ABSTRACTS

REUSING THE INDUSTRIAL PAST

ICOHTEC, TICCIH & Worklab joint conference in Tampere, Finland
10th–15th of August 2010

WEDNESDAY
Session W1A
Room A1
8:30–10:00

TRANSFORMATION OF INDUSTRIAL ENVIRONMENTS: PROCESSES, TOOLS, RE-THINKING I

Chair: Helmuth ALBRECHT, Institute for the History of Science and Technology, Technical University Freiberg, Germany

Industrial Cultural Landscape Montane Region Ore Mountain on the Way to UNESCO – Public Participation and Community Involvement

Heidi PINKEPANK
INIK GmbH, Germany

Based on the hypothesis that heritage protection (in particluar World Heritage) creating economical and development barriers is due to restricted communication with and participation of the local communities, this paper discusses the importance of Public Acceptance, Participation and Community Involvement using the example of the Industrial Cultural Landscape Montane Region Ore Mountain (Erzgebirge/ Krusnohori). The Montane Region is of particular interest since it is a Cultural Landscape, a serial and transnational property and therefore features a variety of aspects of participation and community involvement including language and mentality barriers. The central challenge of dealing with such a living cultural landscape, however, lies in responding to development dynamics to allow socio-economic changes and growth on one hand, while simultaneously respecting the traditional cultural landscape and its surroundings. In order to achieve this, goals have to be defined and strategies for implementation developed.

In the context of this Paper, important insights regarding the variety of stakeholders were gained through face-to-face interviews of representatives of certain stakeholder groups (e.g. local tourism, local businesses, local people, church representatives, museums, culture representatives) in the Ore Mountain (Germany and Czech Republic).

It has been realized that the involvement and informed participation of all stakeholder groups from the very beginning may help in identifying and overcoming conflicts and in developing joint strategies and suggestions for action. This however, assumes awareness and acceptance of the Industrial Heritage, often neglected for minor value.

A Knot in the Action Network – Pori Cotton Factory as Cultural Heritage Process

Anna SIVULA
University of Turku, Finland

My paper is concerned with the change of practices of the evaluation and recognition of industrial heritage in Finland after late 1960's. I examine how a typical case of local industrial site, Porin Puuvilla (Pori Cotton Factory) reflects an international transformation of the places of industrial activity to esthetic and historical heritage. My source material includes interviews and public documents, inventories of listed buildings, official memorandums and historiography. Since my approach is inspired by the action network theory, I keep my eye on the government control and other efforts of trying to change the society.

Industrual heritage is cultural heritage. Cultural Heritage is a process, not an object. It is the networking of different public and private actors with different goals. The structure of this networking becomes visible in my small scale case study of Pori Cotton Factory. An individual industrial site ties the whole network together like a knot.

Industrial heritage of 1800's and early 1900's was recognized and established in Finland as late as in the early 1970's. Instead of being places of work, these factories became places of memory. Industrial heritage was a both theoretical and practical problem. The new kind of cultural heritage was defined in a complex network of changing interpretations of national history, public and private economies, governing structures, local and provincial municipalities, new esthetics of landscapes and townscapes, and the possible uses of different pasts and the traces of these pasts. Culture of History changed slowly in Finland. Industrial heritage transformed from risk to resource.

WEDNESDAY
Session W1A
Room A1
8:30–10:00

From Breweries to Creative & Cultural Parks – The Challenge and Potentialities of Industry Heritage in Taiwan

Min-Tsung CHENG, Chao-Ching FU
National Cheng Kung University, Taiwan

Catching the cultural industry trend in the West, Taiwan put forward a plan called "Challenge 2008 - National Development Key Plan" in 2002, starting to develop 5 creative & cultural parks on the island. All of the 5 parks reuse Taiwan Tobacco & Liquor Corporation's breweries and other related facilities located in Taipei, Taichung, Chiayi, Tainan and Hualien.

While the Taiwan Tobacco & Liquor Corporation became privatized in last decade of the twentieth century, many breweries and factories became deserted spaces and were in urgent to be released. At that time, the Council for Cultural Affairs of Taiwanese Government intervened and the concept of the 5 creative parks emerged. More than seven years has passed since Taiwan Government proposed "Challenge 2008 - National Development Key Plan" in 2002. However, five creative & cultural parks are still in their preparation period. This paper will argue, from the viewpoint of the industry heritage, that there exist potentialities in these breweries. The paper will also discuss the challenge facing these creative & cultural parks when the industry heritage are reused as their main settings.

SYMPOSIUM ON THE SOCIAL HISTORY OF MILITARY TECHNOLOGY I

Organiser & Chair: Barton C. HACKER, Smithsonian Institution, USA

Soldiers as Stereotypes: Generic Images of Soldiers in European Art, 1400–1650

Bert HALL
University of Toronto, Canada

This is a paper on portraits of military types between 1400 and 1650. By that I mean images of soldiers as generic types rather than specific portraits of famous persons who happened to be soldiers. This follows along the lines I suggested in my ICOHTEC paper at Budapest dealing with images of soldiers in the Children of Mars genre. My guiding notion is that as soldiering changed, so too did painted, drawn and engraved images of soldiers. Landsknechts, for example, were depicted as a generic type of soldier meant to be recognizable as such through clothing, body posture, facial expression and weapons held in their hands. Albrecht Durer's work is full of soldiers as stereotypes,

WEDNESDAY
Session W1B
Room A4
8:30–10:00

Mathematics and Military Formations in Spain during the Old Régime

Juan NAVARRO-LOIDI
Spain

The military men played an important role in the diffusion of the mathematical and scientific knowledge in Spain, mainly during the 18th century. That was due to the failure of court academies and the decay of the mathematics in the universities.

In the 16th century some learned people that had studied in the universities collaborated in the military formation or in the improvement of the armament. Later this relationship disappeared. The mathematicians of the Society of Jesus became the main consultants of the kings and of the heads of the Army for technical and scientific questions. But the Jesuits could not cover the needs of specialized officers of the Spanish army consequently there were several attempts of opening schools and academies for artillery or fortification during the 17th century. In the 18th century, the new Bourbon dynasty tried to improve the technical training in the country. They fomented the professional education, opening military academies among other institutions. The army and the navy had some previous experience and they had good results quickly. They also had the advantage for the crown of being disciplined and not worried by the disturbing philosophical theories of the new science. It was for those reasons that the marines Jorge Juan and Antonio Ulloa went in the expedition to Ecuador with the delegates of French Academy of Science in 1734; or the first treatise published in Spanish including the differential calculation was Padilla's *Curso militar de mathemáticas* (1753, Military Course of Mathematics).

Gunpowder and Military Engineering in Mid-18th-Century Brazil

Carlos A. L. FILGUEIRAS
University of Minas Gerais (UFMG), Brazil

With gold production in Brazil mounting considerably in the early 18th century, and the metal leaving the country through the port of Rio de Janeiro, the greed of many was entailed. Thus the city was invaded by a fleet of 17 French ships in 1711, under Admiral Duguay Trouin. The city's feeble defences were no matches for the French, and a reaction to this vulnerability eventually led to better defences and the teaching of engineering and artillery. This was led by Brigadier José Fernandes Pinto Alpoim (1700–1765), born and educated in Portugal, who arrived in Rio de Janeiro in 1739 and there spent the remainder of his life. He was a devoted servant of the state and of the city´s governor. As a true polytechnician, he left his imprint in many works of engineering and architecture still in use today. He also taught military engineering and artillery, and wrote two books for his students. The latter of these, published in 1748, contains 75 pages on the composition, manufacture and use of different kinds of gunpowder, as on many other aspects relating to the subject, even on the preparation of colour flares. He had carefully studied the literature of the time and innovated on several points. Although industrial manufacture of gunpowder would only start at the beginning of the 19th century, his early efforts were outstanding. Alpoim, his teaching, defences and gunpowder were in good part instrumental for his adopted city never being attacked again.

WEDNESDAY
Session W1C
Room C5
8:30–10:00

PLAYING WITH TECHNOLOGY I

Organisers: Hans-Joachim BRAUN, Stefan POSER, Helmut Schmidt University Hamburg, Germany & Nikolaus KATZER, German Historical Institute in Moscow, Germany
Chair: Stefan POSER, Helmut Schmidt University Hamburg, Germany

Playing with Technologies – The Discursive Construction of Technical Toys in Early 20th Century Germany

Anika SCHLEINZER
RWTH-Aachen, Germany

Asked to quickly name a technical toy for children, undergraduate students in modern history classes usually list one of the following: airplane, train, car, building blocks, gun or tool. Traditional boy's toys are the first artifacts that strike their minds. Neither household technologies en miniature or talking baby dolls – toys usually given to girls – nor gender neutral appliances such as optical devices or musical instruments are commonly perceived as technical toys; although these artifacts are "technical" as well, by all levels of the terms definition: They are man-made objects that require technical know-how as well as practical skills in producing and using them.

Yet, just fitting into a definition seems not to be enough to pass an object off as a technical toy. Rather subliminal signs, inscribed into the artifacts body, indicate its technological character. In this paper these hidden attributes shall be uncovered by tracing back their historic roots in early 20th century Germany. Especially during the interwar period discourses about the technicality of toys frequently appear in journals of the toy industry, in educational guidebooks and other intellectual literature. These sources will be questioned with methods of the historical discourse analysis, in order to understand the complex construction of technical toys as boy's toys and – in a broader context – to understand the firm connection between technology and maleness. In a second step the problematic gender implications that result from the persistence of the discourse to this day shall be addressed. A broader definition of "technology", as developed by feminist scholars in the field, will be introduced and its implications on the definition of "the technical toy" will finally be discussed.

The Romance of Technology in the Cold War Era: Leonard de Vries and His Hobby Clubs, 1947–1966

Dick VAN LENTE
Erasmus University Rotterdam, The Netherlands

The late nineteen forties to the early fifties were a period of rapid technological innovation, much of it related to a wave of automation in industry, the build-up of nuclear weapons arsenals and the introduction of computers for peaceful as well as military applications. The popular culture of this period reveals profound fears of these innovations, which threatened employment, human autonomy with respect to machines and life on the planet itself. At the same time, it shows fascination with technology's wonderful products, such as plastics and transistor radios. During these years, the Dutch writer Leonard de Vries captured the imagination of thousands of boys (and a lesser number of girls as well) with a series of books about the adventures of a group of secondary school youngsters who came together every week to build radios, electrical equipment, and model airplanes, and make photographs and films. The book articulated a fascination not as much with technology's products as with the excitement of technological creation and collaborative work.

Soon after his first book appeared in 1947, the author started to receive letters from boys who wanted to start such a club. De Vries then created a journal called *Hobby Club*, financed in large part from advertisements of industrial and other firms, which served as a kind of paper guide to the many boys and girls who started clubs. In 1950, 47 clubs existed. Industries were enlisted to support them by furnishing material and equipment and providing technical coaching. The movement withered away during the sixties.

The paper describes and analyses the remarkable success of this initiative of playful, hands-on technology popularization during a period when many people were scared and skeptical of new technologies such as nuclear power and automation. While clearly a grass roots movement, De Vries and his young followers found much support from industry, which at that time was in great need of young technical workers and engineers. The decline of the movement will also be discussed: the role of the general decline of youth organizations, the loss of interest from industry after the postwar reconstruction was accomplished, and the increasing criticism of technology during the sixties.

WEDNESDAY
Session W1C
Room C5
8:30–10:00

The Rational Playground in America

Carroll PURSELL
Australian National University, Australia

A reform movement to provide urban playgrounds took shape in the late 19th century and became a part of the larger Progressive reform movement of the early 20th. By this time children had adapted city streets and structures as tools and venues of their play, an appropriation considered both anarchic and dangerous by concerned adults. Reformers sought to define discrete and dedicated areas as playground, equipped with a range of structures and tools for play and staffed by professional supervisors. A strong Taylorist bias dictated that rational, "scientific" play, properly directed by adult supervisors, would shape working class children into better and more disciplined workers for American industry.

Ironically, by the mid-20th century the structure and equipment of the typical playground in the United States came to be seen as themselves, like the city streets before them, too dangerous for children's play. A new generation of "safe" technologies were introduced to reduce the chances for injury, and therefore reduce insurance costs and the chances of litigation.

Bridging to the Future: Reusing the Relics of Destroyed Bridges over Odra River

Jakub WERKOWSKI
University of Zielona Gora, Poland

In early 1945, retreating German troops destroyed number of bridges on Odra river to stop approaching Red Arm on its way to Berlin. After the war the land on both sides of Odra river in its upper and middle became a part of Poland. Some of those destroyed bridges have been reconstructed by Poles. Some of them however, have never been rebuilt. In some cases a pedestrians and cars are moved by ferries, in very few cases no transportation across the river is provided.

The bridges built by Germans over Odra river, were a part the transportation network serving their needs. After the war, due to shifted borders, changes in settlement pattern, relocation of regional economical and political centers, the main streams of transportation network has significantly changed. Some of the bridges erected by Germans could still serve the needs, some were disregarded. Nowadays the growing economy and social needs are the factors leading to expansion of transportation network. In new conditions the question of reusing the remaining of those destroyed bridges emerges. In each case a thorough study should be carried out. It should consist of geological study, inspection of existing pillars. On the other hand such study should involve urban spatial, and environmental studies, like planed new connections between cities. In some cases one need to look for a new application of even undamaged old bridge, as it may appear that there is no reason to re-erect it as road or railway link.

The paper reflects upon the engineering, economical and social problems with reusing the relics of railway and road bridges over Odra river in Poland. What has to be done is examining the safety of what remains, commercial viability and whole cost of venture and what is most important: will bridge be useful? And why not to make it a tourist attraction? This is a case study of five bridges in Polecko, Milsko, Brody, Stany and Pomorsko.

WEDNESDAY
Session W1D
Room C6
8:30–10:00

Reshaping a Waterscape Heritage

Norbert TEMPEL
Westphalian State Museum of Industrial Culture, Germany

Transformation of an old canal – connected to the Henrichenburg Shiplift monument – to a museum harbour and shipyard

When the Westphalian State Museum of Industrial Culture took over the famous Henrichenburg Shiplift – a big scaled listed monument – as one of its eight industrial sites a 400 meter stretch of a disused canal on the upper pool of the shiplift belonged to the site.

The 1899 shiplift has been restored as a splendid piece of engineering and architecture of its time. The canal – used as a deposit for mud-laden fluids – has been rehabilitated and developed by the museum as a part of a waterscape open air museum, giving shelter to the little fleet of historic inland boats and ships and serving as a shipyard for their appropriate repair and maintenance. Therefore a couple of technical devices have been translocated and erected on the site, e.g. a lifting bridge, a sluice gate as a safety device between the private and the public canal, a goods shed with a railway track, cranes for unloading goods, a shipyard with slipway, most of them in working order.

Research:
Documentation (photos and layout) of historic technical devices, small harbours and shipyard situations

Discussion of the sources:
Plans, maps, images and descriptions of the Henrichenburg site as well as reports and investigations on the reused technical devices

Summary of the major conclusions:
Together with a unique collection of ships and devices for hydraulic engineering constructions the museum harbour gives an impression of a holistic – though artificial –assembly of comprehensible situations forming a typical waterscape of the first half of the 20th century.

The Karl-Heine-Kanal Plagwitz, City of Leipzig, Germany. The Reuse of Industrial Environments

Burkhard PAHL
Leipzig University, Germany

The industrial infrastructure, which influenced the development of Leipzig decisively, has become finally obsolete, caused by the Fall of the Berlin Wall in 1989. Repositioning of whole town areas, decisions about wrecking, conversion, consideration and blocking of interest in investment had to be made.

The Karl-Heine-Kanal, indicated as a historical monument for industry and named after "Karl Heine"(1819–1888), an industrial pioneer, was misused as place for sewage and waste disposal at last. After 1989 the Karl-Heine-Kanal gave Leipzig-Plagwitz its identity in an oppressed cityscape. Its striking topographical cut and numerous bridges have been preserved and advanced. Today the Karl-Heine-Kanal has become a stabilised element in the post-industrial modern cityscape.

The following aims have been achieved:

1) Integration of a superior network of roads (rail to cycle path, reverse side to right side, people close to the water)
2) Registration and reconstruction of historical bridges and the construction of the "Karl-Heine-Bogen" in addition to the existing bridges.
3) Compensation of deficiencies, creation of a landscape park as a new identity fort in the centre of Plagwitz
4) Concepts for the afteruse of historical industrial buildings and constructional realisation
5) Deleterious substance cleanup, improvement of water quality and access to the water
6) Initiative for a network of watercourses based on long-term quality assurance

Right from the beginning the Institute of building design and management has attended these process competently on important steps, for instance as a member of the "Plagwitz 2000" steering group (one branch of EXPO 2000), as a creative director of future use strategies for important industrial buildings along the Karl-Heine-Kanal (such as workshop Stelzenhaus, workshop Industriestraße). Another example for the professional attendance was the close collaboration with municipal agencies for the systematic registration and construction of buildings on the channel.

The Karl-Heine-Kanal has survived as an important cultural heritage and has a good chance of further development.

WEDNESDAY
Session W1E
Room C8
8:30–10:00

IN OR OUT OF THE GLOBAL BOX? INDUSTRIAL HERITAGE FROM DIFFERENT PERSPECTIVES. CHAPTER 2, I

Organiser: Györgyi NÉMETH, University of Miskolc, Hungary
Chairs: Györgyi NÉMETH, University of Miskolc, Hungary & Stuart B. SMITH, TICCIH Secretary, UK

New Challenges for Industrial Heritage Actions in a Global/Local Context

Marie NISSER
Royal Institute of Technology, Sweden

The first Industrial Heritage Conference in Ironbridge in the United Kingdom in 1973 (TICCIM) was Eurocentric. Today the scene for Industrial Heritage Activities has totally changed and I would like to characterize some important steps towards a more global approach along the path we have taken since then. The challenge will be to discuss the achievements of those 37 years and evaluate them in order to outline some important fields for a further global co-operation with the hope that it will set its impact on the local arena. Furthermore one focus will be on the important field of training and research and of joint fieldworks a topic that has already been discussed in three international workshops.

The arena for Industrial Heritage activities has continuously expanded and the professionalization in the field has become more and more in demand for a multiple of different needs. All this has happened in the latest decades where we have seen the transition of societies and the challenges to tackle the problems of a changing world. There is a wide range of urgent tasks that require different skills and approaches. The continuous documentation of our industrial past, the listing and preservation of significant sites and objects, the extensive work concerned with urban transformation and land reclamation of abandoned and contaminated "deserts" once created by industry must be dealt with. And in addition to all that are the needs to develop a new platform for an industrial society in transition. And finally, I would like to take the question of joint research projects in a global context.

How Local Is Global? Cases from Asian Experience of mAAN, the modern Asian Architecture Network

Moulshri JOSHI
School of Planning & Architecture, India

What was being referred to as a loosely-knit network of modern architecture enthusiasts, mAAN in Asia is steadily emerging as a dynamic collaboration of architects, historians, conservationists, anthropologists, sociologists, landscape architects, artists, students and teachers from over a dozen cities in Asia working towards reestablishing & refreshing the way people across their cities connect to their built heritage. A decade of being a 'loosely bound' system has been of great advantage to mAAN. It has been a tool for exploration of as it assimilated and reached out to a diverse audience. Through international conferences, design workshops and inventory buildings field school mAAN has connected with the local community, schools, policy makers, school children, administrators and very recently the local industry – rooting itself strongly to the 'local'.

Over the years, mAAN has had special & memorable rendezvous with industrial sites…sometimes by chance but almost always by design as the vastness of that industrial sites have on the collective cultural heritage of Asian cities is difficult to exclude in any study of cities. The mAAN Macau Declaration is shares this belief and concern very vividly. "Industrialization, urbanization, westernization, colonization, decolonization and nation-building-these phenomena have variously defined Asian modernism. Modern Asia has not developed in a vacuum but has evolved through sustained interactions with the West, which has had a constant presence in our collective consciousness. This shared experience of the world unites us as Asians. The history of dealing with the West, with our neighbors and with ourselves, is manifested in the myriad forms of our architecture. The history of modern architecture in Asia is the history of how Asians have become modern.

PT Semen Padang, the oldest and one of the largest cement manufacturing companies in Indonesia, has initiated cooperation with mAAN to guide the revitalization process of their 100 year old factory plant of Dutch parentage & Danish manufacturing in West Sumatra. In its efforts to evolve an inclusive and educational agenda in industrial revitalization – which can be used as a model for development for other such sites, mAAN is acting as the catalyst in the change

by connecting industry to community, education to practice, legacy to memory and past to the future, simultaneously. Over a hundred people combining students, academics, historians, architects, conversation architects, landscape architects, planners, policy experts, film makers, engineers and project managers, are engaged in an intensive creative exploration. Teams are exploring diverse interventions while a dedicated group is documenting the process in various media, languages and for a mixed audience as an extension to mAAN's role as an engine for disseminating information in the public realm.

This methodology of generating collaborative enterprise between members and to implement research into practice is unique to mAAN. This also reflects mAAN's understanding that its team is "large group of diverse individuals with specific skills and knowledge and that mAAN is able to bring these people together for positive & proactive purposes from both theoretical and practical perspectives".

Global Cultural Frameworks for Local Industrial Patrimony

Francesco CALZOLAIO
Venti di Cultura, Consorzio Venezia Nuova, Italy

Cultural Territorial Networks (CTNs) are instruments of protection, knowledge, and enhancement of the patrimony created by the Local community, that lives and works in a territorial unity. CTN provides a global audience and comprehension to the local cultural resources

Very different landscapes, museums, sites, patrimonies are dispersed in the territory they define and represent. Interpretive Routes (IR) of the CTNs are a continuous sequence of landscapes and museums, in order to discover and communicate the complexity of the fragile and precious territory.

Lagunalonga is a tentative IR of the cultural patrimony in the lagoon of Venice, promoted by the association Venti di Cultura (VdC), involving, citizens, stakeholders, and cultural tourists. VdC is a non-profit association specialized in water routes and cultural networks.

Lagunalonga berths in places particularly significant and already structured to communicate identity and wealth of the heritage. These docking stations are the museums of the productions, material culture and environment, scattered in the lagoon of Venice (North and South) and in the surrounding rivers and canals (Piave and Brenta), as like as the museums of: Glass in Murano, Lace (Burano), Fishing (Chioggia and Pellestrina), Footwear (Stra), Agriculture (Dolo), Maritime (Arsenale), and Land Reclamation (San Donà).

Lagunalonga is a yearly event of five days of June, when a fleet of houseboats crosses the extraordinary built landscape of the lagoon, and stops over the museums, with multicultural events open to the local population. Enhancing collections, patrimonies and territories so different, Lagunalonga not only invites to a new cultural offer, but also strengthens the sense of belonging among the territorial community based on the water.

WEDNESDAY
Session W1F
Room C9
8:30–10:00

ENERGY USE VS. THE ENVIRONMENT I: TENSIONS AND RESISTANCE TO ENERGY POLICY

Organiser & Chair: Timo MYLLYNTAUS, University of Turku, Finland

Energy, Property, and the Industrial Revolution Narrative

Stefania BARCA
University of Coimbra, Portugal

The Industrial Revolution is the core of a mainstream economic history narrative of energy/development relationships, celebrating Modern Economic Growth (MEG) as the increase in per-capita energy consumption in the last two centuries. Such narrative emphasizes the importance of fossil fuels and private property as the key elements of growth processes. From a socio-environmental history perspective, I will criticize the above narrative for its inability to account for two crucial aspects of energy history:

1. The role of social power as key determinant in how energy sources are used and to what ends;
2. The socio-ecological costs associated with the increase of energy consumption.

I will then review Environmental History studies on energy/industrialization and highlight possible future developments in the field. The paper will makes a strong point for the need to look at energy transitions as social processes, and to include the unequal distribution of environmental, health, and social costs of mineral energy into global history narratives.

Indigenous Encounters with the Nuclear Industry: Public Comment Testimony at the United States Advisory Committee on Human Radiation Experiments

Julie BODDY
The Library of Congress, USA

Industrial production of nuclear materials has intensified asymmetrical cultural distinctions, especially those with strong racial identification. The involvement in the enterprise of nuclear technology of heirs to generations of alienation from entitlement has compellingly secured their compliance as unknowing subjects of the experimental use of radioisotopes and as unknowing denizens of dangerously polluted environments. Moreover, it has complicated their attempts to recover from the onslaught.

