became involved with the industrial heritage. It advocated the protection of several industrial sites in the 1990's. Additionally, ancient industrial remains were researched and studied through fieldwork. Research and management of industrial heritage were a key priority of the National Board of Antiquities in the late 1990s. The state funded restoration and repair projects of industrial sites, mostly ironworks. These projects enjoyed state funding for the employees and lasted for several years.[28)]

In 1993, the National Board of Antiquities prepared an inventory of nationally significant built cultural environments. The inventory encompassed 1772 sites. This was essentially an updated version of the first inventory taken in 1979. In the 1993 inventory, there were 188 sites specifically included for their industrial-historical values.[29)] The nationally inclusive inventory did not imply actual legal protection for industrial heritage (or any other heritage), but the listing nonetheless constitutes a list of objects of official heritage, and the chosen industrial sites were clearly recognized as nationally important.

The inventory of nationally significant built cultural environments was updated in 2009, covering a total of 123 sites from the period of industrialization, and 62 pre-industrial sites. A majority of these sites were recognized already in 1993. The built heritage contained therein dates predominantly from the first part of the 1900's, with modern industrial sites missing from it. This national inventory is used as an inventory of the built cultural environment, within the meaning of national land use objectives as communicated in the Land Use and Building Act. The inventory of 2009 is an administrative and legally dominant selection of properties classifying the national cultural heritage; in other words, it is an official list of national heritage in Finland, consisting of the objects most valued by the state and municipalities. Even though the inventory is not a juridical listing, nor provides any direct protections, it still has a special legal effect, as the qualities and value of these selected environments must be secured as part of the local planning efforts.[30)]

Verla Groundwood and Board Mill became Unesco World Heritage Site in 1995 as the first Finnish industrial heritage representative. Foto: Mikko Mannberg/Finnish Heritage Agency 2022.

In retrospective, the 1990s was a very active time in maintaining and promoting the industrial heritage , as well as taking inventories of it. The National Board of Antiquities conducted surveys concerning the wood-processing industry, which has historically been the major industrial sector in Finland. Older sawmills were studied, and later even the larger scale paper, cardboard, and pulp industry. Cooperation began with Finland's largest wood-processing companies, and in 1998, there was a preservation agreement between Enso and the National Board of Antiquities made on the maintenance of the industrial heritage owned by Enso. Another agreement was reached with Metsäliitto-Yhtymä in 1999.[31] These agreements were based on large inventories of company's buildings and categorisation and a valuation of the built heritage.

Besides these activities, the 1990s was a decade when industrial heritage began figuring in re-use purposes and urban transformations. It was typical at the time to make conversions of industrial buildings into hotels, restaurants, art halls and museums and schools, even into residential apartments. There were cases where larger industrial sites were transformed into university and other college campuses, shopping malls and exhibition halls. Furthermore, the cultural tourism of industrial sites became more popular in the 1990s. Well-known examples of re-use are the former Tampella factories in Tampere that became Vapriikki Museum in 1990s, and the former Finlayson industrial site was transformed into other, commercial uses, including hosting a labor museum Werstas. In Turku, the former rope factory became a music conservatory in 1994. In Helsinki, The Cable Hall transformation is a success story, well known for cultural uses, but there are also other successful re-use examples such as the former Arabia ceramic factory, which became an art industrial school. Academy of Fine Arts moved to a renovated former Elanto bread factory, and nearby the Theatre School moved into an old soap factory called Kokos in the year 2000.

The beginning of the 21st century has been an active time for industrial heritage research, its protection and its restoration. It is safe to say that by the 2010's, industrial heritage had been successfully institutionalized in Finland, and today it is part of the official heritage body.[32] At the same time, the concept of industrial heritage has broadened, and there are now more perspectives and avenues of research within in the heritage field.

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Verla, interior. Foto: Seppo Konstig/ Finnish Heritage Agency 1998.

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Notes

1) Smith 2006; Harrison 2012; Sivula 2014. Laurajane Smith's theory on how cultural heritage is made in a process. She has developed the well-known AHD = authorised heritage discourse -concept widely used in critical heritage studies. Anna Sivula has analysed a cultural historical process of how historical awareness of industrial heritage in Finland has developed.
2) Kuisma 2006, 529-531.
3) Lähteenmäki 2017, 58.
4) Suomen teollisuuden arkkitehtuuria 1952.
5) Kalakoski et al. 2020.
6) Lähteenmäki 2017, 81-148. There is a very thorough description and analysis of the Verkatehdas case in Lähteenmäki's dissertation.
7) Härö 1981.
8) Immonen, Mäki and Taavitsainen 2022.
9) Sivula 2014, 7.
10) Mattinen 1985a.
11) Mattinen 1985b; Hakkarainen – Mattinen 1984.
12) Putkonen 1989.
13) Hakkarainen – Putkonen 1995. The inventory work began already in 1981, but it was published later in 1990s.
14) Harrison 2012, 14.
15) Harrison 2012, 14-14.
16) Rakennussuojelulaki 1964.[Building Protection Act]
17) Mattinen 1985, 67.
18) Rakennussuojelulaki 60/1985. [Act on the Protection of Buildings]
19) Härö – Koskinen 1999.
20) Laki rakennusperinnön suojelemisesta 498/2010. [Act on the Protection of the Built Heritage]
21) Cultural environment registry portal on Finnish Heritage Agency website: https://www.kyppi.fi/palveluikkuna/portti/read/asp/default.aspx
22) Asemakaavalaki 145/1931. [Town planning act]
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26) Unesco World Heritage List: https://whc.unesco.org/en/list/
27) Niinikoski 2022.
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Listing and Protection of Industrial Heritage in Latvia

ANITA ANTENIŠKE

INTRODUCTION

Throughout the last two centuries, industrial development has been essential for the economic and sociocultural development of Latvia. Industrialization has had an immense impact on the society in general and on urban development in particular during the 1st, 2nd and 3rd wave of industrialization. Consequently, the industrial heritage within Latvia is comprised of two interconnected components. One is the 'imminent' industrial heritage, i.e. the production facilities and other premises directly related to production activities, energy production, storage and the like. The second component is 'supportive' industrial heritage, i.e. offices, housing and public buildings, constructed at an industrial site, next to it, or – as in numerous cases in Latvia – simply to ensure the possibility of future industrial development. This state of affairs complicates any effort to distinguish Latvia's industrial heritage from Latvia's heritage in the general sense.

Mechanical workshop with cable car system in the port of Ventspils, early 20th century, listed as industrial monument of national significance in 2021, Ventspils, K. Valdemāra iela 12. See https://mantojums.lv/cultural-objects/9273. Photo: A. Antenišķe.

This paper is the first attempt to outline the current situation in listing and protection of industrial heritage in Latvia in the general context of cultural heritage protection. The aim is to highlight and analyze listed industrial heritage cases in Latvia, in order to provide the first overview of the actual level of awareness and legal protection this part of the cultural heritage can expect to enjoy. To reach this goal, the article will examine listing practices in the past and at the present, it will touch upon publications and activities of heritage enthusiasts who created the basis for industrial heritage recognition in Latvia, while also drawing attention to the complex institutional and legal circumstances influencing the entire process of research and listing. The current situation concerning direct and indirect listing of industrial heritage will also be examined based upon the listing information available on-line.

Regarding the terminology, there are Latvian specifics that must be kept in mind when discussing this subject: from a total list encompassing 8948 cases (including movable heritage), there are 7317 cases of immovable heritage in Latvia today.[1] Of these, only 27 are listed as "Industrial monuments" as a separate typological category. However, industrial heritage simultaneously figures within the monument list in the form of various typological categories. The subject of this paper is the whole entity of industrial heritage as listed inside the monument list of Latvia, regardless of the typological category under which it is listed.

The data for the paper was obtained predominantly from the official page of, and other sources provided by, *Nacionālā kultūras mantojuma pārvalde* (*NKMP* / National Heritage Board of Latvia; former *Valsts kultūras pieminekļu inspekcija* or *VKPAI* / The State Inspection for Heritage Protection of Latvia), from the archive and publications of the same institution, from other publications of heritage researchers and enthusiasts, and from interviews with both current and former employees of the institution.

AWARENESS RAISING ON INDUSTRIAL HERITAGE IN LATVIA

It should be noted from the onset that there are production facilities still in operation, and some of them have been operating for more than 100 - 150 years in its original capacity. These are mostly food production companies: distilleries, breweries, chocolate and dairy production factories. Their visibility in urban space is clear, representing several architectural styles and including true palimpsest-type architectural ensembles in urban and rural landscapes. Enterprises for communal services, such as various types of transportation, water supply and energy supply are still operating on the original premises, as are some textile factories and shipyards established during the interwar period or after WWII. Adapted re-use is nothing new for Latvian factories: due to the evacuation of original machinery to Russia during WWI and subsequent non-return of their equipment when the war ended, quite a number of former grand factories had to be split, adapted, and reused for new functions as early as the 1920s-1930s. In a sense, that was the first Latvian experience of dealing with an industrial crisis, and came with a necessity to repress the collective memory; due to the damage and trauma of WWI, the historical narrative of Latvia as a golden land of only agriculture ended up firmly rooted in the national discourse.

The second time society had to learn to "forget" its industrial and economic achievements was during the Soviet occupation. All private – or even state-owned industrial production units left-over from the nationalizations that happened throughout the interwar years in order to deal with the economic crisis, and to ensure economic efficiency – had to be reconceptualized and treated as "bad remains of capitalism", so that a new, Soviet era of happy workers and happy factory life could come about.[2] Thus, the 2nd half of the 20th century – with Soviet occupation and centralized planning of industry distribution followed by workforce relocation and colonization policies executed by the centralized power in Moscow – was in no way helpful in making industrialization a welcome part of self-identification of Latvian people. The closure of ex-state-owned industrial enterprises either prior to or shortly after post-Soviet privatization, as well as cheaply selling off the commercial premises to foreign "investors", strengthened alienation from the industrial past, while the small companies still exporting or producing for local market could not maintain the image, strength and pride in the industrial development that had characterized the people of Latvia in earlier times.

Visibility of industrial heritage has increased immensely during the last 25-30 years in Latvia, especially in recent years. It was – and still is – a complicated and complex process that creates a new, adapted image of former industrial sites for the general public, focus groups and potential actors of conversion. This new visibility is achieved via protection and listing activities, via preservation, renovation and re-use, via cultural activities (contemporary art, contemporary culture events) in former industrial sites, via debris tourism and extension of romantic appreciation from ancient to recent ruins. If churches, manor houses and Art Nouveau heritage might be regarded as icons of "established" heritage with a certain place in public conscience (even if not always benefiting from good maintenance and protection), industrial heritage is in the process of ascension to a comparable recognition.

Surveys of windmills, watermills and other proto-industrial sites begun during the early decades and continued into the 2nd part of the 20th century. This lead to surveys of factories, bridges, technical monuments and military sites, and aided in the creation of museums that communicates information on industrial activities in their expositions.[3] Proto-industrial and even industrial sites could be found well-described in travelers' guide-books published during the interwar period, while new industrial structures were promoted in books devoted to the success of the independent state of Latvia.

LATVIAN HERITAGE PROTECTION (SIMPLIFIED)

1923 Protection of Monuments
The act emphasizing the importance of architectural monuments and includes ancient monuments, churches as well as private buildings. 1932 the range of protected monuments was expanded and it was made possible to list building ensembles.

1948 – The *Regulation of Heritage Protection* of the USSR was adopted by the Council of Ministers of Latvian SSR after the occupation of Latvia by USSR.

1992 – The *Law on Heritage Protection* was passed by the independent Republic of Latvia

2003 – The *Law on preservation and protection of the historical center of Riga* was passed, there are several other legal acts regarding a few smaller building ensembles in force in Latvia, too.

2021 – The *Regulations for survey, protection, use and restoration of cultural monuments* was passed by the Cabinet of Ministers of Republic of Latvia.

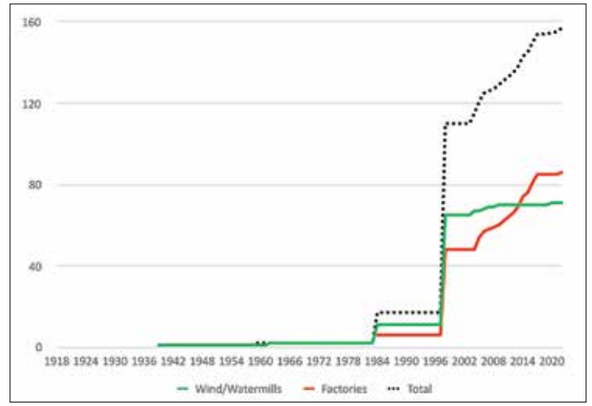
***VEF* – The State Electrotechnical Factory – on Brīvības gatve 214, Rīga, 4 buildings, including those on the picture, are protected as architectural monument of national significance.[5!] See https://mantojums.lv/cultural-objects/6650. Photo: A. Antenišķe.**

The interest in industrial past exceeding the circle of ancient windmills and farmsteads began during the 1970s, mostly among historians and historians of engineering; first semi-public lectures on industrial history were held in the early 1980s, while the first scientific conference was held in 1985.[4] Early enthusiastic renovation of ancient vehicles and other grass-roots movements characterize early stages of industrial heritage protection in Latvia, too. Publications on various aspects on the history of production, transportation and other industrial activities as small books, almost like brochures, were published on various aspects of technological history, the work carried out with the support of Academy of Sciences.[5]

In 1992, already after the independence, a non-governmental organization *Latvijas industriālā mantojuma* fonds / The Industrial Heritage Trust of Latvia was established.[6] Headed by a multidisciplinary team of industrial heritage specialists, and researchers from various backgrounds and organizations to ensure coordination of activities and search for financial support for individual and collective research, international research, cooperation and dissemination of knowledge nationally and internationally; it has served its purpose well during the subsequent 30 years. An international conference held in Riga in 2002 put the industrial heritage of Latvia in a broader international context followed by a bilingual book of conference proceedings. The same year, 2002, "Latvijas industriālā mantojuma ceļvedis / Guide to Industrial Heritage of Latvia" was published, remaining the most important source of information on industrial heritage, listing 230 crucial industrial heritage sites within Latvia.[7] The National Heritage Board of Latvia gives access to the book online, along with their annual thematic publications devoted to specific heritage subjects chosen for the celebration of European Heritage Days. This includes a publication on transportation heritage in Latvia in 2021, and on the centenary of heritage protection in Latvia in 2023.[8] In 2020, the Board issued a publication emphasizing good practices of maintenance and renovation of cultural heritage *Būvkultūra,* including several examples of well-renovated industrial heritage buildings, among them also non-listed sites.[9]

There have been several publications on transportation heritage in Latvia, especially on various aspects of railway heritage by Toms Altbergs,[10] written alone or in collaboration with other colleagues, and an impressive overview of the history of public transportation in Riga.[11] Several books have been published on the history of automobile and bicycle production in Latvia by Edvīns Liepiņš.[12] A two-volume historical overview of State Electrotechnical Factory *VEF*[13] came out a few years ago, while companies like *Latvijas Gāze*[14] and *Latvenergo*[15] have published books on their history, including information on technologies and structures. Books on lighthouses[16] and bridges[17] of Latvia provided a spectacular insight on this particular heritage, too. All of these publications contribute to the visibility of industrial heritage and to the acknowledgement of its presence in contemporary urban and rural landscape. Scientific articles on various aspects of industrial heritage, published in scientific press in Latvia and abroad, have been written by Anita Antenišķe, Andis Cinis, and Inga Karlštrēma.[18] Ms Karlštrēma has also contributed to the National Encyclopaedia of Latvia on the subjects of history of art in general and on industrial heritage in particular. This uneven writings on various aspects of industrial heritage has led to a very specific situation in the coverage of industrial heritage in the monumental multi-volume edition of *Latvijas mākslas vēsture* / History of Latvian Art. Its article on industrial heritage pays most attention towards buildings related to railway heritage, while the architecture of factories and other industrial premises are covered very briefly.[19]

Listed industrial heritage in Latvia, combined numbers of architectural, industrial, historic and urban monuments categories, in all the levels of listing including national, regional and local level. Data gathered from the monument list of Latvia available online at www.mantojums.lv, and from older, printed monument lists.



The visibility of industrial heritage is greatly enhanced by technology museums, which organize educational and communal activities for children and families, thus bridging the gap between the new generations and the distant past. However, there is still not a single museum anywhere in Latvia devoted to industrial development in general. There are small museums in several windmills and watermills, some open-air museums touching upon proto-industrial heritage and some rural industrial technologies of the 19th century. Examples are the Riga Motor museum, the Railway Museum, also in Riga, the Energy Museum in Aizkraukle and Ķegums, the Museum of Water Supply in Baltezers near Riga, the Museum of the State Electrotechnical Factory *VEF* in Riga, and several others.[20] There used to be small museums and/or archives almost at every enterprise in Latvia during the 2nd part of the 20th century; however, due to their closure and/or ownership changes, and/or limited and narrow material presented in those museums, most of those exhibitions have ceased to exist.

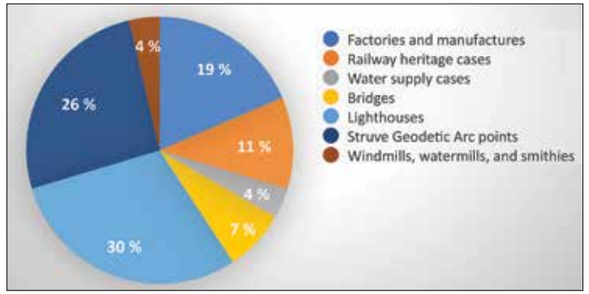
A number of brand new museums have been an instant success, like *Daugavpils Skrošu rūpnīca* / Daugavpils Shot Factory, while art related activities in both abandoned and regenerated factories, and on former industrial premises, are helping to highlight the importance of industrial heritage for a wider audience.[21]

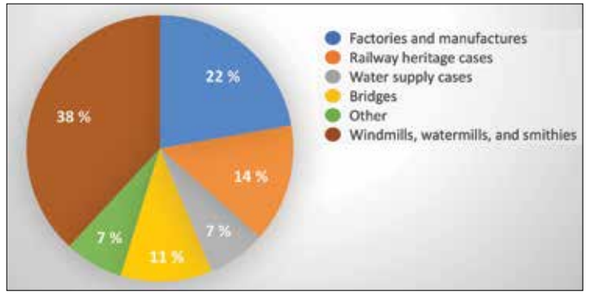
LISTING OF INDUSTRIAL HERITAGE

The heritage protection activities in the territory of Latvia date back as early as the 19th century, when historians and heritage enthusiasts started to express concern and began to promote protection of medieval castles, ruins and churches. The first ethnographic expedition was undertaken during the 2nd part of the 19th century, and the first congress was held in Riga. A dramatic albeit a logical shift towards archaeology and ethnography (exploring pre- and early medieval heritage and history) happened after the proclamation of the independent state of Latvia in 1918. The increasing interest in a distinctly Latvian past served as a counter-force against the then-prevailing focus on Latvia's "German" history. With the political system changing 8 times during the 20th century (not counting a couple of revolutions and a couple of World wars), politicization has always been potent in heritage protection and listing in the territory of Latvia; consequently, heritage protection involved a lot of brainwork to ensure the physical survival of diverse, remarkable structures from the past, especially during the Soviet occupation after WWII.

The 1920s was the first period of formalization of cultural heritage. In 1923 legislation was introduced on heritage protection, and a special commission was appointed to make the list of structures to be labelled as heritage for protection.[23] The list created by *Piemineklu valde* / Heritage Board included 980 cases.[24] The listings were already divided in typological groups of archaeological, architectural, art (mostly including movable heritage), and urban monuments (The Old Town or *Vecpilsēta* of Riga). Churches and ancient castles were on the top of the list, but townhouses and medieval storage houses also made a huge part of the list, both prior and after the WWII. Interest in local, "home-grown" heritage led to collection and moving of vernacular buildings to the Open-Air Museum near Riga, including the first listed windmill.[25] All the farmsteads moved there consisted of various buildings and structures, including some smithies or other proto-industrial premises and tools, too.

After the Soviet occupation, since the 1940s, the listing system changed. Two separate lists were introduced: the so-called republic-level listing and local listing. The lists, based on revised inter-war lists, was published as books in 1959, 1969 and 1984, as well as a photocopy in 1950 and a kind of "working list" in 1962.[26] It should be noted, that during the Soviet times, even by in the 1980s, there was an on-going demand from the government to "shorten" the list of monuments proposed by the authorities of heritage protection as it was "too long". The creative solution invented by heritage caretakers was merging several buildings and/or objects located nearby into one single case.[27] Cases on the list were to be protected by the state. In contrast, the local lists, approved by municipal authorities on their own schedule and terms, were never published nor widely available; the first time both types of lists were examined and combined was in the 1990s.





Typology of industrial heritage listed as industrial monuments and as architectural monuments in Latvia, current situation.

Social activities, similar to grass-roots movements elsewhere, also took place in Latvia, some more, some less formal, under the umbrella of *Latvijas dabas un pieminekļu aizsardzības biedrība* / Latvian Society for Protection of Natural and Cultural Monuments, established 1959.[28] Membership in the organization's local branches was wide, people could be active or just following the processes, but there were congresses organized and publications issued by this society, marking the beginnings of the first publications and activities regarding industrial archeology. It was in the 1970s when a group of multidisciplinary experts started to dig deeper into industrial heritage, combining efforts on surveys by historians, archaeologists, engineers and other specialists to make the first surveys and publications on monuments of technology. Parallel to that, industrial heritage cases were examined for their architectural value, too. As the legal protection of heritage was slowly moving on, running parallel to some degree with general tendencies in the world, there were heritage enthusiasts working quietly around in Latvia.[29] They made semi-official surveys of buildings and structures, creating multi-disciplinary research teams under the roof of the designated heritage research institution of the time. The institution was *Latvijas PSR Kultūras ministrijas Muzeju un kultūras pieminekļu zinātniskās pētniecības padome* / Scientific Research Council of Museums and Cultural Monuments of the Ministry of Culture of Latvian SSR and it merged in 1988 with The State Inspection for Heritage Protection).[30] These enthusiasts even marked some un-listed buildings with monument emblems on the walls with a hope that they would be backed by an official inclusion in the monument list someday.[31] Crazy as it may sound, those small grassroots activities raised awareness and contributed to the survival of some of the structures throughout the turbulent 1970s, 1980s, and well into the 1990s.

The year 1984 is the actual turning point for protection of industrial heritage, as it is the time when nine new windmills and watermills appear on the republic-level protected heritage list following a long period when only two were listed. This year's list also included first water towers listed, three in Riga and one in Jūrmala, located and listed alongside a sanatorium it served. Further and for the first time a factory in Riga was listed, the *VEF*, making the architectural monuments' list 17 industrial heritage cases strong including the historical center of Līgatne paper-mill village.[32] The Alūksne–Gulbene Narrow-Gauge Railway Line was listed as a local monument in the same year, and risen to an industrial heritage monument of national importance in 1998.[33] Nevertheless, all of them were listed as architectural heritage at that time, reaching the list in a fierce competition with residential and public buildings distinguished for their outstanding architectural values. The category of industrial heritage was introduced only at the next turning point in listing history – the year 1998. Up to that, during the 1990s, a huge revision of listed heritage was carried out and all the municipally listed cases were incorporated into the national register, with the appropriate levels of their relative significance mostly retained. In 1998, more than 100 cases of industrial heritage of national, regional and local significance altogether were listed.[34]

Currently, according to the Latvian legislation, *"objects of international or Latvian importance with outstanding scientific, cultural-historical or educational significance can be included in the list of state-protected cultural monuments as cultural monuments of national significance"*. Further *"objects with special scientific, cultural-historical or educational significance specific to a certain region of Latvia can be included in the list of cultural monuments of national importance as cultural monuments of regional significance"*.[35] In addition, objects specific to a certain area can be protected by the state as cultural monuments of regional importance, or of local importance.

