1. Introduction

The national TICCIH group in Sweden is Svenska industriminnesföreningen (SIM, The Swedish Industrial Heritage Association). The association was founded in 1989 with the objective to support research, preservation and conservation efforts within the field of industrial heritage. Its direct connection to TICCIH was set in its statutes from very start. It is a network for industrial heritage professionals and is open to anyone who wishes to become a member. SIM cooperates closely with the Swedish ICOMOS section, as well as with other industrial heritage organisations in Sweden.

2. Character of Industrial Heritage in Sweden

SIM uses a broad definition of Industrial heritage – from material remains of industrial production units, landscapes and associated settlements, to archival sources and immaterial heritage such as remembrances and knowledge. Dominating industrial branches in Sweden have been mining and associated metal production and processing, especially iron and steel, forest industry, including saw mills and paper pulp and paper industries, and the engineering industry. In certain parts of the country textiles have been important and most other branches are also represented in the totality of industrial heritage.

Industrial heritage sites range from very small to large-scale, reflecting a long and continuous process of societal changes, sometimes with medieval ancestry. A number of the sites have some kind of protection, but these are primarily small-scale industries from the 19th or early 20th century. The most critical challenges are to preserve and manage large-scale industrial heritage sites and sites in city environments, and to preserve knowledge from the 20th century, the high-industrial period of modern society.

Sweden experiences, as most other countries, a profound societal shift in its move into what has been labelled “the post industrial era”. The big integrated industrial plants are today few and base industries of old are increasingly specialised with formerly in-house activities being outsourced. This latter shift indicates a deeper de-industrialisation than has actually taken place, but all the same there is a fundamental move into white-collar work and information technology. Sweden also belongs to a group of countries in Europe experiencing a very strong urbanisation. This puts a double strain on industrial heritage. On one side the abandoned industrial sites in the cities are often placed on highly attractive localities, and this poses a serious threat to the preservation of their heritage. On the other side it
becomes harder to find new uses for industrial sites in smaller rural or semi-rural settings, as population depletes.

Of late, two developments call for special attention regarding the preservation of industrial heritage. One is the renewed and growing interest in mineral resources, not seldom in former mining areas with protected heritage sites. A second is the continuing remediation of polluted industrial sites, which often calls for extensive encroachment in buildings and sites.

3. Protection and Management of Industrial Heritage

The Heritage Conservation Act is the core legislation for preservation of Sweden’s historic environment. The act protects place names, ancient remains, archaeological finds, historic buildings, ecclesiastical monuments and regulates the export of specified older artefacts.

On the national level, Riksantikvariämbetet (The national heritage board) is the agency of the Swedish government that is responsible for heritage and historic environment issues, thus also for industrial heritage. Its mission is to play a proactive, coordinating role in heritage protection efforts and to ensure that the historic environment is preserved in the most effective possible manner. Industrial heritage was formerly a focus area of the board, but over the last decade the field has received less priority and is dealt with within a broader framework named “the heritage of modern society”. The heritage board does, however, support initiatives from SIM/TICCIH Sweden by funding, by endorsing the awarding of the annual price “The Industrial Heritage site of the year” (see section below) and active participation in events organized by SIM.

On the regional level, the county administrative boards are responsible for day-to-day enforcement of the Heritage Conservation Act – including industrial heritage. In addition to supervising protection of the historic environment and monitoring compliance with the Act in its particular county, each administrative board grants permits, offers advice and disseminates information. An administrative board can also appropriate funds for the preservation of buildings, valuable ancient remains, and areas rich in historic monuments. The responsibilities of the regional boards has increased during the last decades.

Besides SI/TICCIH Sweden there are several other organisations working with industrial heritage in Sweden, more than can be reported extensively here. The museum carrying responsibility for industrial heritage on the national level is Tekniska museet (The national museum of science and technology). Another central museum on the national level is Arbetets museum (The museum of work). Other prominent museums actors nationally are Nordiska Museet (Nordic museum), Statens Maritima Museer (National Maritime Museums of Sweden) and the Swedish Railway museum in Gävle.