The paper proposed here focuses on three sequential testimonies from the region of the Hanford plutonium plant which were given by Darcy Thrall at public comment sessions of the Advisory Committee on Human Radiation Experiments held between 1994 and 1995. It explores these testimonies in the context of trans-cultural supports which helped her to come forward. With reference to the weight of cultural tensions in the testimony, the exploration underscores Native American and community-based organization that paralleled Darcy Thrall's decision to claim her right to memory and to public corroboration.

Power and Resistance from Nuclear Plants to Wind Parks: A History of the Greek Experience

Stathis ARAPOSTHATHIS
University of Leeds, UK, University of Athens, Greece
Katerina VLANTONI, Aristotle TYMPAS, Foteini TSAGLIOTI
University of Athens, Greece
Vaso AGGELOPOULOU
University of Athens, Greece, National Technical University of Athens, Greece
Ioannis D. MARGARIS,
National Technical University of Athens, Greece

The history of resistance to nuclear energy has been studied from a perspective that takes into account resistance to other technologies. The standard comparison is that between resistance to nuclear power and the more recent resistance to biotechnology. The presence of historical actors that fought against both nuclear energy and biotechnology never seemed surprising. By contrast, the presence of historical actors who fought nuclear energy but then moved on to also fight wind energy seems very paradoxical. We here attempt an explanation of this seemingly paradoxical phenomenon based on research on both the history of resistance to nuclear power and resistance to wind power. After reviewing the available secondary literature, we move on to present our team research on the Greek experience with resistance to both nuclear power and wind power. The Greek government of the second half of the 1970s advanced plans for the installation of nuclear plants, which were met with strong resistance and were eventually cancelled. In the context of this resistance, several participants in the anti-nuclear movement pointed to wind power as an alternative to nuclear power. It then seems doubly paradoxical that some of the actors have also provided strong resistance to subsequent attempts at introducing wind parks in Greece.

Based on a research project that combines the study of technical and scientific publications with the study of the public image of energy technologies (as advanced by media publications), we conclude by suggesting that the simultaneous consideration of historical resistance to both nuclear and wind power can help us understand critical divergences within the same energy technology. More specifically, our findings point to a decisive difference between big and small wind structures, with grid-connected wind parks and stand alone wind units representing two radically different social and technical orientations (centralized versus distributed energy production and consumption). While focusing on the history of resistance to energy technologies, in this paper we register observations of relevance to the historical definition of an energy technology as friendly to the environment ('alternative', renewable', etc.).

HISTORY OF ELECTRICITY REINTEPRETED AT THE MUSEUMS I

Organiser & Chair: Kimmo ANTILA, Museum Centre Vapriikki, Finland

WEDNESDAY
Session W1G
Room A05
8:30–10:30

Global and Local Perspectives in the History of Electrification

Kimmo ANTILA
Museum Centre Vapriikki, Finland

Museum Centre Vapriikki located in Tampere, Finland has started a new exhibition and research project focusing on the past and present of local technical know-how. In the first phase we have been focusing on the history of electricity and light. Tampere was the first town in Northern Europe with Edison electric light system already in 1882. The story has been previously told with the emphasis on the local actors and activities. I our exhibition project we have changed the perspective towards global networks and marketing processes. In the exhibition we have used extensively different kinds of multimedia presentations. In my paper I shall also discuss about the possibilities to integrate mechanical devices and digital content when exhibiting science and technology heritage at the museums.

WEDNESDAY
Session W1G
Room A05
8:30–10:30

Energy Issues Between History and Future. Plans for a New Exhibition on Energy, Electrification and Climate Change

Dag ANDREANSSEN
Norwegian museum of Science and Technology, Norway

The Norwegian Museum of Science and Technology produced a price winning exhibition on climate change, open in 2008 and 2009 in Oslo. Now the museum is in a process of planning a remake of the museums energy exhibition from 1989, and the discussion is now open to what kind of exhibition is wanted. Should it focus on electrification and the system at a national and political level? The industry and the "second industrial revolution"? The consumer? Or rather on alternative energies and climate change?

Addressing these questions in an international discourse, both in the museological and in the broader academic research field, would be most significant for the further development of the exhibition.

Lenin's Electrification Plan and the Lenin Museum

Aimo MINKKINEN
The Lenin Museum, Finland

The information society requires the transfer of material from the museum to electronic form: scanning, digital recordings, web-pages, CD-ROM's. In the Lenin Museum the processing and transferring of data to the computer has been particularly challenging because Lenin himself was an advocate and pioneer of electrification.

Lenin considered electrification as the first important step in the transition to modern society. He called the electrification plan the second programme of the party. The plan is introduced in the Lenin Museum's exhibition.

A saying of Lenin's was "Communism is Soviet rule plus the electrification of the whole country." In the Lenin Museum, this idea is being implemented by the transfer of the entire museum's material to electronic format.

Generating electricity in Russia was a matter of the heart for Lenin. In the early 1900s Lenin, Stalin and the Siemens engineer Leonid Krasin had seen in their visit to Tampere the use of electric lights in streetlamps and in factory halls.

In the Lenin Museum's exhibition there is a photograph of English science fiction writer Herbert Wells's conversation with Lenin in the Kremlin about electrification. Lenin told Wells that he will do everything to set up Russian power stations, which would provide energy for lighting, transport and the industry sectors.

The electric bulb that brought light into Russia's "dark" countryside came to be known after Lenin as "Ilyich's lamp". In the Lenin Museum shop it is sold as a reflector.

WEDNESDAY
Session W1G
Room A05
8:30–10:30

Making the History of Electricity Easily Approachable

Kimmo KYLLÖNEN
Elektra Electricity Museum, Finland

Electricity museum Elektra was opened to the public in 1999 and has approximately 400 m^2 of exhibitions. The museum is funded solely by the Finnish transmission grid company Fingrid. Elektras exhibits cover the electrification of Finland from households to the building of the national transmission grid. Special exhibitions bring forth various themes of electricity and electrification that are either historically interesting or currently important.

As a museum Elektras primary mission is to make electricity and its history easily approachable and interesting to all kind of visitors. Nowadays problem is that western people living in technologically advanced society like EU tend to forget how great the effect of electrification has had to our development towards industry driven wellbeing. All of our systems lie on power supply and thus are greatly dependent of the technology. As a technology the electricity is relatively new invention and yet it has become so important so fast. Elektras secondary mission is to uphold and reserve the transmission grids history.

Elektra is soon maturing to its teenage years, and has evolved in various ways during its first decade. The aim has been shifted from nostalgic scenes of the past towards educating children and students and to make science and technology around electricity interesting for everyone. The short presentation will gather our efforts and attempts to "what, why and how" stylish approach.

Technological Optimism and Technological Pessimism in the Russian and German Philosophy of Technology at First Part of the 20th century

Vitaly GOROKHOV
Karlsruhe Institute of Technology, Germany

S. Bulgakov emphasises that the theory of technological progress was transformed in the 20th century into a kind of progress theology that foretold the achievable with the help of modern technology future of the happy, proud and free man. To bring happiness to as many people as possible was put forward as a goal of that super modern religion where human society equipped with technological knowledge played the role of God. That interpretation of progress comes close to philosophy of technology by F. Bon, according to which the question 'What should I do to be happy?' is the most important question of technology. The Russian philosopher of technology, P.K. Engelmeyer, who also came from the initial premise of Bon, deemed the significance of technology in modern culture to have the eudemonical approach. This is a technological optimism. However, Bon as well as Engelmeyer consider this goal of achieving happiness to be subordinated under a higher idea of achieving Virtue. Ethics deals with the matter of Virtue whereas technology deals with the matter of Use. Speaking about the eudemonical ideal S. Bulgakov mentions that this ideal, if taken as a scale for the assessment of historical development, inevitably leads to immoral consequences. Technology begins to dominate over Man, not to serve him, and makes him not happy but miserable. This is a technological optimism.

WEDNESDAY
Session W2A
Room A1
10:30–12:30

Changes in Popular Attitudes Toward Electric Power in the United States

Frederik NEBEKER
IEEE History Center, Rutgers University, USA

Popular attitudes in the United States toward electric power networks have changed considerably over the past hundred years. These attitudes certainly influenced political and business decisions relating to electric power, and they also reveal what electric power meant to people in different historical periods. These attitudes were captured in movies, and today one can use movies both in research on popular attitudes and in teaching the history of technology. In the early decades of the 20th century almost everyone welcomed electric power, especially for lighting. Some movies that illustrate this attitude are Charlie Chaplin's "City Lights" (1931), "Ninotchka" (1939), and "O Brother, Where Art Thou" (2000), which takes place in the 1930s. In the middle decades of the century the proliferation of home appliances, and what they meant to people, is seen in movies such as "Woman of the Year" (1942) and "Father's Little Dividend" (1951). In the 1970s and 1980s environmental and safety concerns came to the fore. In particular, the dangers of nuclear power concerned many people, as seen in the movie "China Syndrome" (1979). Late in the century, new interest in alternative sources of power was shown in such movies as "Naked Gun 2½" (1991). In these and other ways, such as depictions of power outages and portrayal of electrical engineers, movies cast light on the social meaning of electrical power.

Helsinki Formula – An Innovation Where Optimistic Consumers, Pessimistic Authorities and Cheeky Sellers Decided the Outcome

Sampsa KAATAJA
University of Tampere, Finland

In the late 1960´s scientists at the University of Helsinki made a seredipious discovery as a by-product of cancer research. The substance used for the cleansing of the test animals stimulated mice´s fur growth. A question was proposed if this effect could be shifted to the use of people suffering from the hair loss. Eventually research materialised as a patented method preventing the hair loss and as a special hair care product. This science-based innovation of university origin was marketed widely all over the world, and during the 1980´s and 1990´s people commercializing the invention profited hundreds of millions of dollars. However, legal authorities in the USA were sceptical about the scientific quality of the product and sellers were convicted for faulty advertisment.

In this paper the innovation process of the Helsinki Formula hair care product is analysed from the laboratory to the use of markets. Paper shows how the technological quality – how well an application works – is not necessarily the prime reason behind a successful innovation. Sometimes the over optimistic expectations of the consumers and aggressive marketing strategies decide the positive outcome. Paper also analyses the possible conflicts between the academic culture and market culture – a theme that is very topical today when universities are expected to give a bigger contribution to technological innovation than ever before.

Cordwood Building: Technological Comeback in a New Cultural Environment

Olle HAGMAN
Gothenburg University, Section for Science and Technology Studies, Sweden

Cordwood – or stackwood – building was a niche technology in Scandinavia and North America in the late 19th and early 20th Centuries. It uses log-ends which are mortared together with either cob or lime and Portland cement. In Scandinavia the technology was abandoned and forgotten from the 1940s and until the 1990s. In the USA and Canada there has been a revival, especially after a conference on ecological building in the 1970s. In the last decade there are signs of a comeback in Scandinavia too, driven by both ecological and historic interests.

Cordwood building in the past has commonly been referred to as "poor man's architecture", although there are examples of rather impressive buildings raised by people who were far from poor. Obviously economic explanations do not cover all cases in which this technology was chosen. The aim of the paper is to show that by studying contemporary cordwood building and builders we could learn more about possible motives behind these choices. The motives today include both economy and ecology, the possibilities of do-it-yourself and of creating unique and artful structures, the goals of pleasant indoor climate as well as of historic authenticity, and more, in different degrees and combinations. It is argued that cordwood building is a good example that the success or failure of a technology depends on how it may be adapted to local and specific social and cultural conditions, and also, that one specific technology may fit into several different niches.

Humanizing the Rational Factory: Industrial Engineers, Workers, and the Spatial Order of Power in Germany, 1900–1970

Karsten UHL
Darmstadt University of Technology, Germany

This paper will explore how the architecture of the factory became a problem as workflow was rationalized and new machines were integrated into the process of production. The factory ceased its function of a "passive shell simply to house machines, tools, and workers", but "became part of production technology, helping to solve problems that stood in the way of efficient mass production".[1] I will focus on the consecutive "rational" reorganization of the factories' spatial order and its social effects.

Special focus will be on power relations at the plant. It turned out that many German managers, engineers, and scientists of work were especially interested in the human factor at the workplace. This led them to the assumption that it would be more important to utilize individuals than control them with discipline. Measures adopted in this context played an important role in the rationalization of German industry. These provisions turned out to be a very effective way for entrepreneurs and engineers to gain control over the workplace and the habitus of workers. In contrast to older ways of exercising power, like a strong disciplinary factory regime, this strategy was interested in connecting the interests of workers with the interest of the company. In analyzing these processes, Michel Foucault's theory of governmentality proves to be of great value: It is based on the assumption that it became historically more important to utilize individuals than control them with discipline.

The discourse of industrial workplaces, which is to be reconstructed by sources of the science of work, will be put in context with practices of the ergonomic and architectural factory and workplace making. Special emphasis will be placed on the way technological innovations interacted with new social technologies. Within this framework, the design of the factory as a whole will be investigated: the architecture and fixtures of workplaces and staff rooms. Workflow alterations and changes in factories' spatial structure will be analyzed by describing the placements of workers and machines, which in turn create hierarchies and classifications.

1 Lindy Biggs, The Rational Factory. Architecture, Technology, and Work in America's Age of Mass Production, Baltimore, London 1996, p. 2. Lindy Biggs gives a brilliant investigation of how the rational factory became the master machine of production in the United States.

The Factory as "Environment". Social Engineering and the "Ecology" of Industrial Workplaces in the First Half of the Twentieth Century

Timo LUKS
Technische Universität Chemnitz, Germany

From the beginning of the twentieth century onward sociologists, welfare workers, trade unionists and production engineers started to deal in a new manner with the matter 'factory'. Beyond the technological and organizational dimensions of industrial work they established a kind of "ecological" perspective. The factory no longer appeared as a pure unit of production but as a spatial and social "environment". Production, space, social relations and the human factor merged into an idea of a coherent social order. Technology was no longer a matter of single tools and their use by individual workers but part of an integrated order.

Focusing on the socio-spatial order of the factory was a reaction to some basic developments of modern industrial societies perceived as a profound "crisis". Modern industry seemed to dismantle traditional ways of living, social relations and institutions. This perception generated a new practice of "social engineering", providing sociologists, welfare workers, trade unionists and production engineers with "scientific tools" to tackle the most urgent social problems. Reworking the order of the factory seemed to be one way of restoring order on the level of the whole society.

The "ecological" perspective concentrated on the adjustment and allocation of individuals to their environment, trying to overcome individualism and fragmentation and to establish a new "community". Social engineers also aimed at channelling the movement of material and workers. The assembly line became a model for this idea of flow without friction.

I will focus on this "mode of problematization" analysing what according to Michel Foucault can be referred to as the way of "governing" the factory – by means of modern social science, social policy, architecture and engineering. I will answer the question what sociologists, welfare workers, trade unionists and production engineers actually meant when speaking about the factory in the first half of the twentieth century.

Governing the Miner's Body: Technology, Health and Workplace in the Mining Industry of the German Empire

Lars BLUMA
Ruhr-Universität Bochum, Germany

This paper will investigate the human adaption to the underground techno-natural system in German coal mining at the Ruhr area around 1900. It will describe the rise of a modern dispositive that linked industrial coal mining with the production of a new medical knowledge about the miner's body, its productivity and vulnerability at the workplace. The work of miners in the industrial coal mining industry was especially in case of underground winning accompanied with special health risks, which were produced not only by accidents but also by the common hazardous environmental conditions of miners` workplace.

As a response to the environmental circumstances miners had to suffer, an ongoing process of mechanization was initiated to transform the underground mining workplace. This process of mechanization in industrial coal mining considered as the production of a special techno-natural configuration was not only an effect of a rational regime of industrial production but also powered by discussions on industrial health risk dealing with concepts like *hygiene* and *occupational disease* at that time. The typical occupational diseases in German coal mining like silicosis, nystagmus, affection with hookworms etc. will be interpreted as effects of the transformation of nature into a profitably machinery of industrial production and therefore medical approaches to the health problem and engineering problems were frequently interdependent.

Main actor of the medical and hygienic penetration of German coal mining was the *Knappschaft*, a local organized institution, which integrated health, pension and disability insurances for miners. The *Knappschaft* was responsible for the development of a unique health system and a medical infrastructure, which was tailored to the particular needs of mining, incorporating own hospitals and a system of specialised physicians. This medical dispositive produced deep insights in the feedback between the miner's body and its ambient conditions at work.

Furthermore this medical knowledge was not only linked with new technologies of production but also with new social technologies to control the behaviour of miners, which was a necessary precondition for the success of the medical dispositive. Consequently, the *Knappschaft* produced not only health but also a "governmental rationality" rested on discipline and the internalisation of behavioural rules to avoid and to combat health risk in mining. In summary, we can observe the existence of a "medical-industrial complex" around 1900, which was situated around the miner's body whose productivity and health should be assured by technology, medicine, and social control.

This expansion of medical and esp. hygienic knowledge into the practice of mining will be analysed with Michel Foucault's concept of governmentality, which signified problems of self-control, management and discipline as effects of a power-knowledge linkage.

Organisers: Hans-Joachim BRAUN, Stefan POSER, Helmut Schmidt University Hamburg, Germany, Nikolaus KATZER, German Historical Institute in Moscow, Germany
Chair: Hans-Joachim BRAUN, Helmut Schmidt University Hamburg, Germany

Gold from the Laboratory? Soviet Sport, the Sciences and Technology – A Legacy

Nikolaus KATZER
German Historical Institute in Moscow, Germany

What do we learn about the achievements of the social order of communism by analysing Soviet physical culture, sport and leisure? Functionalists considered sport as a social institution that transmits social values to participants. But this can be regarded as inherently a-historical because nothing is said about what 'Soviet sport' actually was and how its astonishing success can be explained. Sport has neither a static function within a political system nor is a society an abstract network of interrelated institutions. In addition, defining sport as a cross-cultural force of modernization means to minimize its specific national or local characteristics. This paper discusses the problems of a comparative history of modern sport by taking the Soviet case as a variant of the global process of social change. It examines what contribution sport in general has made to the concept of Socialist Modernity and to what extent its Soviet variant was rooted in a unique constellation of technological optimism, scientific speculation and social engineering.

Evaluating Technology-Based Joy. Swimming and the Heating Question of Pools in 1960s Germany

Stefan POSER
Helmut Schmidt University Hamburg, Germany

Swimming pools can be described as sites of technology-based sports and leisure: they are large buildings equipped with technology for the filtration of the water, for heating air and water, to make waves as well as to control the quality of the water. In the early 1960s public outdoor pools were normally supplied only by cold water. Thus the question arose if warming up the water would make sense. Due to the high costs of the technical equipment and high running costs, detailed evaluations of this innovation were carried out by the office of sports of the city of Hamburg. The aim was to find out if the warm water would be appreciated by most of the visitors, even if they had to pay higher fees, and to decide about different technical solutions.

The aim of the paper is to investigate mutual influences between technologies, sportive play and innovation processes by a case study, mainly based on archive materials of the Hamburg State Archive. The author will ask:

(i) how a governmental institution acted to evaluate and introduce innovations in the field of play and leisure,

(ii) how the town managed to evaluate technology-based joy and gratification and how swimming pools developed to technology-based sites.

Sport, Technology, and the Moving Spectacle: Bodies Under Study and Bodies on Display from the Mid-20th to the Early 21st Centuries

Jennifer ALEXANDER
University of Minnesota, USA

Moving human bodies have a long history of intersection with technological practices. Even in ancient times writers and poets recognized that how people moved affected how they performed as soldiers or athletes, and whether or not they could become competent artisans. The advent of photography and techniques of studying motion combined in the mid-twentieth century in studies of the biomechanics and physiology of athletes, which greatly influenced the athletic practices not only of professional athletes but of those who played athletics for sport. Central was the concept of motion as spectacle. The early twenty-first century has witnessed the reverse of this development: the mounting of spectacles in which human motion is literally frozen, in real human bodies stripped of their skin, preserved by polymer processes, and posed by curators in athletic postures and observable in widely publicized exhibitions that have toured Europe and the United States. This paper contrasts the pioneering studies of the biomechanics of student athletes done by during the 1940s and 1950s, by University of Minnesota physiologist Ancel Keys, with the techniques and goals of the United States firm Premier Exhibitions, in its popular touring show "Bodies: The Exhibition". The paper argues that spectacle was a tool for Ancel Keys, who used observation as a method of biomechanical analysis, but that the exhibitions illustrate how spectacle can operate very differently. In the exhibitions, spectacle has become the goal itself, in which biomechanics are used as a tool to create apparently realistic athletic postures in a spectacle operated for profit.

WEDNESDAY
Session W2D
Room C6
10:30–12:00

RAILWAY HERITAGE. BETWEEN USING, REUSING AND PRESERVING I

Organiser & Chair: Guenter DINHOBL, ÖBB-Infrastruktur AG, Austria

Railway Heritage Between Using, Reusing and Preserving

Guenter DINHOBL
ÖBB-Infrastruktur AG, Austria

The paper introduces in the session on 'Railway Heritage' and gives an overview of the most discussed and most important thematic areas – and (open) questions.

The guiding principle of the paper is the fact that railways were (and are) built for an everyday transport of people and goods. Railway Heritage contains a huge amount of things of local, national or worldwide importance in railway history. It includes the whole range of rolling stock and a great number of different infrastructure buildings. On the other hand, the responsibility for these things is divided up to diverse actors.

If this framework changes, existing railway lines are in danger to be closed and rolling stock might be destroyed. To conserve and preserve rolling stock is the most important activity of museums and heritage railways. Singular railway buildings like station buildings or engine sheds might be re-used as museum or as cultural meeting place. Railway lines which have a historical significance are much more difficult to handle.

The paper gives an overview of this field of Railway heritage by examples of different actors and their different approaches. Museums, heritage railways and railway companies which operate railway heritage in daily use have different interests and practice of how to deal with railway heritage. The paper present examples for each of these three actors from Austria (e.g. Technical Museum Vienna; Heizhaus Strasshof; Museumstramway Mariazell; Austrian Federal Railway – UNESCO-World Heritage Site Semmering-Railway).

The World Heritage Convention and the Heritage of Technology and Science

Michel COTTE
University of Nantes, France
Marie-Noëlle POLINO
French Railway Historical Society, France

As historian of technology and ICOMOS advisor for evaluation of the properties proposed for inscription on the World Heritage List of UNESCO, I intend to draw a present panorama of the Heritage of Technology and Industry on the List and also for the recent trends into this prestigious recognition.

Background was featured into some main directions of the application of the World Heritage Convention; this met some strengthened themes coming from the technical and industrial heritage practitioners and lobbies. Furthermore the themes implementation in the List followed a chronological order issued from the general evolution through the years of what we call a more "representative, balanced and credible World Heritage List".

First direction was the recognition of the architectural and urban values associated with the history of industry, as housing estate or exceptional technical construction for industry perceived as "monuments". It naturally illustrated the main trend of the first decades of the Convention attached to preserve monuments, group of monuments, a bit later urban values and urban plants.

A second direction arose with the concept of canals as paradigmatic example for transportation corridors and organized routes for the human displacements. Indeed such prior theme for the List in the mid 1990s dealt with others like hydraulics' management, railways lines, bridges, etc. This thematic field we can summarize under the name of "civil engineering heritage" is really very promising and probably underestimated both by State Parties (members of the Convention) and by historian of "industry" as possible nominations.

In parallel, Convention underlined the importance of "cultural landscapes" associated with Human being interweaving with Nature and remolding it. Question of mines and carriers seemed a good example but for a limited number of places; that because history of industry itself and deindustrialization altered too deeply landscapes to present the real attributes for an "Outstanding Universal Value" as core condition for the inscription. Furthermore, the question of the Human be-

ing relationship with Nature trough the industrial pressure is a very strong item for stimulating our thinking about what is "industrial heritage", dealing not only with visible heritage but also with invisible as pollutions and health danger, trait under biodiversity, climate change, and so on.

What seems obvious today is that the heritage of industrial and technical processes itself appears as an underrepresented theme on the List, with only few good and clear examples. Attempts for improving it exist, for instance through some dossiers and through the semi-official "tentative list" of the SP. But that deals frequently with very complex approaches of the property aiming to combine all the tools and all the values offered by the Orientations for the implementation of the Convention for the WH List. Result seems sometime confuse and lead toward misunderstandings of what is really an industrial and/or a technical heritage. Some recent cases will be evocated.

It seems clear that a more clear vision of what is the heritage of technology is required. The recent international UNESCO workshop of London, January 2009, offered an important working text officially associated with the World Heritage documentation: Science and technology, an expert workshop within the framework of the global strategy for the global, balanced and representative World Heritage List.

What needs comments there is:
– The nonuse of the word "industry" but the use of the word "technology",
– The close association of science and technology coming from the traditional Anglo-Saxon approach of these questions.