The dominant groups on the monument list of Latvia are monuments of national significance (2846 cases listed) and of regional significance (3013 cases listed), followed by monuments of local importance (1458 cases listed). There are five typological groups for cultural monuments in Latvia: archaeological monuments, architecture and urban construction monuments, monuments of art, industrial monuments, and sites of historical events.[36] The narrowed definitions of typological groups were intended to provide a precise framework for designations, but in practice – especially concerning industrial heritage – they are often working against the broader, international perception of industrial heritage contents, as cases of industrial heritage could be found in almost all typological groups.

In so far as the typological group of industrial monuments goes, the legislation states that an industrial monument of national importance, buildings, equipment, objects and other technical equipment of international or Latvian importance older than 50 years, related to the development of production, transport and territorial infrastructure or military history, and which have outstanding scientific, cultural-historical or educational significance, can be included in the list of cultural monuments.[37] A similar description can be found for regional and local designation. Regarding architectural heritage, the legislation states that the following objects of outstanding scientific, cultural-historical or educational importance may be included in the list of cultural monuments as architectural monuments of national importance: Significant places – combined human and natural formations (historical cores in cities, villages, gardens, parks, etc.) and cultural-historical man-made landscapes up to and including the 19th century. It also includes territories that have international or national architectural, historical, aesthetic and ethnographic value. This could be groups of urban and rural buildings (e.g. manors, public buildings) of international or national importance; buildings or other structures, including their details and decorations, which may be examples of styles of international or national importance, and works of famous architects or buildings of rare types.[38] There is no particular demand for architectural quality regarding proposals for industrial heritage list, albeit most of the cases do possess it, and there is neither prohibition against industrial heritage to be listed under the architectural heritage category, nor an option to single industrial heritage out as a sub-category.

***VEF* – The State Electrotechnical Factory – on Brīvības gatve 214, Rīga: one of recently renovated and converted building inside the area, see figure 4. Photo: A. Antenišķe.**

Textile factory *Juglas manufaktūra,* 1911; since 1929, a part of *"Rīgas manufaktūra";* currently – *Mārkalnes kvartāls,* a multifunctional rental area with offices, shops, and varios production activities; neither listed nor protected by urban planning, Mārkalnes iela 1, Rīga. Photo: A. Antenišķe.

Considering the industrial history of Latvia in general and that of Riga – an 800-year-old-trade center with more than 150 years of industrial history in particular – one might expect at least 300 or, probably, more than 1000 industrial, proto-industrial and industrial development-related cases on the list. Instead, from all the 7317 items of listed heritage, there are just 27 (!) objects listed as industrial monuments, 23 of them of national significance and 4 of local significance. The first two cases were listed as industrial heritage of national significance in 1998, the relatively staggeringly large number of 5 cases was included in 2005, and the numbers kept rising on at a modest pace of 2 in 2006, one in 2007, 2 in 2010, a single one in 2011, 3 in 2013, 4 cases in 2014, then again one in 2015, 2 in 2016, 3 in 2017, and a single one per year in 2018, 2020, and 2021.[39)]

These listings classified as industrial heritage provides quite a narrow and fragmented image of Latvia, and has developed slowly. All these cases are worth a closer examination in order to understand why the listing of industrial heritage in Latvia is not that simple or complete as it might be expected from a public or an international point of view. Seven among those cases are coastal lighthouses listed as monuments of national importance, listed in 2005-2018. One lighthouse is listed as industrial heritage of regional importance. Another seven are points on the Struve Geodetic Arc, listed 2006-2017. Three listed cases belong to the narrow-gauge railway heritage (two listed in 1998, one in 2015), one is a windmill (listed in 2007), one is a pellet factory tower (listed in 2014), one is a rural dry-house for cones (listed in 2020), and the last one is a mechanical workshop in the port of Ventspils, listed in 2021. Among listed industrial heritage of local importance, there is one lighthouse, one bridge, one water tower/cistern, and one rural dry-house for seeds. Among industrial heritage of local importance, there is one bridge listed in 2011, and a small fish processing facility from the interwar period, listed in 2016.

The situation with listing of industrial heritage looks much more relevant to the industrial history of Latvia if the list of architectural monuments is examined closer, case by case, picking them out by key words or prominent locations of industrial activities by hand, and double-checking the list by reading it carefully in chronological order. Among the 3507 monuments protected as architectural heritage, actually 39 industrial heritage cases of national significance and 86 cases with both regional (50) and local (36) significance are listed, counting altogether at least 125 cases of industrial heritage with high architectural value.[40)] Thus, the combined list of industrial heritage becomes 152 cases strong, already before a closer examination of the heritage listed as urban ensembles and historical monuments.

To conclude, the largest amount of industrial heritage listed remains under the category of architectural heritage. A slow (on average, one case per year) but consistent increase of listing has been going on since 2002, adding recent industrial heritage like Spilve Airport from 1954,[41)] a petrol station in Ogre from 1960,[42)] and a factory club house (1957-1980s)[43)] to the list. Sometimes, the industrial objects are listed as architectural heritage of regional importance, with almost no new proto-industrial cases among them. However, sometimes the cases of heritage of industrial origin listed as architectural heritage display very minimal architectural detailing or specific qualities. All while hundreds of urban industrial buildings possessing similar or even more distinctive architectural features, character and details remain as of yet unlisted. It seems that historically there has not been a clear consistency in the practice of listing or rejecting cultural heritage of industrial origin as monuments.

For a detailed typological overview of all the listed industrial cases, the numbers are to be combined from the list of architectural monuments, from the industrial monument list, and from other typological lists combined (the data is available only in Latvian, the lists have been thoroughly revised during 2022).[44)] Early industrial heritage is the largest group, including some 45 listed watermills and windmills, 15 of them listed as of national and 30 – as of regional or local significance, and with other early industrial heritage like smithies and smaller rural technical and production facilities the numbers top 70. Regarding factories, the most prominent part of industrial heritage, there are just 13 of them listed, 4 listed as of national and 9 – as of either regional or local significance; however, together with smaller, rural manufactures and distilleries the group of production units is 28 cases strong. With more than 150 industrial enterprises operating in Riga alone as early as in 1900, this appears a way too short a list of designated cases. However, the paradox seems to arise from the very history and the development of legislation, as with such an immense amount of structures it is hard to mark the majority of them "unique" or of "exceptional architectural quality or a style". The third largest typological group is railway stations and sites that includes 21 cases, 5 of them listed as of national and 17 – as of local significance; the question of listing and/or saving more of them is still an open and on-going process, especially with the Rail Baltica project speeding up. There are 14 bridges, mostly small ones, listed, followed by 9 water works and 9 cases of various industrial heritage (mostly from recent times) listed. Finally, there are 7 coastal lighthouses on the list, 6 listed as of national and 1 – as of regional significance.

Successful proposals for listing heritage cases have been made by heritage protection authorities or, most recently, by owners.[45)] New listings must receive approval of their owners prior to listing, therefore owner proposals are most likely to be accepted if they meet the criteria of value, regardless of typological group. However, there is no information on the exact numbers of cases by proposing party on particular categories available, including numbers for industrial and architectural heritage cases.

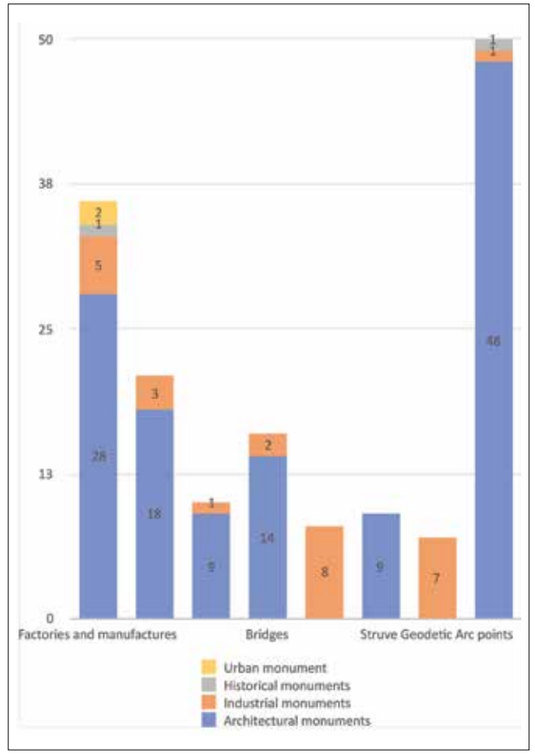
Finally, yet importantly there are workers' housing areas listed as urban ensembles. The best known (and one especially designed for the workers of a particular enterprise, a unique case for Latvia) is the village of Līgatne paper factory workers.[46)] Another papermill listed as an urban ensemble is in Staicelev There are other, spontaneously constructed – and still surviving – areas, mostly in Rīga (Ķīpsala, Ćiekurkalns, Grīziņkalns etc.) of historical workers' housing, some of them are protected as urban ensembles, not by listing, but rather by urban planning regulations.

Via the listing of urban ensembles, indirect protection is ensured to industrial heritage in the cases when this heritage is located immediately inside the urban historical center. Altogether there are 28 historical centers protected as urban heritage, 18 listed of state importance, 15 as of regional, and 9 as of local importance, providing small but relative protection to industrial and early industrial cases, albeit newer accounted for in precise numbers or recognized formally as industrial heritage listings. The most powerful are UNESCO World Heritage Site listings of the Riga City Centre (1997) with its buffering protective area, and the recent addition of the historical center of Kuldīga (2023). The UNESCO World Heritage Site listing of the Historical Centre of Riga covers 438.3 hectares (with its buffering zone – 1574.2 hectares) with some 4000 buildings on it. As most of the buildings in the area are over 100 years old, all of them are subject to heritage evaluation prior to renovation, alteration or demolition. In the years following the listing, most of the structures have underwent evaluation, according them a specific degree of heritage value.[48)]

It is hard to guess, even approximately, what number of industrial heritage objects may be affected by this designation. According to historical surveys from the beginning of the 20th century, there were more than a 100 of industrial activities of various

Windmill in Drabeši, 1852, municipality of Cēsis, parish of Drabeši, listed architectural monument of national significance. Photo by D. Ķibilde (see the Cultural Heritage Management Information System of *Nacionalā kultūras mantojuma pārvalde (NKMP)* / National Heritage Board of Latvia (NHBL) *Mantojums*/Heritage at https://mantojums.lv/cultural-objects/6231?tab=pictures).

Typology of listed industrial heritage in Latvia, and current dispersion of industrial heritage under various categories of monuments. Data gathered from the monument list of Latvia.



scales in the central areas of Riga as early as prior to WWI.[49] Therefore, at least a 100 might still be the number of industrial heritage cases falling into the protection pool of industrial heritage in the historical center of Riga alone. This indirect listing and methodology of evaluation has affected not only the World Heritage Site and its buffering area, but is currently affecting all the 50+ year-old-buildings in Riga. The Riga Department of Heritage Protection, an institution established as early as in the 1968 under the Riga Municipality,[50] has already applied this methodology as a tool to evaluate all historical buildings proposed for conversion in order to ensure a broader, more wholesome protection of the historical substance of the city. The department is currently going to become *Kultūrvēsturiskā mantojuma saglabāšanas birojs* / Heritage Protection Office of Riga with the main goal to ensure survey, evaluation and listing support of built heritage on all the territory of the city, providing a new hope for better protection even to the recent industrial heritage.

This means that there are certain procedures and regulations that should be followed when renovating, altering, pulling down expanding etc. any historical structure, including industrial heritage, almost anywhere in Riga. A large number of industrial enterprises were (and still are) located outside the area pertaining to the historical center of Riga and the current World Heritage Site; quite a number of them are located outside of the protected area. The threat in evaluating those cases is that industrial buildings are often evaluated not in a context of a broader perspective of industrial heritage, but rather from a very narrow perspective of architectural style and quality. Poor technical conditions are also taken into consideration, increasing the threat of dismantling to old – and not very old – industrial premises. With the machinery long gone, and the original owners, archives and workers gone before it, there is almost no way a historical industrial structure can be subject to evaluation for its outstanding importance to industrial history. Still, a renovation of a building with a moderate heritage value might be carried out with more creativity, economic balance and sustainable outcome than that of a building listed as a monument, despite the tax reductions offered on the listed monuments in the legislation.

FINAL DISCUSSION

Interest in the history of technology was one of the driving forces behind recognition and surveys of industrial heritage, while the main stimulus for listing was the architectural quality of buildings. However, there were specifics aspects in the heavily industrialized Latvia: Many historical factories were regarded more as enterprises still active, not merely relicts or historical landmarks from the past, and the oldest cases got listed first. Changes in production, both economic and technological, coincided with a growing interest in industrial heritage.

Publications on industrial heritage have been either very broad, or devoted to a specific category of industrial heritage; very little comparative analysis has been carried out, on any level – national or international. A thorough survey of the entire industrial heritage of Latvia, or on the history of its protection, has never been undertaken. However, there have been general research on the listing practices and the history of listing of cultural heritage that helps understand the heritage protection system in Latvia.

There are multiple levels and categories under which heritage cases, including industrial heritage, can be listed; it makes any survey and analysis on the development of industrial heritage listing a hard and complicated task. Historically, the architectural and artistic quality have been crucial for a listing of any building

or structure in Latvia; rarity or historical importance, either on national or on a local level could contribute to listing, too. It was – and remains – a difficult competition for industrial heritage to be listed.

Historically, the listing of industrial heritage has been rather modest: starting with a single windmill listed and moved to the Open-Air Museum in Riga in the 1930s followed by just one more windmill listed as a national monument in the 1960s; the list reached 17 listed cases in 1984. A significant rise of listings was achieved in 1990s, both by new listings and by incorporating monuments with regional and local significance on the monument list. A slow but continuous rise of numbers has happened since, reaching a combined of almost 160 listings of industrial heritage under various typological categories of monuments in 2023.

This number suggest that there are suspiciously few industrial heritage objects listed, considering the huge impact of industrialization on Latvian urban environment, landscape and broader society. However, from another perspective, quite an amount of structures benefits from indirect listing inside larger urban ensembles, or from protection via urban planning regulations in certain historic areas of cities and towns. Therefore, it is impossible to accurately state the total numbers of industrial heritage cases protected, or even to be sure if the numbers of saved structures are rising or declining, and at what speed this may be taking place. Still, there is a very clear legal basis for protection of listed heritage, there are cadastral value and tax reductions for listed buildings, and some municipalities offer support for renovation, even if it differs from place to place. However, non-listed buildings benefit from more relaxed building regulations regarding renovation and conversion approaches in contrast to the listed buildings, as it offers the more flexibility to owners and architects to reinterpret and highlight the specific features of historical structures in the context of contemporary architecture. The positive tendency here is that a broad and diverse scope of industrial heritage is covered with listing, and the expansion of the list is going on with a great care and consideration of all the relevant aspects.

Notes

1) See Juris Dambis, *Protection of Cultural Heritage. Latvia*, Rīga: State Inspection for Heritage Protection, 2018, available online: https://www.nkmp.gov.lv/lv/media/1552/download?attachment
2) The economic background and the process is well outlined in Edmunds Krastiņš, *Latvijas rūpniecība XIX-XXI gadsimtā*, Rīga: Jumava, 2018, an economic history overview of industrial development in Latvia.
3) See Andris Biedriņš, Edvīns Liepiņš, *Latvijas industriālā mantojuma ceļvedis / Guide to Industrial Heritage of Latvia*, Rīga 2002, and Jānis Stradiņš, *Zinātnes un augstskolu sākotne Latvijā*, Rīga: Latvijas vēstures institūta apgāds, 2009.
4) Interview with Andris Biedriņš, September 2023, who gave one of those lectures; the author of this paper happened to be present at one of them (held at one of the institutes under Latvian Academy of Science) as a child.
5) See V. Pāvulāns, *Satiksmes ceļi Latvijā XIII-XVII gs.*, Rīga: Zinātne, 1971; A. Anteins, *Melnais metāls Latvijā*, Rīga: Zinātne, 1976; A. Anteins, *Bronza Latvijā*, Rīga: Zinātne, 1988,; J. Aizenbergs, *Rīgas tramvajam 100 (1882 - 1982)*, Rīga: 1982; J. Ločmelis, *Simt gadu ar telefonu*, Rīga: Zinātne, 1984; J. Ločmelis, *Simt piecdesmit gadu ar telegrāfu*, Rīga: Zinātne, 1986; J. Ločmelis, *Telekomunikāciju vēsture*, Rīga: 2000 and *Telekomunikāciju vēsture II*, Rīga: 2002; U.Bambe, *Rīgas pilsētas ūdensvada un kanalizācijas saimniecības attīstība*, Rīga: 1988; Andris Biedriņš, Leonīds Ļakmunds, *No Doles līdz jūrai*, Rīga: Zinātne, 1990, etc.
6) See website www.i-mantojums.lv , accessed 28.10.2023.
7) Andris Biedriņš, Edvīns Liepiņš, 2002.
8) *2021 Eiropas kultūras mantojuma dienas: Transports*, Rīga: Nacionālā kultūras mantojuma pārvalde, 2021, available online, in Latvian and in English: https://www.nkmp.gov.lv/lv/media/3548/download?attachment
Latvijas kultūras mantojuma aizsardzības sistēmai 100. Eiropas kultūras mantojuma dienas 2023, Rīga: Nacionālā kultūras mantojuma pārvalde, 2023, available online, in Latvian: https://www.nkmp.gov.lv/lv/media/4629/download?attachment
9) *Būvkultūra. Eiropas kultūras mantojuma dienas 2020;* Nacionālā kultūras mantojuma pārvalde, 2020, available online, in Latvian and in English: https://www.nkmp.gov.lv/lv/media/1708/download?attachment
10) See Toms Altbergs, *Vidzemes bānātis*, Rīga: Latvijas dzelzceļnieku biedrība, 2000; Toms Altbergs, Andris Biedriņš, The Vidzeme railway, Rīga, IHTL, 2008; Toms Altbergs etc., *Dzelzceļi Latvijās*, Rīga: Latvijas dzelzceļš & Jumava, 2009.
11) See Andris Biedriņš, Edvīns Liepiņš, *Rīga: sabiedriskais transports no 19. gs. vidus līdz mūsdienām*, Rīga: Rīgas Satiksme, 2015.
12) See Edvīns Liepiņš, *Automobīļu vēstures lappuses*, Rīga: Zinātne, 1983; Edvīns Liepiņš, *Rīgas auto*, Rīga: Baltika, 1997; Edvīns Liepiņš, *Rīgas auto. 2. pārstrādātais izdevums*, Rīga: Rīgas motormuzejs, 2007; Edvīns Liepiņš, Jurijs Seregins, *No Leitnera līdz Ērenpreisam. Velosipēdu rūpniecība Latvijā 100 gados*, Rīga: LIMF, 2008; Edvīns Liepiņš, Andris Biedriņš, *Rīgas Auto*, Rīga: CSDD and Rīgas Motormuzejs, 2018, etc.
13) See Juris Binde (ed.) *Nezūdošās vērtības. VEF – 100*, Rīga: Latvijas mediji, 2019, in 2 volumes.
14) See (Ilze Martinsone; not mentioned on the cover) *Gāzei Latvijā – 140 (1862 – 2002)*, Rīga: Aģentūra VB Plus, 2003.
15) See a number of publications, most of them made around the turn of the century, and a few on the major electrical plants in particular: I. Bauga, *Ziemeļu elektriskajiem tīkliem – 60 (1940 - 2000)*, Rīga: 2000; I. Čače, *Augstsprieguma tīkla vēsture*, Rīga: 1999; A. Eņģelis, *Augstspriegumu tīkls gadu gaitā. Rīga: 1999*; H. Jaunzems, *Pļaviņu hidroelektrostacija, Daugavas HES kaskāde*, Rīga: 2000; I. Kupce, *Rietumu elektriskie tīkli (1899 - 1999)*, Rīga: 1999; *Ķeguma spēkstacija (1936 - 1940)*, Rīga: 1989; I. Lastovecka, *Cilvēki, zibens un elektroenerģētika. Dienvidu elektrisko tīklu vēsture*, Jelgava: 2001; *Latvijas energosistēma gadu gaitā*, Rīga: 1999; *Latvijas Republikas austrumu daļas enerģītikas attīstība*, Daugavpils: 1999; *Rīgas TEC-1 no pagātnes uz nākotni*, Rīga: 2000 (on thermo-electrical plant that was sadly demolished soon afterwards); A. Rorbahs, A. Žeidurs, *Rīgas elektrotīkls 1905 – 1980*, Rīga: 1980.
16) Andris Cekuls, *Latvijas bākas. Lighthouses of Latvi*, Rīga: Capital, 2010.
17) Jānis Klētnieks, Romvalds Salcevičs, *Tilti Latvijā*, Rīga: V. elements, 2004.
18) See Anita Antenišķe, Artistic Features of Industrial Heritage/ Industriālā mantojuma mākslinieciskie aspekti // in *Scientific Proceedings of Riga Technical University: Architecture and Construction Science*, Rīga: RTU, 2005, pp. 10–19; Anita Antenišķe, Architectural and Semantic Transformation of the Urban Industrial Landscape in Riga // In: *Actes du congres TICCIH Lille Region 2015. Le patrimoine industriel au XXIe siecle, nouveaux defis = Proceedings of the XVIth TICCIH Congress. Industrial Heritage in the 21st Century, New Challenges*, France, Lille, 6-11 September, 2015. Paris: CILAC, 2018, pp.31-37. etc. Andis Cinis, Liepaja Military Harbour "Karosta" 1890-2001 // in *Patrimoine de l'indusrtie / Industrial Patrimony*, 7/2002, pp. 7–14, etc. Inga Karlštrēma, Rīgas pilsētas gazes fabriku arhitektūra 19. gadsimta otrajā pusē un 20. gadsimta sākumā // in *Mākslas vesture un teorija*, Rīga, 18/2005, pp. 34–47; etc.
19) See *Transporta ēkas un infrastruktūra* (Buildings for transportation and infrastructure), pp. 465 - 470 vs *Rūpnīcas un inženiertehniskās būves* (Factories and technical structures), pp. 470 – 471, in Eduards Kjaviņš (ed.) *Latvijas mākslas vēsture, IV, 1890–1915*, Rīga: Neputns, 2014.
20) See http://motormuseum.com/; https://www.railwaymuseum.lv/; https://latvenergo.lv/en/energetikas-muzejs/ekspozicija-plavinu-hes; https://www.rigasudens.lv/lv/vesturiska-ekspozicija-0; https://www.vefkp.lv/lv/vef-riko/vef-vestures-muzejs/
21) See http://www.dsr.lv/en/
22) Mārtiņš Mintaurs, *Arhitektūras mantojuma aizsardzības vēsture Latvijā*, Rīga: Neputns, 2016, pp.31-78.
23) See Mārtiņš Mintaurs, 2016, p.87.
24) The original list in poor technical conditions is located at the archives of NKMP; a digital verion of it was made by Jānis Asaris, deputy head of the Board, for the use of specialists working with the heritage, and consulted for the purposes of this paper, too.
25) On the first windmill in Open-air museum of Riga, see *Pieminekļu valdes Brīvdabas muzejs*, Rīga: I.M. Pieminekļu valdes izdevums, [1939], p. 29-33, or *Latvijas etnogrāfiskais brīvdabas muzejs*, Rīga: Zinātne, 1978 – on all the structures available for visits there during the 1970s.
26) *Kultūras pieminekļu saraksts Latvijas PSR teritorijā*, Rīga, 1959.
Latvijas PSR vēstures un kultūras pieminekļu saraksts, Rīga, 1969.
Latvijas PSR vēstures un kultūras pieminekļu saraksts, Rīga: Avots, 1984.
Latvijas PSR Valsts aizsargājamo architektūras pieminekļu Saraksts, Rīga, 1950; NKMP archive No. 286-58.
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27) Juris Dambis, 2018.
28) See *Latvijas Dabas un pieminekļu aizsardzības biedrība*, https://lv.wikipedia.org/wiki/Latvijas_Dabas_un_pieminek%C4%BCu_aizsardz%C4%ABbas_biedr%C4%ABba#
29) See Mārtiņš Mintaurs, 2016, p.165-169.
30) On transformation of heritage protection system in Latvia at that time, see Mārtiņš Mintaurs, 2016, p.223-224.
31) Interview with Gunārs Silakaktiņš, at that time inspector of heritage protection of Liepāja, around 2000.
32) See Latvijas PSR vēstures un kultūras pieminekļu saraksts, Rīga: Avots, 1984.
33) Interview with Andris Biedriņš, September 2023, and see https://mantojums.lv/cultural-objects/8339
34) Data extraxted from the Cultural Heritage Management Information System of *Nacionalā kultūras mantojuma pārvalde (NKMP)* / National Heritage Board of Latvia (NHBL) Mantojums/Heritage at https://mantojums.lv/cultural-objects
35) Criteria for enlisting are explained on the page of the National Heritage Board of Latvia: https://www.nkmp.gov.lv/lv/kriteriji-kulturvesturiski-nozimigu-objektu-ieklausanai-valsts-aizsargajamo-kulturas-piemineklu-saraksta
36) Ibid., https://www.km.gov.lv/en/conservation-historic-monuments
37) https://www.nkmp.gov.lv/lv/kriteriji-kulturvesturiski-nozimigu-objektu-ieklausanai-valsts-aizsargajamo-kulturas-piemineklu-saraksta , 3.4.
38) Ibid., 3.2.
39) See Heritage list of Latvia, *Mantojums*/Heritage: https://mantojums.lv/cultural-objects
40) Ibid.
41) See https://mantojums.lv/cultural-objects/8807
42) See https://mantojums.lv/cultural-objects/9086
43) See https://mantojums.lv/cultural-objects/9368
44) See Heritage list of Latvia, Mantojums: https://mantojums.lv/cultural-objects and Latvijas kultūras mantojuma aizsardzības sistēmai 100. Eiropas kultūras mantojuma dienas 2023, Rīga: Nacionālā kultūras mantojuma pārvalde, 2023, available online, in Latvian: https://www.nkmp.gov.lv/lv/media/4629/download?attachment
45) Interview with Simona Čevere, the head of Cultural Heritage Information Centre of National Heritage Board of Latvia, September 2023.
46) See both Heritage list page for Līgatne case: https://mantojums.lv/cultural-objects/7427 and information page on the town of Līgatne: http://www.visitligatne.lv/ligatnes-papirfabrikas-stradnieku-majas
47) See https://mantojums.lv/cultural-objects/8777
48) The definitions of value levels are provided here in free translation of Latvian terminology by the author of this article as there is no official translation of evaluation levels in English available.
49) See historical map of Riga published on inner cover of Andris Biedriņš, Edvīns Liepiņš, *Rīgas sabiedriskais transports no 19. gs. vidus līdz mūsdienām*, Rīga: Rīgas Satiksme, 2015.
50) Juris Dambis, 2018, p. 10. There is hope that the heritage authorities of Riga with the political support of the municipality might be ready to take the next step: to make a preliminary survey of industrial heritage in the city, at last, including its locations, conditions, and estimated architectural and historical value; however, it is not confirmed.
51) See https://mantojums.lv/cultural-objects/6650
52) See, information provided only in Latvian.