On the regional level there are several county museums that take on a prominent role in preserving and interpreting industrial heritage, but of still greater importance is work done at individual industrial heritage sites or networks of such sites. Ekomuseum Bergslagen and other networks of sites based on
the ecomuseum concept should be especially mentioned. Industrihistoria I Skåne (Industrial history in Scania) and Industrihistoria i väst (Industrial history in Western Sweden) are examples of associations and collaborative efforts on a regional level.

Archives like Centrum för näringslivshistoria (The centre for business history), Arbetarrörelsens arkiv och bibliotek (ARAB, The labour movement archives and library) and Tjänstemännens och Akademikernas Arkiv (TAM, The archives of white-collar and professional workers' national unions) also work within the field of Industrial heritage.

Other important actors within the field of industrial heritage preservation in Sweden are the trade unions, especially the Metal workers union. There are also a number of organisations within trade and industry supporting research efforts within their respective fields: the Royal Swedish Academy of Engineering Sciences (IVA), Jernkontorets Bergshistoriska utskott (The historical council of the Swedish ironmasters association), Skogsindustriernas historiska utskott (The historical council of the forest industries federation) and Vattenfalls kulturvårdskomite (The heritage committee of Vattenfall). Builders and architects are important in the handling of industrial heritage and some of the biggest architectural offices have a group of professional environmentalists/conservators, with a responsibility to investigate and map former uses at sites to be redeveloped.

There are some 1400 industrial heritage initiatives, most of them locally based. Although a number of these sites are well integrated into the realm of professional cultural heritage and heritage tourism, voluntary work at these sites is of utmost importance for the future of Sweden's industrial heritage. Besides the three industrial World heritage sites (Engelsberg ironworks, the mining area of the great copper mountain in Falun and Varberg radio station) Göteborgs remfabrik – textile heritage centre in Gothenburg, Forsviks bruk, Almgrens sidenväveri in Stockholm, Pythagoras industrial museum in Norrtälje, Koppardalen in Avesta, The Porjus hydro-electric power station and many others could be mentioned.

4. Promotion and support of Industrial Heritage

In early August 2011 Marie Nisser passed away. Thereby the Swedish and the International communities of scholars and practitioners of industrial heritage lost one of its most persistent and influential members. Marie Nisser was a pioneer when she joined the early cadre that worked to develop the field in the 1960’s. She played a key role in the formation of TICCIM (later TICCIH) and in building the organisation in the decades that followed. Marie Nisser was also the main actor behind the formation of the predecessor of SIM – the Nordic TICCIH section named TICCIH-N. As professor of Industrial Heritage Research at The Royal Institute of Technology in Stockholm Marie Nisser made an unparalleled contribution to the field in Sweden. The chair was the first of its kind in the world, but was unfortunately not possible to maintain after her retirement.

Marie Nisser death left a void and in cooperation with other industrial heritage organisations in Sweden, SIM is co-organising a conference on Industrial heritage in practice and research

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The conference will focus on current developments in the field in Sweden and its possible futures. The keynote presentations of the conference are scheduled to be printed in the peer-reviewed journal Bebyggelsehistorisk tidsskrift (Journal of the Built Environment History).

The primary instruments of SIM/TICCIH Sweden is to award the annual prize "The Industrial Heritage site of the year", to organize conferences as the above mentioned and to provide information to members about research and preservation issues.

SIM has awarded "The Industrial Heritage site of the year" to outstanding industrial heritage projects in Sweden since 1995. These have ranged from small scale heritage projects such as the engineering plant Hylténs metallvarufabrik (2005) to large scale structures such as the 42 km long aerial ropeway system “Kalklinbanan”. SIM awards the price to projects that prioritize the historical content in their preservation efforts, are open to the public, have a reasonable level of political and financial support and above all good novel ideas in their efforts to preserve the industrial heritage. The price has become a valuable tool for the awarded heritage projects in their efforts to raise financial and political support for their preservation efforts.

In previous years, SIM has produced a newsletter that was distributed to its members, but since 2012, SIM has changed its information strategy and has focused on its website, www.industriminnen.se, which is currently under redevelopment with financial support from the National heritage board. The new site will include extensive information on industrial heritage in English.