And more largely as conclusion:
– The epistemic questions associated with the definition of such heritages in the World Heritage Convention context.
– The pragmatic opportunities offered for future.

Panorama Views of UNESCO World Heritage Semmering Railway

Birgit HAEHNEL
SÜDBAHN-Museum, Austria

A prominent view on the Semmeringbahn is the leporello of Carl Ritter von Ghega. He gives the overwhelming outline of the impressing surrounding landscape with a romantic like focus on the artefacts of the railway line. My paper analyses this perception from an art historical perspective and takes it as a ground, from where we can start further questions concerning the representation of the Semmeringbahn in present times. As more than 150 years has passed since the first engine left the station, many modifications and adoptions took place. These changes are nowadays seamlessly integrated and play an important part of how to deal with the UNESCO World Heritage Semmeringbahn – in the sense of preserving and modernizing. In this respect it is helpful to grasp all of these aspects at a glance. New insights need new forms of representation. In cooperation of art and visual culture studies a modification of Ghega's leporello panorama view is designed in spring 2010 and this will be introduced in the session. It takes into account conserved elements of the Semmeringbahn as well as the dynamics of transformations, because the railway is still in daily use.

WEDNESDAY
Session W2E
Room C8
10:30–12:00

IN OR OUT OF THE GLOBAL BOX? INDUSTRIAL HERITAGE FROM DIFFERENT PERSPECTIVES. CHAPTER 2, II

Organiser: Györgyi NÉMETH, University of Miskolc, Hungary
Chairs: Györgyi NÉMETH, University of Miskolc, Hungary & Stuart B. SMITH, TICCIH Secretary, UK

Producing Society – Fordism and Social Democracy in Denmark, 1919–39

Lars K. CHRISTENSEN
National Museum of Denmark, Denmark

In the aftermath of the World War, new ideas of overcoming poverty and social conflicts by mass production and -consumption was transferred from the USA to Europe and met with enthusiasm. One of the main sources of inspiration was Henry Ford. Not only had Ford created a vast and extremely productive industrial complex, but he also wrote a number of books, describing his visions for industry and society. Thus, Ford became the most well-known advocate of a rather diffuse but influential ideology, which can be loosely termed as "productivism".

Productivism originally developed in a framework of liberal capitalism. However, in a European context it was to be taken up in quite different social contexts and inspire such different political movements as liberals, fascists, bolsheviks and social democrats.

The latter was the case in Denmark. Social Democracy rose to political power in the interwar period. Changing from opposition to government, the party had to adopt new economic policies for managing a society, which was still capitalist. Gradually, focus was changed from class struggle and socialising means of production, to securing productivity and workplaces as a basis for a modern welfare state.

Henry Ford's ideas was published and discussed in Denmark too. But Ford's methods of production were also tested in reality, when a Ford T assembly plant was erected in Copenhagen, with the aim of producing cars for a great part of Northern Europe.

Inspired by existing literature on the reception of Fordism in Europe, especially Germany, and based on source material from the Danish labour movement, this paper will discuss how productivism in general and Fordism specifically was influencing social democracy in Denmark. Focus will be on two issues: The interaction between the theoretical inspiration from Fordism and the practical experiences from the Ford T assembly plant, and the role of productivism in the strategical reorientation of the Social Democratic party.

In a larger context, the case will be an example of the adaptation and transformation of a global – or at least trans-national – ideological trend into a national political praxis.

Transfer of Remediation Technologies Between the West and the East

Veronika GYURICZA
Université catholique de Louvain, Belgium

Industrial pollution is a well-established part of the scenery in most parts of the world - but whereas the US and Western countries found many ways to remediate them, newly industrialised countries struggle with the task. Why and how can a technology transfer be effective and efficient in this case? Is there a will from both parts? Is it merely a business venture or a helping hand towards the less fortunate parts of the world? If it is failing to address the newly arisen problems, could cooperation help both sides or on the contrary, hinder the advances for a better future? The presentation will look at the problematic issues on a wider scale, inevitably showing positive and negative examples to generate a discussion.

WEDNESDAY
Session W2E
Room C8
10:30–12:00

Cleansing and Forgetfulness of a Global Past

Jan AF GEIJERSTAM
The Swedish Industrial Heritage Association, Sweden

Physical remains of times gone by and the environment into which they are placed, is vital in our search for knowledge of the past. Industrial heritage in this sense sets the scene in a tangible way and it helps us to understand continuity and change. It is also often a daily and continuous reminder of our past, as well as of the relationship between man and his environment.

These many-facetted potentials are central in creating the value of reusing the industrial past, in its wide array of different characters: from the massive redevelopment of former industrial estates in mega-cities like Mumbai or Shanghai to the gentler small-scale development of rural industrial heritage museums in Sweden or Finland.

All kinds of reuse creates threats to the central values of the industrial heritage. In this paper I will argue that these threats also permeates cases when outmost care is taken to preserve, interpret and present a local industrial heritage site. Important aspects of the industrial past are often either unconsciously or quite intentionally forgotten or cleansed away. Most often there is a lack of connections between the local and the global in the interpretation. And generally there is a strong geographical imbalance in industrial heritage preservation. The focus is on the industrial histories of Western Europe and North America, all too seldom on the colonial and industrial history of Asia, Africa and Latin America. This is a fundamental negligence, as the latter is an integrated and inseparable part of the history of industrialism in Europe and North America – and vice versa. Examples will be taken from the history of iron- and steelmaking (Sweden) and from the chemical (India) and cement industries (Indonesia, Thailand).

ENERGY USE VS. THE ENVIRONMENT II: PUBLIC REACTIONS ON NUCLEAR POWER

Organiser: Timo MYLLYNTAUS, University of Turku, Finland
Chair: Jan KUNNAS, Finland

Ecological Arguments in the 1993–2002 Press Debate on the 5th Finnish Nuclear Fission Reactor

Matti HAAVISTO
University of Turku, Finland

Finland is a country highly dependent on plentiful, inexpensive energy for its extensive export industry and heating during its long, cold winters. Since the early 1980s, the nation's four nuclear reactors have played an integral part in meeting this demand without producing virtually any CO_2 and air pollutant emissions. At the same time though, especially after the Chernobyl meltdown of 1986, large sections of the population have been concerned of nuclear power precisely because of its environmental impacts. In a high-literacy nation disunited in its preferred energy production technologies, the press has been a major lobbyist, and therefore this paper studies how a selection of the most influential national newspapers (the partially politically affiliated, conservative, heavily pro-nuclear Aamulehti; the independent, liberal market leader, Helsingin Sanomat; and the organ of the green movement, Vihreä Lanka) argued for and against the ecological soundness of nuclear power in their editorials in 1993–2002, a period when the building of the 5th nuclear reactor was fiercely debated. How were nuclear power's qualities as a CO_2-free energy source weighed against the inherent security risks of operating reactors and disposing of their waste in this debate?

The Finnish debate leading up the 2002 parliamentary decision to build a new reactor was historic in the sense that it was the first of its kind in Western Europe since the Chernobyl accident, and since then both France and the UK have opted for additional nuclear power, while some other countries have been contemplating it. The background and rationales for the historical decision have been studied fairly extensively, most markedly in English by a recent book The Renewal of Nuclear Power in Finland, but the public opinion-molding role of the press has so far been seriously under-studied. In addition to the historical significance of the debate itself, it also provides a case study on how nuclear fission technology can be perceived as both an environmental threat and as a remedy for other environmental threats, often both at the same time.

Not Excluding Nuclear Power: The Dynamics and Stability of Nuclear Power Policy Arrangements in Finland

Matti KOJO
University of Tampere, Finland

In 2002 Finnish Parliament ratified the government's decision-in-principle (DiP) on construction of a new nuclear power plant (NPP) unit. As the political blocks are removed the nuclear industry is accelerating the further construction of nuclear power in Finland.

The aims of the presentation are: 1) to apply the theoretical approach of policy arrangement and 2) to analyse the major changes of the Finnish nuclear power policy between 1986 and 2009. The time period is divided into three shorter periods based on decisions on nuclear power.

The years 1986–93 describe the defeat of nuclear power industry in Finland. The Chernobyl accident and the parliamentary rejection of 1993 were the 'shock events' which forced the Finnish nuclear industry to reform its activity. The period of 1994–2002 is called as the revenge of the nuclear power industry. Although the rejection of 1993 the pro nuclear coalition did not give up. A learning process was implemented which ended with the help of the pro nuclear parliamentary lobby group to submit and defend a new application. The third period, the renewal of nuclear power industry, covers the years after 2002. The period is characterized by the new applications for further construction and expansion of the spent nuclear fuel repository.

The presentation is based on the manuscript by Tapio Litmanen (of University of Jyväskylä) and Matti Kojo first presented in the NESS 2009 Conference and revised after that for publication.

Presenting Electricity to the Public

Jytte THORNDAHL
Danish Museum of Electricity, Denmark

The Danish Museum of Electricity was opened to the public in 1984 with 300 m^2 of exhibition. In 2010 the museum has about 3.500 m^2 of indoor exhibition in ten different buildings as well as an outdoor exhibit. The museum is situated at an old hydroelectric PowerStation – Denmark's largest – which is still producing electricity with its olds turbines and generators.

One of the important reasons for opening the Danish Museum of Electricity was the lack of interest that Danish students appeared to have for science and engineering. This could be seen in a marked decline in the number of students that wanted to study engineering, physics, chemistry etc. in Denmark.

One of the missions of the Danish Museum of Electricity is to stimulate an interest into science, technology and history. The museum wants to make knowledge understandable and living for everyone, encourage lifelong learning and understanding of electricity and energy as an important element of society. The museum wants to contribute to a higher quality of life, a stable and sustainable development and a strengthening of the global environment.

During the past ten years the museum has chosen to focus especially at children and students in order to stimulate their interest into science and technology. In the presentation I will tell more about our attempts to bring knowledge of electricity and energy into the general education of Danish children and teenagers.

WEDNESDAY
Session W2G1
Room A05
10:30–11:30

Implementation of Information Technologies in Nikola Tesla Museum and Its Implications

Ivana ZORIC
Nikola Tesla Museum, Serbia

Nikola Tesla Museum in Belgrade is completely dedicated to this genius inventor and it keeps his entire legacy. Since the founding in 1952, Museum had a task to preserve Tesla's legacy and study his life, work and inventions based on information the legacy provides. A particular role of the Museum is to organize, support and promote the researches from the history of science, in order to help a better recognition of Tesla's contribution to the development of science and engineering at the end of the 19th and the beginning of the 20th century.

Tesla had 112 patents in USA and 174 patents in other countries. Most interesting and important for understanding history of industrial development was his discovery of rotating magnetic field and invention of the complete system of production and long distance distribution of electrical energy based on the use of alternate currents.

Nikola Tesla Museum permanent exhibition makes Tesla's science work understandable and interesting not just for researchers and experts, but also for general public. During the past few years, museum is focusing at all the people around the world and not just the visitors who come to the museum in Belgrade. This mission is being attained through different projects, traveling exhibitions, museum publications, digitized archive material, reconstruction of Tesla's handwriting, computer 3D models of Tesla's inventions, new contemporary uses of Tesla's ideas and patents.

THE MEETING OF TICCIH SECTION FOR HYDROELECTRICITY AND THE ELECTROCHEMICAL INDUSTRY

Organiser: TICCIH Section for Hydroelectricity and the Electrochemical industry
Chair: Eva JAKOBSSON, University of Stavanger, Norway

WEDNESDAY
Session W2G2
Room A05
11:30–12:30

The TICCIH Section for Hydroelectricity and the Electrochemical Industry invites section members and others interested in the section´s activities and thematic focus to a meeting in connection with the sessions W1G and W2G History of Electricity.

The agenda is as follows:

Randi BÅRTVEDT (The Norwegian Museum of Hydropower and Industry, Norway):
Activities and Experience Made from the Section Secretariat

Marie NISSER (Royal Institute of Technology, Sweden):
Information on The Cultural Heritage Committee of the Swedish State Power Board and Its activities

Helena NYNÄS (The Norwegian Water Resources and Energy Directorate, Norway):
Projects on Evaluation of Dams and Transmission of Energy as Cultural Heritage in Norway
In 2010 and 2011 the Norwegian Water Resources and Energy Directorate will complete two projects on evaluation of dams and transmission of energy as cultural heritage.

David FLEETWOOD (Inspector of Historic Buildings with Historic Scotland, UK):
A Nationwide Study of the Hydro Sector in Scotland and the Challenges of Managing Sites
Historic Scotland is an agency of Scottish Government whose responsibilities include the designation of structures of special architectural or historic interest. David has been part of a team which recently completed a nationwide study of the hydro sector in Scotland, looking at some 350 sites across the country. He will talk about both the survey work and some of the challenges of managing sites in active generation which are of high historic importance.

Discussion

WEDNESDAY
Session W2H
Room A06
10:30–12:30

NORTHERN COMMUNITIES AND GLOBAL COMPETITION IN A CHANGING WORLD

Organiser & Chair: Ronald N. HARPELLE, Lakehead University, Canada

All That Is Sold Melts into Trees? Feuerbach, Faust, and Forestry in Northern Ontario

Michel S. BEAULIEU
Lakehead University, Canada

Building upon Marshall Berman's examination of the conflicting relationship between modernism and social and economic modernization, this paper explores the historic cultural and economic development of five communities in Northern Ontario. Historically, the story of the development and industrialization of the Northern Ontario region of Canada has been one that has balanced how residents have imagined their communities and the how the State (in this case both the provincial and federal government) has envisioned their economic use. This paper analyses this historic reality and the past development and current challenges of labour in five communities through the dual lens of the Faustian idea of modernization as a process of dreaming and developing and the Marxist notion of the self-destructive nature of modernization.

Where in the World Do We Go from Here?

Ronald N. HARPELLE
Lakehead University, Canada

Former Canadian Prime Minister William Lyon Mackenzie King's observation about Canada that "if some countries have too much history, we have too much geography," aptly applies to Northern Ontario where Boreal Forest covers 40 million hectares or 400,000 km^2 and it is part of the largest forest on Earth. The region plays an essential role in sustaining ecosystems and communities, including 28 First Nations communities. Northern Ontario's economy has been hard hit over the past several years. There have been significant job losses (estimates of up to 10,000) in the forest industry, most permanently lost. As a result, the population of the region is in decline and major economic and social shifts are underway. The people affected by these shifts understand that fundamental changes are taking place in the world economy, but most people feel powerless to effect change and are passive observers of the decline. This paper focuses on the changes occurring in the Canadian forest industry and how this has affected the lives of people living in remote communities where there are few alternatives to type of industrial economy. The focus is on time and place in the perceptions of people experiencing life altering changes in the economic, social and cultural lives of their communities.

WEDNESDAY
Session W2H
Room A06
10:30–12:30

The Green Belt Undone

Hanna SNELLMAN
University of Jyväskylä, Finland

The history of Finnish Lapland is a history of labor migration. First, in the late 19th century, people travelled from the South to Lapland in search of work in the timber industry. A hundred years later, in the 1960s and 1970s, many of their grandchildren's generation took the same journey in reverse in search of work in southern Finland, Sweden, or across the oceans in the New World. The economy of Lapland has therefore been relying on forest industry for more than a century. Throughout its history, however, the industry has seen great fluctuation in its fortunes, and just recently, it has experienced marked decline with closing down the pulp mill of Kemijärvi located in South-Eastern Lapland. At the time when jobs are disappearing in Lapland, both at the pulp mill and the forestry communities around it, the people in the area are aware that new mills are being opened elsewhere in the world. This paper discusses how globalization of forest industry is experienced at the local level, among people in Kemijärvi and the surrounding communities: how the Green Belt of the World is currently being undone.

Past, Present and Future: Industrial Future of the Talvivaara Mine?

Anneli MERILÄINEN-HYVÄRINEN
University of Oulu, Finland

Talvivaara Mining Company is situated about 600 kms from Helsinki to north, in Sotkamo commune. It will be one of the biggest nickel ore mines in Europe. Geological researches were started in this area in 1960's. Mining will be in full production in 2010, and it is anticipated to produce metals at least for 60 years.

From the beginning the general attitude towards the Talvivaara mine has been very positive locally, nationally and internationally. It is much due to the fact that there are exceptionally great ore resources and it has financial benefit for the exploiters of the ore as well as for shareholders and for mine employees. At this moment there are about 300 employees in the mine.

When considering the reuse of industrial past it has to be taken into account that at the same time also new industry is founded. The industrial present is reality in Talvivaara area. It has – and will have – great impact on society, human lives and environment. This impact is not only positive. The aim of this paper is to investigate and find out the possibilities of sustainable development in mining area. It means increasing awareness of the nature and relevance of social and environmental issues within the mine life cycle. The very important question is, how to achieve the trust locally and how to believe in mining company and to its abilities to manage these issues for the benefit of future generations. In future Talvivaara Mine will be industrial past.

WEDNESDAY
Session W3A
Room A1
15:00–17:00

INDUSTRIAL TOWNS, COMMUNITIES AND HOUSING: AREAS OF INEQUALITY OR UTOPIAN DWELLINGS

Chair: Anna STORM, Royal Institute of Technology, Sweden

The Birth and Development of the Symbolic Industrial Landscape in Pori from 1850s–

Eeva SINERJOKI
University of Turku, Finland

The purpose of this research is to find out which factors made it possible to build new industrial buildings alongside the Kokemäenjoki-river in Pori before the essential city planning era.

Pori was highly industrialized during the last decades of the 19th century after the great fire in Pori in 1852.

The main research problem will be how the connection between landscape and industry was seen at time when people moved in to Pori to work in factories. The political decisions might have been influenced by the great and overwhelming effect caused by industry. It is interesting to see how industrial buildings took place in the most representative spot in the town near the new gothic church. Two well-known families Ahlström and Rosenlew played a big role and also participated the city politics.

The sources for the research will be photographs, maps, building projects, documents and decisions made by authorities. Landscape studies is multidisciplinary and therefore it is a combination of different sciences. The literature consists of local history, industrial architecture and social politics.

This research is in the beginning. The conclusions are to be seen further on. However it is obvious that this kind of research is quite new. The result and meaning will be significant because the decisions in the past are still here to be seen and estimated over again.

Small Wool Spinning Mills in Europe: A Lively Industrial and Human Heritage

Marie-Thérèse CHAUPIN
European Association for Textile Study, Liaison, Innovation & Research (ATELIER)/Wool of Europe, France

Most of these small industrial units were built on the beginning of the XIX century. Supply of raw material was local wool; processing techniques and products were strongly dependent on wool types of the local breeds. But we are far away from a "closed" economy.

At the end of the Second World War, irruption of synthetic fibres, ageing of owners lack of technological improvements and missing of successors end up in closing for most of them.

But some of these small spinning mills have found a new life: young successors, new and diversified products and activities, reopening by collective structures.

Buildings have been modified.

Production turns more and more toward ecology, small series, rare types of wool, traceability of products. Use of natural energy and ecological management of the waters used are essential. Machines follow the technological evolution but some old machines and processes are maintained. Most of the enterprises combined production and pedagogical activities. Workers try to experiment new forms of organisations: cooperatives, exchanges of know-how and machines, in the network of ATELIER/Wool of Europe.

The focus of the paper is to show the different ways and elements for a successful reuse of the heritage, in the buildings, the machines, the know-how and the social organisation forms.

Nokia-case – Internationalization of the Company and Local Community

Keijo RANTANEN
University of Tampere, Finland

Town called Nokia is located in Finland, about 16 km from Tampere. With its paper-, rubber-, cloth- and metal-industries Nokia was and still is an active part of one of the most important industrial regions in Finland, Pirkanmaa.

The industrialization of Nokia started in 1860s when Fredrik Idestam, established his pulp wood factory by the Emäkoski Rapids. This was a birth of well-known Nokia Company. Nokia developed as typical Finnish paper industry community governed by the one company until the Suomen Gummitehdas Ltd. (Finnish Rubber Factory) moved to Nokia from Helsinki. In the 20s and 1930s this rubber plant grew into a major enterprise employing almost two thousand workers. By the 1950s town was one of most industrialized communities in Pirkanmaa region.

The Merger of Nokia Company Ltd., Finnish Rubber Factory Ltd. and Finnish Cable factory Ltd. in 1966 was a starting point to the disintegration of an industrial community. Old factory paternalism ended and community had to adapt for the firms new strategies. After 1980s town experienced a series of shocks when Nokia Company left its traditional branches and turned to electronics. The town of Nokia was excluded from the new development and the old factories were sold. After all Nokia town is not an example of deserted industrial community; factories are still running. How the local industrial community was saved during the internationalization process?

In my presentation I study the local role of the Nokia Company and how it changed during the process of economic internationalization. How the old paternalism changed to the competitive strategies? What were the limits and the possibilities of the local activities and strategies? In my study I have used the archive of Nokia Company and the material of the local trade unions.

Svit, Industrial Town

Petra AMBRUŠOVÀ
Slovak University of Technology, Slovakia

The town of Svit was founded in 1934, when Tomáš Baťa´s factory from Zlín (Czech Republic) showed interest of a landscape in North Slovakia, because of sufficient labour force, water supplies and good transport possibilities. He built here a factory Svit for goods made of cellulose basis. Together with factory, he built tenement houses for workers, social facilities, shops, a slaughterhouse and a bakery but also a school. His goal was not only to build a factory, but also to form people, who are responsible and motivated, who do care about goods and customers. And his employees really were satisfied.

In 1951 one bigger factory was divided into three main firms, one with textile manufacture, second with chemical and engineering production and a research institute of artificial fibres. All these three are still working till nowadays.

In 1946 settlement was changed into village, in 1962 into town. In this paper I will briefly show the development of Svit and the present of its environment in this living industrial town, where principles and methods of enterprising and management of Tomáš Baťa are still visible. As sources I will use local publications and archives, as well as field research.

WEDNESDAY
Session W3B
Room A4
15:00–16:30

SYMPOSIUM ON THE SOCIAL HISTORY OF MILITARY TECHNOLOGY II

Organiser: Barton C. HACKER, Smithsonian Institution, USA
Chair: Margaret VINING, Smithsonian Institution, USA

The Gunpowder Heritage: 'Reusing the Industrial Past'

Brenda J. BUCHANAN
University of Bath, UK

As a subject of historical and practical research, gunpowder provides a prime opportunity for 'reusing the industrial past' in order to learn more and to understand more about our heritage. In general terms the impact of its discovery in the early Middle Ages must have been similar to that of nuclear power in our own age, with the same capacity for destructive and constructive use. Gunpowder's power was first unleashed by experimentation in China in the mid-ninth century, but instead of achieving such goals as longevity it was found that if saltpetre, sulphur and charcoal were incorporated and ignited, the result was both explosive and propellant. The transfer of this technology to the western world means that gunpowder lies at the heart of useful concepts such as globalization (through for example its influence on international trade, especially in saltpetre and sulphur) and settlement (associated with imperialism in for example India). Systems of manufacture were developed in what were to become the largest factories of their time, in the home nations (as at Waltham Abbey in Britain) and overseas (as in Portuguese Goa in India). Surviving sites offer the possibility of interpretation and restoration. Gunpowder's destructive military use may have excluded it from any pantheon of the agents of progress, but its technological and scientific history, the evidence of factory production, and its civil use in mining and civil engineering, all demonstrate a heritage which may be revisited and reused in a positive way.

The Archaeology of American Iron and Ordnance: Tracing the Military-Iron-Industrial Complex in the U.S., 1800–1845

Steven A. WALTON
Penn State University, USA

Between 1800 and 1845 the US went from a near complete dependence upon imported iron ordnance to complete self reliance. Technology transfer occurred throughout that period, and the immigration of key engineers both to the US and within its borders built up an industry that would soon rival European powers.

This study combines archival and archaeological research into the workings of that military iron industry by looking at four sites in the eastern US: the Foxall foundry in Washington DC, the Townsend Foundry on the Hudson River, the West Point Foundry also on that river, and the Mt. Savage Ironworks in western Maryland.

Archival sources shed some light on all of these, and archaeology has illuminated the third and fourth. It is only with the judicious integration of the two that our understanding of this complex process can fully be realized.

This study also shows where the history of technology and Industrial Archaeology can benefit one another but also where their disconnect can hinder our understanding as well.