Listing Industrial Heritage in Lithuania

What National Lists Can Tell About the Concept of Industrial Heritage

MARIJA DRĖMAITĖ

ABSTRACT

National lists of cultural properties are an interesting phenomenon of institutional heritage protection development in the modern period. They convey important cultural turns, national and international heritage policy changes as well as political regimes as the case of Lithuania can demonstrate. The paper uses the critical heritage studies approach for this research. It deals with the concept of industrial heritage and its development in the Lithuanian context, highlights the most important turning points, and shows the relevance of individual researchers and academic disciplines in the process but also the political circumstances affecting heritage processes in three different historical periods: the First Republic of Lithuania (1918–1940), the Soviet occupied Lithuania (Lithuanian SSR, 1945–1990), and the independent Republic of Lithuania (1990–2020). The analysis is based on previous literature, unpublished reports and previous writings on industrial heritage producing understanding about the layers of heritage processes in the specific case of industrial heritage.

INTRODUCTION

National lists of cultural properties are an interesting phenomenon of institutional heritage protection development in the modern period. They convey important cultural turns, national and international heritage policy changes as well as political regimes as the case of Lithuania can demonstrate. Although the term 'industrial heritage' is fairly new in Lithuania, dating back to 2000, the interest in the preservation of 'technological heritage' can be traced back to the 1930s, when the ethnological interest in the legacy of rural technical artefacts began. However, the official listing of technological heritage began in the 1970s, when Lithuania was under Soviet occupation. The paper therefore focuses on the comparison of two periods of industrial heritage listing: 1973–1990 (the Soviet occupied Lithuania) and 1990–2020 (the Republic of Lithuania). The aim of this research is to interpret the official cultural heritage lists from the point of view of cultural history as the representations of the official cultural heritage policy as well as the academic research interests.

This article uses the approach of critical heritage studies – its differentiation from 'heritage studies' rests on its emphasis of cultural heritage as a political, cultural, and social phenomenon.[1)] The research is based on comparative methodology and statistical analysis. Comparative research was carried out by comparing academic research (published papers and unpublished reports), the public press dedicated to industrial heritage, and the typology of listed buildings in three different historical periods: the First Republic of Lithuania (1918–1940), the Soviet occupied Lithuania (Lithuanian SSR, 1945–1990), and the independent Republic of Lithuania (1990–2020). Typological and statistical analysis of the listed industrial/technological/technical properties was carried out using the digital data base of the National Cultural Heritage List (*Kultūros vertybių registras, KVR*)[2)] of the Department of Heritage Protection at the Ministry of Culture of the Republic of Lithuania (from 1995 to the present), and the previous lists published as books in 1973, 1977, 1988 and 1993.[3)]

The IHP fieldwork 'Recording Living Industrial Heritage' at the match factory 'Liepsna' in Kaunas, Lithuania. Photos: Marija Drėmaitė, 2001.

BRIEF OVERVIEW OF THE HISTORY OF LITHUANIAN HERITAGE PROTECTION ACTS

1919, the Lithuanian government adopted the *Law on the State Archaeological Commission*. Systematic protection of cultural monuments began in The State Archaeological Commission (established in 1919 under the Ministry of Education) which took care of the protection and research of archaeological, architectural and artistic monuments.

1926, the Reference Office for the Protection of Ancient Monuments began to operate under the Ministry of Education.

1936, the monument protection was transferred to the Vytautas the Great Museum of Culture, where the position and department of the conservator of Lithuanian monuments was established.

1938/**1940**, the *Law on the Protection of Cultural Monuments* was prepared in the Republic of Lithuania in 1938, but it was officially adopted only on July 20, 1940, already in the soviet-occupied Lithuanian SSR. An institution for the protection of cultural monuments was established under the People's Commissariat of Education, it inventoried cultural properties in nationalized estates and handed them over to museums.

1967, the second *Law on the Protection of Cultural Monuments of the Lithuanian SSR* was adopted (on the level of republic). This law created a system for the protection and management of monuments, which operated until the restoration of Lithuania's independence.

1977, the *All-Union Heritage Protection Act* came into force in the Lithuanian SSR. During the Soviet occupation period, heritage protection became institutionalized and specialized in heritage research, protection and restoration branches.

1990, after the restoration of Lithuania's independence, the monument protection system was reorganized. Department of Monument Protection under the Government of the Republic of Lithuania was established.

1994, the new *Law on the Protection of Immovable Cultural Heritage of the Republic of Lithuania* was adopted on 22 December 1994 (No. I-733). Required subordinate legislation has been drafted and approved as part of the law's implementation, including the regulation of cultural heritage identification and inventory, declaration of protected status, management, etc. The Law was updated in **2004**. A new updated version is expected in **2024**.

THE INCREASING INTEREST IN INDUSTRIAL HERITAGE IN CONTEMPORARY LITHUANIA

The term 'industrial heritage' is fairly new in Lithuania, dating back to 2000. It developed in close connection to the increasing international cooperation in the field of industrial heritage, especially the Nordic-Baltic cooperation.[4] The point of departure for this cooperation was an international seminar, 'Industrial Heritage in the Nordic and Baltic countries', held in October of 1999, in Helsinki, Finland. This first seminar was followed by a second, 'Future's past' – sponsored by the Swedish Institute and held in June 2000, in Norberg, Sweden. Finally, the 'Industrial Heritage Platform (IHP)', a three year cooperation project (2000–2002), initiated by the Nordic countries, funded by the Nordic Council of Ministers, and coordinated by the National Board of Antiquities in Finland, was started. It resulted in a fruitful framework: six mutual meetings, five international training courses, two international seminars and numerous national events in seven countries where the appreciation and preservation of the industrial heritage had a very different status.[5]

The IHP fieldwork 'Recording Living Industrial Heritage' at the match factory 'Liepsna' in Kaunas, Lithuania. Photos: Marija Drėmaitė, 2001.

One of the main aims and tools of the IHP has been training. In 2001, one bilateral course was organised in every Baltic country. These courses had a focus on different aspects of industrial heritage, such as reuse, large scale documentation and transition processes. Altogether two hundred individuals and thirty institutions have been involved in these courses. The Norwegian-Danish-Lithuanian pilot course on surveying, inventories and photo documentation of the industrial heritage, aimed to teach and discuss the effective and qualitative documentation of the industrial heritage.[6] The objective of the field course was to train participants in organising their observations in such a way as to produce relevant, structured and understandable information in an archival form, and to create a documentation report of a factory or industrial installation. The fieldwork was titled 'Recording Living Industrial Heritage' and took place in September 2001 at the match factory 'Liepsna' in Kaunas, Lithuania. In 1930, Swedish 'Svenska Tändsticks Aktiebolaget' purchased the factory and a large proportion of the process machinery from the 1950's was still in use in 2001. The fieldwork tested different approaches to inventorying: ranging from material records to social studies of an industrial enterprise.

Another IHP affiliated initiative in Lithuania was the 'Power of Water' project (2001), dedicated to education. Schoolchildren were taught to see the connection between industry and waterpower, and to produce material suitable for tourists. In 2002, the project continued with an inventory course and exhibition of an old paper mill.

The final joint IHP training course 'Industrial Heritage and Urban Change' in 2002 took place in two harbour towns Helsingør, Denmark and Klaipėda, Lithuania. The main idea of the course was to compare industrial heritage in two industrial harbour cities. The event in Klaipėda discussed urban transformation and raised awareness about understanding of industrial heritage in Lithuania. Interestingly enough, it took place on the site of the former medieval castle and fortress where the shipyard was later constructed in the 19th century. The site had always been presented as 'the Castle' in Lithuania, and industrial buildings on the site have been treated as merely obstacles to be removed. How-

Match production building, S facade with loading ramp.

From the left: storage, pile of uset billets, conveyor, boiler house. In the background: trestle crane.

Resting area for male workers.

Resting area and personal things of female workers.

Box folding machine.

Box filling machine.

The final joint IHP training course 'Industrial Heritage and Urban Change' at the Lindenau Shipyard in Klaipėda, Lithuania. Photos: Marija Drėmaitė, 2002.

ever, through fieldwork, the 'Lindenau Shipyard' underwent investigation as a 'zone of tension', one where the traditional heritage of the former castle, the remains of the shipbuilding, the Soviet period constructions, and the contemporary ship repairing practice all intersect. The municipality also expressed the needs of the city to make the area a public space, as well as encouraging commercial interests to appropriate the place. Consequently, the questions discussed at the course were not only industrial buildings and their re-use but also the impact of industries on the social, economic and urban changes of the cities. During and after the course, the main thesis was raised and discussed – are mediaeval and industrial heritage of similar cultural value, and can they co-exist on the same site?

The IHP initiative was followed by a long-term academic co-

Table 1. Number of listed properties with technical or technological values. Sources: *Lietuvos TSR kultūros paminklų sąrašas* [List of cultural monuments of the Lithuanian SSR], Vilnius: Mokslinė metodinė kultūros paminklų apsaugos taryba, 1973 and *KVR*.

Periods	1973-1990	1990-1995	1995-2005	2005-2020
Number of listed properties of technical and industrial heritage	67	85	133	81

operation between Nordic and Baltic researchers. The research project 'Industry and Modernism' (2001–2005) resulted in a book,[7] and the Nordic-Baltic industrial museums' travelling exhibition project 'Dream Factories' (2007–2009) in all seven countries, as well as a doctoral training program entitled 'Industrial Heritage and Societies in Transition' (2002–2006) which culminated in several dissertations, papers, and a jointly composed book: 'Industrial Heritage around the Baltic Sea'.[8] It constituted a crucial element of the movement, profoundly changing the perception and appreciation of industrial heritage in Lithuania at the beginning of the 21st century.

The significant impact of these events, initiatives and projects was clearly reflected in the increased listing of industrial heritage in Lithuania. The highest activity in listing industrial facilities took place in the period from 1995 to 2005. During this decade, 133 properties of industrial and technological value entered into the National List (Register) of Cultural Properties (*Kultūros vertybių registras – KVR*). Whereas the period from 1995 to 2002 focused primarily on rewriting the properties from the previous lists, the period 2002 to 2005 proposed qualitatively new properties of industrial heritage. International cooperation also increased and the three geodetic points of the Struve meridian arc in Lithuania were admitted into the UNESCO World Heritage List as part of a serial nomination involving ten countries.[9]

In 2005, the National Cultural Heritage Register encompassed 1073 positions of listed buildings, and 543 positions of groups of buildings. Among these, technical and technological values were attributed to 248 buildings and 79 groups of buildings. However, only 13 buildings and 24 groups of buildings were connected to industrial history or architecture. This data demonstrates that, indeed, the primary interest within Lithuania centres yet still on the history and heritage of technology and engineering, rather than on the industrial remains themselves. This phenomenon might be interpreted as the very infancy of industrial heritage according to prof. Marie Nisser.[10] or as a specific case of a country which found itself missing its own particular, national 'grand narrative' of industrialization. The following chapters will try to trace the beginnings and the development of this phenomenon.

THE DEVELOPMENT OF INDUSTRY IN LITHUANIA AND THE ROLE OF ITS INTERPRETATION IN THE NATIONAL HERITAGE POLICY

The acknowledgement of industrial heritage in Lithuania went a long way in the 20th century and was rather complicated. The missing grand narrative of the local industrial development complicated the understanding and appreciation of this heritage for the larger parts of the society. It also resulted in the unsystematic process of evaluation and listing of industrial heritage.[11]

Lithuania is presented as a rural country because of the late and relatively small scale of industrialization, especially if compared to its neighbours Latvia and Estonia.[12] Political changes were abundant in the preceding two centuries and were instrumental in shaping the different phases of the country's industrial development; phases which may be characterised as involving intense periods of development – "shortcuts" – rather than a consistent, steady pace of industrial expansion. Four periods might be distinguished in the industrialization of Lithuania: (1) pre-Industrial Revolution period; (2) 19th century industrialization in Russian empire; (3) the emphasis on local industry during the inter-war period of the nation state, 1918-1940; and (4) large scale industrialization during the Soviet occupied period in 1945-1990.

The first attempt to industrialize Lithuania was taken in 1770 by the Polish-Lithuanian Commonwealth King's treasurer, count Antoni Tiesenhausen (Tyzenhauz), who wished to generate capital by means of industry. His industrialization differed significantly both in scale and ideology from the arts-and-crafts focused profit-seeking efforts of the count's fellow aristocrats. Tiesenhausen summoned English and Scottish masters, and establishing around 70 factories in several locations across the Grand Duchy of Lithuania. Those were water-powered wool, linen, silk, metal ware, paper and fancy goods factories as well as metal industry: forges, blast furnaces and gun smithies. Unfortunately, this effort towards industrialization lasted only 15 years: In contrast to his liberal fellows, the count employed serfs – who often sabotaged the work – and eventually the project failed to reach its ambitions, and terminated. Two of the most distinctive industrial sites of this phase were "Horodnica" and "Kunsztow" near Hrodna

(in current Belarus) on the Lososna River (1785).[13] Although they are remarkable examples of early and deliberate industrialization, it is difficult to present and articulate these sites as the origin points of the industrialization of Lithuania, as the material relics are significantly altered and at present located in a foreign state.

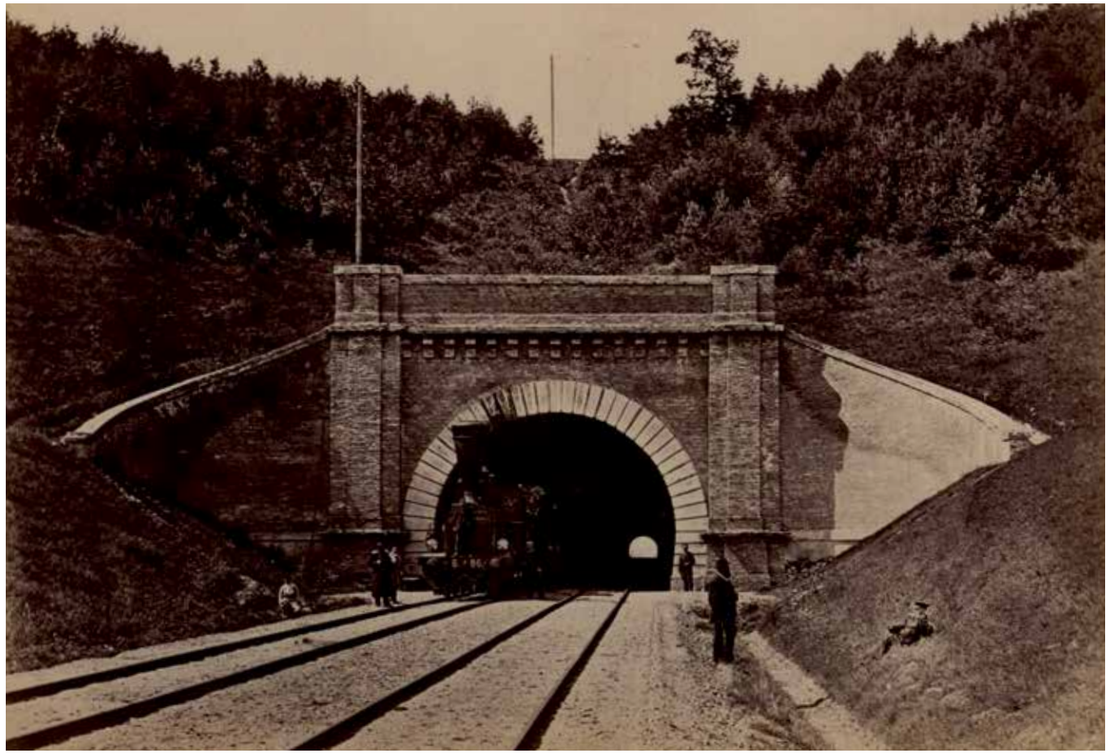
In 1795 territory of the Polish-Lithuanian Commonwealth was divided among Russian, Prussian and Austrian Empires. As part of the Russian Empire, Lithuania was of no interest to imperial trade and industry, finding itself on the periphery of major industrialization processes occurring elsewhere in the polity. The traditional narrative informs us that the Industrial Revolution reached Lithuania quite late – only breaking through after the abolishment of serfdom in 1861 and the construction of the Warsaw-St. Petersburg railway in 1862. Large-scale urban industry did not get a foothold until the 1890s. In 1899, there were 1426 enterprises with 13,200 workers in Lithuanian cities and towns. The complicated history of city and industry development has meant that the national identity question as to the 'ownership' of cultural heritage remains as yet unresolved. The first to establish capitalist factories in 1870s were foreign merchants and stock companies (mostly German, who were interested in establishing factories on the western borderland of Russian empire to avoid duties). Until the very beginning of the 20th century, one cannot find any Lithuanian industrialist in the urban environment, therefore the industrial remains of this period are yet to be recognized as an integral part of the national history of Lithuania today.

In complete contrast, the short yet productive inter-war period of the independent Republic of Lithuania (1918–1940) fits perfectly well into the collective process of conceptualising a national history. After regaining independence in 1918, Lithuania faced the question of in which way to direct development of industry. Lithuania looked upon Denmark as having successfully implemented the model of an agro-industrial national organisation. A land reform was carried out, and the shift from cereal grain crops to stock-raising and dairy farming was encouraged. The State actively involved itself in both economy and industry, and by 1938 there were 21 state businesses and publicly-traded companies financed through State capital. The growth of Lithuanian industry is indicated by an increase from 1013 industrial enterprises employing 18,518 workers in 1927, to 1441 enterprises employing 35,063 workers by 1938. It is evident that Lithuanian industry had substantially grown on the local level, but taking a broader perspective, it remained yet still on a relatively small scale, especially when compared to neighbouring Latvia and Estonia. In 1939, Lithuanian industry employed only 8.1% of working people, while agriculture employed a staggering 73.8%. Development of the agricultural economy in 1918–1940 directly influenced the character of industrial architecture. New types of industrial buildings were developed besides the traditional ones. Modern elevators, bacon and sugar factories, dairy, textile factories, power plants and buildings for military industry as well as new modern storages illustrate the scope of industrial building-types of the inter-war period. However, these structures underwent major development and expansion during the subsequent period of Soviet occupation, only retaining its material authenticity in a minority of cases – a specific requirement for heritage listing.

The Soviet occupation (1940-1941, 1944-1990) had the biggest impact on the industrialization of Lithuania. In 1959-1965 the structure of industry changed substantially: The production of metal and machines increased threefold, becoming the main branch of industry in the republic. Production increased 6.2 times between 1955 and 1970; the number of workers increased 3.2 time in the period 1950-1965, and reached a tally of 312,000 by 1965. Urbanisation grew from 28.3% in 1950, to 52% in 1970. Today, the industrial remains of the Soviet period are commonly regarded as alien and uncongenial, not only because of the quite unfavourable legacy of the Soviet occupation, but also due to the vast swathes of land on which the Soviets erected their standardised, monotone architecture. Soviet industrialization is perceived today as colonial, having destroyed the natural rural landscape and its traditions. Notorious elements such as pollution, Russian immigrant labour, inappropriate dimensioning and inferior product quality usually outweigh the positive aspects of urbanisation; economic growth and modernisation.

Thomas A. Markus has shown that "arguments about what to preserve in the name of 'the nation's heritage' and what to neglect, destroy or cover up are always also arguments about what version of the past will be carried forward as part of the ongoing, necessary process of imagining nationhood".[14] One could say that economic and industrial development is underestimated in the general historical narrative of Lithuania because of the complicated political history of the entire period. In considering this diverse picture of industrial development of the last 200 years, the complex difficulty of distinguishing Lithuania's own national industrial heritage becomes self-evident.