Previously, members of SIM/TICCIH Sweden became associate members of TICCIH through SIM (non-individual). From 2013 however, SIM will step up its efforts to recruit members to TICCIH by increasing the membership fee to also include full individual membership in TICCIH for all members of SIM. In this way we hope to strengthen the Swedish involvement in TICCIH, focus the international character of industrial heritage and to boost the work on conservation of industrial heritage in Sweden.

5. Advocacy

Besides SIM/TICCIH Sweden there are two other industrial heritage organisations on a national level in Sweden, ArbetSam (The working life museums co-operation council) and Industrihistoriskt forum (The forum for industrial history).

ArbetSam, established in 1998, is a member organisation for working life museums and based at Arbetets museum (The Museum of Work) in Norrköping. The term working life museum stands for an activity aimed at preserving and interpreting the historical value of a workplace – values that can be either material or immaterial. Using a very broad definition ArbetSam lists more than 1300 working life museums in Sweden. Most of them are industrial heritage sites, often small scale, based on voluntary work and limited economic resources. ArbetSam aims to promote and develop preservation practices and interpretation of industrial heritage with a “perspective from below”, to strengthen the identity of the working life museums and to inform about their activities. ArbetSam is working from a holistic...
perspective, where work, technology, production processes, social conditions, public education, culture, trade union and political activities are stressed. In focus are the workplaces and its environs.

Industrihistoriskt forum was formed in 1992 as a free and independent, loosely knitted network for organisations, companies and institutions involved in work on industrial heritage. It has a working (executive) committee, responsible for its activities. Except co-arranging two national conferences on industrial heritage (2008, 2009) Industrihistoriskt forum has conducted few activities during the last years. Papers from these conferences are to be published in 2012.

Both associations work closely together with the SIM/TICCIH Sweden and can enjoy our support if needed. SIM works to encourage members of those associations to become members of TICCIH.

6. Recent activities in Industrial Heritage

Since 2009, some larger projects within the field of industrial heritage deserve special mention. One is “Bergslagssatsningen – kultur och turism” in the old mining district Bergslagen, which is characterised by high unemployment and depopulation. This project focuses industrial heritage as a basis for a broad regional program for (re)development engaging municipalities, county boards, tourism organizations, associations and universities. A group of researchers at four universities in has developed a training- and research program. One research task is to investigate the long time effects of industrial heritage as a tool for economic and social sustainable development. Another investigation concerns conflicts between various interests (cultural heritage, natural heritage and production interests).

Another prominent project has focused the care and preservation of historical mining and industrial dams and waterpower systems, both as historical heritage and for safety reasons. Such dams have often been left unattended and climate change put a new pressure on the old constructions. Three seminars have been organized within this project (Falun, Garpenberg, Sala) and a fourth is planned in spring 2013.

The council for the Stockholm-Mälar region has presented a guide to industrial heritage sites, archives, associations etc. Several museums have also undertaken important projects. The Stockholm county museum has focused the transformation of industrial areas into new uses, both in research and exhibits (När larmet tystnar/When the noise ceases). The national museum of science and technology has produced a new and big exhibition called “100 innovationer” (100 innovations). The exhibition showcases the most important innovations in history as rated by the Swedish people. Tekniska museet has also produced a book on methods and practices in documenting large-scale industrial works, in cooperation with the Gävleborg county museum.

Academia-based industrial heritage research in Sweden has been characterized by a broad international approach, both in terms of cooperation across national borders and in scientific focus. Industrial heritage research is increasingly orienting itself in the direction of the growing trans disciplinary field of “environmental humanities” and deals with research problems of global significance.
such as climate change, globalization and environmental degradation. Examples are the projects “Assessing Arctic futures: voices, resources and governance” and “LASHIPA (Large scale historical exploitation of polar areas)”, studying the relation between climate change, resource extraction and geo-politics in the polar regions. Here researchers from the Div. of History of Science, Technology and Environment at the Royal Institute of Technology (KTH) in Stockholm cooperate with universities in Canada, USA, Russia, France, The Netherlands, UK and Norway. Another example is the project frame “Multiple roles of heritage: Pasts, conflicts, present time”, where The Department of Conservation at the University of Gothenburg cooperates with the School of Planning and Architecture in Bhopal, India, the architectural consultants Space Matters in New Delhi, India and the Norwegian university of Science and technology (NTNU) in Norway. A number of R&D-applications have been submitted, focusing the long-term socio-cultural impact of the Bhopal disaster in India in December 1984 and the possible role of the site as industrial heritage and urban resource in the continuous development of Bhopal.