British Naval and Social Reaction to Union Production and Deployment of Ironclads During the American Civil War

Jesse A. HEITZ
University of St. Thomas, USA

By the 1840's the era of the wooden ship of the line was coming to a close. As early as the 1820's and 1830's, ships of war were outfitted with increasingly heavy guns. Naval guns such as the increasingly popular 68 pounder could quickly damage the best wooden hulled ships of the line. Yet, by the 1840's, explosive shells were in use by the British, French and Imperial Russian navies. It was the explosive shell that could with great ease, cripple a standard wooden hulled warship, this truth was exposed at the Battle of Sinope in 1853. For this reason, warships had to be armored. By 1856, Great Britain drafted a design for an armored corvette. In 1857, France began construction on the first ocean going ironclad, La Gloire, which was launched in 1859. This development quickly caused Great Britain to begin construction on HMS Warrior and HMS Black Prince. By the time HMS Warrior was commissioned in 1861, the Royal Navy had decided that its entire battle fleet needed to be armored. While the British and the French naval arms race was intensifying, the United States was entering into its greatest crisis, the United States Civil War. After the outbreak of the Civil War, the majority of the United States Navy remained loyal to the Union. The Confederacy, therefore, gained inspiration from the ironclads across the Atlantic, quickly obtaining its own ironclads. CSS Manassas was the first to enter service, but was eventually brought down by a hail of Union broadside fire. The CSS Virginia, however, made an impact. he Meanwhile, the Union begin stockpiling City Class ironclads and in 1862, the USS Monitor was completed. After the veritable stalemate between the CSS Virginia and USS Monitor, the Union utilized its superior production capabilities to mass produce ironclads and enter them into service in the Union Navy. As the Union began armoring its increasingly large navy, the world's foremost naval power certainly took notice. Therefore, this paper will utilize British newspapers, government documents, Royal Naval Reviews and various personal documents from the 1860's, in order to examine the British public and naval reaction to the Union buildup of ironclad warships.

Organisers: Hans-Joachim BRAUN, Stefan POSER, Helmut Schmidt University Hamburg, Germany, Nikolaus KATZER, German Historical Institute in Moscow, Germany
Chair: Nikolaus KATZER, German Historical Institute in Moscow, Germany

Sailing as Play: A Case in Technological Possibilism

James C. WILLIAMS
De Anza College, USA

The sailboat has been a part of maritime technology for centuries, but until the 1800s sailing was not considered a leisure activity. With the industrial revolution came sufficient wealth to make possible the development of sailing as a sport, and yachting clubs appeared in affluent communities in Europe and America. Participants in sailboat races or regattas, with some exceptions such as the America's Cup or San Francisco's Master Mariner's Regatta, sailed small, relatively simply boats: log boats in the Chesapeake Bay, sailing canoes on San Francisco Bay. As sailing as a sport evolved, naval architects began to design boats specifically for racing and for cruising. By 1908, when Kenneth Grahame conjured up water rat saying to mole "There is nothing – absolutely nothing – half so much worth doing as simply messing about in boats," sailing as a leisure activity was well established, although generally limited to those with means. Following World War II, however, the introduction of fiberglass and other improved sailing hardware, opened the door to mass-produced sailing craft produced by companies in the United States, France, Germany, and elsewhere. The addition of advanced electronic navigation and communication systems further democratized sailing, so that hard-to-master skills at once were no longer obstacles to want-to-be sailors. As a result, in the United States alone there are over 700 yachting and sailing clubs and over 45,000 sailboats. This paper will explore the role of technological change in making sailing a widespread leisure activity in the last part of the twentieth century.

WEDNESDAY
Session W3C
Room C5
15:00–16:30

Cybernetics Soccer? Soccer Training and Tactics in Eastern Europe in the 1960s

Hans-Joachim BRAUN
Helmut Schmidt University Hamburg, Germany

In the 1960s cybernetics was an "in" topic in the natural and social sciences, but also in technology. As Slava Gerovich has shown, this was particularly true of the Soviet Union but it was also relevant in other countries of the Eastern Block and in many countries of the West. It is no surprise that sports scientists tried to apply this new concept also to sports. This idea was particularly attractive for socialist countries because, under the conditions of the Cold War, any new concept which promised to enhance the position of socialist countries in international sports competitions was highly welcome. And indeed: in the relevant books and journals of the 1960s we find many references to cybernetics and its application to sports.

In my paper I want to confine myself to the field of soccer training and soccer tactics and its relation to cybernetics in the German Democratic Republic and in the Soviet Union. Although there are many useful sources, especially journal articles, there is no scholarly work on this topic. In what way did soccer coaches try to apply cybernetic concepts to soccer and what about the results? After examining some sources my first impression is that, in spite of all this hype about cybernetics and sports in soccer training and tactics, not much changed and there was, to a large extent, "business as usual".

OLC, the Internet Competition for Sport Sailplane Pilots

Russel E. LEE
Smithsonian National Air and Space Museum, USA

Every year since 2003, the On-Line Contest, or OLC, has provided sport pilots who fly, or soar, sailplanes for altitude and distance, with a convenient and exciting means to compete with thousands of their fellow pilots around the world. Communications technology via the Internet has been key to the overwhelming success of OLC. From their PCs, mobile phones, or other hand-held devices, pilots upload their flight logs to websites accessible to all. Portable flight computers record each flight in detail, including weather information, and altitude and ground tracks displayed in 3-D graphics. The running tally of flights thus created has motivated pilots to attempt many more cross-country flights, considered the ultimate challenge in the development of soaring pilots, than ever before. I will use published material and primary sources, such as accounts by the pilots themselves, to tell the history of the OLC and analyze its impact on the sport of soaring flight.

WEDNESDAY
Session W3D
Room C6
15:00–17:00

RAILWAY HERITAGE. BETWEEN USING, REUSING AND PRESERVING II

Organiser & Chair: Guenter DINHOBL, ÖBB-Infrastruktur AG, Austria

Call for a Global Inventory of Railway Heritage

Marie-Noëlle POLINO
French Railway Historical Society, France

TICCIH, through its railway section, insists on the need for an inventory of railway heritage in the world. The need for such a comprehensive knowledge is shared at a national level in many countries. Other bodies involved in the conservation of railway heritage or the operation of restored railway vehicles express the same interest.

Some countries, as France does since 1964, maintain a strong tradition in systematic heritage inventories. A trained body of specialised researchers who were formerly State civil servants and are now employed by the regional governments, follow a well-defined methodology and the results of their inquiries are formatted and published by online national databases. Nevertheless, the specific features of the railway heritage don't fit easily in this frame which was built for buildings and sites with an architectural, often aesthetical value rather than industry and technology. The scale chosen is the railway line, if not the railway industrial site or a building.

TICCIH focuses on sites, to be able to provide ICOMOS with references in the process of the evaluation of potential World Heritage Sites. Heritage train operators are eager to build up a collaborative description of heritage rolling stock at least in Europe.

TICCIH will certainly be the place where all theses initiatives shall converge. Nevertheless, a good amount of reflective thought is still needed to coordinate them and achieve an efficient resource for further research, worldwide comparison and railway heritage conservation. We shall try and give some hints to launch the discussion between all interested parties.

An Invisible Heritage? Railway Towns in Spain and Their Enhancement

Domingo CUÉLLAR VILLAR
FFE/Autonomous University of Madrid, Spain

The expansion of the railway gave rise to population centres whose principal activity was closely linked to railway operation. Their main characteristics (Cuéllar, Polo and Jiménez, 2005) centred on their widespread emergence throughout the country, the configuration of certain mass-produced architectural forms and typologies, the forging of an intense social and labour relationship between their inhabitants and the companies that drove their growth and development, and the creation, in short, of a perfectly identifiable railway landscape which has been characteristic of railway history and which remained in existence until the 1970s. As the importance of these railway towns gradually waned, they became increasingly, or even completely, depopulated. The end of the cycle of railway towns has left behind an important architectural heritage and a no less significant socio-cultural legacy whose preservation is not guaranteed.

This paper considers the role which these singular population centres played in the history of the Spanish railway and the need to preserve them, based on the work already carried out by the Spanish Railway Foundation (FFE, Fundación de los Ferrocarriles Españoles), such as the railway town inventory and the specific case of the railway town Monfragüe in Cáceres being declared an Item of Cultural Interest (Bien de Interés Cultural, BIC). Their invisibility is a serious and constant threat to the buildings and installations that still survive.

Ratings, Broadcasting and Rescue of Industrial Heritage: Recovery and Adaptation of the Rail Heritage in Aguascalientes, Mexico

José Luis García RUBALCAVA
Autonomous University of Aguascalientes, Mexico

The first steam railway arrived to Aguascalientes in 1884, later, begins the construction of the "General Workshop of Construction and Reparing of Machines and Rolling material of the Central Mexican Railway" which in a short time were going to consolidate as one of the biggest and most important in Latin America.

With an area of 88 hectare (ha), 86 buildings of different types, one residential neighbourhood and a sport area, it is one of the most outstanding collection of identity, history and technology in the country, that's why, Mexico had registered it in the Tentative List of the UNESCO for their consideration as Industrial Heritage of Humanity.

It presents some challenges: since its integration to the urban look because it is located in its own centre, the decontamination, soil´s and workshop´s retrieval; the infrastructure of the collection; the restoration and adjust of the buildings, etc. All of this has implicated a serie of consecutive or concurrent jobs such as: investigations, inventories, catalogues, planning and development strategies analysis of alternatives; restoration and adaptation projects, among others, interdisciplinary work over the past seven years.

Based in the international standards of restoration, proceeds to the use change while respecting the different architectural typologies to establish a dynamic dialogue between the past and the present.

Preserving and Shaping. Preservation of Historic Railway Buildings at Swiss Federal Railways

Toni HÄFLIGER
Swiss Federal Railways, Switzerland

According to Swiss Federal law the Swiss Federal Railways (SBB) have to preserve 'cultural objects' ('Kulturobjekte'), or at least to prevent from damage – if no public interest is opposed to it. The SBB have installed an internal specialist department for monument protection, which cooperate with federal and regional departments for monument protection.

Technical and constructional engineering development is the basis of any character of railways. It is crucial and inherent for the system railway. How should be dealt with the railway heritage? What are the criteria? By means of basic statements and with the help of examples the cornerstones of SBB-specialist department for monument protection will be presented. Members of this department accompany construction projects in the whole area of railway infrastructure, e.g. railway stations, workshops, bridges, power plant stations, tunnel portal, railway sections, art, etc. But: it is still left open what count as 'cultural object' ('Kulturobjekt') according to the law

WEDNESDAY
Session W3E
Room C8
15:00–17:00

VALUES AND MEANINGS IN URBAN INDUSTRIAL HERITAGE

Organisers & Chairs: Tanja VAHTIKARI, Anja KERVANTO NEVANLINNA, The Finnish Society for Urban Studies, Finland

Industrial Past in the World Heritage Valuation of Historic Cities

Tanja VAHTIKARI
University of Tampere, Finland

Heritage operates at different levels of scale from local to global. The most advanced articulation of global heritage so far is the World Heritage Convention, adopted in 1972 by the United Nations Educational, Scientific and Cultural Organization (UNESCO). World Heritage sites, as defined by UNESCO, are places that have 'outstanding universal value'. A central instrument in the implementation of the Convention is a system of inventory called the World Heritage List, which registers new cultural and natural sites on a yearly basis. The building up of the List, like any representation of heritage, is a subject of changing perceptions in society, a result of continuous selection and fundamentally based on ascribing values. The World Heritage Committee and ICOMOS, acting on behalf of UNESCO, are the international 'gatekeepers' of the 'outstanding universal value'.

Among the total of 890 World Heritage sites in 2009, around 200 are historic cities. Urban heritage, thus, constitutes a significant part of World Heritage. In the context of my ongoing Ph.D. work, the paper sets out to explore the construction of 'outstanding universal value' from the perspective of historic cities. The analysis will be based primarily on the investigation of the case by case evaluations, compiled by ICOMOS, on the qualities of historic cities nominated for inclusion in the World Heritage List. First, the paper introduces an overview of different values and themes identified in reference to urban World Heritage by this international body, and the evolution of these meanings and values from the end-1970s until today. Secondly, a more detailed look will be given to urban industrial heritage in the context of World Heritage cities. What role has urban industrial past been attributed as part of the discourses on 'outstanding universal value' of historic cities?

The Industrial Landscape of Verkatehdas Textile Mill Site in Tampere

Marja LÄHTEENMÄKI
University of Helsinki, Finland

This paper deals with the valuation of industrial buildings as important heritage. With its dramatic turns the case of Verkatehdas textile mill received wide national visibility. Above all, it had far-reaching impact on the preservation discussion in Finland. How did the old factories that were seen unattractive and blocking the view to the rapids became important heritage? How the 'useless' factory area turned into industrial landscape?

In 1960s the townscape of Tampere was to change permanently. Verkatehdas was relocating its functions in the suburbs and had ordered a plan where the old mills in the rapids of Tammerkoski had been swept away and a new complex of housing and offices was to take place. With the new plans made for the site began an argumentation what to do with the old industrial plants.

New meanings were written to the site when the function as industrial workplace ceased. Actors in the political and economic field in the local as well as in the national level were involved in valuating the site. Civic organizations and local inhabitants took also part in valuating the changing landscape. As a result only two buildings were preserved but the diverse meanings given to the landscape formed the ground for the prospectice cases. I have used photos, town archives and local and national papers as my source material to detect the changes in the valuation of the industrial site.

WEDNESDAY
Session W3E
Room C8
15:00–17:00

Modernism as National Phenomenon in the Sunila Industrial Community

Mia HIPELI
Alvar Aalto Foundation and Museum, Finland

My presentation deals with the cultural and national values in 1930's when Alvar Aalto made his first plans for Sunila industrial area. It was a kind of turning point in Aalto's career as well as in Finnish Forestry industry companies' co-operation. Establishing the Sunila Company as a joint venture company by several enterprises was a unique step, which also tells about the contemporary attitudes. Modernism in this context means simple the modernism of 1930's architecture, belief in the future and reliance on newest technology was obvious in the field of design and architecture.

The national values of forestry industry in Finland played an important role also in the publicity of modernist architecture. The rhetoric of architecture followed the national tendencies in pre-war years. Heroic architecture of factories, expectations of The Olympic Games 1939, pan-European culture and technical innovations proceeded hand in hand. The World Fairs pavilions by Alvar Aalto in Paris 1937 and New York 1939 represent these tendencies.

Has the Sunila maintained the original modernistic values which could be relevant also today, when the whole area is in rapid changes caused by economical depression? The architectural frames of residential area, general plan and even production sites are still in original stage.

The Use of History in Preservation Politics

Anja KERVANTO NEVANLINNA
University of Helsinki, Finland

History is not only about documenting and interpreting the past for today it is also about defining the values and meanings of the past for tomorrow. When urban historians choose their objects of study and their sources, the consequences of their choices may leave permanent traces in the townscape. Buildings known for their historical significance such as state monuments or for their architectural value such as those designed by famous architects like Alvar Aalto are attractive objects of study both for historians and for funding institutions. Historians interested in less conventional built forms – for example, industrial buildings, mass-produced housing or complex urban areas consisting of many time layers – are confronted with the more difficult issue of legitimating their value in comparison with the traditions of focusing on self-evident (but also unproblematic and uncritical) topics. To choose an unconventional object of study is to keep open the assessment of its value as part of heritage worth preserving. The role of historians becomes crucial when the question of preservation of a building or area develops into a controversial issue: existing historical studies are used by various involved parties to argue for and against preservation, regardless of the original intentions of the historian. History becomes part of the politics of preservation.

In industrial heritage, the use of history as a political instrument has been particularly evident. Industrial histories have long been written as histories of companies or, less frequently, of industrial sectors, commissioned by the companies who own the areas. In these, the architecture, buildings and areas have often been discussed only in the form of property. From the point of view of urban history, the industrial areas may have been important economic, functional and symbolic elements of the city, but also unknown because they were closed from outsiders. When the company wishes to capitalize its investment of the industrial site, its unwritten urban history – and the missing studies of its historical value and meanings that could be used as grounds for preservation – becomes a potential danger zone. Writing industrial history is participating in the processes of defining historical value for preservation. In this sense, townscapes preserved are also traces of historians and their work.

WEDNESDAY
Session W3F
Room C9
15:00–16:30

TRACES OF ENERGY I

Chair: Randi BÅRTVEDT, The Norwegian Museum of Hydropower and Industry, Norway

Power Plant as Part of the Helsinki Urban Environment

Ilkka PIRVOLA
University of Turku, Finland

A study of the building types and architecture of three power plants in Helsinki, built in three different eras, Suvilahti in the 1910s, Hanasaari A in the 1950s and Vuosaari A in the 1990s, of their special features, as well as of their roles and impacts on the urban planning, urban environment and environmental aesthetics.

The primary purpose of my study is, through these three example plants, to clarify matters that have had an impact on the building type and architecture of each power plant in each era, to establish the features typical of the building type of the time, and to examine how this building type deviated from other industrial constructions at the time. Secondly, I will focus on urban planning with respect to the location of the plants in terms of time and place. Thirdly, I will examine environmentally aesthetic issues and the development of their impact in relation to the implementation of the power plant and the present day.

In the individual paper I will present in ICOHTEC & TICCIH Joint Conference 2010 I investigate, using the three examples, the suitability of the architecture and location of a power plant for the particular urban environment. In this context I also examine the conflict that arises when the city develops and expands. I will also debate the architectural values in support of the conservation and possible replaceability of the power plant, and in that connection I will also look for answers regarding the requirements and possibilities of reusing the remaining power plant buildings with respect to urban planning.

Hydroelectric Falls "el Chorro". Recovery of the "Caminito del Rey" Hydraulic Heritage

Isabel BESTUE
Fundación Juanelo Turriano, Spain

OPENING THESIS

The appearance of hydroelectric plants in the Spanish social panorama at the beginning of the 20th century meant an important technical advance and symbol of modernity in obtaining electric energy without steam machines.

This was the case of the Hydroelectric Falls in El Chorro, constructed in 1903 by engineer Rafael Benjumea to supply electric power to the city of Malaga. The complicated work and innovation of the techniques used make this a gem of civil engineering in Spain.

DEVELOPMENT

Today, the hydroelectric unit that is associated with the so-called "Caminito del Rey" (The King's little pathway) is in a sorry state of disrepair. Even so, the area is intensely visited by tourists, mountain sports fans, etc., who explore the parts that can still be transited, unaware of the patrimonial heritage this work enshrouds.

Studies undertaken by our work team have been targeted at proposing a sustainable restoration of the entire work, associating it with its environment and a feasible management of the resources that a heritage of this calibre may entail.

CONCLUSIONS

Our talk refers to a tour of the hydraulic heritage that forms the "Caminito del Rey", its elements and the studies that have led to our proposal for its restoration. Not only are the most suitable technical characteristics considered in this talk, for a building action, but also the sustainable tourist management values regarding this magnificent example of hydraulic engineering of the beginning of the 20th century.

Waterworks Heritage: Adaptive Use Challenges and Opportunities

Meisha HUNTER
Li Saltzman Architects, USA

PROBLEM STATEMENT

Historic waterworks infrastructure should be preserved, whether operable or decommissioned, whether in whole or in part, whether above ground or below, whether in their purpose-built or adaptively-used roles, because they inform modern water managers, policy makers and preservationists of the heroic civil engineering achievements of the past realized in the face of needed social change. Wherever they were constructed, aqueducts were designed to deliver adequate and reliable supplies of potable water to consumers and their presence in an urban community consistently reduced outbreaks of disease and fire.

Few metropolitan residents of the post-industrial world stop to consider the extensive infrastructure that makes life sanitary and convenient. Amidst a 21st century culture of technological invention and infrastructural expansion, a commonly held mindset amongst civil engineers that "new is better", unduly aggressive "stabilization" interventions, and the political unpopularity of infrastructure spending, the survival of this aging, yet often unseen and silent utilitarian tissue has become increasingly vulnerable to unsympathetic alteration, abandonment, and loss of collective public memory.

This paper builds on previous research performed at the American Academy in Rome and Columbia University, and expands on-going dialogues by arguing 3 key points: 1) that historic waterworks infrastructure can be modified, repurposed, reactivated and re-integrated within active distribution systems to meet potable and non-potable water needs; 2) that repurposing and rehabilitation of monumental waterworks heritage can be a driver of change within formerly blighted urban areas; and 3) that environmentally-sustainable and architecturally-feasible alternatives to abandonment and demolition are possible for decommissioned waterworks heritage.

Chair: Nina MÖLLERS, Deutsches Museum, Munich, Germany

Gender in the Norwegian Canning Industry: Norms and Exceptions

Piers CROCKER
The Norwegian Canning Museum, Norway

Description of Contents:
The canned fish products industry in Stavanger, Norway, was the mainstay of the town's economy for at least half a century, with its heyday from 1910–1930. This presentation will give a brief overview of the normal gender perspectives in the industry, viz. "men for machines, women for labour", with description of the various tasks assigned to each gender. The paper then passes to discussion of the underlying social conditions which resulted in this division of labour. The final part of the paper presents "exceptions" to the "rule", drawing from both Stavanger and other canning milieux in Norway, with examples of women in positions traditionally held by men at all levels, from factory floor to middle management right up to seats on the Board. Much rarer are examples of men taking tasks which traditionally were the preserve of women.

Conclusions:
There were underlying norms for the Norwegian canning industry regarding division of tasks along gender lines: men had fixed salaries and tasks requiring technical knowledge; women were paid piece-work rates and had tasks requiring manual speed and dexterity.

However, women in men's traditional rôles are known: amongst them a sardine smoker, solderers, machine operators, and Managing Directors. And vice-versa.

"You Need to Learn What They Mean" – Construction of Gender and Social Dynamics in Humorous Stories of a Female Factory Worker

Eerika KOSKINEN-KOIVISTO
University of Jyväskylä, Finland

In Finland, women have worked in factories since the beginning of industrialization. However, factory work was long considered as a temporary job for young women. Most female workers left the factory after getting married and stayed at home to rear children. In Finland, the number of married female workers started to grow during the 1930's. However, work at the factories was still strongly divided into men's and women's work. The gendered division of labor changed during the Second World War when women replaced men in the factories. What happened when women took over the male duties? How were they treated and expected to behave?

Humor is one of the ways through which ideals, norms, and contradictions can be handled. In this paper, I analyze humorous stories of a retired female factory worker. My informant, who is my own grandmother, was born in 1927 to a factory worker's large family and started working in the factory at the beginning of the Second World War at the age of fifteen. I have interviewed her repeatedly, thus recording her oral life story. In her stories, she tells about herself and her female colleagues coping in masculine working environment with physical factory work, often in very humorous way. In this paper, I examine how these stories represent young women, gender roles and hierarchies of the factory work.

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WEDNESDAY
Session W3G
Room A05
15:00–17:00

The Romance of the Motorcar. Reusing the Concept of Gender and Technology in the Finnish Media

Teija FÖRSTI
University of Turku, Finland

This paper will discuss how the cultural representations of automobility in the Finnish media in the 1920s deconstructed and reconstructed the concept of gender. The theoretical approach in this paper combines cultural history of technology with gender analysis. As the previous research on gender and technology has recognized, technology is a significant site of gender negotiations. In the 1920s images of automobiles and women on the wheel became as an emblem of a new era. In Finnish press in general, motoring was seen as male dominated area. Men were represented as experts of automobiles. The uniforms and automobile clubs underlined professionalism and expertise which, thus, got masculine meaning. Women were beautiful accessories in the car ads, but they were also a new consumer group in the market. The representations influenced and shaped actively the understandings of femininity and masculinity. Today, the humorous stories and jokes about driving women and the car ads representing adventurous "boys" reconstruct the old understandings of gender roles while the automotive industry itself has challenged many transformations since the 1920s. I suggest that instead of reusing the outdated rhetoric of gender the automobile manufacturers and marketers need to rethink not only their environmental technology but also new gender sensitive strategies.

Perspectives on the Place of Industry in the Early New England Puritan Community: The Planting of Old Seeds in the New World

John R. MULLIN
University of Massachusetts, USA
Zenia KOTVAL
Michigan State University, USA

The Puritan contributions to American society, culture and town planning have long been recognized, for better or worse. There is no doubt, of their commitment to their faith and the building of a new society in a new world. Their community was a world of work. And yet, within this world, there was a significant ambivalence among the first generation of Puritans (1630–1850) concerning the "place" of non-family oriented industry within their settlements. Activities such as blacksmithing, saw milling, grain milling and tanning, among others were treated with suspicion and accepted only because they were necessary.

They were suspect because the operators were not members of the core community, frequently had values that were quite different from the theocratically based Puritan society and they had a tendency to live away from the concentrated village settlement pattern. Moreover, the Puritans brought with them the same distrust toward millers as could be found in England and these manufacturers had mechanical skills that were beyond the comprehension of most settlers. They were needed more than embraced. Indeed, the acceptance of an early industrialist was frequently a matter of public discourse and town meeting approval. They were a bit "beyond the pale".