426 m long Paneriai railway tunnel built in 1859-1862 was one of the first listed properties of technological value. Photo: Jozef Czechowicz, 1873, source: Lithuanian Science Academy Wroblewsky Library.



BEGINNINGS OF ACKNOWLEDGING INDUSTRIAL HERITAGE IN LITHUANIA IN THE 1930S

Although the term 'industrial heritage' entered active use only in the 21st century, the subject itself was known long before under the term 'technical and technological heritage'. Interest in the subject matter arose in the 1930s, initially as an *overall* interest in vernacular heritage, and originated in the heritage ideology of the newly independent (1918) state of Lithuania. The concept of 'technological monuments' was at this time introduced under a definition of 'historically and technically important objects'. In 1938, an ethnologist Juozas Lingis (1910–1998) proposed to take care of vernacular technological heritage, and to classify this monumental heritage into three general groups:

1) Engineering structures: ferries, bridges, locks and dams;
2) Buildings and equipment: windmills and watermills, forges, sawmills, spinning mills, weaving mills, factories and furnaces, brick, lime, peat mines and fur workshops;
3) Single artefacts: various machines, devices and tools.[15]

Lingis composed the article in Stockholm, presenting Sweden's caretaking of its technological heritage as a good example to follow. In 1929 Juozas Lingis entered the Lithuanian University in Kaunas, and in 1932 he took a deep interest in Scandinavian language courses under Knut Olof Falk, who came from Sweden and eventually came to be a well-regarded ethnologist and linguist. In 1937, Lingis received a Lithuanian state scholarship and began his ethnology and archaeology studies at Stockholm University. In his free time, he helped Sigurd Eriksson in his work at the *Nordiska Museet*. Encouraged by Eriksson, he started writing about Lithuanian culture and literature in the local press, and also spread knowledge about technological monument preservation in Sweden for the Lithuanian audiences.

However, no actual listings or concerted steps towards preservation were taken in the First Republic of Lithuania. There were no appropriate specialists nor specific conservation strategies pertaining to technological heritage in Lithuania. Four attempts were made to pass a law on the protection of cultural monu-

ments; in 1926, 1933, 1938 and 1939, but they were not successful.[16] The idea of the *'Tėviškės muziejus* [Homeland's Museum]', an open-air museum of ethnography based on the model of Skansen, was widely discussed but never realised. With the modernisation of the world, agrarian heritage and its preservation may have hindered the introduction of new technologies. In this context, any call for the preservation of old technical objects could have been perceived as a step back towards an outmoded, agrarian way of life.

The first public power plant in Vilnius (1903), listed and converted to the Museum of Energy and Technology in 2003: Marija Drėmaitė, 2004.

THE CONCEPT AND PROTECTION OF INDUSTRIAL HERITAGE IN THE SOVIET OCCUPIED LITHUANIA, 1945–1990

Concerns regarding technological heritage were raised again in Lithuania under Soviet occupation. Similar to the ethnologist Lingis in the late 1930s, the 1960's ethnologist Stasys Daunys likewise wrote about the preservation of vernacular technical monuments and the establishment of a relevant museum.[17] At the same time, mathematician and astronomer Paulius Slavėnas (1901–1991) raised similar concerns about the preservation of technological heritage.[18] As an influential member of the Academy of Sciences of the Lithuanian SSR and a chairman of the Commission for the History of Natural and Technical Sciences of the Presidium of the Academy of Sciences of the Lithuanian SSR, Slavėnas called on cultural workers to start inventorying technical artefacts and monuments, and to draw up distinct inventories for each type of object, indicating its dimensions, location and chronology. Together with his Latvian colleague, Pauls Stradinš, he founded the Baltic Conference on History of Science[19] in 1958, which was in turn instrumental in facilitating a broader awareness of technological heritage.

However, it is important to note that this concern about the 'technological monuments' was largely focused on wind- and watermills, and other vernacular buildings in specifically rural locations. Indeed, the 1970s and 1980s were fruitful in the field of molinological research, and a thoroughly researched publication on the history, development and heritage of water and windmills entered circulation in 1982.[20] This increased academic research was likewise reflected in listings and legal protections of water- and windmills.

The official listing of industrial objects of the Lithuanian SSR was first published in 1973 as a part of the list of historical and cultural monuments of the Lithuanian SSR.[21] Following the official methodology, four groups of monuments were established: archaeological, architectural, artistic and historical monuments. In the group of historical monuments a subgroup for work, production and technical monuments was created, whereas in the group of architectural monuments a subgroup for industrial buildings was singled out. In 1973–1990 mills made up half (35 properties) of all 67 listed properties of industrial and technological heritage, the mills regarded as monuments of the history of production. Another large portion of technological monuments were bridges, recognised as feats of engineering (in total 11 historic bridges were listed). Among the listed properties one could also find a fire station, two funiculars (cable-cars) in Kaunas, an airfield, the first railway tunnel (built in 1860), a lighthouse, a warehouse, and three clocks (two in churches, one in a town hall). All were listed because of their engineering, or their technological value. In this regard, the perception and policy of preservation continued the pre-war tradition of protecting only vernacular technological heritage and engineering structures.

It may appear counterintuitive, but under the Soviet regime, when the 'power of the proletariat' was officially proclaimed, large scale urban industries were neither acknowledged nor protected as cultural heritage monuments. The Lithuanian SSR list of cultural monuments (in the group of architectural monuments) only presented one power plant, two distilleries and two ancient mills – a complex of an early 19th century papermill buildings in Vilnius and the historic papermill in Prienai (built in the 16th century). This ideological incoherence might be explained by the economic situation: Western capitalist countries faced industrial crises in the late 1970s through the 1980s, fuelling a discourse on the preservation of derelict factories and the industrial past overall. However, in the rush for industrialization, and in the official Soviet discourse of technological progress, ideas of preserving industrial heritage seemed not relevant at all, because all factories were still in operation. The Soviet era was also characterised by major renovation and modernization of historic industrial buildings, without efforts to record the original structures before demolition or enlargement.

Nevertheless, amateur historians in the 1970s, as well as several academic researchers, called for investigation into, and a recording of, industrial remains in the wake of the period's rapid modernization of manufacturing plants. They proposed the establishment of a type of 'eco-museum of technology' in the region of the oldest mills of Vilnius on the Vilnia River.[22] The most significant contribution to this movement was the activities of Vytautas

Kazimieras Vaitkus (1930–2015), researcher and associate professor at Vilnius Institute of Civil Engineering (VISI, now Vilnius Tech). Vaitkus' research into historic factories were in the form of feasibility studies, specifically the notion of reusing old structures in modernized plants, thus preserving historical-architectural value.[23] The main object of his research was the development of the structure of industrial enterprises and the formation of industrial zones in Lithuanian cities in the 19th and the first half of the 20th century. In his conclusions he emphasised the historical, technical and architectural value of industrial buildings and proposed that they should be declared state-protected monuments.

In 1980, under the leadership of Vaitkus, a scientific research system of technical cultural heritage was created at the VISI, based on the systems synthesis method, which was based on the systems of search and recording of technical heritage: "The first system consists of the verbal, literary, documentary, and in-kind searches, and the second system consists of the graphic and photographic recording and inventory survey. The first system of searches enables the location of objects, their historical development, their condition, and their residual value to be revealed. The second system seeks to record the current state of the technical heritage and to identify opportunities for restoration and adaptation to new functions", Vaitkus wrote in 1985.[24]

At the Association of Regional Studies, he founded the Commission for the Protection of Technical Monuments in the 1970s, and in this endeavour co-published a number of articles on the history of technology, science, and industrial buildings. On the initiative of the Commission, the first amateur list of Lithuanian technical heritage (comprising 230 properties) was put together in 1984,[25] followed by methodological recommendations to investigate and record industrial and technological monuments.[26]

In summary, it can be stated that although 67 properties of technological and engineering heritage were listed in 1973–1990, the majority of them were vernacular mills, bridges, and several other built structures. History of science, technology and industrialization were well-established on the research agenda, but there was only limited interest in the material remains of large urban industry as most factories were still in operation.

INDUSTRIAL HERITAGE IN THE CONTEMPORARY REPUBLIC OF LITHUANIA, 1990–2020

The listing of industrial heritage has changed significantly from the Soviet era to the present day. After Lithuania regained its independence in 1990, a more active process of listing industrial heritage objects began. In 1991, the Centre of Cultural Heritage was established by the Ministry of Culture and charged with the responsibility of listing cultural properties. The Centre even sought to develop a specially designated program for the assessment of industrial architecture, but it was never completed.[27] Despite that obstacle, the Cultural Heritage Centre nonetheless undertook recording and listing of objects regarded as industrial and technical heritage that had survived up until that point. A plethora of new types of objects became regarded as industrial heritage and were listed in this period – by 1995 a total of 57 new buildings and 45 new complexes had entered the lists.

In 1995, the new National List of Cultural Properties of the Republic of Lithuania was introduced, following the ratification of a new Law on the Protection of Immovable Cultural Heritage in December 1994, and with it the National Register of Cultural Properties (KVR) came into being. Together with growing research interest in industrial heritage e.g. a third volume of the Lithuanian Architectural History, dedicated to the 19th century, was published in 2000 and included a chapter on industrial architecture, these initiatives paved the way for an abundance of industrial heritage sites and objects eligible for protection, such as a new group of technical and technological monuments (among architectural, historical, archaeological, etc.).

Between 1995 and 2005, there was a significant increase in the listing of industrial and technological heritage, comprising 73 new building complexes and 37 individual buildings. It is worth noting that most of the new properties inscribed on the National List since 1991 were based on the list prepared by Vytautas K. Vaitkus in 1984 – however, Vaitkus' systematic research and recording methodology was not followed. This resulted in a substantial increase of industrial heritage on the list (even if not fully coherent and systematic), and lasted until 2005, when legislative changes and important events took place in the Lithuanian heritage protection system.[28]

Wooden wind mill in Kleboniškis (1884) is one of the few protected operating historic windmills in Lithuania. Photo: Marija Drėmaitė, 2008.

Until April 20, 2005, a total of 1073 buildings and 543 building complexes were listed on the national Register. Among them, there were 248 buildings and 79 building complexes with technical and technological value. The new listing encompassed 13 buildings and 24 building complexes related to industry (factories, power plants and other enterprises). In addition to the water- and wind mills that still prevailed on the list (43 of them were inscribed anew in this period), newly listed properties included water tower, viaducts, railway stations, railway bridges and signalling equipment, and an entire narrow-gauge railway line in Northern Lithuania *(Siaurukas)*. It should be noted that, in this period, railway heritage began to be acknowledged and listed in a complex and systematic manner. Additionally, for the first time, objects related to science and academic research have been inscribed: the Ornithological Station of Ventės Ragas and the University Observatory built in Vilnius in the 1930s. The same can be said for shipbuilding; ports and related structures were all listed as new sites. The growing interest in research of the history and material culture of the First Lithuanian Republic (1918-1940) resulted in listing many new properties, specifically ones that relate to the industrialisation undertaken by interwar-Lithuania; then-modern dairies, sugar factories and other enterprises of local food industry. The causes for this increased interest in industrial heritage within Lithuania can be found in the new types of research and international cooperation taking place at the time.

However, although the increase in research and listing of industrial heritage was obvious, the terminology did not profoundly change, and the term 'technological heritage' remained the most broadly used. According to the specialist of the Cultural Heritage Centre, Ona Stasiukaitienė, "technological heritage encompasses not only old machines and equipment, but also industrial, engineering and factory production legacy, technology, products, transport system and industrialised landscape".[29]

Legislative changes in 2005 introduced wide sweeping changes in the attribution of heritage value to properties and objects. The properties were no longer classified and grouped on account of their function (e.g. artistic, architectural, urban, archaeological, historical or technological monuments), but were instead now assessed as immovable entities that can possess a multiple values, selected from a general list of possible attributes: Archaeological, underwater, historical, architectural, urban, landscape, sacral, ethnological, memorial, artistic, and engineering. Therefore, a large factory could now be said to demonstrate architectural, landscape and engineering attributes all at once. The 'engineering' attribute

Table 2. Number of listed Industrial Heritage in 1995-2020

Year	Number of listed properties of technical and industrial value
1995–2004	175
2005	25
2006–2020	85
Total	285

was specifically formulated so as to encompass technical, technological, and industrial values, better reflecting the complexity in defining the exact parameters of some industrial objects.

The period from 2005 to 2020 saw 81 new listed properties of industrial, technological, and engineering value. Railway heritage continued to receive most of the attention during this period – as many as 42 new such properties were inscribed on the National Register. At the same time, the mills ceased to dominate the technological heritage listings – only 12 of them appear at this point. It can be concluded that the last decade demonstrated a stabilisation of recording and listing of industrial heritage in Lithuania, which is now based on a more thorough and systematic process of historical research and argumentation.

CHANGING APPROACH TO INDUSTRIAL HERITAGE

In recent years, interpretations of industrial heritage in Europe has been strongly tied to social history, acting as motors through which industrial and social histories themselves are constructed. Revisionist interpretations of the socially neutral inevitability of the industrialization process have illuminated previously marginalised groups of people and negative social aspects, thus resulting in interpreting the industrial past as a working man's history. However, the issue of class was missing in Lithuanian industrial heritage discourse as well as in the broader social context of industrialization and working life. Neither trade unions nor worker movements have claimed any 'social ownership' of the industrial past. This lack of social context, historical interpretation, and a broader scope in listing industrial heritage, prompted problematic questions on earlier heritage priorities and the choices made, as industrial heritage preservation was focused on the material remains and buildings alone.

As of May 2019, the National List of Cultural Properties contained 25,422 immovable objects of cultural heritage, of which some are industrial in character. However, there is no separate list or catalogue that can reveal specific industrial heritage objects among this large number of heritage properties. Following the reforms in 2005, there was no effort made to produce separate lists detailing protected entities ordered by type. All listed objects were prescribed with different groups of values (from the aforementioned list of 11 attributes, e.g. architectural, urban, archaeological, industrial, etc.). Thus, since the National Register does not have the function or the ability to separate specific types of heritage typology, a separate study would have had to be carried out in order to distinguish industrial heritage.

Arguments about what to preserve in the name of "the nation's heritage" and what to neglect, destroy or cover up are always also arguments about what version of the past will be carried forward. Unfortunately economical and industrial development in Lithuania is rarely mentioned in the grand historical narratives. Although contemporary art history research has widely expanded the boundaries of what is considered "beautiful" and industrial architecture and its specific aesthetics has shifted to be considered on the same grounds as any other field of architecture, the broader public nonetheless seeks a familiar, decorative moment in industrial architecture, and the richness of ornamentation often justifies its conservation. As it stands today and appears to be going forward, what is now important is not strictly the remains of the original heritage, but rather the way in which the heritage has been adapted and its present-day functions.

CONCLUSIONS

It can be said that in the state of Lithuania during the interwar period (1918-1940), the Soviet-occupation period (1940-1941, 1944-1990), and during the period of independent state since 1990, many definitions of industrial heritage were formulated and its protections changed repeatedly, influenced by the various political and cultural changes taking place in Lithuania. It can be concluded that a new approach to the definition of industrial, technical, and engineering heritage was introduced in the mid-2000s by contemporary research, international cooperation and practice.

It can be also concluded that a missing grand narrative of industrial history, social understanding of industrial development, and the negative connotations of Soviet-era industrialization, rendered industrial heritage research in Lithuania a marginal field, with unsystematic listing and reuse practices. The passive relation to industrial structures most often reflects not a deliberate act of denial, but rather a general opinion of industry being of no importance. The movement of industrial heritage recognition in Lithuania experienced an upheaval in the period 2000–2010, directly related to the development and promulgation of new concepts, research, and international cooperation. However, there is still a central question regarding the industrial heritage in Lithuania which must be asked – is it spurred on by a genuine wish to preserve the country's industrial past, or is it an act of copying the fashionable and adaptive models for re-use found in Western Europe?

A listed Telšiai distillery represents richly decorated historical industrial architecture of the 19th century. Photo: Marija Drėmaitė, 2002.

A listed central 'Pienocentras' dairy in Kaunas represents modernist industrial architecture of the 1930s independent state of Lithuania. Photo: Marija Drėmaitė, 2006.

THANKS

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Preservation and listing of the industrial heritage in Norway 1970-2020

ANKE LOSKA & MARIA S. LYTOMT

Norway's development as an industrial nation is partially rooted in the natural resources of the country: Ores and minerals, forestry, fishing traditions, significant hydro-electric resources, and from the 1970's on especially; oil and gas. Accessing and utilising these resources has been the foundation of the nation's most important industries. This historical background must be considered when accounting for the broad, structural changes of the 1970's and 1980's within Norwegian labour and business. Especially in the context of discourse regarding national industrial heritage, as these structural changes precipitated a focus on protecting cultural monuments specific to the industrialisation of Norway.

This article will detail how industrial preservation efforts have been carried out in the period 1970 to 2020 on an overarching national level, reified in the office and mandate held by Riksantikvaren; an office which has existed in close connection with Norwegian cultural heritage policies throughout the decades. In the following segments, we will summarise the policy and work of Riksantikvaren with regards to safeguarding the country's technical and industrial cultural heritage, including its financing. More succinctly, the 'official gaze' is the point of view from which this article is composed.

INDUSTRIAL HERITAGE: THE NUMBERS

In Norway, the quantity of listed industrial plans gradually rose from two in 1920, to 17 in 1983, growing to 51 by 2022. The rate is instead 2, to 20, to 216, if industrial heritage in a broader sense i.e. railway heritage, lighthouses, bridges, power plants etc. (excluding workers dwellings and traditional wind- and watermills) is included. The rise in listed lighthouses and train stations is especially eye-catching between 1993 and 2002, although a steady rise in this type of listings does continue after 2002. Although various causal factors are relevant, we will herein limit ourselves to explaining the efforts of Riksantikvaren towards the preservation of industrial heritage in the period 1970 to 1920.

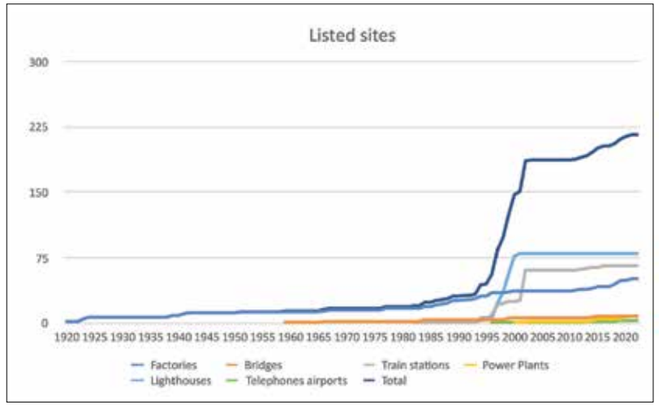
FORMULATING A NATIONAL STRATEGY

The Ministry for Environment was established in 1972. The office of Riksantikvaren was transferred to this new ministry in the subsequent year, having been part of the Ministry of Church Affairs since its inception in 1912. The intention behind the transfer was to consolidate the delegated responsibilities for nature management, management of cultural monuments and sites, and physical planning, under the auspices of a single institution, enabling an integrated management of the environment as such.

In 1978, the previous two heritage acts - the Law for Archaeological Monuments and Sites from 1905, and the Law for Protection of Historical Buildings from 1920 - were merged into one new act concerning all physical cultural heritage, ensuring a more diverse representation. This is essentially the same act in use today, barring a few adjustments.

Through our current Norwegian Act for Protection of Cultural Heritage, it is possible to protect monuments, sites and larger cultural environments deemed significant in an architectural sense, or important to the cultural history of Norway. This also includes seafaring and floating vessels, but in contrast there is no legal insurance enshrined in the Act for the protection of other vehicular, or 'moving', objects such as trains, cars, or planes. It is, however, possible to list the roads and railways themselves.

The first, big focus on technical and industrial heritage in Norway came about in 1984. The former Arts Council – today under the Ministry for Culture as the Directorate for Arts and Culture – established a committee meant to produce an overview of technical and industrial sites and monuments in Norway. Previously, small-scale registrations predominated; local efforts contained within the counties themselves. The 1984 committee represents the first concerted effort towards an encompassing survey of the nation's industrial heritage. The work done by the committee lead to the publication of a report in 1988, formally recommending the conservation of historically significant technical and industrial sites going forward. The report paved the way for the preservation of several industrial sites, subsidised with funding from the Arts Council.



Source: Askeladden, Riksantikvaren.

In 1991, the overall responsibility for preservation of technical and industrial heritage was placed at Riksantikvaren. Beginning in that year, the directorate was allocated earmarked funds in the national budget for its con- and preservation efforts. A new committee was then empowered for the purposes of both learning about, and selecting, industrial sites fit for protection and preservation. The committee consisted of representatives from Riksantikvaren, the Norwegian Confederation of Trade Unions (LO), Confederation of Norwegian Enterprise (NHO), the former Association of Norwegian Museums for Art and Cultural History (today Museumsforbundet), the former Art Council (today the Directorate for Arts and Culture Norway) and the Norwegian Museum of Science and Technology.

This effort was the direct result of a political focus on preserving worker's environments in the wake of the rapidly emerging post-industrial society, and of the aforementioned integrated management capacities under the Ministry for Environment.

The committee's mandate was to select monuments and sites to serve as pilot projects for preservation planning, and to secure outside funding in complement with state grants facilitated via the national budget. The committee was also intended to advise, inspire and be a driving force behind Riksantikvarens work on technical and industrial cultural heritage. Six industrial sites were selected as pilot projects for preservation, all with preserved production lines, including machinery, infrastructure, and surrounding environments with social functions and housing.

PRESERVATION ACTS IN NORWAY (SIMPLIFIED)

1897 The Church Act

1905 Ancient Monuments Act (revised in 1951)

1920 Listed Buildings Act

1978 Cultural Heritage Act

Riksantikvaren, The Directorate for Cultural Heritage in Norway

Riksantikvaren was established in 1912. The directorate is responsible for the management of cultural heritage, cultural environments, and cultural landscapes of historic significance. The Directorate for Cultural Heritage is part of Norwegian environmental management. It is a subordinate agency under the Ministry of Climate and Environment. The directorate is involved in strategy development and are responsible for special areas of focus within the field of cultural heritage. The tasks also include guidance, skills development and working with key data on cultural heritage monuments and sites in public administration.

The Directorate for Cultural Heritage is accountable for the cultural heritage work that takes place in municipalities, county authorities, the Sámi Parliament, the Governor's Office on Svalbard, and the cultural heritage management at museums.

The directorate is the decision-making authority on the topic of protection of cultural heritage monuments and sites. It is likewise the administrative appeals body for decisions made by regional cultural heritage management, in so far as it pertains to the the field of cultural heritage. The Directorate for Cultural Heritage has the authority to make an objection in planning cases.

As a general rule, the county authorities are responsible for managing protected cultural heritage monuments and sites. This means that the county authorities are the correct authorities to provide exemptions from the Cultural Heritage Act and are responsible for safeguarding cultural heritage monuments and sites in relation to land-use planning. The Directorate for Cultural Heritage is administratively responsible for a variety of cultural heritage monuments and sites, including the medieval towns of Oslo, Tønsberg, Bergen and Trondheim.

Odda meltingplant Photo: Trond Isaksen, Riksantikvaren.