The processes of urban and landscape renewal during in the former Soviet republics Lithuania, Latvia and Estonia and in the Nordic countries over the last decades was studied in a wide-ranging research and graduate program between 2001 and 2007. The work was carried out in a series of workshops and field visits. The program has now been finalised in a collection of fourteen essays, *Industrial Heritage Around the Baltic Sea*, by researchers, teachers and doctoral students, primarily from the Baltic countries and Sweden.

June 5-8, 2012, The Department of Conservation at Gothenburg University organized the Inaugural Conference of the Association of Critical Heritage Studies, in Gothenburg, Sweden. Several sessions of this conference dealt with industrial heritage.

Extended iron ore mining in the communities of Kiruna and Gällivare-Malmberget in the mining fields of northern Sweden (Malmfälten) will entail the demolition or relocation of important parts of the built heritage. This has attracted special attention regarding the safeguarding of this unique cultural and industrial heritage with both tangible and intangible values.

Images and industrial heritage has attracted a growing interest in Sweden, through studies of images as a source to history and a tool in the interpretation of industrial heritage sites. As in many other countries of “post-industrial” countries, in Europe and North America, there has been a substantial interest in images of abandoned industrial sites.

### 7. Education and Training

Training and education of industrial heritage practitioners in Sweden normally falls within the scope of a more general focus on heritage practice. In most cases an orientation towards industrial and technological historical perspectives could be achieved during the professional career, but there are some courses and options available within higher education to promote such interests. They are...
available foremost at the Royal Institute of Technology in Stockholm and at the Department of Conservation, University of Gothenburg.

Since 1992, The Division of History of Science, Technology and Environment at KTH has been operating a number of courses where Industrial Heritage research has been the main focus. In recent years however, industrial heritage typically forms a part of courses with a broader content. The learning activities are geared towards training students in dealing with advanced research questions, by reading and interpreting the built environments and landscapes of industrial society. Less focus is devoted to the training of students in documentation methods. These courses are:

- Environment and society in a changing Arctic, 10 higher education credits
- Swedish society, culture and industry in historical perspective, 7,5 higher education credits
- Energy and geo-politics, 7,5 higher education credits.

The Department of Conservation at the University of Gothenburg has been running a Bachelor’s program in conservation of built environments since 1978, thus training generalists for the heritage profession. Part of the curriculum is specifically focused on industrial history and the heritage of industrialized society. Student thesis’s that focus on industrial heritage within the program are normally performed in close connection to practice. On master’s level the department runs two courses that falls within the scope of industrial heritage:

- Industrial heritage – use and re-use, 7,5 higher education credits
- Maritime heritage, 15 higher education credits.

8. Publications

Ahlberg, Sven Olof (2012). Bevara betongen [Save the concrete]. Stockholm: Svensk byggtjänst


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Photo 1: Dannemora (image IMG_9395 Dannemora kopia or IMG_9396 Dannemora kopia)

Mining in the more than 500 year old iron ore mine of Dannemora was closed down in 1992, as was mostly believed permanently. During the following years a number of buildings were protected from destruction and change, among them the hoisting tower in concrete built in 1956. In 2012 mining was started anew, after some years of preparation. As the hoisting tower was now needed again and a new concentration unit was needed the conditions for its protection were radically changed. In practice heritage interests are often sacrificed when facing productive/commercial interests. Photo: Jan af Geijerstam 2012.
Cement and concrete are often important building materials in industrial heritage sites. The care and restoration of such constructions raise difficult questions, in a field of practice where knowledge has been incomplete. Restoration and maintenance work at the former iron ore mine of Stripa, awarded as the Industrial Heritage site of the year in 2010, has been extensive, not least in the hoisting tower. See also Ahlberg (2012). *Bevara betongen*. Photo: Kri Bennström 2010.