This paper analyzes the place of non-family industrial activity in the early Puritan towns of New England. It begins with a discussion of the perspectives of Puritanism toward work and industry in old England and how these views were translated into the built envisionment of early New England. The place of the blacksmith, grain mill and saw mill are highlighted as well as that of shipbuilding. It then focuses on the tensions that existed between the "makers of things" and those that were agriculturalists. Particular attention will be centered upon the initiatives of the Massachusetts General Court to stimulate and regulate industry. The Saugus Iron Works experiment which, arguably, resulted in the creation of the New World's first industrial village cluster, and the development of shipbuilding, New England's first industrial cluster, will be highlighted. The paper will close with a discussion of the long term consequences of Puritan perspectives toward industry and how their legacy continued for generations to come.

The Hessian Glassblowers of Björknäs in 1736–1741. Part of the Finnish Glass History

Jyrki YLIJOKI
Finland

German glassblowers are an essential part of the Finnish glassmaking history. They arrived in Finland via Sweden.

To acquire glassmaking know-how Sweden was compelled to recruit German glassblowers. In the Nordic countries, the glassblowers from German-speaking territories have mainly been examined collectively, as the precise region of origin has remained unknown. In few individual instances there are records of the German principality, or Bohemia.

In earlier studies, the Hessian glassblowers have not been examined as a separate group. The aim of this study is to establish the extent to which the German glassblowers recruited to Björknäs glassworks, in the municipality of Boo near Stockholm, were more specifically from Hesse.

The study is limited to the years 1736–1741, i.e. from the start-up of the glassworks to the situation in which the German glassblowers threatened to leave and return home when contracts expired.

The study is based on two different documents: a draft letter from 1735 concerning the German glassblower candidates for Björknäs, and a memorandum of the 1741 labour dispute. Information in the documents is compared with the church records of Swedish municipality Boo and Northern Hesse, as well as literature sources.

CONCLUSIONS
The German glassblowers mentioned in the documents were virtually all from Northern Hesse.

The problems faced during the recruiting process and the events of 1741 can be largely explained by the underlying common roots of the glassblowers.

Camaraderie and Swindling among Estonian Mine Workers in Different Political Regime

Eeva KESKÜLA
Kohtla-Järve Museum of Oil Shale, Estonia

In my paper I will concentrate on the labour history of an oil shale mining community in the North East of Estonia. Over the past 90 years, the miners have survived different political regimes, technological change and a vast labour migration of Russian speakers from other parts of the former Soviet Union. These factors have contributed to the substantial change in working culture of the mining community. In this paper, I will focus on two aspects of the everyday life of work – the meaning of camaraderie to the miners and cheating the system throughout the periods before and during the Second World War, the Soviet period and the current era of Estonian independence. Camaraderie and looking after each other is necessary for surviving the dangerous job of underground mining. On the other hand, different political systems have encouraged forms of competition among workers that has often led to creative new ways of swindling and cheating the system or re-arranging the labour process. Furthermore, this competition has shaped alliances and forms of camaraderie among different worker groups based on ethnicity, class background and hierarchy. Based on interviews, ethnographic fieldwork and archival research in the North East Estonia mining area, I will show how some of the core values in the mining profession have remained constant regardless of the systemic change while radical changes in others reflect the ruptures in the political climate and the labour process.

WEDNESDAY
Session W3I
Room A07
15:00–17:00

TECHNOLOGIES OF OIL AND GAS I

Chair: Eldar MOVSUMZADE, Ufa State Petroleum Technological University, Russia

Evolution of the Technologies and Technical Means for the Development of the Russian Northern Offshore Fields

Anna LOKSHINA
EASTECOIL/Ufa State Petroleum Technological University, Russia
I. A. SHAMMAZOV
Ufa State Petroleum Technological University, Russia

Development of the Russian continental shelf reserves could stabilize the dynamics of the oil and gas producing by means of the softening of the possible decrease, forecasted by experts due to depletion of the continental fields at the 2010–2020.

According to the Russian energetic strategy for the period until 2020, exploration and development of the oil and gas fields at the offshore regions of the arctic seas are the most prospective direction for oil and gas industry.

Stirring up of the offshore oil and gas producing and its further transfer to the arctic region results in application of new technologies and technical means.

In this paper evolutional development of the technologies and technical means for the development of the Arctic Ocean fields was considered and analyzed. It was concluded that experience of USA, Canada and Norway in the offshore field development is extremely useful for Russia.

Development of the large offshore fields, situated in the high latitudes (Hibernia, Terra-Nova) by the foreign countries is connected with the pace of its political, economical and social development.

This factor should be taken into account by research and design institutes during development of the Russian arctic offshore fields.

During development of the projects for the fields exploration in the arctic regions it is necessary to estimate methods (technology and technical means) of the oil and gas development as well as methods of it's further transportation to the consumer, processing and storage in the offshore conditions.

Influence of the Economic, Political and Social Factors on the Development of the Russian Offshore Arctic Fields

Boris MASTOBAEV
A. M. SHAMMAZOV
Ufa State Petroleum Technological University, Russia

General growth of the demand in hydrocarbon resources and increasing development of the continental reserves leads to the stirring up of the exploration in the territories of the World Ocean.

Total reserves of the Russian offshore territories according to the estimations of the 2004 are 133,5 billion tons of fuel oil equivalent or approximately 100 billion tons of the recoverable resources, distributed in 16 large offshore oil and gas fields. 63% of these reserves located in the seas of the Western Arctic: Barents Sea, Pechora Sea, Kara Sea. The rest part of the resources is located in the Sea of Okhotsk, East Siberian Sea and Caspian Sea.

Development of the Barents Sea was begun simultaneously by Norway and USSR at the beginning of the 70-ies of the XX-century. For the successful development of the oil and gas fields both countries had to use the most modern achievement of the world oil industry for the engineering and technology as well as experience, compiled during works in the arctic seas of the USA and Canada and works of Norway and Great Britain in the North Sea. At the 80-ies of the XX-century due to the economic and political changes in the USSR all works for the development of oil and gas fields in the Barents Sea was decreased a lot.

Recovery of the Russian positions as offshore oil producer could be ensured by the development and application of the new technologies for offshore oil and gas producing.

Experience of the foreign countries at the development of the offshore fields in the high latitudes could be rather useful for Russia during development of the seas of Arctic Ocean.

Thus for Russia it is necessary to consider and analyse methods of offshore fields development, applied by USA, Canada and Norway. Moreover it is necessary to account not only technical experience of these countries, but political and social development as well

Recording and Inspection for Gas and Oil Industry – the Stages of Development in XIX-XX Centuries

Abdulla Eldarovich KARAEV
Gazpromneft, Russia
Nazrin MOVSUM-ZADE
Institute of Cybernetics, Azerbaijan

In Russia intensive drilling, production and processing of oil began in Azerbaijan, further as far as oil industry has been developed, experience of Azerbaijan research institutes spread to other regions.

In 1891 hand calculating machine was created by Odner. In Russia calculating machine «Felix» (Russian construction of Odner's invention) was manufactured as the keyboard machine VK-1 by Penzinski plant of the tabulating machines. From the sixties of the last century electronics has been introduced in manufacturing (appearance of the keyboard semi-automatic calculating machines KSM-1 and KSM-2, «Tosmash» and further developing of the analog computers and digital machines).

Systems of the recording, control, automation and inspection for oil and gas industry began to develop intensively in the forties-fifties of the XX century in Azerbaijan.

Diversity of control systems for oil, gas and oil processing industries was created in Baku and Sumgait, in the institute «NIPINeftehimavtomat», academic institute of Cybernetics, academic institute of Mathematics, Azerbaijan institute of oil and chemistry (today Oil Academy «AGNA»).

In this work formation and development stages of recording and inspection in oil and gas industry was presented. Systems of recording and inspection of the automation and regulating for oil production was considered and analyzed, and shown which instruments and devices have to be used for the control of the technological processes

Stages of the Development of Oil Refining Industry

Olga POLETAEVA
Eldar MOVSUMZADE
Ufa State Petroleum Technological University, Russia

In 1920, oil production in Russia amounted 3.9 million tons, and in 1932 22,3 million tons. Growth of the oil production was mainly due to production in Baku, Maikop, Grozny areas.

Discovery of the deposits of Volga-Ural region in the 30-ies allowed Russia to occupy leading positions in oil production in the world and redistribute the geography of oil refining industry, as well as by physical and chemical properties of oil produced to stimulate the development of processes of deep oil refining - at Ufa ORF for the first time in the country started a systematic work on the exploration and industrial development of the technologies for processing of sulfur and sour crude oil. All this factors contributed to the development of the regions and countries in general.

The stringent requirements of the engine modeling industry and the increasing demand of the motor transport and aviation first and foremost contributed to the development of petroleum industry. To increase the octane number of gasoline in the oil refining factory scheme was introduced processes of thermal cracking and polymerization. It was able to obtain from 26 to 38% of gasoline fractions in process of thermal cracking. Further was implemented catalytic cracking process, which improved the quality of products, but also caused a decrease in yield of light oil. In the first 50 years there was implementation of the process of catalytic reforming, which increased the selection of light oil, as well as facilitated the introduction of hydrogenation processes required to obtain thermally stable jet fuels. Process of hydrocracking acquired the importance in the early 60-ies, as well as provided an opportunity to obtain a big output of high-grade products from heat resistant and heavy oil fractions.

Now the main aim is the development of oil refining technologies to increase fuel resources, as well as environmentally friendly fuels.

THURSDAY
Session T1A
Room A1
8:30–10:00

IN OR OUT OF THE GLOBAL BOX? INDUSTRIAL HERITAGE FROM DIFFERENT PERSPECTIVES. CHAPTER 2, III

Organiser: Györgyi NÉMETH, University of Miskolc, Hungary
Chairs: Györgyi NÉMETH, University of Miskolc, Hungary & Stuart B. SMITH, TICCIH Secretary

The Production of Industrial Heritage and the Heritage in Industrial Production

Bosse LAGERQVIST
University of Gothenburg, Sweden

When looking at research and education in the area of industrial heritage it is possible to group them into different scholarly-scientific traditions:

A) Understanding the history of an industrial site or an industrial branch.
B) Understanding and solving material problems in operating conservation and long term preservation.
C) Preservation problems are understood and solved in context with contemporary local and regional economic, cultural and social perspectives.
D) The industrial society and its global implications are problematised in context with industrial remains, local economies, and socio-cultural traditions, so that preservation becomes an integrated part of planning and construction of societal development.

The paper shortly describes some industrial heritage sites exemplifying primarily the A- to C-traditions in combination, thus enhancing the instrumental potential of industrial heritage. The manner of how the instrumentality of these sites has been managed will be discussed on two levels:

- A "site-oriented" and "hands-on" level with local-regional focus, including how the heritage is identified and valued.
- A second level where these sites are put into a global context studying their ability to provide local narratives for the understanding of global phenomena. Due to the continuing global industrialisation process a growing number of obsolete former industrial plants will result in a growing economy for studies within A and B above, and simultaneously the growing tourism industry will construct these heritage sites into attraction sites for visitors. These material remains could therefore be seen as examples of resource transformation from one industrial branch to another.

However, westernised methods have modelled this transformation into heritage practises that might not be applicable in all cases. This is evident on a global scale, but might also need to be critically analysed on a local level within the traditional industrialised western hemisphere.

By describing a regional network in Sweden for ships preservation, the paper discusses the outlines to accomplish such transformation with the objective to secure local solutions for sustainable societal development comprising global perspectives. Issues to discuss are concepts of working order vs. preservation; global economy vs. local development; urban growth and sustaining the country side. The network is based on premises in the country side, where the industrial heritage in general is well represented. A country side that also illustrates unemployment problems, depopulation, etc., as compared with the more prosperous growth of the larger urban areas. Heritage in this context – a ships preservation network – represented both as reusable premises and facilities for industrial activities as well as technologies, competences and products, have the abilities to provide options for local economic regeneration of low-scale industrial production out of a revised heritage concept.

Local Cultural Museum as an Interpretation for the Conservation of Industrial Heritage – An Application on Jyy-Liau-Uo Paper Village in Taiwan

Hsiao-Wei LIN
Chung Yuan Christian University, Taiwan

The Council for Cultural Affairs in Taiwan has promoted the Policy of Local Cultural Museum (PLCM) since 2001. Until 2009, there are 278 Local Cultural Museums established all over the island. Among them, around 48 museums are related to the industrial heritage, especially traditional industry, such as, mining museum, coal museum, tea museum, salt museum, ceramic museums, and so on. Under the challenge of global economy, the decline of the local industry turn to be the driving force of community involvement and foundation of local cultural museum.

However, since the first phase of this Plan during 2001–2006, this Plan received many criticisms, such as: "Mosquito Hall" (means no visitors and only mosquitoes), and funding complication. The Second phase of the PLCM (2008–2013) is working hard on improvement of policy strategy, operation system, evaluation system and cost benefit, in order to give the advice and suggestion for the further development. Thus, as one of the major subjects of local cultural museum, the conservation and interpretation of industrial heritage is an important key to understand local characteristics within global context.

The conservation of Jyy-Liau-Uo Paper Village (around 200 years paper making history) and its reuse plan has been proceeding for 3 years. The result has lead to the establishment of a LiuchanLai Paper Cultural Society, a new building of paper making workshop, community participation on guide tour and will operate as a local cultural museum in January 2010. This paper is to demonstrate the process of the conservation for a declined paper village, the regeneration of local community consciousness, and industrial characteristics. It will evaluate the related issues of local cultural museum on 3 parts: policy planning, operation and achievement. It shows the impressive outcome of this policy in terms of the cost benefit and social effects on local cultural development.

The Workers Housing Heritage in France: A Synthesis

Gracia DOREL-FERRÉ
University of Reims, France

The working habitat in its urban or rural form existed since long ago. From the XVII century, Colbertian manufactures system or domanial industries, multiply. In this type of establishment, places of dwelling are next to and sometimes merge with the place of work. However, these structures of Ancien Régime accomodate mainly specialists and personnel in charge of maintenance. Workers use to live in the surrounding districts or villages. In the second half of XVIII century, new structures relating with the incipient industrial economy, become more numerous. In such a context, the new fashion Arc-et-Senans royal manufacture seems utopian only as far as the very posterior comments written by its author are concerned.

New architectural solutions embody a large typology: barracks-like or terraced houses and, sometimes, the Mulhousian style, namely two or four coupled houses. Among these, Godin and his Familistère of Guise must be put aside. The workers village remains the most original construction of the period.

The "working village" model is criticized soon in the years 1875 well before the design of the garden city of Howard. It is the work of the Twenties and Thirties of the XX century, with undeniable successes like that of the Chemin Vert of Reims, that changed the concept of workers dwellings. Few crossed the years without damage. The urban working districts suffered from the end of the XX century changes, and were erased by the tertiarisation of the cities that delated up to the least traces of their industrial past.

THURSDAY
Session T1B
Room A4
8:30–10:00

SYMPOSIUM ON THE SOCIAL HISTORY OF MILITARY TECHNOLOGY III

Organiser & Chair: Barton C. HACKER, Smithsonian Institution, USA

Introducing Torpedoes in the Italian Royal Navy

Ciro PAOLETTI
Italy

In 1869 the minister of the Navy declared to the Italian Parliament that torpedoes were the dawn of a new era in maritime warfare. Experiments and the introduction of this weapons had as a consequence an increase of the technological know how in Italy and within the navy, the development of a – later – world known industry and the planning for a new metal build navy.

Paul Vieille, Cordite and Ballistite: Further Analysis

Yoel BERGMAN
Tel-Aviv University, Israel

Two open questions posed in Victoria 2008 concerning smokeless powders history were examined further and progress on the issue will be presented; Paul Vieille describes testing a sample similar to Cordite during the mid 1880's, named "Poudre V (of the English Cordite Type)". In Victoria, the sample was speculated as being produced in 1885 by Vieille in proximity to his first version of poudre B in late 1884. This was based on the shape, name and firing number of the sample. If finally verified it can demonstrate that Vieille chose the less energetic poudre B despite his awareness of the more energetic possibilities, implemented later in Ballistite and Cordite. Further data found lately in Seymour Mauskopf's initial examination of Vieille's laboratory notebooks indicates that the sample can be assumed to be typical of 1885. It was also noticed that the sample was actually Ballistite in composition, and this is explained by the fact that the French military developed in 1885 a powder similar to Ballistite. Vieille may have relied on this knowledge to create a slightly different sample processed with solvents, as was done later in 1888 for Cordite. Seemingly, he added the parenthesis "(of the English Cordite Type)" to his 1885 sample name only in 1893 during the writing of his publication since the sample did resemble Cordite in process and composition. Vieille also tested one Ballistite sample sent from Spain but did not report test dates. Since the sample contained aniline, a stabilizer in Italian Ballistite from 1889 (approx.), and since Alfred Nobel's activities closed down in France in 1889 it is assumed that the sample was received only in 1889. Yet Vieille's test numbers for the sample are typical of 1887 and pose a difficulty. The solution may hopefully be found in Vieille's notebooks. An exact date can illuminate Nobel's activities in Spain in the late 1880's not mentioned in major sources and to pinpoint to the time when Vieille could state his famous conclusion that all nitrocellulose based powders burn in layers.

Make Peace, Not Vest: The First Silk Bulletproof Armor and Its Opponents

Slawomir LOTYSZ
University of Zielona Gora, Poland

When Casimir Zeglen, a Catholic monk serving in a Chicago parish, devised his bulletproof armor, he wanted to offer it to presidents and crowned heads, who might be attacked by anarchists and other radicals. His armor could also save lives of police officers and detectives fighting crime. Ultimately, he approached army officials, and offered his vest to soldiers. But not everyone was pleased with the idea of wearing such armor. If an assassin had learned about a vest shielding a royal torso, he might aim the head or neck, as was the case, most famously, with Archduke Ferdinand of Austria. For officers and soldiers any armor meant additional weight, which was difficult to tolerate during the warm weather. When Bertha Von Suttner, the Nobel Prize Laureate in peace for 1905, learned about similar invention of Heinrich Dowe, she predicted that providing soldiers with bulletproof vests would result with turning war into "a lovely campaign of unwoundable opponents".

This paper brings to light the story of Casimir Zeglen's vest, its military tests, and the inventor's struggle to sell it to the American and foreign armies. The paper utilizes research in primary sources, including Zeglen's letters to his superiors, which reveal a calm but apparently immodest person, who hoped to stop violence and wars, and dared to dream about standing on the world's stage with emperors, presidents and popes. Despite his invention's great promise, it never gained widespread acceptance, and its significance is still not recognized by historians of military technology.

The History and Reuse of the Industrial Buildings on the Banks of Tammerkoski In the Centre of Tampere

Mikko JÄRVI
City of Tampere, Finland

The City of Tampere was founded on a narrow neck of land between two large lakes. They are connected by one-and-a-half kilometres long river, Tammerkoski rapids, which descend 18 metres from north to south. In the 19th century, several paper and textile mills and machine shops were founded along the banks of the rapids.

The change in the industrial structure of Tampere began already in 1928 when the Frenckell paper mill was closed. Verkatehdas, a massive 19th century industrial complex was demolished in the late seventies. The demolition decision sparked strong public discussion. Ever since, the general opinion has been to preserve the remaining old redbrick mills.

The TAKO cardboard mill is still in function on the western bank of the rapids quite in the centre. Most of the other former industrial buildings are now preserved and have new functions. Offices, shops, restaurants, institutes and museums are suitable to be located in the old buildings. However, to transform an old factory to an apartments building is more difficult. The dimensions of the buildings are seldom suitable for flats.

The banks of the rapids are being and shall be further developed in the future as the recreation and entertainment centre of the city.

Architectural and Historical Values of the Technical Services in the Reuse of Industrial Buildings

Seija LINNANMÄKI
National Board of Antiquities, Finland

In this study I am focusing on the conservation of mechanical and electrical installations in historic industrial buildings, especially in the case of reuse.

In Finland most of technical innovations still helping the everyday life were introduced during only one decade 1882–1891. In 1880s commodities developed as systems with an infrastructure instead of being movable objects before. In industrial buildings mechanical and electrical systems had to serve also the manufacturing process in addition to the health and safety of people and the building itself. In fact, many technical services such as air-conditioning were originally developed due to the demands of process technology.

Successful reuse of an industrial building is depending on its location, quality, and architectural and structural capacity. Mechanical and electrical installations should be appreciated as an integral part of the architecture as well as artefacts of industrial design. However, in most cases new uses set requirements for energy efficiency and indoor air quality in buildings due to the mitigation of green house gases and adaptation to climate change.

The aim of my study is to get a better understanding about the possibilities and challenges to reuse industrial buildings without compromising their architectural stratification and integrity.

My study is comprised of literature and case studies. Histories of technology, art and architecture as well as research on infrastructure and HVAC companies give the general background. The cases, for example Suomenlinna military workshops and Turku railways engineering works, are studied through archive documents, historical drawings and field survey.

Archaeological Approach to Reusing Industrial Past. Discussing the Valuation of the 19th Century Pulp Factory Remain by the Tammerkoski Rapids

Ulla LÄHDESMÄKI, Vadim ADEL
Pirkanmaa Provincial Museum, Finland

From the late 18th century onwards-industrial entrepreneurs were active in Tampere and manufactures were built by the Tammerkoski rapids, among them the Frenckell paper mill. A major innovation in production technology took place in 1850s when wood pulp was invented as the raw material of paper. A new pulp factory with a powerhouse was built in 1877 close to the rapids. The pulp factory was demolished in 1929 and ever since the area has been used as a park. Today the paper mill building is in modern reuse.

In Finland the earliest buildings connected with the innovative wood pulp production have either been changed and rebuilt or demolished. Archaeological remains of the production have not been systematically surveyed. When the park in the centre of Tampere has been renewed in 2009 archaeological survey work and rescue excavations took place there. Remains of the old pulp factory were unearthed by the Tammerkoski bank. Pirkanmaa Provincial Museum made archaeological documentation and acted as the antiquarian authority in the protection case. Part of the factory remains is planned to be marked on the site to memorise the early history of paper industry. The plans to develop the site as an archaeological focal point has also been resisted. The protection case has brought into discussion several issues concerning the value of the site and its position in the surroundings. The paper discusses the archaeological remain as part of industrial heritage in Tammerkoski national landscape. The researchers analyse the features of the pulp factory remain and their affect on the acceptability of an archaeological fragment in the park. The case study is an example of identifying the values and analysing factors behind a protection conflict. The tangible and intangible aspects of the site and its reuse and relevant presenting methods are also discussed.

The visible and abstract features of the site affected both in positive and negative way in the protection process. The archaeological aspect enables a new perspective to experience the industrial heritage and enriches the diversity of the area. Archaeological remain, even as a minor construction, can be an expressive testimony of a demolished factory, its technical processes and people who worked there. It is also a material testimony of the constant change that takes place in the environment.

THURSDAY
Session T1D
Room C8
8:30–10:00

TRANSFORMATION OF INDUSTRIAL ENVIRONMENTS: PROCESSES, TOOLS, RE-THINKING II

Chair: Helmuth ALBRECHT, Institute for the History of Science and Technology, Technical University Freiberg, Germany

Revitalizing Urban Industrial Heritage

Jaime J. FERRER FORÉS
Universitat Politècnica de Catalunya, Spain

Spain's autonomous communities and municipalities are revitalizing their heritage, restoring their monuments, and embellishing their historic quarters. The effects on urban life are considerable, as it channels activity in town centers towards the recreational and cultural. Preserving the remains of the industrial past for the future is the aim for the urban project being developed at La Soledat in Palma de Mallorca that updates existing premises without erasing the traces of the industrial past.

The aim of this paper is to analyze the process of transformation, from the planning stage to the implementation of the project and its conceptualization in respect of the industrial heritage. Ensuring new uses for obsolete contexts, revitalizing urban industrial areas introduced heritage in the modern debate. The challenging part of the design is to find and maintain the delicate balance between architectural quality and heritage.

Conceived as a new magnet attracting citizens the proposal for the cultural center is located on a privileged site of Palma's old quarters of La Soledat and takes up on an old textile fabric, a classified building whose industrial complex is an example of the city's industrial architecture. Transformed into main point of interest, the complex proposed at La Soledat also performs as backbone of the urban fabric or as revitalizing agents in decaying environments. A careful urban intervention allows blending into to the existing fabric a cultural center.