The experience gained by following up on the six pilot projects led to Riksantikvaren publishing a conservation plan for technical and industrial heritage in 1994, expanding on the work of the preceding committee and associated report from 1988. The new conservation plan emphasised 31 sites of national importance, conceived as a cross section of the many types of sites related to the early phases of industrial development in Norway. It included monuments and environments that demonstrate production, labour and living conditions of the period. The conservation plan concluded among other things that the preservation of large, complex technical and industrial sites requires a great many resources, that only a few such sites can realistically be prioritised, and that the biggest challenge to preservation will be securing funding and personnel for future operation and maintenance.

The conservation plan was a milestone in the long-term work towards protecting industrial heritage in Norway.

The selection of sites provided an important basis for further prioritisation and initiatives and set the course for the work of Riksantikvaren in the following years, even leading to the establishment of a National Conservation Programme in 2006.

THE STATE CULTURAL HISTORIC PROPERTIES (SKE-PROJECT)

The Norwegian state owns and manages a broad range of properties of cultural-historical value. As such, another project that has played an important role in the listing and protection of technical and industrial heritage is the State Cultural Historic Properties (Statens kulturhistoriske eiendommer, the SKE-project). The SKE-project started up in 2002 and was adopted by the Royal Decree of September 1st, 2006, which instructed all the central government agencies to draw up a national protection plan for properties of cultural-historical value, and a management plan for each of these properties. This entailed registering and documenting all the state properties managed by the various agencies and assessing their cultural-historical value.

The project resulted in two categories of protection: Buildings and facilities in Grade 1 are protected under the Cultural Heritage

Atlungstad Distillery Photo: Anke Loska, Riksantikvaren.

Act, while Grade 2 encompasses properties that the sector under which it falls are obligated to preserve in some other way. In being ineligible for formal protection, this is then typically achieved through the Planning – and Building Act. The responsibility for following-up on Grade 2 listed properties lies with the sector in question, or the state enterprise itself. The SKE-project was pioneering and generated a broad empirical foundation for heritage management and exemption practices. The project is an example of how delegation of responsibilities at a sectoral level contributes to the effectivity of ministerial work, the efficacy of their subordinate agencies, as well as an example of how enterprises can meet the environmental targets within their own areas of responsibility. Around 550 objects have been listed through the SKE-project. Today, some of the earliest national plans are undergoing revision and updating, while others still are still works in progress.

Below are examples of national protection plans that fall within the category of 'technical and industrial cultural heritage':

The Ministry of Transport:

- The Norwegian Coastal Administration, lighthouses, and maritime infrastructure.
- Norwegian State Railways, railways, and stations
- Avinor, airports/aviation infrastructure
- The Norwegian Public Roads Administration, roads, bridges, and other infrastructure

Ministry of Trade, Industry and Fisheries:

- Telenor/Norwegian Telecommunications, buildings and infrastructure for telegraphy, telecommunications, and broadcasting
- The Norwegian Mining Museum for The Directorate of Mining with the Commissioner of Mines at Svalbard, state owned mines.

Ministry of Local Government and Regional Development:

- The Norwegian Mapping Authority, topographic mapping, and surveying
- Ministry of Petroleum and Energy
- The Norwegian Water Resources and Energy Directorate (hydroelectric powerplants, damns, locks, and channels)
- Norwegian Petroleum Museum for the Norwegian Petroleum Directorate and the Norwegian Oil Industry Association, oil, and gas fields in Norway

NEW TARGETS FOR THE NATIONAL STRATEGY

In 2006, the Norwegian government published a white paper on the management of cultural heritage: "The government's environmental policy and the state of the environment in Norway" (St.meld. nr. 26 (2006–2007)). The white paper promulgated a set of actions on how the government would further develop its cultural heritage policy, connecting it with three general national targets set down by the government.

One of the programmes put forward was the initiation of 10 specific conservation programmes meant to raise awareness of certain sites as resources for continued active use: As repositories of knowledge, cultural-historical sites were to provide opportunities for the public to engage with and experience Norway's cultural heritage, while simultaneously allowing for economic activity on the sites. A different programme was dedicated to the preservation of technical and industrial cultural heritage: The conservation programme counted 10 facilities by 2007, with five more sites added in the period up to 2015. A total of 15 sites were defined as national priority sites for technical and industrial heritage. These sites altogether consist of over 500 objects, ranging from 8 to 70 objects on a given site. To put things in perspective, the site with "only" eight objects is melting plant (figure 2).

Today, 11 of the 15 sites are museums containing a functioning and operational machine park, e.g. Sjølingstad Wool Mill and Salhus Textile Mill – with the museum even producing wool products. Two sites are still fully operational; these are Bredalsholmen Shipyard and Conservation Centre for Historic Steel Ships, and Atlungstad Distillery, with its annual production of Aquavit.

> Technical and industrial cultural monuments and sites are traces of industrial culture that are of historical, technological, social, architectural or scientific value. Technical and industrial heritage includes buildings and production lines with machinery, transport and other infrastructure, as well as the social aspect of industrial history, with housing, religious buildings, schools, recreational areas and green facilities.

THE PRESERVATION PROGRAMME FOR TECHNICAL AND INDUSTRIAL CULTURAL HERITAGE

These sites require a high degree of maintenance due to the sheer complexity of the facilities, the size and number of objects and buildings, the infrastructure, and machine parks that the sites consist of. There is an almost constant demand for increasingly complex and expensive repair-work, and the consequences of climate change only exacerbate this need for repairs and mainte-

Atlungstad Distillery
Photo: Jonas Jerimiassen Tomter

Bredalsholmen Shipyard
Photo: Gustafsson, Riksantikvaren

Fetsund Timber Booms
Photo: Fetsund Lenser

Folldal Copper Mine
Photo: Tommy Kristoffersen, Stiftelsen Folldal Gruver

Halden Canal and Lock
Photo: Haldenvassdragets Kanalselskap AS

Kistefos Wood Pulp Mill
Photo: Kistefos Museet

Klevos Wood Pulp & Paper Mill
Photo: Bård Løke

Neptun Herring oil Factory
Photo: Norsk Fiskeindustrimuseum

Næs Ironworks
Photo: Braathen, Næs jernverksmuseum

Odda Melting Plant
Photo: Trond Isaksen, Riksantikvaren

Rjukan Railway Line
Photo: Hilde Widey, NIA

Salhus Textile Mill/Knitwear Factory
Photo: Helge Sunde

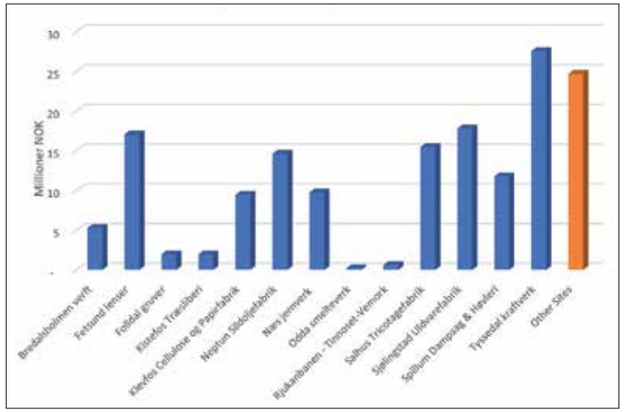
Sjølingstad Woll Mill
Photo: Bård Løken

Spillum Sawmill
Photo: Trond Isaksen, Riksantikvaren

Tyssedal Hydroelectric Power Station
Photo: Harald Hognerud, NVIM

Sjølingstad Wool Mill Photo: Trond Isaksen, Riksantikvaren.

Grants from post 72 over a period from 1991-2005.



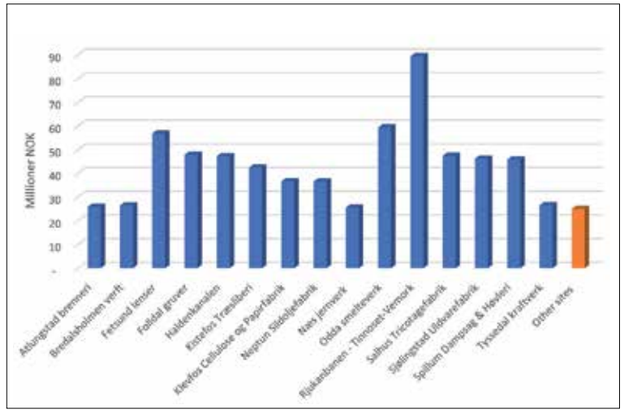
nance. By 2020, 11 of the 15 sites are regarded as fully restored, requiring only regular maintenance. Annual state grants have been the most important contributor to reaching the programme ambitions, and this includes grants for both operation and maintenance, as well as retaining cadres of traditional craftsmen on the various sites.

All 10 conservation programmes have been linked to the overarching national targets set by the government, prioritising efforts towards systematically improving the state of repair of cultural heritage objects across the many different categories. Advancement of the sector, and dissemination of knowledge regarding the sector, has likewise been of high importance. In a general sense, the priorities and results of these various conservation programmes laid the foundation for the management of Norway's cultural environment in the past 15 years.

GRANT SCHEMES / *POST 72 TECHNICAL AND INDUSTRIAL CULTURAL HERITAGE*

The heritage programmes are funded through earmarked grant schemes on the annual national budget, with funding in the range of 300 million NOK having been invested into these 10 programmes since 2006. The grant scheme, *"Post 72 Technical and Industrial Cultural Heritage"*, has existed since 1991 and has mostly been used for securing and preserving selected sites, such as six of the aforementioned pilot projects. It has been the most important element in executing the conservation programmes of the 15 selected industrial sites since 2006. Although Norway yet still lacks a dedicated act and an accompanying national strategy for protecting and preserving movable cultural heritage, grants have nonetheless been approved for preservation efforts pertaining to movable cultural heritage such as trains, airplanes, electric trams, and cars, as well to facilities outside the purview of the conservation programme.

Over a period of 14 years (1991-2005) Riksantikvaren has approved grants for nearly 160 million NOK, spread across 30 sites and monuments outside the conservation programme. By 2006 the picture began changing, and the grants were mainly directed



Grants post 72, 2006-2021 (Period for The Conservation program).

to the aforementioned 15 sites selected under the programme. In the period 2006 to 2020, nearly 660 million NOK were invested into restoring and maintaining these sites.

The annual budget for the technical and industrial heritage grant scheme was 58.45 million NOK in the period 2015 - 2020. A quarter of the annual national budget were allocated for the operation and maintenance of the 15 sites; 16% of this allocation went towards wages and permanent employment of skilled craftsmen specific to the various sites; 10% went to operation and maintenance itself; 49% to site-specific rehabilitation projects, and 25% was provided to other industrial sites and monuments.

The inclusion of funding for wages to ensure permanent employment for skilled craftsmen on-site, is a significant difference from earlier practice with regards to grants earmarked for conservation of industrial heritage sites. This inclusion is a direct response to the problem of future operation of the facilities as concluded by the 1994 Conservation Plan.

The grants connected to the preservation programme have therefore aimed at securing adequate operation, maintenance, and competence on each site by means of hiring relevantly skilled professionals. The intent is to improve – or at least maintain – a general state of repair, thus requiring only ordinary maintenance of the sites. Through the grants, the 15 sites have been able to accrue knowledge and expertise in the preservation and restoration of technical and industrial cultural heritage applicable across the sector, in addition to securing competent personnel ensuring that machinery and other technical installations remain operational.

MONITORING

A condition survey based on acknowledged standards was established to monitor the development of the 15 sites, regardless of whether these were currently meeting the given national targets. Annual reports on condition rating turned out to be rather difficult, both because of the complexity and the diversity of the technical and industrial sites. As of today, we are still at work developing a reasonable method for conducting these surveys.

PROTECTION OF THE 15 SELECTED SITES IN THE CONSERVATION PROGRAMME

In 2018, Riksantikvaren initiated the protection process for those of the 15 selected sites which were yet to be protected. By 2023, 10 of the sites enjoyed formal protection under the Cultural Heritage Act, and the process is ongoing for the remaining sites. In being protected under the Cultural Heritage Act, the sites all contribute to the overall fulfilment of Riksantikvaren's strategy for listed monuments and sites.

Site	Protected under the Cultural Heritage Act
Atlungstad Distillery	Protected (2019)
Bredalsholmen Shipyard	Protection process ongoing
Fetsund Timber Booms	Protected (1989)
Folldal Copper Mine	Protection process ongoing
Halden Canal and Locks	Protection process ongoing
Klevfos Wood Pulp & Paper Mill	Protection process on hold
Kistefos Wood Pulp Mill	Protection process ongoing
Neptun Herring oil factory	Protected (2019)
Næs Ironworks	Protected (1967)
Odda Melting Plant	Protected (2011)
Rjukan Railway Line	Protected (2014)
Salhus Textile Mill/ Knitwear Factory	Protected (2020)
Sjølingstad Wool Mill	Protected (2019)
Spillum Sawmill	Protected (2021)
Tyssedal hydroelectric power station	Protected (2000)

PROTECTION OF TECHNICAL AND INDUSTRIAL SITES UNDER THE CULTURAL HERITAGE ACT

The very first industrial monument to be protected under the Cultural Heritage Act – although an earlier articulation of the current Act - was a melting furnace from one of the earliest copperworks in Norway (Kvikne Copper Work). It was listed and protected in 1959, however this specific object represents a much simpler conceptualisation of what 'industrial cultural heritage' entails today.

Some cultural monuments – which today are understood as technical and industrial cultural monuments specifically – were already designated as protected as early as the 1920s, such as significant mining industry sites in Næs and Røros.

Over the years, a number of industrial sites that were singled out in the Conservation Plan from 1994 were protected under the Cultural Heritage Act; examples of these are Hagavik Barrel Factory (1996); Sellevåg Wooden Shoe Factory (2012); and Mellemværftet (Mellemværftet Shipyard, 2018).

In addition to the protected sites delineated in the Conservation Programme, the sites and monuments in the SKE-project, and other protected technical and industrial sites, Norway also has three World Heritage sites that fall under the category of technical and industrial cultural heritage. These are the Struve Geodetic Arc, Røros Mining Town and Circumference, and Rjukan-Notodden Industrial Heritage.

PROTECTION BY DOCUMENTATION

Within the SKE-project, it was agreed upon that the public sector were responsible for preserving the listed sites through documentation, both due to the complexity of the sites, disproportionate costs required, and/or other socio-economic concerns. This applies to the petroleum sector, the aviation sector and energy sector.

With regards to this type of protection, Riksantikvaren has initiated documentation projects for Engene dynamite factory in Hurum, and Hiorthhamn cable car station in Longyearbyen, Svalbard. Engene dynamite factory was one of the first of its kind and, to our knowledge, the world's best-preserved factory for production of dynamite by Alfred Nobel's patent. Due to production residue of nitro-glycerine in the oldest part of the factory, the factory a safety risk which could not be eliminated by any other means than demolition and full sanitation. The cable station in Hiorthhamn is threatened by rapidly coastal erosion; in fact, the growing effects of climate changes pose a direct threat to the preservation of a multitude of cultural heritage monuments, sites, and environments. Riksantikvaren's own Climate Strategy underlines the need for documentation of cultural heritage at risk of being lost due to the consequences of climate change.

Another complex digital documentation project in Norway in the last few years has been the documentation of the SVEA mine in Svalbard. As part of the governmental decree to close the mining facility, and in accordance with the Svalbard Environmental Protection Act, the Svalbard-based Norwegian coal mining company, Store Norske Spitsbergen Kullkompani (SNSK), was to remove all surface installations, all industrial waste, and get rid of all structures that are not under protection. The area was, to the extent that it was possible, to be restored to its original state as arctic wilderness.

The white paper issued by the Norwegian government (St Meld 16, 2019 – 2020) states that digital documentation can provide a wide range of new opportunities within research, management and dissemination of information regarding cultural heritage. The paper claims that documentation can provide new knowledge, understanding and experiences. However – crucially – the paper also states that documentation will never be able to replace the physical cultural monuments, sites, and environments as sources of knowledge, enjoyment, and common use. All forms of documentation are by definition a secondary source: No matter how accurate and comprehensive a piece of documentation is, the original object will always be the primary source.

3d model of the cable station in Hiorthhamn, Svalbard. Riksantikvaren

In cases where cultural monuments, sites and environments cannot be preserved or made accessible, digital documentation, such as virtual presentations, will serve to strengthen the interpretation efforts, and increase the accessibility of the data for researchers and the public at large. The documentation of Engene, Hiorthhamn and SVEA are examples of this.

VOLUNTEERING AND ALTERNATIVE CONSERVATION STRATEGIES

In the future, protecting sites under the Cultural Heritage Act may not be the ultimate goal. Norway already has a great number of technical and industrial heritage sites that are not formally protected; pursuant to the Cultural Heritage Act, the Planning and Building Act, or a binding agreement. These sites are often maintained by a group of local volunteers who preserve and maintain the factory, machinery/objects, and especially vessels in their free time.

The community and regional authorities are considered important partners in facilitating public awareness and acknowledgement of the value potential of industrial heritage sites, e.g., regional, or local identities, new jobs, demand for skilled craftsmanship, or as both domestic and foreign tourist destinations. In recent times, a lot of facilities offer leisure activities in authentic industrial environments (e.g. the sawmill in Indre Ofredal, Vestland), or has opened to the public as rentable culture venues (e.g. the former heating plant in Longyearbyen, now called FOSSIL). Some counties have banded together to create so-called "Powerplant-tourism" – conceptually similar to the existing Stave Church tourist route.

What these projects all have in common is a concerted effort to re-establish themselves as attractions in their respective regions, ones that are worth a visit, rather than being examples of abandonment and decay. Recognising preservation possibilities beyond listing is an area that Riksantikvaren will want to develop further, especially with regards to delineating a preservation strategy for technical and industrial heritage.

A SHIFT IN THE NATIONAL POLICY

In 2020, the Government published a new white paper "Meld. St. 16 (2019–2020) New goals for Norway's cultural environment policy. Involvement, sustainability, and diversity". As the title indicates, the paper sets in motion new national goals for Norway's cultural environment policy, replacing the existing set of ambitions. The paper underlines the importance and necessity of managing the cultural environment in tandem with – and integrated into – the broader Norwegian approach on climate change and its consequent environmental impact.

"This connection has also come to the fore through the impact of the changing climate on the cultural environment. At the same time, the preservation of cultural environments can help reduce greenhouse gas emissions and contribute to the circular economy. The paper argues that there is a need for new goals that indicate more clearly what Norway wants to achieve with its cultural environment policy and how the cultural environment contributes to promoting positive, sustainable social development. In addition, there is a need to render visible Norway's ambitions and responsibilities in light of international treaties and conventions."

– (Meld. St. 16 (2019–2020) New goals for Norway's cultural environment policy. Involvement, sustainability and diversity, page 8)

FROM CONSERVATION PROGRAMME TO PRESERVATION STRATEGIES

The replacement of the previous overarching ambitions with regards to cultural heritage also necessarily entails a transition from former conservation programmes to new preservation strategies.

"Experience indicates that the conservation programme has been an effective way to organize the conservation work. The conservation programme, the protection strategy and the work on cultural heritage in the municipalities have all been closely linked to the existing national targets, where priority was given to minimizing losses, improving the state of repair, and increasing representativeness. This type of basic safeguarding of cultural historical assets will continue to be an important priority in the management of the cultural environment. The new national goals, which are much broader and attach greater weight to the importance of the cultural environment for society, will require a change in the focus of the preservation work. While the conservation programme was primarily linked to financial incentives, there is now a need to take a broader approach to preservation and development, ensuring they elicit support, involvement and dissemination and are firmly anchored in various pieces of legislation. For example, there is a need to assess using a wider range of instruments, not only financial incentives, and to increase collaboration with different sectors. In order to preserve a diversity of cultural environments, the government will therefore develop preservation strategies for priority topics where all use of policy instruments must be harmonised and coordinated."

- (Meld. St. 16 (2019–2020) New goals for Norway's cultural environment policy. Involvement, sustainability and diversity, page 78)

STATUS 2023

Riksantikvaren has begun the work on identifying relevant areas of interest and developing the proposed preservation strategies. Nonetheless, as is stated in the white paper, it will require time until the strategies are ready for execution. The white paper also remarks on the considerable amount of work already underway within the existing conservation programme. Gradually phasing out of the existing programme will be necessary to ensure the effective establishment of the new – naturally, this also means arriving at a sustainable solution for phasing out the conservation programme specific to technical and industrial heritage.

As part of this overall change, it will be assessed whether retaining some of the current conservation programme as ordinary grant schemes is tenable. In June 2023, Riksantikvaren delivered a proposal for areas of interest for the new strategies, with a suggestion for a pilot-strategy: "Coastal Cultural Environment"; a broad topic most certainly of relevance to large segments of the technical and industrial cultural heritage in Norway. The existing conservation programme include mostly sites within wood processing industries.

Bredalsholmen Shipyard and Neptun Herring oil factory are examples of facilities that represent the Norwegian coast's cultural environment. The conservation strategy for the coast's cultural environments will include monuments linked to fisheries, catching, aquaculture and processing, shipping and transport, boatbuilding, coastal agriculture, defence, recreation, and tourism. In short, cultural environments of all sorts with links to coastal industries and the coast itself.

The proposal also suggests a new strategy for cultural environments linked to the industrial development: Transport, small industry, trade, power development and the oil industry, but also old roads, mining, quarries, and remnants of resource exploitation dating back to prehistoric times.

Looking forward, a general challenge in formulating the new strategies will be the increasing and wide-reaching impact of climate change on our cultural heritage. Measures adopted for reducing greenhouse gas emissions, and adaption of the cultural heritage to the changing climate, will be vital in the years to come, and is likely to be focus area of high priority in the continual efforts towards preserving the technical and industrial heritage in Norway.

Litterature

About The Directorate for Cultural Heritage - Riksantikvaren; www.ra.no/en

Gunhild Gursli-Berg og Edvard Thorup (red.), 2008, Industrispor, Fra Melbu til Lindesnes

Kjetil Gjølme Andersen & Olav Hamran (2014), Teknikk på museum, Norsk Teknisk Museum 1914-2014

Norsk Industriarbeidermuseum (2018) Rjukan Notodden industriarv -

Preservation plan for technical and industrial heritage of national significance (1994)

Riksantikvaren (2017), Riksantikvaren bevaringsprogram for tekniske og industrielle kulturminner

Tom Nilsen (2019) Når Fortida blir framtida, Arbeiderbevegelsen i de tekniske og industrielle kulturminnene

White Papers from the Ministry of Climate and Environment

Report No. 16 to the Storting (2004-2005) Living with our Cultural Heritage

The government's environmental policy and the state of the environment in Norway (St.meld. nr. 26 (2006–2007)

Meld. St. 35 (2012–2013) Framtid med fotfeste

Meld. St. 16 (2019–2020) New goals for Norway's cultural environment policy. Involvement, sustainability and diversity

Industrial heritage in Sweden

– preservation and protection

EVA DAHLSTRÖM RITTSÉL

This article starts with a short background describing how industrial heritage in Sweden has been handled by authorities, museums, and in academia. I present the number of listed and protected industrial sites and how protection of industrial heritage has changed through the years, finishing up with a few reflections on the situation today.

INDUSTRIAL HERITAGE IN SWEDEN

Protection of industrial heritage in Sweden goes back to the turn of the century 1900, when buildings and machinery from the iron and mining industries came to be considered as historical monuments and subsequently preserved, often by the iron and steel manufacturing companies themselves.[1)]

The blast-furnace "Storbrohyttan" near Filipstads west of Stockholm., built around 1850 and listed 1968. Photo from the air by Jan Norman, Riksantikvariämbetet, 1989 CC BY, photo from the ground by Beckstet, 2009, Wikimedia Commons, CC BY.