*Photo 2. Stripa iron ore mine (image IMG_1544 Stripa foto Kri or IMG_1539 Stripa foto Kri)*

The industrialisation of the 19th century sparked Göteborg’s shipyard era. Three of the world’s biggest shipyards in the 20th century grew up on the north bank of the Göta Älv River in Gothenburg. In the

*Photo 3a. The waterfronts of Gothenburg (image IMG_5979 The Eriksberg development ara, Göteborg May 2010)*

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same period, Gothenburg became the most vital port in Scandinavia. Today the harbour area of is the biggest regeneration area in Sweden. It started in the 1970s, when the shipyards and ports along a five-kilometre long stretch closed down and were made available for other uses, mostly residential areas and offices (Norra Älvstranden, the North Riverbank). Construction activity was at its height 2000–2010. It also involves extensive renovation of the big old machine shops from the shipyard era and their transformation into new uses. The crane of the Eriksberg shipyard, closed down in 1979, and its dock is the most prominent remembrance of the industrial era. Photo: Jan af Geijerstam 2010

Photo 3. The waterfronts of Gothenburg (IMG_5864 Eriksberg May 2010)
The methods and models developed in the regeneration project Norra Älvstranden (The North Riverbank) in Gothenburg have led to new plans and ideas for a whole River City – Centrala Älvstaden – including districts of the south bank and adjoining areas as well. Älvstranden Utveckling AB, a wholly-owned municipal company, and the City Planning Authority have set up Älvrummet, a forum where current information on the transformation and its planning is gathered. Here the history of the shipyards and harbours of central Gothenburg meets the present. The demise of the shipyard industry in Gothenburg resulted in the loss of 15,000–20,000 jobs. Photo: Jan af Geijerstam 2010

Photo 4. Mining water power dam
Above the copper mine in Falun, and a part of the world heritage site, is an extensive pond system of medieval origin. The first parts were created in the 1200s to supply the copper smelting works with power. As the mining went deeper and deeper there was an increased need of hoisting equipment for clearing the mine of water and to bring up the ore and waste rock. The water system grew to its present size with thirteen tailings dams and reservoirs over an area of more than three square kilometres.

Today, the water system has lost its original practical function as a power source. It has though become a part of a the mining area of the great copper mountain in Falun, a World Heritage Site, and
an important part of a vibrant cultural and natural landscape. The dams represent a threat not only to the World Heritage site in itself but also to buildings and housing in Falun and they require continuous care and maintenance. The image shows Kondiksdammen, the biggest dam just above the copper mine. As numerous other such dams, there are some 1,000 only in the county of Dalarna, it raises the issue of how the historic pond facilities shall be maintained and secured. Photo: Jan af Geijerstam 2010

Photo 5. Hälleforsnäs foundry
Contamination is often a significant, although very undesirable, part of industrial heritage. The community of Hälleforsnäs has about 1600 inhabitants. The oldest part is the area around the Bruksammen (the Mill Lake). This is the location of the foundry, which after a devastating fire in 1934 is an architecturally very cohesive environment from the mid 1900's. In the mid-1960s, some 950 people were employed, but the activity dropped dramatically during the following decades and the final casting was made in 2010. The mill has now partly been transformed to new uses: partly industrial, but mainly commercial buildings, a museum and a cultural centre. In the late 1990s an extensive examination established that part of the area was heavily polluted by tar, heavy metals and arsenic, petroleum and chlorinated solvents and in the buildings heavy metals, asbestos, PCBs and mercury. This raised the questions on who would pay for clean-up and what should preserved of the buildings. In Hälleforsnäs a clean-up project was initiated and has now been finalised, with a control program which will run until 2020. Total costs will be about 80 MSEK. Photo: Jan af Geijerstam 2011