The principal defining element of the concept of the new model of the 21st century city and on which we base our proposal in La Soledat in Majorca are: a community space within a compact urban setting, thought using criteria of sustainability, with a solid network of services and infrastructures, along with high-quality public space and fostering the new uses of obsolete and rundown areas: the revitalization of popular quarters and the adaptation of industrial structures to the new uses also including new housing – all government subsidized –, the creation of new green spaces and the construction of new facilities. All these policies are geared towards improving the quality of life and well-being of the citizens.

The Renovation Plan is the main mean of revitalization for the city's different quarters. The Renovation Plan is centered on a great effort to restore the lost dignity of the urban landscape and the industrial past, so as to create an environment for citizens. La Soledat, the historical neighborhood of the industrial city will once again become a neighborhood full of life.

When a Medium-Sized City Decides to Change Its Cultural Policy and to Apprehend the Industrial Heritage as a Means to Assert Its Identity

Robert BELOT
Laboratory RECITS, University of Technology of Belfort-Montbéliard, France

The city of Belfort is a historical flag-carrier for the French industry in the field of transport and energy. It is there that the ALSTOM firm was born (1879), a world leader in the mechanical and electrical engineering field. This firm invented the TGV, the high speed train. This is where the European headquarters of the American company GENERAL ELECTRIC is located.

Nevertheless, until now, neither the companies nor the local authorities deemed it necessary to enhance this tremendous industrial and social heritage.

What is the reason for this short memory? Indifference? Contempt? Is this connected to the fact that the local industrial activity, despite the crisis, is still dynamic and therefore not an object for retrospective analysis?

After the last municipal elections (2008), the team of the new mayor of Belfort gave a new twist to the cultural policy of this medium-sized city. This new policy aims at taking into account the industrial heritage and at considering it as a major element of the region's identity. So the idea to create a museum-like place, a City of Innovation, was born.

The concept of this operation, led by the City Council, is new insofar as it relies on expertise and a contracting authority handed over to a research laboratory, the RECITS Team (Research in Industrial, Technological and Scientific Choices). This laboratory belongs to the Belfort-Montbeliard University of Technology which has made industrial heritage a major axis of its research work.

We shall try to analyze the social process which led to the decision to implement this policy (a rare one in France), involving all the local actors (local authorities, companies, universities).

Bitter/Sweet: Case Studies in Transformation of Sugar Space in Brazil

Gabriela CAMPAGNOL
Texas A&M University, USA

Sugar production, as a sector of agro-industry, bore substantial influence on territorial planning and occupation in Brazil from the seventeenth century through the middle of the twentieth century. The space of the sugar mills incorporated aspects of both agricultural and industrial order characterized by an urban-rural hybrid. Sugar villages are examples of small-scale urbanization, which connect two key areas: industrial and residential. The sugar industry constructed within its over 200 Brazilian settlements an assortment of dwellings and equipment targeted to specific, collective uses. Since the 1960s, however, in the context of overall modernization of the country, the condition for the existence of some settlements was changing profoundly. The study interrogates the influence of the sugar industry's action on the construction and planning of the territory and investigates the spatial organization – plan, architecture and collective spaces – of several sites located in traditional sugar-producing regions of Brazil. The research plan was based in two activities: documentary search and a program of visiting 24 sugar mills. This paper addresses the consequences of the more recent history of sugar mills' reduction and elimination of residential provision and investigates the transformations of these spaces after the deactivation of the factory, through the analysis of some examples of adaptive reuse, abandonment, and initiatives towards the preservation of this focus of industrial heritage.

Perspectives to Industrial Heritage – Observations on the Documentation Project of Hanasaari A Power Plant in Helsinki

Maija MÄKI
University of Turku, Finland

In this seminar I set to examine the broadening concept of the museum: conceptualization of the cultural heritage and its creation and conservation from the perspective of plant workers, communities and officials. The industrial heritage is simultaneously part of both personal and communal legacies. The recognition and preservation of the variety within this heritage has risen in discourse not merely inside museum sphere but also generally as a phenomenon of public interest in Finland in the beginning of the 21st century.

The decision to demolish Hanasaari A power plant in Helsinki was made in December 2006. The demolishing work was begun in the winter of 2007 and the documentation project later in the summer. The project gathered interviews of nearly 50 plant workers, including representatives of newspaper Helsingin Sanomat, City Planning Department of Helsinki and Helsinki city council. In the case of Hanasaari A, there were several different ethnologically notable meeting points and borderlines which represent general discourses typical for our age and heritage. First of all the museum professional, researcher without institutional backing, met the former workers of the plant, their personal histories and views on the plant about to be demolished. The meetings, discussions and visits to the plant area helped to underline the meaning of the industrial heritage to the plant community.

The present day workers of Helsinki Energy and the ruling officials of the city met in other arenas. The discussion on the fate of the power plant was tense during the winter of 2006. Conflicts were many: relations between Helsinki Energy and other city organizations were problematic, the closed energy area had a reputation among the officials and city dwellers, political decision making was not visible to the workers etc. On the other hand there were surprisingly benign consensus between the culture workers and the power plant community.

What happened to these borderlines from the perspective of a museum professional: which lines were crossed, and which conflicts possibly strengthened? The demolishing process raised fundamental questions: who defines industrial heritage, who is behind the decisions of preservation, who sets to document "the disappearing ugly", or does anyone? What could be the role of archaeologists in the discourse concerning industrial heritage? These questions are examined in seminar from the perspective of documentation project.

Radio Transmitter Stations of the 1930s as Industrial Heritage

Peter DONHAUSER
Vienna Museum of Technology, Austria

Thesis: Radio transmitter stations are widely disregarded as industrial archeological objects but should be documented and preserved as well.

The few remaining large European radio transmitter stations built before 1945 are in danger of destruction. The autor undertook a lot of research as he had to write an expertise about an Austrian station of 1942 helping to declare it as historic monument. Most of the existing stations are owned by private organizations like radio companies, are not used since decades and are cost-intensive to maintain. On the other hand, they belong to the industrial heritage and are documents of media, cultural and political history (esp. in Germany). Usually they are neglected as the primary associations with 'radio' are related to receivers and programs. Preserving these stations in situ turns out to be difficult: buildings and antennas have to be serviced periodically, the technical equipment is difficult to explain to the public. The stations usually are situated apart from larger cities. So even larger museums usually are shy of running them as an outpost, private societies are overstrained upholding them as private radio museums. So often parts of the transmitter stations are shown in a decontextualized way: some museum exhibits are analyzed and discussed for they are often unconvincing.

Conclusion: It is necessary to raise the awareness of the importance of these stations as a part of the cultural and technological history to stimulate a political decision to finance their protection.

History of Japan's VLF Radio Communication Technology and Its Industrial Heritage

Shoji ISHIDA
Aichi Prefectural Toyohashi Technical High School/ The Chubu Society for the Industrial Heritage, Japan
Tetsu SUZUKI
GomuoInaki Co., Ltd, Japan
Kotaro TANAKA
The Chubu Society for the Industrial Heritage, Japan

This paper describes the history of the early wireless communication technology in Japan and its industrial heritage.

The First World War (1914–18) gave a big shock to participating nations by letting them be aware that the world submarine communications cable network was under the control of the U.K., and diplomacy, military, and commerce were thus too advantageous to the country alone. After the War, radio communications had become a serious issue in international relationship. The Japanese government encouraged overseas radio communications in an effort to promote diplomacy and commerce of its own. In 1925, Japanese government established Japan Wireless Telegraph Company (JWT), and strengthened the communications with the U.S.A. and developed direct communications with European and Asian countries. In 1920s, very low frequency (VLF) was thought to be advantageous for overseas radio communication. Following the Iwaki Radio Station in Fukushima Prefecture built in 1921 with the U.S.A., JWT built the Yosami Radio Transmitting Station in 1929 in Yosami Village (present day's Kariya City), Aichi Prefecture.

Yosami Radio Transmitting Station employed inductor-type high-frequency generators of an output power of 500kW made by Telefunken of Germany. The antenna system for 17.442 kHz used eight towers, 250m high each. The facilities were used by the United States Navy in 1952, and then ceased its operation in 1993. Though the Station buildings are demolished in 2006, major facilities are conserved in "Memorial Museum of Yosami Transmitting Station" opened in 2007. IEEE Milestone Plaque was dedication to Yosami Transmitting Station in 2009.

THURSDAY
Session T1F
Room A05
8:30–10:00

DIGITAL USES FOR MUSEOLOGY: A NEW WAY TO DESCRIBE TECHNICAL AND INDUSTRIAL HERITAGE

Organiser: Florent LAROCHE, Ecole Centrale de Nantes, France
Chairs: Florent LAROCHE, Ecole Centrale de Nantes, France & Jean-Louis KEROUANTON, Université de Nantes, France

Advanced Industrial Archaeology and Virtual Museography

Florent LAROCHE
Ecole Centrale de Nantes, France
Jean-Louis KEROUANTON
Université de Nantes, France

This special session for ICOTECH 2010 about "Digital uses for museology" proposes to draw a short review of "when, where and for what kind of finalities" we have to use virtual tools when dealing with our heritage.

Our researches are firstly initiated by technical contemporary product; but as we consider the history of industries, it consequently involved technical and industrial heritage. Our proposition consists in overturning the time axis of the design process generally used for developing contemporary technical products. That means that we begin at the end of machine lifetime and come back to the initial need that define why the technical object had been created. First step is the digitalisation of the physical object and the capitalisation of the know-how learnt by studding the machine. Next, thanks to virtual reality technologies, we can valorise this amount of knowledge. This global process is what we call Advanced Industrial Archaeology.

In this communication, the methodology will be illustrated by a case study done by our research team about a salt washing machine (1914–1960 ; Britany, France).

At the beginning of the project, physical data have been captured thanks to 3D scanner laser. Indeed, taking into account the degradation state of the object (salt+water=bad state ☺), it was the only solution available. Simultaneously, Knowledge Management methods commonly used by businesses have been coupled to historical studies. This step allowed capitalising external knowledge, identifying know-how of workers, giving information about suppliers or customers: why washing salt? Next, the technical object and its environment have been re-designed thanks to Computer Aided Design software (CAD); we have used Catia V5 by Dassault Systèmes. Here, the production process has been validated; thanks to simulation, historical studies and scientific calculation about the amount of salt washed by our machine have been correlated. Nowadays, we are working on the valorisation phase. Due to its advanced degradation state, the machine is going to be rebuilt at scale 1:1 and it would also operate in the future museum of Batz-sur-Mer.

An Application of 3D Topographical Map to Estimation and Reproduction of Old River Pass

Yasuhiro HONDA
Kumamoto University, Japan

The aim of this presentation is to show a possibility of computer graphics for historical research, not for construction product (building, bridge, etc.) but mainly for geographical land form.

For the cities that have known a river landfill in the past, acquiring the old river pass which has disappeared can be an important historical theme and be a great deal of interest for residents. However, without precise historical documents and maps, the estimation and reproduction would be generally quite difficult. Furthermore, it is not known the fact that the city has developed on a river.

The aim of our research was mainly to estimate and reproduce the old river pass by 3D topographical map. The question has been if the 3D topographical map itself and the combination use with others documents could bring more information, and if it's possible to estimate and reproduce an old river pass of which disappeared since hundreds years. The example is the Shirakawa River running in the center of Kumamoto city, Japan.

The impacts given from the images of computer graphics from 3D topographical map would helps much better than old documents to know and understand how the city has developed "on the river". In this case, the reproduction itself has a large importance.

Modeling, SIG, History of the Techniques, Inheritance and Shipbuilding: La Ciotat (France)

Jean-Louis KEROUANTON
Université de Nantes, France
Florent LAROCHE
Ecole Centrale de Nantes, France

Within the framework of the historical and patrimonial study of the shipyards of La Ciotat, the attention was related to various technical objects directly related to the industrial processes of the ships, the cranes of course but also a "bending machine" Bennie of 1959, studied in urgency before its destruction during the recent demolition of part of the site before re-use. The object of the communication will be to show the assumptions of digital reconstitution of the machine and its dynamic operation. Confrontation with the historic files made it possible to validate certain operations and certain uses. By changing bending machine, it was a question for the shipyards of optimizing the spots of the workmen in this phase of work: productivity, optimizations of the gestures. Modeling thus makes it possible to understand the importance of the total ergonomics of the workshop and the physical situation of the workmen within the framework of this economy of the production. One passes thus from the economy of the gestures to the industrial process.

The study of the shipyards of La Ciotat constitutes a stage of the more general comprehension of the industrial processes in their built and territorial context. For this reason, the simultaneous use of GIS appears essential within the framework of the historical studies as much as that of patrimonial valorisation.

What Happened to the Cement and Limestone Industry of Lohja?

Aune KÄMÄRÄINEN
University of Turku, Finland

The cement mill in Virkkala commune, Southwest Uusimaa in Southern Finland is an example of the great industrial boom in Finland of the 1880´s, and what happened during the economic depression a hundred years later.

The limestone industry in Lohja began in the beginning of 1880´s, when limestone was found in two places in the region. The captain Karl Forsström from Förby and his friend, the businessman Julius Tallberg, decided to rent the grounds of the limestone finds for 40 years. The site of the mill was chosen in purpose in Virkkala which was a favourable place in many ways. Cement burning required lots of timber for burning, which was available because of the sawmill that already existed there. The nearby lake provided possibilities to transport raw material by water. The third asset was that a railway had been established between Hanko and Hyvinkää in 1873.

Karl Forsström´s 23-year old Petter, who had studied in Germany the profession of a brewer, became by accident the first director of the cement mill. He stayed as a director for 60 years – maybe a championship in one profession. He became the legendary old-time industrial patron "Kalkki-Petteri", who conducted personally everything in the mill. The first lime oven was constructed in 1897, and the second, round oven with a 54 m high pipe. The production was 2 750 tons of lime in 1898. The lime was used for making cement and concrete, and a smaller part went to the leather industry. The market required more and more, the growing building activity needed cement, and in 1916 a cement mill was established in Virkkala after the confirmation that good clay was available in the region. The rotating cement oven was ordered from Denmark. The first world war stopped the production, which began again very strong in the 1920´s. New limestone quarries were opened. The stone in Ojamo quarry became scarce, and the quarry was finished in 1965. The Tytyri mine in Lohja town produced still. In 1930´s the mill consisted of four ovens and was the leading producer of lime and concrete in Finland.

Petter Forsström worked as the director till 1962. He died in 1965. The decline of the industry had begun. The mill was sold in 1993 to the Swedish concern Euroc, which closed it in 1994.

The cement mill has stood in Virkkala empty and useless ever since. That kind of special buildings are difficult to reuse. Only the office buildings are rented as offices, workshops and sites for small industry. The problem is, that the demolition of the cement mills would be very expensive, and nobody wants to buy these constructions today already in bad condition. The once prominent industrial site has become a problem waste.

Designer, Manufacturing and Czech Industrial Design Development

Jiri HULAK
National Technical Museum, Czech Republic

The development of industrial design in former Czechoslovakia were very closely related with dilemma of heavy industry, making of processing machines and other working means and, finally, creation of working environment.

From this point of view, the position of Czech (Czechoslovak) industrial design could be seen as pioneering in international scale.

Czech Sculptor Vincenc Makovský, teacher of the Art School in Zlín (Škola umění ve Zlíně), was, about 1940, probably the first artist who created a design study of processing machine – plaster model of the revolver lathe R 50 for MAS factory in Zlín in 1:1 scale.

The further accelerated development of the industrial designers´ work for Czechoslovak heavy industry was very closely bounded with the very specific situation in Czechoslovak politics and economy after the převrat in 1948. The situation were very contrasting, for example, with that in the automotive design in our country (where the designers´contrubution, in many cases, were very lowly).

I would like to more properly introduce the very interesting and very specific development of Czech industrial design in relations to engineering work in heavy industry. There is very important to emphasize the original conceptual work of a few designers: Zdeněk Kovář, founder of specialized education of industrial designers in Czechoslovakia; Petr Tučný, internationally active and successful designer, theoretist and teacher; pioneer of rational forms of machines Svatopluk Král, and the others who was concerned in the problems of optimal working environment in industrial plants.

THURSDAY
Session T1G
Room A06
8:30–10:00

Industrialization and Deindustrialization in Tara Fagarasului/Fagaras County/ in the Complex Historical Period 1939/1940–1989/1990. Historical, Social and Museal Aspects

Elena HELEREA
Transylvania University of Braso, Romania
Florentin OLTEANU
Negru Voda Foundation Fagaras, Romania
Sorin-Mihai PETRISOR
Cultural Center of Victoria Town, Romania

In the east-central part of Romania, in Transilvania/Siebenburgen/, between the mid-19th century and the mid-20th century a relatively high process of industrialization was developed. The area around Fagaras town, named Tara Faragasului/ Fagaras County/ which lies in the western part of Brasov county and south of the chain of the Transylvanian Carpathean Mountains, before and during the Second World War, was at the heart of the industrialization process, especially by the development of chemical & military industry.

The history of a new town Orasul Victoria/Victoria Town/, placed in Fagaras County, dawned in the years previous to the Second World War. During the year 1936, the Romanian Army Ministry engaged a German company to design and build a factory producing smokeless powders. The first reference to the factory building is an address of the German company Ferrostahl of Essen, dated from 20.02.1941, towards the Military Chemical Department. The works had gone on planning and building until around 1942, during which year they were interrupted because of the war.

This paper deals with an analyze of increase and decrease of military & chemical industry in Tara Fagarasului during the period (1939–1989), highlighting the historical, social and museal aspects, providing relevant data on historical technical sites and suggests some future directions for research into the history of industrialisation/deindustrialization of this important region. The paper proofs that the industrialization in Fagaras County has lead to quality jobs, diversified economy and opportunities for education, but the impact on social life and environment was more complex. The signs of deindustrialization have been shown before the years of anti-communist revolution, in 1989.

The Portsmouth Panopticon: The Block Mills and a Reinterpretation of the British Navy's Industrial Revolution

Katariina MAURANEN
Imperial College London, UK

In this paper I will present an interpretation of the Portsmouth Block Mills as the starting point of the British navy's industrialisation. I present the case in the light of a number of museum exhibitions portraying dockyard history on the one hand and industrial history on the other. I argue that although these two are intimately related, they are seldom seen together in museums. I will then present the central idea of an exhibition I put up in July 2009 concerning the Portsmouth Block Mills, and depicting them in the light of Samuel Bentham's dockyard reforms and the idea of the Panopticon, the all-seeing eye.

Focus group discussions were held to assess the exhibition. One of these groups looked at the possible reuses of the Block Mills building. It is currently inaccessible to the public, located in a functioning naval base, just outside the heritage are of Portsmouth Historic Dockyard. One of the conclusions was that although museum use alone would not be feasible, part of the building could be used for exhibitions. In this paper I argue that exhibitions reaching across barriers between maritime and land based history could be most suited for this location due to its important role in both naval and industrial history. I will also argue that a broader understanding of history could benefit museum exhibitions in general.

THURSDAY
Session T1H
Room A07
8:30–10:00

Local Culture and the Re-Invention of Port-Cities

Günter WARSEWA
University of Bremen, Germany

Regardless of size or location port-cities were strongly affected by industrial decline and forced to re-invent themselves. The type of port-city we once knew was coined by a particular identity and culture, but now a new type of maritime city emerges with high-tech production, research institutions, tourism, leisure and other modern services. In this process of transformation one of the most important challenges is to change thinking and mentalities. The more distinctive the port-city, the more exclusive and specialised its profile, culture and character – the product of a historic legacy of maritime-trading, seafaring, shipbuilding and all their related productive and service capacities – the greater the difficulty of responding to these challenges. So, which paths had been chosen by different port cities and how were they influenced by local culture?

For each city a certain corridor leading from past into future can be identified and there are various ways, how culture matters for the specification of these trajectories: As a steering mechanism (cultural capital, common expectations and conventions, values, trust); as a resource for social and economic processes (heritage, traditions, symbols, interpretations) or as a new potential (media, cultural industry, attraction for residents, tourists, other target groups).

The study gives an overview on how local culture affects the process of transformation and demonstrates that the various functions of local culture are a determining factor for the specification of trajectories and bring about that they are not only pure adaptations to global dynamics but are expressions of a certain autonomy reproducing diversity between cities.

A Captain's Transition from Sail to Steam in the Late 19th Century

Helen BENEKI
Ionian University, Greece

Ships are considered to be the machines in the maritime industry sector. The evolution from sail to steam constituted a major change, not only to the sector but also to the world's deep sea-going navigation and merchant routes. Maritime industry has been of major importance to the Greek economy and a privileged area to study both technological and social aspects of labour. Greek-owned maritime industry passed from sail to steam during the late 19th century. What kind of transformation and adjustments that meant to the labour force on ships?

Anastassios Syrmas (1842–1924) was a Greek captain, coming from Andros (Greece), mainly in the service of a prominent shipowning family of the same island which operated maritime and cereal trade enterprises in London and Braila (Romania). His personal archive (ship diaries and logbooks included) reveals an enlightening local experience about changes at work – both professional and personal – caused by the transition from sail to steam, emerging opportunities but also the adventure of re-educating himself in the new technology and social environment of a steamship. In the correspondence of the captain with the shipowning firm, one can follow all the technicalities of a steamship's voyage, new-shipbuildings supervised by the captain, the relations between the captain and the shipowner, professional practices and professional ethics, professional and social networking.

THURSDAY
Session T1I
Room C6
8:30–10:00

INDUSTRIAL NUISANCES AT WORK: OLD HAZARDS, NEW APPROACHES, 18TH–20TH C.

Organiser & Chair: Judith RAINHORN, Université Lille-Nord de France, Valenciennes, France

Machinery and Health at Work (France, 1750–1900): Integrating Risk and Occupational Diseases in the Industrial Heritage

Thomas LE ROUX
CNRS, CHR-EHESS, France

The heritage of industry generally favours architecture, technology or even the landscape, that is to say the remaining physical marks. The working memory sometimes reappears from these remains, particularly through the museums in rehabilitated sites. However, it is rare that the link between space or tools and their impact on the workers' health should be emphasized.

This paper proposes to question the relationship between machines and the risks and diseases at work, and to highlight the recurring neglect of this dimension in the process of heritage value. In fact, each new machine brings new patterns of work having consequences on the health of craftmen and workers: tragic accidents or just ergonomic problems which are less visible. But in some sectors and for certain tasks, the machines have also had a pioneering role to protect the workers.

This paper is based on the archives of the Academies of Science and Medicine, on the industrial and technical archives, and on the archives of the French Health Councils created after 1802.

The conclusions of the paper will show how the irruption of mechanization in the production process changed the relationship between the worker and his environment. In a hundred and fifty years, we changed from a climatic medicine considering work space as a total environment, to a medicine based on toxicological analysis and technique, in order to prevent and treat the main risks and pathologies at work. This should enable us to bring a new understanding and interpretation of the machines taken as industrial heritage.

Working conditions, morbidity and mortality at the Dutch merchant navy in the 17th and 18th centuries

André N.H. WEEL
Centre of Excellence, Netherlands Society of Occupational Medicine, The Netherlands

The Dutch occupational physician Arnold Leuftink [1918–1992] has made an impressive research into the historical sources of the Dutch medico-naval history. His thesis [1952] discusses the medical science in the Dutch Navy during the 17th century. After his retirement in 1982 he has spent all his time on the study of the working conditions, diseases and causes of death of seamen on merchant ships for the East. For this purpose he was staying a long period in foreign archives, especially in Cape Town, South Africa. Having processed all data he was able to describe a vivid picture of the hard life on board of the Dutch merchant ships of the United East Indian Company in the period of 1695 to 1795, especially during their travels from Holland to the Cape of Good Hope.

The most important primary sources for his research were the ship's journals and the so-called attestations from ship's surgeons. In most ship's journals, a very accurate day to day bookkeeping of cases of death was found. In addition, extensive and often speculative descriptions of ship's doctors about the course of individual disease cases and their supposed causes were present. From our current knowledge of pathology it is possible to diagnose many of these cases.

From each travel a mortality diagram of the whole travel course was made. In studying these diagrams and combining their patterns with the other available data, Leuftink was able to assign certain diagnoses to specific patterns. Several specific epidemic patterns could be distinguished. This is the case for scurvy [scorbut], dysenteria, typhoid fever, typhus exanthematicus, yellow fever, bronchitis and pneumonia.

The results of Leuftink's research work (all publications are in Dutch language) are an important contribution to medical history. His approach of the sources and the way he has analysed the data are, although not perfect, an enrichment for medical historiography.