In the Gothenburg Exhibition, 1923, a part of the exhibition was relegated to industrial history and in preparation for this exhibit, field documentations of industrial sites were performed.[2)] At the same time – and in part by the same persons – the Museum of science and technology in Stockholm began to single out buildings and object of technological and industrial historical interest. This did not confer any legal protection, but it did result in impressive plaques stating the historical value of the given building or structure.

In the 1960s, the interest in industrial archaeology and industrial heritage grew in a number of countries. In Sweden, the interest started in the late 1960s, inspired partly by industrial archaeology practices in Great Britain, and partly from the earlier period of interest in Swedish industrial heritage.[3)] The perspective was one centred on 'artefacts' – foremost the buildings, but also the machinery. A network was established, *Industriminnesgruppen*, with representatives from academia, industry, museums, and heritage authorities.[4)]

During the 1970s and 1980s, inventories of industrial buildings were taken in certain regions and municipalities.[5)] They often had a focus on buildings, with less attention paid to machinery, equipment and production.

Another focus within the wider scope of industrial heritage was labour history, and this interest prompted investigation efforts by a widespread movement of amateur local historians with the name *Dig where you stand* (Gräv där du står).[6)] In part due to this movement, a lot of working-life museums (arbetslivsmuseer) emerged in former industrial sites and factories.

As industrial settlements were now being recognised as historically valuable, questions arose on how factories themselves could and should be preserved, leading to discussions and research which generated examples of how factories, in a general sense, could be rebuilt and re-used for new purposes.[7)]

During the 1990s, going into the 21st century, there was a great deal of activity amongst various authorities, museums and organisations – networks, conferences, statements, investigations, and in 1992 a 'Chair of Industrial Heritage' was established in the department for History of Science and Technology at the Royal Institute of Technology, KTH.[8)] That same year, a network - *Industrihistoriskt forum* - was founded with the stated goal to rescue and safeguard the industrial heritage.[9)] Furthermore, education in industrial heritage on different levels had become available, with industrial antiquarians now being occasionally employed by museums and the authorities in order to inquire into industrial heritage itself in new, profound ways.

In 1997, The National Heritage board received a government assignment to present a program for documentation, maintenance and long-term sustainable management of the ten most important industrial monuments in Sweden.[10)] The assignment

PRESERVATION ACTS IN SWEDEN (SIMPLIFIED)

1666 and 1828 Ancient monuments
Decree on Old Monuments and Antiquities, protections of specific buildings are included. 1828 the protection of selected ancient monuments is confirmed, an Antiquities Act is passed in 1942.

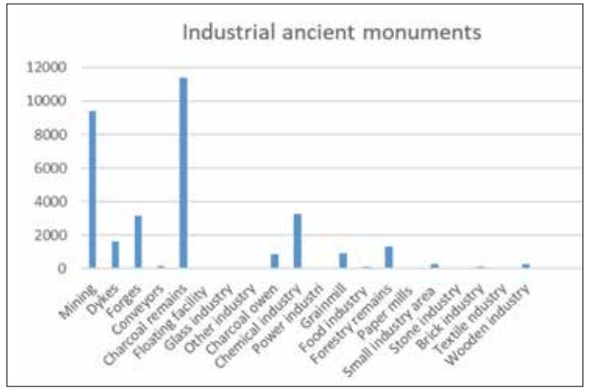
1867 Churches
Additional protections on ancient remains and churches.

1920 Listing of public and private buildings
The Act on the protection of buildings of cultural and historical significance is revised in 1943 and again in 1960.

1931 Planning act
Buildings can be protected by planning measures.

1987 Planning and Building Act updated 2010 (2010:900)
States that protection can be regulated in the course of detail planning.

1988 Cultural Heritage Act (1988:950)
The act covers ancient remains and monuments, architectural heritage, and churches.



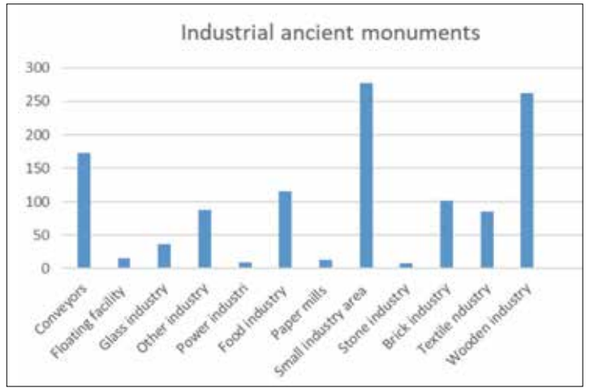


Figure 1-2. Industrial ancient monuments in Sweden are dominated by remains from mining and ironworks such as charcoal remains, forges and dams and dykes. Figure 2 shows the number of remains from other branches. (The National Heritage Board's database for archaeological sites and monuments, Fornsök, Fornsök (raa.se) (Data collected 2022-03-16))

resulted in the presentation of a program encompassing twelve such monuments, detailing their dimension and characteristics, across different industrial environments, and with respectively different ways to handle their long-term management. The objective was to demonstrate various approaches to industrial heritage. In a way that created conditions fostering collective participation, which was regarded as a fundamental requirement for the documentation, the maintenance, and rendering the management sustainable.[11] As a result, financial support for working life museums was implemented in order to support the efforts by civil society in taking care of - and informing about – the industrial heritage of Sweden. In 1999, the government appointed an official inquiry, *the delegation for the cultural heritage of industrial society* (Delegation för industrisamhällets kulturarv).[12] Several proposals were presented by the delegation, but only a minority of these were ever implemented.

During the first decade of the 21st century, the emphasis and focus on industrial heritage issues in the form of assignments and dedicated projects declined. At the same time, however, industrial heritage achieved a level of acceptance and found itself part of pre-existing, 'ordinary' heritage, and it was not regarded as requiring the kind of special attention it had enjoyed previously. The goal was to normalise industrial heritage as part of mainstream conservation efforts – to make it part of the ordinary work on cultural heritage.[13]

By the same time, a focus on participation, inclusion and diversity in cultural heritage work became increasingly articulated. For instance, these aspects are stressed in the national heritage objectives from 2013.[14] This also supported a general interest in industrial heritage; as manifested by the establishment of grants aimed for working life museums.

Furthermore, in the early years of the 21st century, a focus on industrial sites as a part in regional development gained prominence in the discourse. In Bergslagen, the mining and steel production region in the central part of Sweden, a project called *The Bergslag Initiative* (Bergslagssatsningen), funded by the National Heritage Board, was undertaken in collaboration between academic researchers, regional museums, authorities, and local actors. The project focused on industrial heritage, culture, and tourism in order to develop the former industrial region.[15] A similar project – *The Mining Assignment* (Gruvuppdraget) – was a governmental assignment aiming at developing a coherent strategy for how the cultural environment could be a resource for mining communities in Bergslagen.[16] In the last decade, industrial sites and their historical value have also been dealt with in connection with EU Water legislation.[17]

To summarize, we saw how the interest for industrial heritage gradually increased, peaked by the turn of the millennium, and then faded out as a separately emphasised subject as it became subsumed under the ordinary conservation process within the cultural heritage administration. The result is that today, several industrial sites are designated and protected as cultural heritage. The following segment will describe the different possibilities of legal protection of historical heritage in Sweden in general, and more specifically how – and to what extent – industrial heritage is preserved and protected in Sweden today.

PRESERVATION, PROTECTION, DESIGNATION

There is a range of concepts regarding preserving and protection of industrial and cultural sites, but it is crucial to consider how formal, legal protection is but one part, indeed quite a small part, of preserving industrial and other forms of cultural heritage.

Buildings and sites can be *preserved* so that the physical structure is maintained. There are both practical and administrative ways to keep a structure intact. Sometimes *restauration* and *conservation* are necessary for the preservation.

Classification and designation – on a map or on a list, notes environments that are considered to have historical value. It is a supporting document; a knowledge base for future decision-making, e.g. regarding a legal protection.

Legal protection or listing of objects – the different legal acts and regulations articulate exactly what, which parts of it, and specifically how a historically valuable structure must be protected. The protection can be governed by different laws and legislations with slightly different purposes.

CULTURAL HERITAGE LEGISLATION IN SWEDEN

The main laws regarding protection of cultural heritage are the Historic Environment Act, the Plan- and Building Act and the Environmental Code.

The Historic Environment Act

The parts of this act that are relevant to the discussion at hand are found in chapter 2: Ancient remains/monuments, and chapter 3: Listed buildings.[18] Decisions considering these chapters are made by the 21 county administrative boards in Sweden.

Ancient monuments

Remains of human activity in ancient time can be considered as an ancient monument if the remains have been permanently abandoned and were established before the year 1850.[19] These could be ruins, funerary structures, standing stones, inscriptions, remains of settlements and of working life and occupations, routes and bridges, harbours and remains of ships and others, but not standing buildings. The act protects every monument that is recognised. The act permits that ancient monuments may be altered and even removed following an excavation if this is assessed as possible by the relevant authorities.

There are more than 35000 objects registered as ancient monuments connected to industry.[20] Among the protected monuments pertaining to industry are mines, ruins or remains of ironworks, sawmills, grain mills, slag heaps, charring remains, log-driving, et cetera.

Listed buildings

A building or a built structure that is of particularly high cultural and historical value may be declared a listed building.[21] Alongside every listed building or environment there are regulations which determine exactly how the parts of the structure protected by law are to be managed. These differ depending on the object and the assessed cultural values in question. Concerning ancient remains, the county administrative board may grant a permit for a listed building to be altered in violation of the protective regulations.

There are 30 listed industrial facilities, and 176 facilities registered under crafts and manufacturing.[22] Among the latter there are several industrial facilities. In both cases, such listings often consist of several buildings, and in fact there are also industrial buildings listed among other types of facilities. This explains why there are 388 listed industrial buildings and structures, but only 29 listed facilities. Other structures than buildings may be listed as well: A harbour crane in Luleå, and another in Karlskrona, are protected according to the Historic Environment Act. In total, there are 2266 facilities protected by the Historic Environment Act.

Anybody may propose that a building or a site should be listed to the county administrative board. Regarding industrial sites, more than a quarter of the proposals come from civil society, e.g. different kinds of historical associations, and one fifth of proposals originate in the county administrative board itself. Private persons and municipalities are each responsible for about 10 per cent of proposals, while companies, museums and the national heritage board are responsible for the remaining few proposals.[23] The fact that the largest group of proposers are different kinds of associations, such as working-life museums, is in line with the political aspiration to encourage collective participation in the heritage effort.

The law can only protect 'fixed fittings', namely items that are fixed in place for permanent use. Machinery screwed to the floor can thus by protected. Even though they are important for understanding the industrial site and its historical significance, there is no legal protection for neither tools nor archives.

The number of decisions on protection distinctly follows the above-described increasing interest for industrial heritage during the last decades of the 20th century. It is evident how the listing of industrial sites slowly increased in the 1970s and 1980s, peaked in the 1990s, and subsequently took a downturn.

The decrease in the number of listed industrial buildings can be attributed partly to the diminished focus on industrial heritage from the early years of the 20th century, and partly to a negative trend in protecting buildings by the Historical Environment Act in general. As a matter of fact, the percentage of listed industrial facilities has increased the last ten years, when considering the totality of new listed buildings.

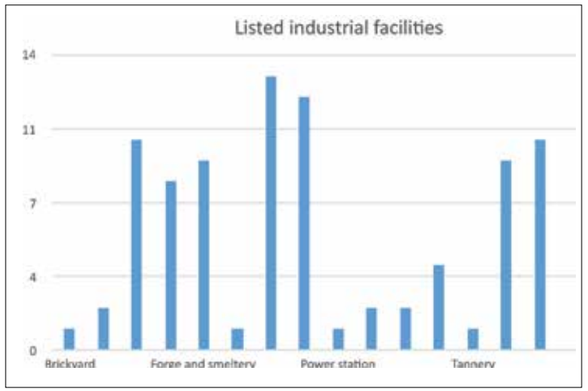


Figure 3. Number of listed facilities who often consists of several buildings. (Data Base of Built Heritage, National Heritage Board, Bebyggelseregistret (BeBR) - Riksantikvarieämbetet (raa.se) (Data collected 2023-07-25 – 203-07-27)

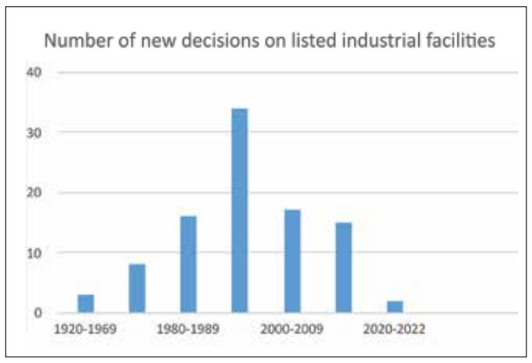


Figure 4. Number of new decisions on listed industrial buildings: Note the firs column shows the years 1920-1969. (Data Base of Built Heritage, National Heritage Board, Bebyggelseregistret (BeBR) - Riksantikvarieämbetet (raa.se) (Data collected 2023-07-25 – 203-07-27)

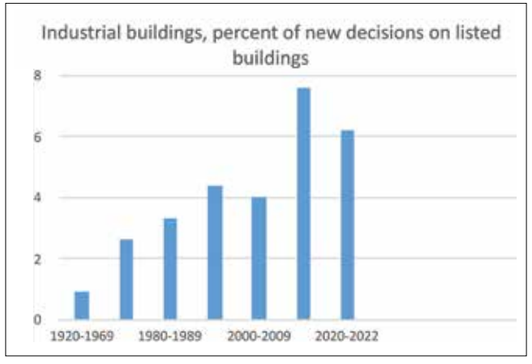


Figure 5. Industrial buildings, percent of new decisions on listed buildings (Data Base of Built Heritage, National Heritage Board, Bebyggelseregistret (BeBR) – Riksantikvarieämbetet (raa.se) (Data collected 2023-07-25 – 203-07-27)

Figure 3 shows what kind of industrial facilities that are listed, but do not consider each individual building within a given facility. The kind of industrial buildings, or objects, protected by the Historic Environment Act, and the nature of how this has changed over the years, has not been possible to answer within the scope of this article. In seeking those answers, it would be of great utility to scrutinise the protective regulations – have they changed? What exactly is protected, and furthermore, what has been the purpose of protecting these environments?

There is a specific legislation concerning state owned estates.[24] The regulations in question are quite similar to what has already been presented, with the central difference that it is the government, which holds the mandate in making the decision to protect a site under ownership of the state as a historic building. This will generally occur following a proposal put forward by the National Heritage Board. There is only one industrial site protected under this regulation, namely Trollhättan lock and canal area. Earlier in time, several railway stations were listed with this legislation, but as these properties are no longer owned by the state, they are now instead protected by the Historic Environment Act.

The Plan- and Building Act

The Plan- and Building Act encompasses all aspects of planning and building regulations; from the overall extensive plans, through to detailed plans, and down to specific building permits.[25] There are several articles in the act dealing with 'cultural value'. According to the act, all built environments should be managed with precaution.[26] Furthermore, the city's and landscape's presentation – its image – and cultural values of the site must be considered. In other words, the Plan- and Building Act protects ordinary buildings and landscapes, conforming to the European Landscape Convention. There is also a general prohibition against distortion of a building that is designated to be of particular value from a historical, cultural, environmental, or artistic point of view.[27]

According to the Plan- and Building Act, culturally valuable buildings and structures can be protected on the level of a detailed plan, and there may be included a prohibition against demolition. These can be compared with the protective regulations set by the Historical Environment Act, but are in most cases, but not always, less extensive as a rule.

There is no data concerning how many, and which types of, industrial buildings and structures under protection by the Plan- and Building Act.

The iron ore mine Stripa (Stripa mine) Lindesbergs kommun. Photo: Bengt A. Lundberg, 2008, Riksantikvarieämbetet CC BY.

Environmental Code

The purpose of the Environmental Code is to promote sustainable development. The term 'Environment' should be understood in a broad sense, including both natural and cultural environments. According to the legislation, so-called areas of national interests can be designated.[28] The objective of designating such interests is to prioritize and preserve such places, protecting them from ongoing and future activities that may be detrimental to the space in question. This is not a protection in the same sense as the one offered by the acts previously mentioned; here the focus is instead on the landscape, and the objects and structures which can inform on Swedish history. These designated structures are to be considered in a planning or building process, so that one may still experience and understand the value they possess. As long as that is done, there can be alterations and additions made to these areas of national interest. There are twelve different kinds of national interests of different subjects – including among others defence, communication, industry, natural value, and cultural heritage. Among them, about 1500 concerns cultural heritage values and more than 20 % of these 1500 are interests with industrial heritage objects.[29]

An early exemple of a listed building is Kungliga myntet (The Royal mint) in parts including buildings from Owens mechanical engineering workshop, listed 1935. Photo I99pema, 2014, Wikimedia Commons, CC BY.

The Environmental Code stipulates regulations concerning cultural heritage reserves, whose legal articulation is based on the one for natural reserves, and there are specific protective provisions that regulate how these reserves should be used and maintained. Today, there are six industrial environments out of 36 national cultural heritage reserves.[30)]

World Heritage sites

There are approximately 15 World Heritage sites in Sweden, and three of them are connected to history of technology and industry – Falu coppermine with surroundings, Engelsbergs ironwork and Grimeton radio station.[31)] A fourth, the naval city of Karlskrona, include industrial objects such as a rope-warehouse and a shipyard. There is no special legislation in Sweden connected to its World Heritage sites, as current Swedish laws confer protection to these as well.

Industrial heritage today

How does it work, then? Do we succeed in protecting and preserving the industrial heritage in Sweden? As remarked in the beginning of this article, it is important to remember that formal protection or listing is only a small part of the way industrial sites are preserved. There are property-owners, non-profit organisations, companies, and other participants who take care of the industrial heritage without regulations tailored to their specific effort.[32)] As an example, there are 1500 local working-life museums across Sweden, preserving and exhibiting our industrial history with great effort. Their work is mainly performed on a non-profit basis, although these museums are eligible for grants from The National Heritage board, as mentioned above. These grants have been expanded in recent years, and this can be understood as a consequence of industrial heritage issues successfully merging with the political push for broader participation in heritage work.

It is easy to recognise how the interest in, and the emphasis on, industrial heritage by authorities and others is less intense today than it was 25 years ago. There are only a few industrial antiquarians employed in museums, or existing generally among antiquarian consultants today – but they are nonetheless still there. On the other hand, we might say that the battle is won: Industrial heritage is recognised today as general cultural heritage, and no one argues about that. A questionnaire to the 21 county administrative boards performed in 2012 concluded that industrial heritage is seamlessly regarded as a part of Sweden's cultural heritage. Even so, there are still problems concerning the management of especially large industrial sites, where a lack of both personnel and economic resources is evident.[33)]

In the last decades, there has been an ambition to render simpler and quicker the construction of new buildings, especially residential buildings. Cultural heritage on the whole, and protection in particular, has been characterised as an obstacle to this kind of development.[34)] Conversely, areas and entities of cultural heritage was emphasised as important parts in comprehensive legislation regarding the design of living environments (Politik för gestaltad livsmiljö), put forward by the government in 2018.[35)] The policies in question focuses on how architecture and design can contribute to a sustainable and equitable society, and maintaining the cultural heritage is regarded as part of the way in which to fulfil these political goals. Industrial heritage is not specifically highlighted in these policies, but then again neither are any other aspect of the cultural heritage.

As we have seen, there are acts and regulations in place to protect and preserve industrial heritage, but it isn't always easy to preserve and maintain, even if it is a listed site. The means to protect larger and more modern environments was discussed around the turn of the millennium. A few such 'larger' industrial plants were listed according to the Heritage Environment Act. One of these is Stripa mine, situated in Lindesberg, a small municipality in Bergslagen. It was listed in 2006. It is only rarely used today, and even though it has been restored with grants from the state, the plans to establish a museum here has not yet been carried out.

Another example is the steam power plant in Västerås, which was listed in 1999, but is today heavily altered in numerous ways, and rebuilt to house an action pool with water slides, while other parts of the power plant are preserved as a museum. The pro-

The steam power plant in Västerås (Ångkraftverket Västerås), Photo Dependability, 2017, Wikimedia commons, CC BY.

Gasverksområdet, Stockholm (Photo Lennart Johandsson, Statdsbyggnadskontoret, Stockholms stad, 2019, Flickr, CC BY)

perty owners find it difficult to profit from the businesses on site and have thus proposed to build high residential buildings next to the power plant.

These examples serve to illustrate the complexities involved in preserving and (re-)using large industrial plants, even if they are listed. It is a serious challenge to both preserve the cultural values, and not undermine the economic feasibility of on-site businesses.

A third example is the transformation of Stockholm Gasworks.[36] It is not a listed facility, but the planning process for this area is in many ways a good example of an instance where antiquarians have been involved early in the process, with consequent strong regulation in the detailed plan for the property.[37] That said, in order to be financially feasible – profitable – one of the five gasometers was permitted to be demolished and is to be replaced by a high-rise residential complex. This was allowed despite the fact that the gasometers, dating to various points in times, were considered to be of very high cultural and industrial heritage value, even in an international perspective.

These examples also show the difference between industry in the cities, and in small municipalities, or in the countryside. In the big cities there is a strong demand for old industrial areas to be developed, mainly into residential areas. Even if all parties were to agree that the industrial heritage is important, and even fit for use in a branding strategy for the new residential area, there is often intense discussions about what parts of it, to what extent, and in what way the industrial remains – building, structures and sometimes machinery – should be protected and developed.

Even if there is a wish to develop an area into something special and unique, there is a general view or a focus on how industrial areas ought to be transformed; it is one in which an area's pre-existing "industrial character" should act as more of a role model, a type of aesthetic inspiration, for how the site should be developed, rather than its character being the motor for communicating the story of an authentic, specific place.[38]

In smaller communities, the question is quite the opposite – there is no use for the industrial sites since the demand of land is small in parts of Sweden with decreasing population. Here the industrial sites might be seen as an opportunity to develop the area, and to draw inhabitants or visitors to the location. Fengersfors bruk is a good example of "adaptive reuse" – a term used for transformation often in connection to discussions about sustainability – where artists and craftsmen have set up their studios. There are also research and exhibition spaces, enterprises, and different kind of events for visitors to the factory.[39] This is an example of how industrial heritage sites are used for regional development, to make a place attractive for habitants, visitors and companies. In other locations, on the other hand, there are industrial sites left utterly without the resources required to maintain them.

My examples are intended to demonstrate that there is both positive and negative trends concerning preservation of the industrial heritage in Sweden. I think we should be aware that industrial heritage requires certain considerations in order to understand, valuate and handle it, which in turn often presupposes specific insight into and knowledge about industrial and technological history.

In recent years, another strong motive to preserve industrial buildings is sustainability. This can be a perfectly reasonable cause to preserve industrial buildings, but questions nonetheless remain on how to realistically accomplish it, on which aspects of industrial history ought to be regarded as valuable, and how possible it is to preserve and reuse it. A recent example can be found in Varvstaden, Malmö, which has undergone development and is partially preserved, not only on grounds of industrial and cultural heritage value but also with an explicit focus on sustainability.[40]

An important topic in Sweden today is the 'green industrialization' of the arctic regions in northern Sweden. This is occasionally presented as something new, even if the area was in fact industrialized – and colonized – by the 1900s. Until now, the industrial heritage issues in the area has not been in focus, but further investigations into the similarities and differences between now and then would undoubtedly be interesting and fruitful.

Questions concerning industrial heritage are therefore still relevant, and there may very well emerge new fields in which interrogating the history of industry can play an important role.

Notes

1) Marie Nisser (1996) "Industriminnen under hundra år", *Museet som makt och motstånd*, Arbetets museum, Norrköping.
2) Anders Houltz (2003) *Teknikens tempel: Modernitet och indusriarv på Göteborgsutställningen 1923*, diss., Hedemora, Göteborg, Stockholm. p. 169ff.
3) Maths Isacson (2013) "Industriarvets utmaningar: samhällsförändringar och kulturmiljövård från 1960-tal till 2010-tal, *Bebyggelsehistorisk tidskrift*, nr 65, p. 17–36.
4) Maths Isacson & Helene Sjunnesson (2016) "Inspiratör med tidig blick för industrilandskap" *Bebyggelsehistoriskt tidskrift*, nr 72 p. 48f.
5) Eva Dahlström (2001) Den svenska *verkstadsindustrin och kulturmiljövården p. 44ff.* Early exampels of inventouries of industrial heritage are: *Industrihistoriska minnesmärken och miljöer i Värmlands län* (1973) Naturvårdverket i Värmlands län (Karlstad); Eric Juhlin & Bengt Spade (1979) *Industriminnen i Götene kommun*, Karlsborg; *Industriminnen i Nynäshamns kommun* (1978) Länsstyrelsen i Stockholms län, Stockholm.
6) Annika Alzen (2011) *Kulturarv i rörelse: En studie av "Gräv-där-du-står"-rörelsen.*
7) E.g. *Industriminnesvård och återanvändning – konflikt eller samverkan* (1986) Avd. för industriplanering, Chalmers tekniska högskola, Göteborg.
8) Maths Isacson (2013) "Industriarvets utmaningar: samhällsförändringar och kulturmiljövård från 1960-tal till 2010-tal, *Bebyggelsehistorisk tidskrift*, nr 65, p. 17-36.
9) Maths Isacson (2012) "Industrihistoriskt forum 1992–2012", *Industrihistoriskt forum: Rapport från nationell konferens i Trollhättan 2008 och Falun 2009, p. 7f.*
10) *Regleringsbrev för Riksantikvarieämbetet och Statens historiska museum för år 1997.*
11) *Berättelser om vårt samhälles historia – svenska industriminnen: Riksantikvarieämbetets program för det industrihistoriska arvet* (2001), Riksantikvarieämbetet, Kunskapsavdelningen, Rapport nr 2001:5; Lars Amreus, (2013) "Industriminne och industrisamhälle – monument och mainstreaming", *Bebyggelsehistorisk tidskrift* nr 65.p. 10ff.
12) *Industrisamhällets kulturarv: Betänkande av delegationen för industrisamhällets kulturarv*, SOU 2002:67.
13) Lars Amreus, (2013) "Industriminne och industrisamhälle – monument och mainstreaming", *Bebyggelsehistorisk tidskrift*, nr 65.
14) Regeringens proposition 2012/13:96 Kulturmiljöns mångfald.
15) Jan af Geijerstam & Maths Isacson (2013) "Brytpunkt Bergslagen - industriarvets värde och intressekonflikter", *Mångvetenskapliga möten för ett breddat kulturmiljöarbete - Riksantikvarieämbetets FoU-verksamhet 2006-2010*, Riksantikvarieämbetet. The project resulted in three reports: Mats Lundmark, Mona Hedfeldt och Max Jakobsson (2016) *Bergslagen – en industriregion i upplösning*, Riksantikvarieämbetet, Stockholm; Inger Orre (2016) *Industriarv som tillväxtmotor. Ännu en satsning i luttrat Bergslagen*, Riksantikvarieämbetet; Stockholm; Jan af Geijerstam, (2016) *Industrihistoriska värden – formering och omförhandling*, Riksantikvarieämbetet, Stockholm.
16) *Uppdrag att främja attraktiva natur- och kulturmiljöer i nya och befintliga gruvsamhällen (Gruvuppdraget)* (2017) Riksantikvarieämbetet, Stockholm.
17) *Kulturmiljöers känslighet: metod för att bedöma kulturmiljöers känslighet i samband med vattenvårdsåtgärder som innebär fysiska miljöanpassningar vid sjöar och vattendrag* (2019) Riksantikvarieämbetet, Stockholm.
18) Kulturmiljölagen (1988:950)
19) 2 kap. kulturmiljölagen (1988:950)
20) The national Heritage Board's database for archaeological sites and monuments (Data collected 2022-03-15). The figure is not absolute since several objects have been registered both as a specific and in a more general and overall category
21) 3 kap. kulturmiljölagen (1988:950)
22) All figures from *Data Base of Built Heritage, National Heritage Board*, Riksantikvarieämbetets Bebyggelserigister (Data collected 2023-07-31).
23) For almost one quarter of the decisions there are no information about who made the proposal. *Data Base of Built Heritage, National Heritage Board*, Riksantikvarieämbetets Bebyggelserigister (Data collected 2023-07-25 – 2023-07-37)
24) Förordning 2013:558) om statliga byggnadsminnen, Svensk författningssamling.
25) Plan- och bygglagen (2010:900)
26) 8 kap. 14 §, plan- och bygglagen (2010:900).
27) 8 kap. 13 §, plan- och bygglagen (2010:900)
28) 3 kap. 6 § miljöbalken (1998:808), *Swedish Environmental Law An introduction to the Swedish legal system for environmental protection* (2017) Naturvårdsverket, Report 6790, October, Stockholm, p. 18.
29) *Riksintressen i siffror – statistik över kulturmiljövårdens riksintressen* (2017) Riksantikvarieämbetet, s. 21. The figures dates from 2017 but there have been few alterations since then.
30) 7 kap. 9 § miljöbalken; Riksantikvarieämbetet, 2022, *Sveriges kulturreservat*, Sveriges kulturreservat | Riksantikvarieämbetet (raa.se) (2022-10-13)
31) Riksantikvarieämbetet, *15 världsarv i Sverige*, 15 världsarv i Sverige | Riksantikvarieämbetet (raa.se) (2022-10-13)
32) ArbetSam, Arbetslivsmuseernas samarbetsråd. *Statistik*, Statistik - ArbetSam (2022-10-13)
33) Jan av Geijerstam & Anders Houltz, 2013, "Industriarvet i regional antikvarisk praktik: Reflektioner kring en enkät till Sveriges länsstyrelser, *Bebyggelsehistorisk tidskrift*, nr 65, p. 37-51.
34) E.g the government inquire *Ett nytt regelverk för bygglov (2021) SOU 2021:47, Stockholm (A new set of regulations for building permits)*
35) Politik gör gestaltad livsmiljö, Proposition 2017/18:110
36) *Gasverket, Hjorthagen, Stockholms stad*, Gasverket – Stockholm växer (vaxerstockholm) (2022-10-31)
37) *Gasverket i Värtan: Antikvarisk förundersökning 2010-02-22*, Stockholms stad & Nyréns arkitektkontor.
38) Eva Dahlström Rittsél & Anna Ulfstrand (2012) "Förvandlingen av fyra fabriksområden i Nacka"; *Bebyggelsehistorisk tidskrift nr 63.*
39) Fengefors bruk, https://www.vastsverige.com/amal/se--gora/fengersforsbruk/ (2024-02-12).
40) Varvstaden i Malmö, Balder och PEAB, Byggnader som bevaras | Varvstaden https://www.varvsstaden.se/byggnader-som-bevaras, (2023-06-22).

Nordic and Baltic Industrial Heritage

– some final comments

ANDERS HOULTZ

This theme issue of Fabrik & Bolig (Factory & Dwelling) has had its focus on industrial heritage across the Nordic and Baltic countries. Featuring authors hailing from Denmark, Estonia, Finland, Latvia, Lithuania, Norway and Sweden, the previous articles have characterised the genesis, rise and development of public, as well as institutional, interest in the industrial heritage of the seven countries in question. The authors have likewise sought to map out and demarcate the extent to which this development has been mirrored historically in efforts to list and protect industrial plants and their associated facilities. In the introductory article, Susanna Fellman and Maths Isacson enable a long-term perspective by analysing the changes that have occurred in the global industrial and economic development, and by delineating three distinctive industrial periods in the last century: "the High-Industrial Period" (HIP) from the 1930s until ca. 1980, the "Hyper-Global Industrial Period" (H-GIP) until ca. 2010, and – finally – he "Multipolar-Global Industrial Period" (M-GIP), which carries on into the present time.

Do patterns emerge when we compare national overviews of industry and relate them to the periodical framework of Fellman and Isacson, and if so, what are these patterns? Which general themes and similarities present themselves – and which differen-

The Industrial Museum Horsens. Photo: Anders Houltz 2021.

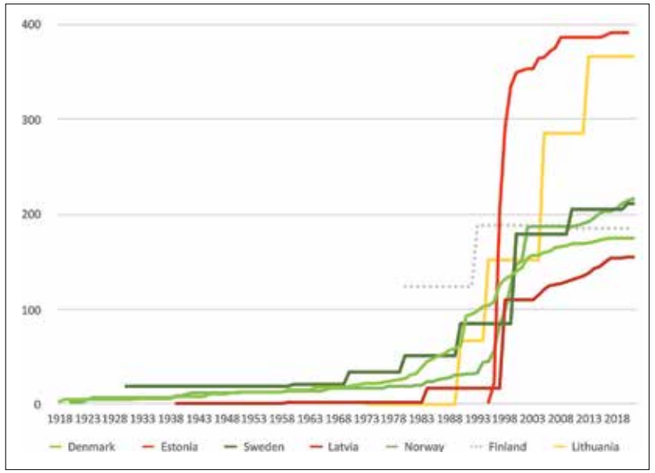


Figure 1.
Protected industrial heritage, understood as listed property or cases in Denmark, Sweden, Norway and Latvia, as cultural environments protected by planning measures in Finland, and as single buildings and objects in Estonia and Lithuania. The different calculation methods explain the significant differences in numbers for Estonia and Lithuania compared to the other countries. Source: the figures are defined and calculated by the authors of each national overview in this issue.

ces? How can we explain these characteristics? Firstly, it is crucial to stress that any such comparison between countries will be hampered by the inevitable differences in cultural and historical context from one country to another, let alone across seven nations. This issue is exacerbated by the differences in legislation and heritage practices, not to mention in the very definitions of "heritage" and "industry" employed by each entity. Objects or categories which at a given moment in time are defined as "industry" in one country may be sorted under "craft", or some other label, in another. To a varying degree, the listing data particular to each country may include singular buildings and monuments, just as well as it may list extensive plants and sprawling industrial environments. The meaning and consequences of the listing itself also differs from country to country; both concerning the level of protection afforded and the practical and economic consequences a protection may bring. These issues render a strictly quantitative comparison problematic, if not impossible. Nevertheless, certain observations can be made.

Taking these reservations into account, the overall picture remains that the listing of industrial heritage in the Nordic and Baltic states follows a common, general development (see Figure 1). The first examples of listings in Denmark, Norway and Sweden took place in the Interwar years. However, these isolated initiatives were limited in scope, dealing only with single monuments. They were typically motivated by an interest in the history of technology, rather than in industrial culture per se, and were accompanied by few cognate efforts in the Baltic states in the same period.

By the late 1960s and early 1970s, a noticeable increase in listings occurred across the Nordic countries; both in Denmark and Norway, but most significantly in Sweden. The activity also rose in Finland, but this did not result in listing to the same extent as the others, since – as Björkman notes in her article – planning legislation, rather than listing, planning legislation rather than listing is the central means for protection there. Lithuania, Estonia, and Latvia, all part of the Soviet Union at that time, did not participate in this trend. When the listing trend intensified in the 1990s and the early 2000s, however, a considerable degree of activity was sparked also in the recently independent Baltic states. By the 2010s, the increase in listing activity gradually levelled off in all the surveyed countries, though without stopping entirely – a development which continues through to the present.

PRESERVATION LISTINGS AS A REFLECTION OF SOCIETY

The patterns of industrial heritage protection appear to correlate in different ways to the general development of industry and society. For instance, the first initiatives towards conceptualising 'industrial heritage' can be understood in the context of the transformations taking place during the so-called Second Industrial Revolution, which is commonly dated to the period ca. 1890–1930, and the subsequent High-Industrial Period (in Fellman and Isacson's terms). On the threshold to a new mode of production – one characterized by electrification, mass-production, and scientifically-devised manufacturing processes – it became possible to define the previous stage as 'history', and to define certain objects as cultural heritage worthy of preservation and protection.

In his article, Jørgensen describes how the first Danish listings of industrial monuments were carried out in 1918, with the introduction of the first Listed Buildings Act. In similar fashion, Dahlström Rittsel shows how architecture and technical equipment from the Swedish iron- and mining industries were recognised as historical monuments in the early 20th century, and came to be preserved through joint initiatives between heritage institutions and industry itself. Actual legal protection and safeguarding of industrial heritage through listing was, however, still exceptional in both countries. An important factor in Denmark as well as Sweden seems to have been that engineers and company owners – not just museum officials, architects, and art historians – were engaged in the efforts to protect industrial monuments during this early phase.

A more consistent interest in industrial heritage appeared only when the High-Industrial Period terminated during the 1970s. This, in turn, was in part a consequence of the Third Industrial Revolution – bringing accelerating globalisation, automation and computerisation into play – which resulted in structural crises across several branches of industry and lay-offs and plant closures in European countries as production relocated to other parts of the world. The engagement of company owners and engineers appears to have decreased somewhat during this period, but taking the mantle were grass-roots organizations, academic researchers and heritage institutions who joined forces so as to document and protect industrial sites, equipment, and historical residences threatened by demolition and decay. As an early sign of the times, TICCIH (the International Committee for the Conservation of the Industrial Heritage) was founded in 1973 in order to deal with this issue on an international level.

A clear pattern evident in all the Nordic and Baltic countries is the intensive heritagisation of industrial buildings which took place in the 1980s and 1990s – the "Hyper-Global Industrial Period" in the terminology of Fellman and Isacson. This was reflected in a substantial quantity of listings, especially in the 1990s. From the early 2000s, the rate and number of listings slowed down; instead, centralised official initiatives were set in motion (2002 in Sweden; 2007 in Denmark). Norway presents an inte-

Industrial landscape along the Tammerkoski river in Tampere. Photo: Anders Houltz 2022.

Eriksberg in Gothenburg – a shipyard transformed into housing area. Photo: Anders Houltz 2022.

resting example in this respect (see Loska & Lytomt). The Norwegian "Preservation programme for technical and industrial cultural heritage", initiated in 2007, resulted in 15 selected industrial heritage sites of national priority, with funding provided for protection, preservation, and maintenance, concretely intended to serve as exemplars and to raise public interest in industrial heritage. Industrial heritage has been given special attention and funding in other countries, although without the same priority on a distinctive selection.

While this peak in heritagisation resulted from preceding work on inventorying, listing and research on the part of the Nordic countries, the effort in the Baltics was instead a pioneering one: During the Soviet occupation, industrial heritage was not a central concept in the eyes of the politburo. Instead, as Drėmaitė mentions in her article about Lithuania, so-called "technological monuments" were listed – counting among these were bridges and other constructions. In Estonia, as pointed out by Kuningas, inventorying and listings were carried out during the 1980s, but these did not include large-scale facilities, and were limited in overall scope.

With the Baltic countries' independence, a surge in heritagisation emerged, covering a range of categories, including industry. The increase in listings seems a result of growing national awareness and pride. The Industrial Heritage Trust of Latvia, Anteniške observes, was established already in 1992, but the majority of listed industrial buildings in Latvia are to be found under the umbrella category of "Architectural heritage", rather than specifically designated "Industrial heritage". In Lithuania and Estonia, the development started a few years later but would in time increase rapidly.

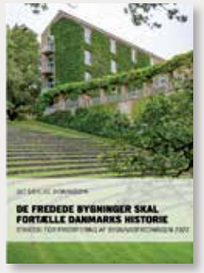
Industrial heritage was acknowledged, as Drėmaitė mentions, following inspiration found through increasing contact across the Baltic Sea. This points to an aspect which is worth emphasising: The likeness in the rhythm of listings and preservation efforts of industrial heritage from country to country is not just a reflection of changes in social and economic structures; it is just as much the result of long-term international cooperation and mutual transference of knowledge between researchers, heritage officials and practitioners amongst the seven countries.

INDUSTRIAL HERITAGE AND THE GRAND NARRATIVE

The nature of designating elements as part of a cultural heritage is closely connected to the ways in which a nation's history is understood and communicated. In countries like Denmark, Lithuania, or Latvia – heavily industrialised as they may be – the national narrative has been profoundly and persistently centred on agriculture rather than industry. In contrast, Sweden actively embraced an industrial identity around at the beginning of the 1900s, and this has ever since remained an essential aspect of its national self-image. "Grand narratives" such as these provide different conditions for the practices of designating and protecting cultural heritage. Another example is the way in which the grand narratives of Latvia, Estonia and Lithuania were shaped – or perhaps overshadowed – by the effects of the Soviet occupation. Following the declaration of independence in 1990–91, the listing of cultural heritage gained traction in all three countries, but the designated objects were mainly chosen from the period of independence between the world wars, or from the pre-1918 period under Imperial Russian overlordship. Only few objects representing the Soviet period were selected, meaning that large-scale industrial milieus from that period were rarely listed.

Grand narratives tend to morph at a glacial pace, but even so they are not set in stone. We are today undergoing yet another industrial and technological change, one which some hold to be as profoundly transformative as to be labelled a *fourth* industrial revolution, with automation, artificial intelligence, processual IT, and the global challenges of climate change. It cannot be denied that the effects of industrialisation is the central cause of the present environmental crisis; a crisis which, in turn, forces industry to develop new modes of production, and pushes people to adjust to new ways of living and working. Paradoxically, we have made the move from *de*industrialization to *re*industrialisation, with innovative, large-scale production facilities, logistics and infrastructure. In Fellman and Isacson's words, we are entering a new phase: The "Multipolar-Global Industrial Period". Whether this period will – or should – be reflected in terms of listing practices and heritage protection remains to be seen.

Anmeldelser



Det Særlige Bygningssyn, De fredede bygninger skal fortælle Danmarks historie - Strategi for prioritering af bygningsfredningen 2022, tekst ved Jens Toftgaard, Caspar Jørgensen, Eva Sievert Asmussen, Nanna Secher Larsen, Det Særlige Bygningssyn 2022, 94 sider ill. ISBN: 978-87-94241-02-1 (trykt), 978-87-94241-03-8 (digital).

I november 2022 blev en fredningsstrategi præsenteret af Det Særlige Bygningssyn, der rådgiver kulturministeren og Slots- og Kulturstyrelsen i forhold til bygningsfredning- og bevaringsspørgsmål. Det må hilses varmt velkommen, at der nu er udarbejdet en strategi for den fremtidige bygningsfredning.

Strategien bygger bl.a. på erfaringerne fra den gennemgang af alle bygninger, fredet 1918 - 1990, som Slots- og Kulturstyrelsen, der administrere bygningsfredning på ministerens vegne, udførte 2010-2016. Fredningsgennemgangen omfattede en beskrivelse af fredningsværdier (de arkitektoniske, kulturhistoriske og miljømæssige værdier), der hidtil havde manglet eller været summarisk beskrevet for fredningerne før ca. 1990. Det førte i enkelte tilfælde til ophævelse af fredninger, hvor fredningsværdierne ikke længere er tilstede. Mellem 2010 og 2020 er der således ophævet omkring 220 fredninger, mens der er gennemført omkring 69 nye fredninger. Disse nyfredninger udgør imidlertid potentielt en betydelig skævvridning af historien, fordi de stort set alene omfatter arkitekttegnede villaer i Nordsjælland, som Svava Riesto og Rikke Stenbro dokumenterede det i Fabrik og Bolig 2019. Noget andet er, at det er fornuftigt at gennemføre de fredninger, der kan lade sig gøre i øjeblikket, forudsat de er tilstrækkelig væsentlige. Men det understreger behovet for en samlet plan eller strategi, hvis Bygningsfredningslovens formål om at sikre bygninger, der fortæller om hele samfundets historie, skal opfyldes. Nu er strategien kommet, der kan fungere som sigtelinje for udvælgelsen.

Efter at have konstateret hvor rig og varieret en historie de fredede bygninger opført før 1900 fortæller, lægger strategien op til at koncentrere fredningsindsats om 1900-tallets historie og især tiden efter 1945 i hele sin bredde. Ved fredningsgennemgangen blev det tydeligt, at trods muligheden for at frede bygninger, der blot er 50 år gamle, er der stort set ikke fredet bygninger fra perioden 1945 - 1975, udover de arkitekttegnede villaer, selvom perioden rummer 1/3 af den samlede bygningsmasse i Danmark.

Herudover peger strategien på behovet for at sikre bygninger, der er samlingspunkter for værdifulde kulturmiljøer, repræsenterer fællesskaber der giver lokal og national identitet, er en ressource for samfundsmæssig og økonomisk værdiskabelse, sikrer god arkitektur, der kan inspirere til at bygge langsigtet og bæredygtigt, samt endelig frede bygninger, der viser forskellighed, og fortæller vores fælles historie i et mere end 500 års perspektiv.

Netop det sidste punkt fremhæves i formålet med strategien, der skal skabe en klar retning for nyfredninger med en bred og repræsentativ fortælling om Danmarks arkitektoniske og historiske udvikling også for den nære fortid. Dermed lever strategien op til bygningsfredningslovens formål i § 1, om at sikre arkitektonisk, kulturhistorisk eller miljømæssig værdi, herunder bolig, arbejds- og produktionsvilkår og andre væsentlige træk af den samfundsmæssige udvikling.

At der er tale om en overordnet strategi understreges med påpegningen af ni temaer, der skal fungere som vejledning for nyfredninger i de kommende år. Temaerne har særlig betydning for både den arkitektoniske og den samfundsmæssige udvikling. Det anbefales, at temaerne bør undersøges som led i en refleksiv og repræsentativ udvælgelse af bygninger.

De ni temaer inddeles i funktion og i tværgående emner med fokus på repræsentativt. De tværgående temaer omfatter fællesskab og medborgerskab, form og funktion – arkitekturstrømninger, by og land – infrastruktur og planlægning, energi og mobilitet – fra oliesamfund til grøn energi og byggematerialer, bygningskultur og bæredygtighed. Temaer der omhand-

ler funktion, er gode boliger til alle, erhverv – industri og servicesamfund, velfærdsstat og velfærdssamfund samt fritid og det grønne. Det særlige Bygningssyn er opmærksom på overlap mellem temaerne.

For at gennemføre og konkretisere strategien anbefaler Det Særlige Bygningssyn, at Slots- og Kulturstyrelsen iværksætter surveys og undersøgelser, som over en længere årrække kan afdække strategiens temaer. Styrelsen har også tidligere gennemført temagennemgange og inddraget specialister fra bl.a. museer og arkitektfirmaer. Disse kan bidrage til viden og kompetencer, der kan anvendes i fredningsprocessen og i forvaltningen af de fredede bygninger fremover.

De ni temaer bliver i anden halvdel af publikationen eksemplificeret gennem tekster om arkitektur, historie og kulturhistorisk baggrund og med fotografier af både bygninger og miljøer, der understøtter teksten. Derved uddybes problemstillinger og kompleksiteten i bevaringsperspektiver, der bl.a. omhandler funktionstømning af industribygninger, bevaring af forgængelige materialer og skalaen, hvor omfanget af store almene boligområder kan vanskeliggøre muligheden for fredninger.