THURSDAY
Session T1I
Room C6
8:30–10:00

The Brush and the Test Tube. The Layman's and the Doctor's Knowledge about Occupational Lead Poisoning (End of 19th c.–1920s')

Judith RAINHORN
Université Lille-Nord de France, Valenciennes, France

During the 19th century, lead poisoning of painters is already an old issue in industrializing Europe: lead has been clearly identified as a harmful agent by Stockhusen in 17th c. and Ramazzini in 1700, responsible for painters specific stomach pains resulting from occupational lead intoxication. Nevertheless, the use of white lead in industrial paint increases dramatically during the next century, thanks to its intense whiteness, well-covering and bad weather-proof power.

Lead poisoning has thus become one of the most wide-spread occupational diseases at the end of the 19th c., especially among white lead workers and house painters. This situation causes an increase of lead poisoning-related medical surveys trying to summarize the contemporary scientific knowledge. Meanwhile, the disease becomes an industrial and political issue, under the pressure of workers unions and radical politicians, compelling the lead and paint industry to devise less harmful manufacturing processes.

This paper aims to compare lead poisoning as a scientific and hygienic issue in the medical shpere and in the public debate at the turn of 19th and 20th centuries. Focusing on the French and American (US) experiences, it enables to highlight two important personalities in this issue, Abel Craissac and Alice Hamilton, as actors who made practical experience and lay knowledge of the workers and scientific knowledge of the doctors both confronte and cooperate.

WORKSHOP ON UNESCO'S WORLD HERITAGE AND MONUMENTS FROM THE WORKERS' MOVEMENT

Chair: Peter LUDVIGSEN, The Workers' Museum, Denmark

UNESCO's World Heritage and Monuments from The Workers' Movement

Peter LUDVIGSEN
The Workers' Museum, Denmark

During 2008 UNESCO asked the national Heritage Agencies to evaluate the existing tentative list for the World Heritage list and at the same time find possibilities for new proposals for the tentative list in Denmark.

The Workers' Museums recommended The Workers' Meeting Hall in Copenhagen as a new proposal for the list.

The Workers' Meeting Hall is a listed building from 1879. It was (we think) the fist workers' meeting hall in NW-Europe, has functioned as such for more than one hundred years, has still – through twenty-five years of careful restoration and maintenance – a very high authenticity and is now the frame for The Workers' Museum.

The Heritage Agency didn't accept the proposal as such, but recommended that The Workers' Museum instead took the lead to organize a comparative, international analysis of the possibilities for a transnational serial-nomination of workers' meeting halls/trades halls worldwide.

We know several buildings in Belgium, Denmark, Sweden, Finland, Germany, USA and Australia. But there might be several other possibilities around the World.

I hope that the network in WORKLAB is able to support this action with information about buildings from the history of the workers' movement.

Criteria's:
The monument should hold either a reasonable age (before WW 1) or a specific architectural significant (e.g. Bauhaus or Art Nouveau architecture), but most of all have a profound authenticity and a significant historical role in the country or the region. After all the years the ownership and now-being use can of course be a problem, but most important now is to get the monument recognized.

My plan is to get a preliminary overview now. Then invite to further debate and definition of the relations to the demands from UNESCO and their advising committees. And finally to deliver the suggestions to the heritage authorities before the end of 2010. The Danish Heritage will will then make an international proposal.

The whole process towards the heritage list will take several years. It can end with no result, but if we succeed, we have given the workers history a very fine, worldwide lift.

THURSDAY
Workshop T1J
Workers House
8:30–10:00

People's House Co-Operative – A Frequent Type of House Ownership for Assembly Halls in the Region of Chemnitz in Saxony

Reiner WATERMANN
GIRO GmbH, Germany

Referring to the industrial region of Chemnitz, we think of textile industries and mechanical engineering. Surrounded by the ore mountains, Chemnitz is known as one of the heartlands of the industrial revolution in Germany. There was also one of the origins of the labour movement and the social democratic party. Here some of their first parliamentary seats were conquered.

In Chemnitz, the capital of this region, one of the first three people's houses in Saxony was erected. But different from Leipzig and Dresden not as a limited liability company but as a co-operative. This large people's house co-operative itself served as a model for further houses in small towns and industrial villages of the surrounding area. This is quite an outstanding feature in the history of people's houses in Germany until the end of the Weimar Republic, and therefore deserves closer examination.

A sample of about ten people's houses, collectively owned and run by workers as a co-operative, will be looked at to identify certain features. In general, co-operatives are seen as the embodiment of the ideas of solidarity, equality and workers' control. They had existed in various fields of production and distribution for quite some time. To apply this model institution of workers' control to assembly halls required special organisational, personal and financial resources.

Matching these requirements with the organisational structures at the local level, different types of houses' co-operatives emerge. In most cases only bodies or chambers of associated trade unions could meet these requirements on the local level. Nevertheless, there were differences. Sometimes even a single union could make an impact.

Closer examination deserve those cases where these resources did not exist apparently. Here the advantages, which co-operatives offer in theory, came into play, enabling the local working class to demonstrate its sense of community. This also includes, that neighbouring people's houses were used as models and even came for support.

IN OR OUT OF THE GLOBAL BOX? INDUSTRIAL HERITAGE FROM DIFFERENT PERSPECTIVES. CHAPTER 2, IV

Organiser: Györgyi NÉMETH, University of Miskolc, Hungary
Chairs: Györgyi NÉMETH, University of Miskolc, Hungary & Stuart B. SMITH, TICCIH Secretary

Industrial Heritage in the Rural Country: Growing Concerns and Re-use Practice in Lithuania

Marija DRĖMAITĖ
Vilnius University, Lithuania

Industrial heritage plays an important role in the countries that took a lead in the industrial revolution or demonstrated industrial power. (Tunbridge, Ashworth, 1996) However, what about the country that does not have any glorious stories to tell neither exceptional industrial buildings/figures to show? The country where a large part of the population idealizes the rural past as a true national identity?

Contemporary research has shown that there is much more to industrial heritage than a factory building, however a built structure remains a strong image of industrial heritage (Markus T.A., 2002). It means that aesthetics remains a strong argument in building preservation and it sensitively applies to industrial buildings when the structures are not considered as beautiful.

These notions make the background of my case study about understanding and re-using industrial heritage in Lithuania – a country that is traditionally presented as rural. The industrial heritage upsurge forces to ask a question what industrial narratives are constructed and how national perception of industrial history and architecture shape industrial heritage re-use practice. The lack of social context, historical interpretation and a broader scope in listing industrial heritage resulted that industrial heritage preservation in Lithuania was focused on the material remains and buildings alone leaving aside historical or social values that are most often linked up with industrial heritage.

THURSDAY
Session T2A
Room A1
10:30–12:00

Industrial Heritage Regeneration in a Transition Society: Old Industrial Areas in Serbia

Anica TUFEGDŽIĆ
University of Novi Sad, Serbia

The period of intensive political changes in the Balkans during the last decade of the 20th century, marked with strong social and economic crisis, has left deep traces on the urban heritage. Nowadays, during the transition period, Serbia is confronted with the disturbing vision of its own towns, especially of its former industrial areas.

Industry is a reflection of the economic power of society and the current political system. Each successive political regime in this area rests on the negation of the previous one, and it is understandable that the treatment of the heritage of the previous regime is inadequate. Awareness of industrial heritage universal values is almost nonexistent.

This paper argues that these kinds of structures are part of the landscape and social identity that they contribute to the authenticity of the communities they belong to and that there is benefit for the community and its environment in the reuse of such buildings. Using a few examples of former industrial areas and experience from region, this paper identifies possibilities for revitalization and reuse of old industrial areas in Serbia and underlines the importance of their integration in wider socio-economic development of the community, local as well as global.

Twentieth-Century Industrial Heritage in a Central and Eastern European Context

György NÉMETH
University of Miskolc, Hungary

Industrialisation has been generally studied as a worldwide process which started in Britain in the west of Europe and by now has affected all the continents. However, in the second half of the 20th century the Soviet-style forced industrialisation originating in the east substantially modified the flow of technology as well as the architectural qualities of industrial buildings and settlements in a large part of the world. Industrialisation from both directions had a major impact on the countries of Central and Eastern Europe.

In consequence of the double challenge Miskolc, the former middle-sized market town transformed into the second largest industrial city of Hungary. What are the local specificities of its industrial heritage from both the first and second half of the 20th century? Why are those specificities so much different on the same local resources? What is the attitude of the population now in the age of deindustrialisation towards the heritage of both industrial periods? These are the questions which this paper will raise and hopefully answer trying to help find an identity for the inhabitants in the region who have been desperately searching for it since the 1990s in the midst of Europeanising and globalising challenges.

THURSDAY
Session T2B
Room A4
10:30–12:00

SYMPOSIUM ON THE SOCIAL HISTORY OF MILITARY TECHNOLOGY IV

Organiser: Barton C. HACKER, Smithsonian Institution, USA
Chair: Margaret VINING, Smithsonian Institution, USA

"Promise of Great Military Value in the Perfected Apparatus": The US Army and Langley's Aerodrome

Laurence BURKE
Carnegie Mellon University, USA

Samuel Langley is an almost forgotten name today. When he is remembered, it is usually in connection with the long-running controversy between Orville Wright and the Smithsonian Institution over whether Langley's "Aerodrome" was capable of flight before the Wrights' successes at Kitty Hawk in December 1903. (Langley himself was dead before the issue arose.) Even less well-known today is that Langley was building his machine for the US Army. Beginning in 1898, the Army funded Langley's experiments in manned flight, eventually providing $50,000. Why was the Army willing to give Langley $50,000 in an age when some scientists had mathematically proven that human flight was impossible? Furthermore –progressivist notions of technology notwithstanding – what did the Army expect to do with the Aerodrome if Langley succeeded? My paper will use actor/network theory to explain how the Army's funding of Langley's experiments came about. I will also explain how this network of people and hardware initially succeeded in interesting the US Navy, but, in the end, failed to gain Navy funding. Finally, I will show that the Army's responses to the Wright Brothers' letters of 1905 and 1907 were more than simply skittishness over the whole issue of manned flight, though that played a role. Instead, the Army's letters show a continued interest in the subject, though with a greater burden of proof than Langley faced.

Memory and Myth – Remembering the Ford Ambulance in World War One

Jeffrey LARRABEE
Army National Guard Plans and Policy, National Guard Bureau, USA

The man-machine duo of the American college-man and the Ford Model T ambulance has come to define popular memory of American casualty evacuation during WWI. Stemming from a tradition of literary ambulance drivers, this wartime ambulance service has been highly romanticized, almost to the point where the exceptional has become the norm, while the norm has been virtually forgotten.

The Ford was not the Army's standard ambulance, and Ford-equipped ambulance units did not, as a rule, support the U.S. Army in the front lines. Therefore, a major question to be answered is why Fords and their drivers are remembered at the expense of their peers, and to the detriment of the historical record.

The answer is seemingly found in the technology itself. The Ford's simplicity made it easy to use, which obviated the need for a second crew-member and helped foster a more personal man-machine relationship than was possible with other types of ambulances. The Ford's superior maneuverability on shell-ravaged battlefields also endeared it to soldiers and the public, and made it an ideal subject for wartime propagandists.

While the Ford ambulance's legacy has been guaranteed by driver reminiscences and archived media products, understanding its technological underpinnings brings us closer to the nature of remembrance. When focused on the tools of war – in this case the humble ambulance – we can appreciate how encounters with technology can influence what society chooses to remember as well as how it remembers.

THURSDAY
Session T2B
Room A4
10:30–12:00

Painting War, Painting Industry: Industrial War and a New Kind of War Art

Barton C. HACKER
Smithsonian Institution, USA

The Great War of 1914–1918 seemed to many observers like no war ever fought before, a war of industries as much as armies. The enormous productive capacity of industrial nations enabled them to equip, maintain, and restore huge armies, abilities that led to stalemate on the battlefield, the horrible deadlock of trench warfare on the Western Front. Phrases like "war economy" and "home front" entered the lexicon to describe the conversion of industrial capacity, the reorientation of civic life, the concentration of all resources toward fighting total war, the mobilization of women and men through exhortation and conscription. Artists too found themselves mobilized for war. For the first time, governments sponsored war art programs to reach a mass audience. Germany was first to establish such a program. Austria-Hungary was not far behind and by 1916 France had followed suit. So had Britain, which ultimately eclipsed all the others in the amount of art created and its quality. One striking aspect of British official war art was that it did not take battle as its sole subject. A remarkable number of British Great War paintings depict the industrial and logistic underpinnings of armed force, something quite unknown in the military painting of an earlier age. When the United States entered the war in April 1917, it soon established an official war art program of its own. American war artists, like British, found logistics little less fascinating than combat. Industrial art for an industrial war is the topic of this paper, which is based chiefly on the collections of First World War art in the Imperial War Museum and the Smithsonian Institution.

Cotton Mill Cities and Power Canals in Scotland, Finland, Estonia and America

Mark WATSON
Historic Scotland, UK

Cities created to exploit waterpower and spin cotton share a common morphology. Tampere, industrialised thanks to Scots-born James Finlayson, is one of the best examples of a post-industrial city that uses its built assets around a water system. Narva/Ivangorod is another formerly Russian city, where the Kreenholm cotton mills of Ludwig Knoop still function as the largest mills in Europe. Parallel power canals there show a startling similarity to cities created at waterfalls in North America. Most famous is Lowell but there also are Lawrence, Troy, Manchester, Nashua, Lewiston and Saco/Biddeford. Each has a series of mills running parallel to power canals taken from falls in large rivers.

The layouts most likely responded to functional need but there may be some influence from the earliest known of the type in Scotland. The spinning mills at New Lanark started in 1785 parallel to a power canal fed by a waterfall. Other Scottish cotton mill villages – Catrine, Stanley, Deanston – began at the same time with the help of Richard Arkwright. A common set of values stretch between these places and the cities later created in the then wildernesses of America and Russia that in part justify inscription of New Lanark as a world heritage site.

The rehabilitation of mills in some of these places will be discussed, showing where historical value has been accentuated by conversion, giving communities a sense of place and purpose. Sources are primarily based upon fieldwork.

THURSDAY
Session T2C
Room C5
10:30–12:00

Reuse Concepts and Models as Instruments for Industrial Heritage Regeneration

Maria LEUS
Artesis University College Antwerp, Belgium

In the current age of environmental consciousness, demolition of industrial sites can no longer be justified. The conservation of these buildings and the requalification of the surroundings can only be guaranteed by appropriate reuse. The reuse of industrial buildings has become economically feasible, due to their flexibility, adaptability and multifunctionality.

This paper represents and discusses different concepts and models as reuse methods in order to discover which strategy is most suitable for managing renewal industrial heritage sites. The application of these methods is illustrated in two case studies consisting two breweries in Belgium, Wiels in Brussels, which is reused as a centre of art and Lamot in Mechelen, which is reused as a conference and heritage centre where culture and commercial activities are integrated.

These remarkable and impressive witnesses of an industrial past have recently been reclaimed, restored and transformed. The economic, functional and physical lifespan of these buildings was considered in relation with the diversity of values, which led to a socially accepted reuse. The reuse will be evaluated by means of models, which describe the process of reuse and provide insights into the factors that determine the success or failure of the renewal and improving of sustainable performance. By comparing these various approaches we want to highlight best practises in reuse strategies.

The study of these industrial buildings reveals the potential to express the absent and invisible values in the recent past and present of our society. This aspect of 'absent –present' displays how vital these abandoned areas are. It confirms that they are crucial heritage in bridging the gap between the past and present.

Emphasis on Sublime of Industrial Heritage – the Best Way for Its Reuse

Aida ŠTELBIENĖ
Centre of Architecture, Lithuania

The main issue:
We all sometimes experience a doubt while visiting a reused industrial site: how one can realize it is a former industrial area? Which way of transformation is appropriate for industrial surroundings?

Studied cases:
- department of Lund University in the South Harbour in Helsinborg (Sweden)[1],
- "TEKNIKBYN" Västerås Technology Park in former Kopparlunden's lush industrial estate area (Sweden),
- former Koppardalen steel factory's area in Avesta (Sweden),
- the surroundings in Norrköping centre (Sweden),
- former "Sulzer" Industrial area in Winterthur (Switzerland).

These cases represent two groups: what I call "industrial disconnected" and "industrial prolonged". Some of them are clear representative of the first, or the second group, others just have some features that spoil the picture of the whole site.

Theoretical framework:
David E. Nye. American Technological Sublime. Cambridge: MIT Press, 1994.
Rosenkranz K., Kliche D. Ästhetik des Häßlichen. Leipzig: Reclam, 1996
Burke, Edmund. A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful. London, 1958.
Kant, Immanuel. Critique of Judgment. Trans. J.H. Bernard. Macmillan, 1951.
And others, dealing with sublime in aesthetic or the sublime (ugliness) in industrial field in particular.

Conclusion:
The trait that distinguishes industrial design from other forms of arts lies in its sublime e.g. it is not a beauty, but an ugliness (beauty of ugliness) that makes industrial surroundings idiosyncratic. Therefore we should take for a mistake the way of re-use an industrial heritage by adding 'beautiful' artefacts.

1 Mostly sites, visited together with STINT group in period of 2001–2005, also – within the platform IHP.

RAILWAY HERITAGE. BETWEEN USING, REUSING AND PRESERVING IV

Chair: Guenter DINHOBL, ÖBB-Infrastruktur AG, Austria

The Wheel and Rail Interaction

Lidia V. PUGINA
Moscow State Railway Engineering University, Russia

One of the key safety aspects in transportation by railway is the wheel and rail interaction. The first attempt to test the rail bending under movable load was made by R. Willis after the accident that took place on a railway bridge in England in 1846. Thereafter, G.G. Stokes, M.E. Phillips, Résal and Saint-Venant tried to solve the problem on the assumption that the rail lying on an immovable support being under movable load bends down not only under the load and with its own weight, but under certain inertia forces and vibration of the rail. E.Winkler and H. Zimmerman measured the impact of a speeding wheel upon the rail deformation.

Early in the 19th century, Russian scientists Academician N.P. Petrov and Professor S.P Timoshenko made their contribution to further progress of the issue of the wheel and rail interaction. In 1903, in the article "The impact of the wheel traveling speed on the rail tensions" published in the letters of the Russian Technical Society, Academician N.P. Petrov proposed to replace the well-known Stokes differential equation defining the rail bend with two difference equations and make use of approximate solutions. He succeeded in finding a solution for the rail resting on 2, 4 and 6 flexible supports. In his monographs in 1907 and 1915 N.P. Petrov reviewed both the static and dynamic loads without reckoning of the inertia of rails and sleepers.

In his work "On the strength of rails" (1915) S.P. Timoshenko considered the rail as a beam resting on a solid flexible base. He made a set of differential equations for side bend and twisting of the rail, and then using the method of successive differentiation and substitution reduced the system of equations to two differential equations, each having just one unknown variable. In 1916, S.P. Timoshenko in his work "On the vibration of rails" analyzed the constrained vibrations occurring in the rail under fluctuating force, but he considered just standing waves without reckoning of the wheel speed. In his speech in Zurich at the International Congress of Applied Mechanics he proposed the equation that allows taking into consideration the interaction of the rail mass and the wheel speed.

The studies of N.P. Petrov and S.P. Timoshenko were continued both in Russia (V.V. Grigoriev, V.P. Krachkovsky and others) and abroad – Ch.E. Inglis. In 1939, was determined the transformation of vertical stiffness of the rail resting on 8 sleepers. The transformation of stiffness was approximated through the use of periodic function. Later on, were studied the parametric vibrations and parametric resonance of the uniform moving massive wheel. In 1981, L. Yezequel analyzed the fluctuations of the infinite massive beam resting on two flexible supports, with fluctuations induced with a steady force moving with a constant speed along the beam.

Since 1993 there have been different studies published in relation to periodic fluctuations in periodic structures by A.I. Vesnitsky, A.V. Metrikin and K. Popp. In his works in 1995 and 2003, Professor P.M. Belotserkovsky studied the unbalanced wheel steady motion along the rail resting on the sleepers with constant step size. The non-periodic force of the wheel and rail interaction was defined in the form of generalized Fourier series.

THURSDAY
Session T2D
Room C6
10:30–12:00

Railway Museums in the State of São Paulo (Brazil): Conservation Policy and the Local Community

Eduardo Romero DE OLIVEIRA
Sao Paulo State University, Brazil

This article presents four examples of museum of industrial heritage in Sao Paulo State (Brazil), their archive and preservation actions in the last years. These institutions have been object of our research: the Companhia Paulista Railway Museum in Jundiai, the Railway Museum and Center of Documentation of RRFSA/ Bauru, Railway Museum in Sorocaba and the Culture Station in Campinas. All these museums are in old railroad area, with differents problems of preservation (installations, collections, visitations). We aim at proposing a reflection, on one hand, about the local community perception about these industrial heritages, the relation between these industrial sites and the museums; and, on the other hand, understanding the nature of public cultural actions in these cities and the characteristics of the museums established there. In the methodological aspect, we did historical research about the formation of the museum, interviews with officials and visitors. We interviewed officials responsible for the museum, the body which is subordinate or institutions involved in its formation, whose purpose is to survey the management of industrial heritage and space in the museum (the project and objectives, exhibitions proposals and educational activities). The study of industrial heritage, particularly the railroad heritage in Sao Paulo, raises some important issues: the management of cultural heritage that can not be dissociated from the management of railways in operation; the poor conditions of conservation of railroad heritage; the features of these goods, whose size (number and extension) goes beyond the scope of its management by heritage preservation bodies.

Railway Museum in Prague – New Life for Old Locomotive Works in the City Centre

Jiri STRECHA
National Technical Museum, Czech Republic

The area of the locomotive shed and railway workshops Prague – Masaryk train station was built in 1845, when the first train drawn by a steam locomotive arrived in Prague. The main building complex of the future Railway Museum come directly from the Jubilee year, and more than 155 years served without major reconstruction for railway transport. Station´s building, locomotive shed and workshops was designed by Ing. Antonin Jüngling, track by Ing. Jan Perner. The central building of the Railway Museum of NTM is the biggest classical industrial buildings in Central Europe. Also, locating such a large and important technical monument in the city is unique.

Architectural and historical research of the buildings brought new knowledge about the history of the complex. On this basis it is possible to adapt the layout of the permanent exhibition as a part of the history of individual buildings. Functional steam engines to be installed in the former hall of the steam hammer, would reinstate some of the original track entrances and halls will be used by a number of smaller knowledge to create the authentic atmosphere of this magical place.

Location Masaryk station heralded its close interrelationship with the fate of Prague and the Czech Republic. Station and its facilities affected the 1848 Revolution, the Prussian-Austrian war of 1866 and the Prague Uprising in May 1945. During the uprising was brutal battle station drained and near the locomotive shad´s wall was more than 40 people mainly civilians, and the railwaymen shot by the Nazis.

The Czech government decided to build a Railway Museum, as part of the National Technical Museum in 2000. The area of railway locomotive shed and workshops of the Prague – Masaryk station was given to the National Technical Museum. Now, we starting with a gradual correction of the complex and we hope that within two years we will start finally repair of buildings and implementation of permanent exhibitions.

Where else tell the story of railways than in complex, which is themselves historical chronicle. The aim of Railway Museum is to show the railway as part of the whole society, a phenomenon which has more than 160 years belongs to our everyday life.

THURSDAY
Session T2E
Room C8
10:30–12:00

REUSING HISTORICAL KNOWLEDGE AND ARTIFACTS OF ICT

Organisers: Petri PAJU, Jaakko SUOMINEN, University of Turku, Finland
Chair: Dick VAN LENTE, Erasmus University Rotterdam, The Netherlands

IBM Histories – Re-using IT Knowledge and the Art of Forgetting

Petri PAJU
University of Turku, Finland

International Business Machines or IBM Corporation and technology had extensive influence in the era of mainframe computers. Its trade mark continues to be one of the best known in the world. Regarding its' history, IBM is also one of the most researched ICT companies although it too has been examined from couple of perspectives only. In this presentation, I will study how history is re-used (and not used) in IBM.

This paper is based on observations in an on-going research project which examines the co-shaping of computer expertise and visions of European capabilities through the use of IBM technology in Europe during Cold War. The use of IBM technology in shaping Europe will be analyzed at several levels of which two most important are the European (IBM Europe) and national, focusing on IBM Finland. Focus is on the time period of 1950–1980. An important part of the research has been to find sources and to understand how IBM deals with its' history. Evidence from IBM Corporation in the USA and IBM Finland shows different practices of re-using history (incl. refusing to use history) inside the multinational. I will also discuss how the historian could better work with an ICT company in co-producing its' history.