Strategien fremlægger også, hvordan processen for udarbejdelsen af den nye strategi er foregået. Den er blevet drøftet i Det Særlige Bygningssyn og i en redaktionsgruppe. Der blev afholdt et seminar i 2020 med deltagelse af Landsforeningen for Bygnings- og Landskabskultur samt indbudte eksperter. Disse har tillige kunnet komme med anbefalinger, der også fremlægges. Anbefalingerne om udarbejdelse forvaltningspraksis, som fremover kan anvendes af Slots- og Kulturstyrelsen og at arbejde med temagennemgange viser grundigheden i udarbejdelsen af strategien. Det anbefales også at arbejde med løbende opsamling og evalueringer. Dermed sikres blandt andet repræsentativitet i forhold til kronologi og geografi inden for de ni temaer.

Den nye strategi fra 2022 adresserer et ønske om, at de fredede bygninger afspejler både arkitektoniske, kulturhistoriske og samfundsmæssige forhold. Den understreger, at der skal sikres repræsentativitet og geografisk spredning. Byggeri efter 1945 rummer både fin arkitektur og afspejler en kompleks samfundsudvikling. De værdibaserede temaer, som hvad er den gode bolig, bør fremover prioriteres lige så meget som, hvilken funktion denne rummer. Den nye strategi rummer et ønske om at sætte fredningerne i perspektiv, så de også fortæller om politiske og kulturelle strømninger.

Strategien lægger op til et stort arbejde, hvor bl.a. de kulturhistoriske museer, arkitekter og ikke mindst bevarings- og historiske foreninger opfordres til at deltage. De omtalte temagennemgange er et nyttigt arbejdsredskab, men det vil tage tid, flere år, og i mellemtiden forandres eller forsvinder vigtige bygninger og miljøer. Omdannelsen af havne og industrikvarterer i Storkøbenhavn og landets andre byer betyder, at det kan være for sent at fremsætte forslag om fredning på baggrund er en temagennemgang. Denne problemstilling adresseres ikke og hører muligvis til i udarbejdelsen konkrete handlingsplaner, men det er ikke desto mindre virkeligheden.

Med den nye fredningsstrategi fremlægges en strategi, der er rummelig og repræsentativ. Det er godt. Den kan være det værktøj, der kan rette op på skævvridningen af, at de hidtil fredede bygninger efter 1900 ofte ligger i byerne og i ressourcestærke områder. Men for at nå frem til at kunne frede de store og komplekse miljøer og bygninger, der er karakteristiske for tiden efter 1945, skal lovgivningen også være på plads. Det har fredningen og den efterfølgende tilbagetrækning af landskabsfredningen af Aarhus Universitet og genfremsættelsen af et mere begrænset forslag i 2023 netop vist tilsyneladende ikke er tilfældet. Endelig kommer vi ikke udenom, at der er behov for øgede ressourcer til området, hvis strategien skal realiseres. Det er næppe realistisk at sikre bare udvalgte bygninger fra den periode, hvor den allerstørste del af den eksisterende bygningsmasse blev opført, indenfor de eksisterende økonomiske rammer. For det ville betyde en overførelse af ressourcer fra de eksisterende fredninger, hvor fredningsgennemgangen har vist, at der stadig er ganske mange bygninger i dårlig stand også efter de gennemførte fredningsophævelser.

Det er ikke alene velfærdssamfundets bygninger efter 1945, der ikke er kommet med i de historier bygningsfredningen fortæller. Som det fremgår andet steds i dette nummer af Fabrik og Bolig, er det som om fredningen af industrisamfundets bygninger for slet ikke at tale om dets kulturmiljøer er gået i stå omkring 2001, det år Kulturministeriet overtog ansvaret for bygningsfredningen. Nu ligger der en plan fra Bygningssynet, så det er op til kulturministeren at træde i karakter.

Lene Skodborg – formand for Selskabet til bevaring af Industrimiljøer

Københavns Murerlaug 1623 - 2023
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Københavns Murerlaugs 400-års jubilæum er ikke alene en bog om laugets særlige historie. Det er også en historie om Danmarks historie og om Københavns historie i en bredere forstand. Omdrejningspunkterne er dels murstenen og dels murerne.

Jubilæumsbogen føjer sig til rækken af Københavns Murerlaugs andre jubilæumsbøger og er således den sjette i rækken, der er udgivet siden begyndelsen af det 20. århundrede. Med denne bog sætter Københavns Murerlaug fokus på aspekter omkring murværk og murerfaget historisk, i dag og fremover. Bogen er inddelt i tre afsnit. Det første beskriver murværk og murerfaget dengang, det andet beskriver murværk og murerfaget i dag og i fremtiden og det tredje bringer oversigter over bestyrelser, oldermænd, tillidsmænd m.v. og medlemsfortegnelse. Bogen er udstyret med oversigt over skribenter, illustrationer og litteratur, men er ikke udstyret med et noteapparat.

Københavns Murerlaug har inviteret forskellige fagpersoner til skrive. Thomas Bo Jensen, der er forskningschef og professor ved Arkitektskolen i Aarhus har skrevet både om det helt konkrete 'Hvad er en mursten?' og 'København set fra en mursten'. Med en oversigtlig gennemgang af murstenens udbredelse globalt, der placerer anvendelse af mursten i Danmark som en ret sen foreteelse fra 1100-tallet får man også en god indsigt i murstenens betydning som vejrbestandigt materiale og som udtryk for at kunne markere sig standsmæssigt helt frem til vor tid. Københavns brande i 1700-tallet og bombardement i 1807 har været med til at gøre København til en by bygget af mursten. Murstens udformning og samspil med kalkmørtel er helt grundliggende. Det er også et samspil, der er blevet udfordret. Energikrisen i 1973 med indførelsen af, at der ikke måtte være kuldebroer mellem ydermur og indermur ses som det brud, der har begrænset anvendelsen af mursten. Nu blev ydermuren en skalmur – tæt på overflødig. Brugen af beton blev udbredt, en udvikling, som det dog kan tilføjes allerede, var i gang før 1973. Der er dog en pointe, at skalmuren giver mulighed for at skabe nye former for murværk, da denne ikke er en bærende mur. Grundtvigskirken står som et helt særligt byggeri, men mange andre beskrives også for brug af mursten og for arkitekturen og for, hvordan de to kan spille sammen. Det væsentlige er en ærlighed ved murværket og dette belyses ved beskrivelser af bl.a. universitetsbiblioteket i Krystalgade af J.D. Herholdt og Københavns Rådhus af Martin Nyrup. Det leder bl.a. frem til, at selv modernismen i Danmark blev hjemlig med brug af mursten gennem den funktionelle tradition.

Københavns Murerlaugs historie og betydning i et privilegiesamfund gennemgår Søren Mentz, historiker, ph.d. og leder af Museum Amager, sammenhængen mellem kong Christian 4. ambitioner for at hævde sig internationalt bl.a. over for hansestæderne og murerlauget som del af samfundet. Det lykkedes ikke kongen at begrænse laugets privilegier, men det lagde grunden til forandringer i 1700-tallet og afskaffelsen af laugene i 1858 med den nye næringslov. Dermed blev murermestrene arbejdsgivere og murerne ansatte svende organiseret i hver deres arbejdsgiverforening og fagforening. Som arbejdsgiverorganisation har Københavns Murerlaug forstået at navigere og få indflydelse. Det giver Jens Klarskov cand.jur. og tidligere direktør i bl.a. Dansk Byggeri en god indsigt i. Ida Juul lektor ved Aarhus Universitet, DPU ser på mureren som håndværker med en udvikling fra mesterlære til EFG-uddannelse og det afslutter det historiske afsnit.

Afsnittet om murværk og murerfaget i dag og i fremtiden omfatter 'Livet i lauget' og 'Tre virksomhedsbesøg' og er skrevet af Anne Kathrine Spangsberg Rosener, journalist. Her kommer man tæt på murerne og på deres vilkår i dag. Gennem dette øjebliksbillede vises også, at murerhåndværket både anvendes på moderne vilkår og til at vedligeholde historiske bygninger. Københavns Murerlaugs ændrede status i det danske samfund og i København kommer også til udtryk ved, at de via sammenlægning mellem Dansk Byggeri og Dansk Industri nu er del at Danmarks største arbejdsgiverorganisation. I den sammenhæng drejer det sig om at finde sig til rette som del af en stor organisation, der repræsenterer mange særinteresser og bidrage med Københavns Murerlaugs særegenhed og mission. Et gennemgående emne i jubilæumsbogen er bæredygtighed herunder konflikten mellem at anvendelsen af mursten og dermed murerfaget er bæredygtigt, og at det på den anden side er CO^2 belastende at fremstille mursten. Genanvendelse og nytænkning hører til perspektiverne for udvikling af murværk fremover. Det gennemgås i det afsluttende kapitel ved Anne Beim professor ved Det Kongelige Akademi og Pelle Munch-Petersen, forsker ved CINARK.

Bogen er rigt illustreret med mange nyoptagelser af markante murstensbygninger i København. Med fotograf Jens Lindhes flotte fotografier kommer man tæt på murværk og bygninger. Det ses som det faglige håndværk repræsenteret både ved murerværk og ved murstenens karakter. Dermed bliver det også muligt at opleve historien taktilt i sammenhæng med forfatternes respektive kapitler ikke mindst Thomas Bo Jensens om 'København set fra en mursten'. Derudover er bogen illustreret med plakater, der gennem tiden har udtrykt forordninger og tidsånd samt tegninger af bygninger. Igen vidner illustrationerne om de bredere samfundsmæssige forhold så som, at murerfaget har været et mandefag. Endelig giver fotografier af genstande, der knytter sig til Københavns Murerlaug som fx oldermandskæden og velkomstportal en fornemmelse af det privilegiesamfund, som laugsvæsenet udsprang af og som i en vis forstand stadig har betydning i dag for laugets medlemmers identitet.

Københavns Murerlaug 1623 - 2023 giver et grundigt indblik i et magtfuldt laug, der med tidens udvikling har ændret position i samfundet. Bogens styrke ligger i indsigt i Københavns Murerslaugs historie og ikke mindst i de mange eksempler på byggeri i København, der dels vidner om murværks holdbarhed og dels om, hvordan murstensbygninger giver København en særlig identitet. En identitet, der kan bygges videre på med nyt byggeri fremover.

Lene Skodborg

Fra slum til velfærd – fundamentet for velfærdsstatens boligpolitik 1850-1940 *af Henning Bro og Søren Kolstrup.*
SFAH'S Småbogsserie nr. 1, 102 sider ill., ISBN 978-87-98031-56-7

Selskabet for Arbejderhistorie udgiver en ny publikationsrække under navnet SFAH's Småbogsserie, der i format minder lidt om Aarhus Universitetsforlags serie "100 Danmarkshistorier", det vil sige ca. 100 sider om et specifikt emne, som bliver fortalt i et let og tilgængeligt sprog.

Den første udgivelse i småbogsserien handler om boligbyggeriet i overgangen fra natvægterstatens frie markedskræfter til 1900-tallets velfærdsstat. De to forfattere Henning Bro og Søren Kolstrup argumenterer for, at boligen og boligpolitikken ofte har været overset i beskrivelsen af den samlede velfærdshistorie. Udgivelsen skal ses som et bidrag til at rette op på denne forsømmelse. Det er dog langt fra første gang, at Bro og Kolstrup beskæftiger sig med boligen og boligpolitikken, og hvorfor et studie af boligen og boligforhold er yderst vigtig i forståelsen af befolkningens levevilkår gennem tiden samt boligens betydning for velfærdsstatens generelle udvikling.

Henning Bro forsvarede i 2006 sin ph.d.-afhandling *Boligen mellem natvægterstat og velfærdsstat – Bygge og boligpolitik i tre danske bysamfund*, der blev fulgt op af en bog et par år efter og var en bearbejdning af ph.d.-afhandlingen. Henning Bro er historiker og ph.d. samt stadsarkivar emiritus ved Frederiksberg Stadsarkiv og har i det meste af sit arbejdsliv beskæftiget sig med hovedstadsområdets udvikling. Søren Kolstrup er historiker, ph.d. og lektor emeritus og har en lang udgivelsesrække bag sig. Han har blandt andet bidraget til Dansk Velfærdshistorie. Det er med andre ord to meget vidende og kyndige forfattere, der står bag den første udgivelse i SFAH's serie.

Forfatternes faglige tyngde skinner igennem, mens man læser, hvor der bliver delt generøst ud af forfatternes store viden. På bogens sider føres man igennem den boligpolitiske udvikling med fokus på boligerne for byarbejderne og socialt ligestillede.

Hver af bogens kapitler tager udgangspunkt i tidens statsform og hovedstadens bymæssige karakter og forfatterne beskriver rammen for den brede befolknings boligforhold og hvordan skiftende aktører forsøgte at forbedre dem. Vi begynder med andre ord med en beskrivelse af 1800-tallets usunde og overbefolkede slumboliger for at nå frem til 1900-tallets lysere, sundere og spekulationsfrie boliger. Vi præsenteres for de mange forskellige og skiftende aktører, som reagerer på de elendige boligforhold. Bl.a. de borgerlige filantroper og Lægeforeningen i 1850-60'erne, Rigsdagens og senere hovedstadskommunernes stigende engagement fra omkring 1900 til arbejderbevægelsens introduktion af den spekulationsfrie bolig i 1912-13. Bogen fortsætter med en analyse 1920-30'ernes skiftende støtteordninger, og der inddrages eksempler på forbilledlige bebyggelser af bl.a. KAB og FSB. Igennem bogen bliver der givet konkrete eksempler på forskellige typer byggerier, ejer- og finansieringsformer samt det bagvedliggende ideologiske tankegods. Bogen beskriver, hvordan boligudviklingen blev drevet af såvel af den store boligmangel såvel som den ene krise efter den anden. Men nok så afgørende, mener forfatterne, var den initiativrige arbejderbevægelse, som tog sagen i egen hånd og fandt løsninger på problemerne. Både i kraft af Socialdemokratiets gennemførelse af en velfærdsbaseret boligpolitik og i kraft af arbejderkooperationen, der oprettede egne almennyttige boligselskaber.

Bogen er kronologisk opbygget og inddelt i tre perioder. Første periode går fra 1859 til 1890 og beskriver boligpolitikken – eller mangel på samme – under natvægterstaten med den mindst mulige statslig indblanding og aktivitet i boligpolitikken og hvordan det er op til filantropiske tiltag at varetage opførelsen af boliger til de ubemidlede. Anden periode er fra 1890 til 1914 og viser de første brud i boligpolitikken. I denne periode bliver der introduceret lavtforrentede lån til byggeforeninger, og det bliver forklaret, hvordan arbejderbevægelsen tager initiativ til nye ejerformer. Vi bliver blandt andet introduceret til J. Chr. Jensen, der meget rammende fik tilnavnet Christian Bolignød. Han blev for-

mand for den forening, der kunne sikre blandt andet arbejderklassen sunde boliger. Foreningen hed Arbejdernes Boligforening af 1912, men skiftede i 1917 navn til Arbejdernes Andels-Boligforening (AAB). Foreningens bygninger skulle være friholdt fra spekulation og pengene fra huslejen skulle blive i foreningen. I samme periode blev Arbejdernes Kooperative Byggeforening (AKB) stiftet. AAB var andelsbaseret med beboerne som indskydere, mens AKB var organiseret som et lukket aktieselskab. Her var lejerne udelukket fra medejerskab og indflydelse og lejede deres lejlighed på almindelige lejevilkår, men de skulle til gengæld ikke betale indskud. Forfatterne forklarer, hvordan både AKB og AAB viste nye måder at løse udfordringerne med bolignøden på.

Den sidste periode løber fra 1914 til 1940 og beskriver, hvordan fundamentet til velfærdsstatens boligpolitik bliver lagt. Fra 1916 til 1930 udgjorde det offentligt støttede byggeri 75 % af den samlede boligproduktion i København, begyndende med vedtagelsen i Københavns Borgerrepræsentation i 1916 om at opføre 1000 kommunale boliger. De landsdækkende støtteordninger blev afviklet i 1920'erne under Venstreregeringen, men blev genoptaget i 1933 og 1937 under det socialdemokratiske og radikale styre. Støtteordningerne blev senere udvidet med en huslejeregulering og en målrettet huslejestøtte til børnefamilier

Bogens fokus er rettet mod København, Frederiksberg og forstæderne, idet fundamentet til velfærdsstatens boligpolitik bliver lagt i hovedstadsområdet. Vi får forklaringen på, hvorfor hovedstadens forstæder har haft så forskelligartet en boligudvikling. Der er også perspektiveringer til provinsen.

Boligpolitik har i høj grad været en værdikamp og som læser bliver vi ført gennem tiden fra et frit og ureguleret boligmarked, til at boligmarkedet langsomt, men sikkert bliver mere og mere politiseret. I bogen tildeles Socialdemokratiet meget af æren for at have været udslagsgivende for, at København i særdeleshed formår at skaffe lavindkomstgrupperne som arbejderne ordentlige boliger.

Forfatterne spørger selv, hvordan vi i dag skal vurdere de samlede sociale virkninger af tidens mange indgreb, og om hvorvidt disse indgreb var med til at mindske klasseskellene i boligbyggeriet eller om den omfattende regulering blot var var med til at understøtte de eksisterende forskelle. Vurderingen afhænger af perspektivet, argumenterer forfatterne. Kigger man på blot et enkeltstående år, så er det nærliggende at drage den konklusion, at indgrebene understøttede og reproducerede de eksisterende klasseskel. Kigger man derimod på indgrebene i et længere og historisk perspektiv, er vurderingen mere positiv, idet der med indgrebene blev indført lighedsskabende instrumenter til gavn for arbejderklassen. Forfatterne hælder, som man kunne forvente, til det sidste perspektiv og argumentere for at se boligpolitikken over en længere årrække.

Bogen er velargumenteret, men formatet gør selvfølgelig, at det ikke alle steder er muligt at gå i dybden og nogle konklusioner bliver draget uden man helt har hørt den bagvedliggende analyse eller argumentation. Dette tilgives dog hurtigt, da man mærker, at forfatterne er vidende og kompetente og derfor kan tillade sig at konstatere fremfor at argumentere. Trods det korte format, så er det visuelle heldigvis blevet prioriteret og bogen har relativt mange illustrationer som fotografier og tegninger og det er i særdeleshed godt, når der henvises til konkrete eksempler og forskellige byggerier.

Måske skyldes det anmelderens etnologiske baggrund, men som læser savner jeg lidt den personlige vinkel og at høre fra de implicerede og modtagerne af boligpolitikken. Men det er måske konsekvensen af at tage udgangspunkt i tidens statsform og dets politik, så sker det på bekostning af den mere personlige eller mikrohistoriske fremstilling.

Men ikke desto mindre, så er bogen meget velskrevet og oplysende, og den giver en god indføring i boligpolitikken og boligudviklingen i den angivne periode, at man får lyst til at kaste sig over forfatternes øvrige udgivelser. Senere i småbogsserien vil komme en udgivelse, hvor det er boligbyggeriet og -politikken fra 1940'erne og frem, som behandles i et velfærdspolitisk perspektiv. En udgivelse, som undertegnede ser frem til.

Stefanie Høy Brink

Maths Isacson, Vad gör en fackförening? Den dagliga kampen för jobben 1975-2000 utifrån en klubbordförandes dagböcker. *Lund: Arkiv förlag 2022, 303 sider, ill. ISBN 978 91 7924 370 8.*

På grundlag af først og fremmest Sune Björkqvists optegnelser 1977-1997 analyserer Maths Isacson fagforeningernes rolle og magt på Hedemora Verkstäder. Det er under omfattende strukturændringer, hvor maskinfabrikken i Bergslagen indskrænkede produktsortimentet, samtidig med at dens organisation blev ændret, og de forskellige dele blev solgt til nye ejere. Sune Björkqvist (1931-2011) var *ordförende* for Metals verkstedsklub på Hedemora HB 1975-1997. Maths Isacson er senior professor i økonomisk historie ved Uppsala Universitet. Han har bl.a. skrevet om bøndernes mangesysleri i Bergslagen og to omfattende bøger om værkstedsarbejderne på netop Hedemora Verkstäder.

Bogen omfatter otte kapitler og analyserer med afsæt i den norske sociolog Sverre Lysgaards begreb arbejderkollektivet tillidsrepræsentanternes og især Björkqvists handlinger i forhold til både kolleger og firma. Første kapitel omfatter en kort diskussion af problemstilling og faglitteraturen om fagforeningers betydning, rolle og magt, af kildematerialet i form af Björkqvists optegnelser suppleret af værkstedsklubbens beretninger, en kort præsentation af firmaet og den almindelige situation. Tiden er præget af oliekrisen, strukturændringer i form af et kraftigt fald i ansatte i industrien og vækst i servicesektoren, den første borgerlige regering i årtier i det socialdemokratiske Sverige, faldende økonomisk vækst og forsøg med økonomisk demokrati med lønmodtagerfonde og lønmodtageraktier. Virksomheden ejedes af det vist største familieejede selskab i Sverige, Johnson Koncernen, og den blev divisioneret og solgt i 1990 efter en langvarig proces. Men det kan allerede her afsløres, at den ikke blev solgt til medarbejderne, selvom de kæmpede for at overtage den.

Det andet kapitel redegør for Sune Björkqvists daglige arbejde som tillidsrepræsentant, hvor medlems- og personalesager fyldte ganske meget foruden lønforhandlinger, spørgsmål om virksomheden og koncernen samt fagforeningen. Allerede fra lidt ind i 1980erne fylder virksomheds- og koncernspørgsmål samt samarbejdet med fagbevægelsen en del mere end i 1970erne, hvad der viser Björkqvists og fagbevægelsens betydelige engagement i ejerspørgsmålet og et muligt ejerskifte. Disse spørgsmål følges tæt i de næste tre kapitler på grundlag af hovedsagelig Björkqvists notater. Herefter følger et kapitel om det daglige fagforeningsarbejder og relationerne til de enkelte medlemmer. I det sidste kapitel samler Isacsen op og diskutere tillidsmandens og fagbevægelsens magt og indflydelse uden at blive særlig præcis af gode grunde. Som læser får man det indtryk at, at tillidsmanden har en betydelig indflydelse uden nødvendigvis at få ret eller bestemme over de daglige forhold, mens forsøgene på at påvirke de større strukturelle forandringer ikke fik den store effekt, i dette tilfælde. Men det er tydeligt, at der blev arbejdet ihærdigt på at bevare og gerne udvide antallet af arbejdspladser til en ordentlig løn og på at vedligeholde et fælles kodeks for arbejderkollektivet. Derimod er der ikke noget som tyder på at bevaring af det bebyggede miljø har indgået i tillidsmandsarbejdet i det tilfælde, hvad der kan være grund til at bemærke særligt i dette nummer af Fabrik og Bolig.

Bogen er til en vis grad let læst, fordi de forskellige forhold forklares og sættes ind i en sammenhæng, men det modarbejdes desværre af det utal af forkortelser på virksomheder og navnene, der kommer i en lind strøm, og som det er svært at holde styr på, især hvis man ikke kender Bergslagen og Hedemora indgående. Det er ærgerligt, fordi det kunne være løst af en forkortelsesliste og et register.

Et sted notere Maths Isacson, at Sune skal hjem og læse Peter Burke, og mon ikke det er har været bogen om den folkelige kultur i Europa, som kom i en svensk oversættelse 1983? Isacson egen bog er tydeligt inspireret af og en videre udvikling af 1970ernes interesse for folkelig kultur og det efterfølgende fokus på mikrohistorie, mens strukturhistorien samtidig tegners op i horisonten, og det spænd mellem forskellige skalaer er givende.

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Contributors

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