Towards Understanding Company History as Strategic Asset

Gregory SMILEY
University of Turku, Finland

This paper analyses how companies at various levels of establishment (from local start-ups to long-standing multinational corporations) develop an awareness of history as a strategic asset and the ways they take up the challenge of creating, re-creating, using or reusing historical elements within both internal and external communication practices.

Within many companies there is a rising belief that the structures of society are fundamentally changing from a hierarchical, linear mindset towards a socially driven mindset of open, networked and quite chaotic sense and sense-making. Over the last decade, a broad range of consultants, researchers and human resource advisors have evolved many different ways to approach this challenge. From knowledge management to storytelling workshops to agile strategy process definition, each could be said to be attempting to discover and use best practices for creating, re-creating, using or reusing knowledge as a historical element within both internal and external communication practices.

My main focus has been Nokia, which has a quite extensive depth of investment in its brand identity and its perpetuation throughout the work community as well as throughout the communities that interact with its products. It is also a company with a diversity of cultures that seek to align within what might be called a common DNA which is under constant pressure to adapt to the changes taking place in the industry and in the structures of society in general.

However, the main topic that I would like to focus on in the context of this panel is the evolving character of various history-oriented narratives within companies of various sizes, and how these narratives negotiate various meanings of knowledge and history. In particular I would like to discuss how these negotiations might be seen as having evolved an understanding of history as a potentially strategic asset.

THURSDAY
Session T2E
Room C8
10:30–12:00

Mario's Legacies: Uses of Console Gaming History

Jaakko SUOMINEN
University of Turku, Finland

In his paper, Jaakko Suominen studies how three major videogame device manufacturers, Microsoft, Sony and Nintendo use gaming history within their third generation console products (Microsoft Xbox 360, Sony PS 3, Nintendo Wii). These enterprises don't only market new game applications and devices but also recycle classic game themes, game characters as well as classic games itself. Therefore, these corporation are part of the phenomenon which can be called to retrogaming culture or digital retro economy. The paper is a fraction of Jaakko Suominen's larger forthcoming study on "Second Lives of a Computer", which analyses cultural processes of "new" digital technology transforming to "old", obsolete or digital heritage. The paper presents early sightings how these corporations started differently to use history and how they constructed their digital game market strategies to be compatible with current trend of retrogaming.

ENERGY USE VS. THE ENVIRONMENT III: CASE STUDIES ON BUILDING UP NATIONAL ENERGY SUPPLY

Organiser: Timo MYLLYNTAUS, University of Turku, Finland
Chair: Nina MÖLLERS, Deutsches Museum, Munich, Germany

The Transition of the Energy System of the USA, 1850–2005

Sylvia GIERLINGER
Alpen Adria Universität Klagenfurt, Austria

In this paper long-term trends of energy and materials use in the USA from the year 1850 to 2005 are presented. The paper discusses major transitions in the physical economy of the USA and in particular the different stages of the transition of the energy system from a mainly biomass and land based energy system to a fossil fuel dominated system and the emerging patterns of natural resource use. It explores the changing relation of energy use, materials use, economic development and CO_2 emissions during the period of industrialisation and compares the development in the United States with that in the United Kingdom and Austria.

The method of economy wide material and energy flow analysis was applied to compile a comprehensive database on natural resource use in the USA. The study makes use of data on the extraction, imports and exports of materials and energy carriers from a wide range of national and international statistical sources.

The results show, that while at the beginning of the observed period, the energy system of the US was almost entirely based on biomass, from 1870, the US rapidly followed the pathway of coal based industrialisation of the UK. At the beginning of the 20th century a new technology cluster consisting of oil, automobile, chemical industry and electricity emerges in the USA. Combined with a new socio-economic regime (Fordism) it formed the basis for the emergence of a new pattern of material and energy use. The data show a massive rise in material- and energy consumption after the great depression in the 1930s which lasted until the oil price shocks in the 1970s.

Boosting Exports by Giving up Renewable Energy Sources? A Shift in Finnish Postwar Energy Policy

Timo MYLLYNTAUS
University of Turku, Finland

A general assumption is that industrialization has regularly been related to a steep increase in the use of energy. The renewable sources of energy, which have in most cases been also indigenous energy sources, have been considered insufficient for a major structural modernization of the economy. As a result, it has been as a general model in economic history that industrialization has required and still requires the extensive consumption of fossil fuels. Actually most countries has followed this universal model.

In the 19th and early 20th century, industrializing Finland was an odd man out that did not fit the general model. Only in the 1960s – in the mature phase of industrialization – did Finland switch from indigenous energy sources, i.e. fuelwood, wood refuse and hydropower, to imported fossil fuels. Why did this transition in the energy system take place so late in Finland? Why did the transition proceed so rapidly? What were the consequences? These are pivotal questions in the paper that examines industrialization from the perspectives of economic and environmental history.

Because the background factors for the rapid transition form a complex web, this paper focuses on the role of the Finnish foreign trade policy and industrial policy in the greatest swift in the country's energy economy in the 20th century.

DIGITAL USES FOR MUSEOLOGY: A NEW WAY TO DESCRIBE TECHNICAL AND INDUSTRIAL HERITAGE II

Organiser: Florent LAROCHE, Ecole Centrale de Nantes, France
Chairs: Florent LAROCHE, Ecole Centrale de Nantes, France & Jean-Louis KEROUANTON, Université de Nantes, France

A Virtual Workshop to Document Industrial History and Enhance the Patrimonial Value of Lost Vestiges

Alain P. MICHEL
Evry University, France

The purpose of the Usines 3D (Virtual Factory) research program is to reconstitute a virtual image of significant industrial plants. It is a both a study in industrial history of the assembly lines, and an archaeological project aiming at the virtual reconstruction of patrimonial vestiges. The idea is not to make up for this industrial disappearance, but to create a new means of informing and diffusing the relatively unknown history of workers and workshops. The first study of this program has produced an interactive computer model of the "C5" workshop in the Renault automobile Plant of Billancourt located in the close suburbs of Paris (France) and now almost totally demolished. In this building the first chassis assembly line was set up by the end of World War I. The installation evolved in the 1920s from a manual to a mechanical conveyor system. I will show how we can virtual move inside the workshop and "observe" a working process as it was organized in 1922.

This visualization gives a radically new documented interpretation of the industrial past. Beyond the virtual representation of a building, of machines and conveyors, my main intention is to renew the relatively unknown history of workers and workshops. In a micro-history perspective, computer technologies are a tool to take advantage of the original, unedited information brought by series of images which show things that no writing talks about. It is an illustration of the way multimedia and computer techniques can produce new types of constructed historical documentation from scattered (and often discredited) historical sources.

THURSDAY
Session T2G
Room A05
10:30–12:00

New Technologies Inside Industrial Museums: Greece Examples

Laia PUJOL TOST
University of the Aegean, Greece
Charalambos PAPAGEORGIOU
Museum of Natural Sciences - Petrified Forest of Lesbos, Greece

The recuperation and integration of the abandoned factories into the urban web during the current processes of deindustrialization in the developed countries, constitutes in the last decades a fundamental issue in city management. In these countries, we observe opposed trends, which encourage either the destruction, either the reconstruction of these monuments. Serious losses have already been recorded, despite the existence in several countries, including Greece, of reliable and viable proposals concerning their re-utilization. This has been mainly due to the lack of institutional framework for the protection of former industrial facilities. However, some exceptional examples of recuperation of previous industrial sites can be found, many of them working as museums.

Industrial museums have a dual character: they roof the real objects, but through their spatial arrangement they propose a specific interpretation of the past. In this context, new technologies provide new tools for the creation of cultural products and contribute to the emergence of new ways of cultural expression and protection. The digital media have brought a revolution into the way in which museums manage and present their collections, both in-site and on-line.

In the present paper an effort is made to present for the first time the extent of the use of new technologies in Greek industrial museums. It focuses in those industrial and technological museums that run the last years in the islands of the Aegean Sea, which during the summer season receive the greatest number of visitors. Therefore, these museums constitute sources of enrichment of the Greek cultural reserve and poles of attraction of the touristic interest.

Kraftwerk – A Band of Men and Machines

Pertti GRÖNHOLM
University of Turku, Finland

Kraftwerk, a German electronic pop group from Düsseldorf, has been a forerunner in the marriage of pop music and electronics for nearly 40 years. Not only they brought synthesizers, electronic percussion and the themes and imagery of modern industrial age to pop music, but also reshaped the concept of a pop group. Already in the early 1970's Kraftwerk and its founding members Ralf Hütter and Florian Schneider adopted a band concept that was an uncommon mixture of business-wise thinking, technological and financial independence, artistic imagination and experimentalism. Over the decades Kraftwerk has successfully pursued to remain totally autonomous in the world of music companies and entertaining industries.

The scope of my presentation will be on Kraftwerk's brand that has been marketed as a seamless interaction of men and machines. Actually, Kraftwerk has taken the idea to the point in which they do not anymore speak about musicians and the studio, but a symbiosis of 'musical workers' and music electronics, even "friendship" of men and machines. This kind of brand also manifested a detachment from the conventions of pop stardom that is based on such concepts as authenticity, publicity and agency. In my presentation I shall shed some light to the formative years of the Kraftwerk concept, that was once described as an "electronic living-room" and "The Man Machine". By their very own Kling Klang studio Hütter and Schneider learned to gain control not merely over musical production, but over the whole chain of music business, from the sound of the band to touring schedules and interviews. Kraftwerk aimed at full self-sufficiency both in the art and in the business.

THURSDAY
Session T2H
Room A06
10:30–12:30

Circulating Technology in Stadium Scale Rock Entertainment

Kimi KÄRKI
University of Turku, Finland

Rock music performance has gone through massive changes since its beginning in the Anglo-American club-circuit. In the 1960s and 1970s, cultural changes were combined with growing technological possibilities, which brought strong visual and theatrical elements in rock performances. Rock spectacles grew together with performing venues, and the mass-audience's potential as a consumer of rock was realised by the recording industry. The use of gigantic venues changed rock performances into total or rather totalitarian mass-art, in which rock stardom was preserved and created by technological means and clever use of nostalgic elements. Aesthetics of the stadium spectacle has developed from this need to exaggerate and fortify audiovisual gestures and narratives through technology. In my presentation I will observe these technological means, both their growing role in the performances and their varying origins from other industrial usage.

Is the Brave New World of Digital Music Coming to Its End?

Petri KULJUNTAUSTA
Finland

The paper is based on investigation on how the sound technology of the past has rehabilitated and sound instruments recycled in the present day creative music making. It is evident how music technology industry creates pressures for the contemporary electronic musicians. Aggressive marketing strategy shouts over us that we should follow the latest technological inventions, if we're going to create up-to-date music.

But, in fact, there are contemporary composers and musicians who are very creative, but who are not interested to run after the latest "toys". Instead, they're searching for the new possibilities from the old technology. Already in 1990's we saw the return of Theremin, early electronic instrument from the 1920s. While laptops became common instruments, techno musicians looked back and became interested on retro sounds. They sampled old records and bought old-fashioned second-hand drum machines and synthesizers and started to use the "classic" electronic sounds. The music based on Circuit Bending usually involves dismantling the machine and adding components such as switches and potentiometers that alter the circuit to create unorthodox sounds. We also have artists who have returned to the most basic sound element of electronic music and compose music only from the sine-wave sounds. Recently we have heard about electronic artists who have described their music as "post-digital music". They create music from the low-fidelity sounds and by recycling old electronic components. This paper asks what has happened recently in electronic music, is the Brave New World of Digital Music coming to its end?

THURSDAY
Session T2H
Room A06
10:30–12:30

Back to the Garden? Techno-Subjectivity and Nu-Folk

John RICHARDSON
University of Helsinki, Finland

The paper argues that what used to be called acoustic music has changed irrevocably in the digital age. Traditional ideas about the utopian function of acoustic music as a sanctuary from the technologically mediated and commodified mainstream are shown to be increasingly inadequate in the current cultural climate. The paper focuses on several cases of "acoustic" or "nu-folk" artists whose musical languages, use of sounds and approaches to performance in different ways articulate anxieties and aspirations relating to the contemporary mediatized world.

KT Tunstall's use of the Akai E2 Headrush looping pedal to simulate multitrack recording techniques in "real time" is one example of how modes of performance are changing. The musical language of acoustic music is also viewed to have changed in line with technological imperatives, as evidenced in the guitar styles of Paul Buchanan and Suzanne Vega. Technological sounds have also infiltrated the subgenres of folktronica and psychedelic folk, thereby redrawing genre boundaries and reconditioning the priorities of folk aesthetics. Nordic artists like Múm, Sigur Rós and Lau Nau have played a part in these changes.

How a Small Family Foundry Became the Global Foundry Group

Olavi PIHA
Aalto University, Finland

At the hearth of Uudenkaupungin Rautavalimo (URV Iron Foundry) is a family own business that was established in 1950 in Uusikaupunki on the west coast of Finland. Mr. Leo Saario was the foundry founder at age 32. Saario had started his work life in iron foundry at age 13 and he had been well trained as a foundry shop worker. At the beginning of production there were lack of capital, energy, tooling, raw material, everything. His personal contacts helped company to employ 10 skilled foundry workers.

Orders during the first years came from the home country where it was a lot of to build up after the war. First years production was 400 tonnes per year. Old fashioned black sand moulding method made work climate very dirty. For iron melting cupola furnace was 3 times a week in use and smoke came out without any cleaning. At the beginning everything was made manually, even lifting and transport of castings. Moulding, casting and cleaning were very heavy but also salary was very reasonable. After Leo his son Jouko was owner and foundry manager. In his time a totally new, modern foundry was build. In year 2001 was time to the owner change. In 50 years the small family foundry business had become an influential actor in Finnish metal industry.

Since 2001 the company has grown considerably through acquisitions. URV Foundry Ltd. is today a foundry group with its own foundries in Finland, Sweden and Estonia. In addition, they produce a large amount of machined casting components in Asia. The net sales exceed EUR 30 million (2008) and the company has a well-established position as the supplier of iron castings to the global machine building industry.

THURSDAY
Session T2I
Room A07
10:30–11:30

The Diffusion of Modern Red Pigments During the 19th Century: Analysis of Portuguese Technical Literature

Sónia Barros SANTOS
Portuguese Catholic University, Portugal
António João CRUZ
Polytechnic of Tomar, Portugal

The industrialization of the nineteenth century societies together with significant breakthroughs in Chemistry since the late eighteenth century, the chemical industry development, the establishment of several manufacturers of artists' materials and the collapsible tubes invention during the 1840s had a major influence in art and practice of painting in the nineteenth century.

The discovery of elements such as cobalt (Brandt, 1739), zinc (Marggraf, 1746), strontium (Crawford, 1790), chromium (Vauquelin, 1797), barium (Davy, 1808) or cadmium (Strohmeyer, 1817) as well other compounds, allowed the development of modern pigments. In this process, the synthesis of new red pigments was very important as a significant number of new colours were added to the painter's palette. These new materials introduction in countries like France or England, where most of the discoveries were made, is fairly studied, but there is a significant lack of information about how the spreading of these products occurred in periphery European countries like Portugal. Signs of persistence and innovation were sought in the use of traditional and new synthetic pigments. Besides, this study shows that there is a large gap between the discovery and the commercialization of each of the new red colours and its references in Portuguese technical literature. Factors contributing for the delay and lack of interest among artists in the latest scientific findings in this field were analysed and discussed.

Industrial Memories in Taku Shipyard in Tianjin

Jing WANG
Chinese Academy of Culture Heritage, China

China is in the new phase of industrialization and rapid urbanization stage of development, the old industrial heritage areas are becoming new prime targets for urban renewal. Taku (Naval) Shipyard we will focus on in Tianjin Binhai New Area is a typical industrial heritage area which is in the core city under-construction area. Therefore we hope to investigate the history and current situation of Taku shipyard to protect the industrial memories in Tianjin and those under-construction cities in China.

Taku shipyard, built in 1880, was located in the mouth of the alluvial plains of the north bank of the Haihe river in Tanggu District, Tianjin. Taku shipyard is the first shipyard factory in northern China. Taku shipyard is not only the earliest and the largest shipbuilding center, but also an important military base at that time of China. It played an important role to strengthen the Qing Government force.

To solve the conflict between the protection of the industrial heritage-Taku shipyard and the construction in Binhai New Area we try to make a overall strategy to integrate different subjects and policymakers. In this strategy we try to built a framework of a plan which to make sure that most of the stakeholder of Taku shipyard will present their opinions and experts from different fields such as urban-planning, architecture, history, landscape, etc will work together to meet their commands. Compromise will be a main approach to achieve our mission on the basis of the value to the Taku shipyard would be well protected and interpreted.

Industrial Heritage of the Ria of Avilés. Heritage at Risk?

Gemma SUÁREZ MENÉNDEZ
University of Oviedo, Spain

The objective of this communication is the analysis of the Industrial Heritage of the Ria of Avilés (Asturias, Spain), key element in the transformation of a little coast village into an industrial town.

The arrival of iron and steel industry at the middle of 20th century leads to important changes in the development and growing of the village, turning this tertiary sector village into a secondary sector town, and forming a new waterfront.

Nowadays, factors as deindustrialization and undervaluing of Industrial Heritage, and specially, the fact that there are neither proposes nor plans to reuse or to renovate the industrial buildings, force us to consider the existence of a potential risk on this heritage and its gradual disappearance. As a result of deindustrialization, several industrial buildings – as ENSIDESA Power Station, the gas holder or blast furnaces – had been demolished, losing "treasures architectonics" of Modern Movement, and being a threat for the industrial landscape of Avilés.

At the moment, the area of the Ria is being modified into a new waterfront – for second time – forgetting its industrial past; preferring the construction of new buildings – as Niemeyer's Centre, following the way of the Guggenheim Bilbao experience – instead of trying the regeneration of industrial architecture; being the best option to combine both proposals, joining together past and future, being enriched this way the culture and the town itself. Finally, the conservation of Industrial Heritage must be our duty; after all, this heritage is testimony of our history.

From Natural Wonder to Cultural Monument – A Story of Waterfall Aesthetics

Helena NYNÄS
Norwegian Water Resources and Energy Directorate, Norway

Waterfalls have always been praised for their outstanding and sublime beauty, but also for their potential for hydropower development. The waterfall in Norway is not only an icon of the Norwegian national landscape, but also an icon of Norwegian modernity. This paper will present the ways in which the waterfall Tyssestrengene in Tyssedal, western Norway attracted various forms of aesthetic valuation. This waterfall was a great tourist attraction in the 19th century, but then became the object of hydropower development in the early 1900s. The community Tyssedal changed rapidly as a result of the hydropower development, and today a large power plant (1908), dams and other installations, including the structures of chemical industry, make up the character of the place. In 2000 the hydropower site was protected as a national cultural monument. The goal of this paper is to demonstrate how, and by whom, the aesthetic appreciation of one waterfall was articulated in scientific, technological, political and artistic discourses. It will be shown that the aesthetic dimension is not restricted to discourses related to art and architecture, but pervade other discourses as well. Thus, the waterfall, originally perceived as natural wonder representing a "pure" national landscape, ends up being harnessed and takes on the meaning a cultural monument, representing modernity.

THURSDAY
Workshop T2K
Workers House
10:30–14:00

WORKSHOP ON UNESCO'S WORLD HERITAGE AND MONUMENTS FROM THE WORKERS' MOVEMENT II

Chair: Peter LUDVIGSEN, The Workers' Museum, Denmark

Aspects of *Volkshaus* Architecture in Germany Between 1890 and 1933

Anke HOFFSTEN
Architekturmuseum of TU Munich, Germany

As in other European countries at the end of the 19th Century also in Germany the labour movement established so called Volks- and Gewerkschaftshaeuser (people's houses/trade union houses) as organisational, social and cultural headquarters for the various workers' associations. Held in collective ownership these centres served a large variety of functions like assembling, administration, accommodation, boarding, education and recreation. Between 1890 and 1933 around 120 Volkshaeuser were newly erected. These projects all arose from local initiatives, whereas the spatial needs and financial means varied strongly from place to place. As a consequence the Volkshaus did not emerge as a distinct building type with a well-defined set of formal characteristics. Rather its typological character is defined by questions of builder-owner, function and use. All this lead to a mostly heterogeneous appearance: The largest, metropolitan Volkshaeuser possessed multiple halls of different sizes, beer-halls, cafés and restaurants, meeting rooms, office floors, shops and hostels. Volkshaeuser in a provincial setting generally had a very basic structure with only one multifunctional hall and a few adjoining rooms. Still Volkshaus architecture shows recurring architectural references to other building types like palaces, guild houses, town halls, office buildings or rural dwellings. Differing aspects of shape and design are to be interpreted as individual approaches within the labour movement trying to assert itself in public space, particularly having to compete with bourgeois cultural hegemony. The Volkshaeuser show a wide range of styles from traditional concepts as propagated by the reform and heritage protection movement (Heimatschutzbewegung) across a moderate modernistic, in some cases expressionist attitude to a few remarkable cases of a decided avant-garde position. These variations suggest varying degrees of consensus or, respectively, discrepancy in questions of taste or cultural awareness amongst the labour movement. Apart from that the formal heterogeneity reflects the different architectural tendencies in modern German architecture during that time. Following the claims brought up by the reform movement within the intellectual bourgeoisie the aesthetics of the early palace-like Volkshaeuser with their "borrowed grandeur" (e.g. Hamburg, 1903–06) were soon disapproved by socialist masterminds who demanded a

distinct working class culture. At the same time Marxist theorists assumed that a socialist culture could not be created under capitalism but would only evolve naturally as soon as socialism was achieved. Triggered by the 1918 revolution avant-garde artists also began to call for a new architectural language which would express the specific Weltanschauung (ideology) of the ascending socialist movement. Consequently during the 20s the German left strongly supported the artistic avant-garde and absorbed its postulation for a new functionalist architecture. Large Gewerkschaftshaus projects (e.g. Frankfurt, Max Taut) emphasised this aesthetic commitment. Critics praised these "beacons of modernity" as signals for a new seminal concept of art, architecture and even society. Therefore during the Weimar Republic modern architecture in German public opinion became more and more identified with left ideas and left politics.

THURSDAY
Workshop T2K
Workers House
10:30–14:00

"Volkshaeuser" in Germany

Holger GORR
IG Metall, Ressort Zentralbibliothek, Archiv und Dokumentation, Germany

A "Volkshaus" (people's house) or "Gewerkschaftshaus" (trade union house) is a managed assembly hall of the workers' movement, often with a hotel and offices of the workers organisations. Usually workers were the collective owners of these houses. Until 1933 it is possible to qualify a Volkshaus movement, it was a component of the socialist workers' movement.

After the end of the german "anti socialist law" 1890 the ascent of the socialist workers' movement began. It was still exposed to oppression and had problems to find assembly halls. The trade unions became rapidly so strong that they could acquire or establish own assembly halls. The first own trade union house was opened 1902 in Berlin. Because of the catastrophic living situation had developed the "tavern culture" of the workers' movement, which was crucial for the class constitution.

The "Volkshaeuser" were developed in local initiative. They also provided to the education, the culture and leisure activities. The "Volkshaeuser" were not undisputed within the workers' movement. In the late 20's the trade unions with architects of the modern trend, some houses were designed in the style of "Neues Bauen" (New Building) were established.

In the Weimar Republic the "Volkshaus" movement followed the political cycle of the workers' movement. After the November revolution 1918 the workers' organizations had enormous influx. After crisis-ridden years a new upswing started in 1928. At the same time the workers' movement built modern, bright and healthy rented apartments for paupers. The "Volkshaus" movement had reached its peak, when between 170 and 200 "Volkshaeuser" and trade union houses existed. Other scientists speak of more than 300 "Volkshaeuser".

The enemies of the workers' movement attacked the "Volkshaeuser" for their symbolic meaning. Since 1930 there were meeting hall battles between the workers' movement and fascist SA ("storm troopers"). After the transfer of power to the NSDAP, the trade union houses were stormed on 2 May 1933. The trade unions were forbidden, the houses were seized. Trade union secretaries were arrested in concentration camps, many were abused and some even murdered. The workers had no more possibility of affecting their conditions of work. The political and cultural life in the "Volkshaeuser" had expired. Many "Volkshaeuser" were damaged or destroyed during the war.

The Second World War provoked extensive changes. The proletarian environment dissolved. The Cold War controlled the heads. The trade unions were reconstituted as industrial organisations, not longer as professional organisations. The delegation principle replaced the meeting of the members. The workers cultural movement was not revived. In addition, the life situation of workers changed noticeably. The personal prosperity increased. Various forms of leisure activities arose. The collectivly administered "Volkshaus" lost its meaning for the workers.

THURSDAY
Workshop T2K
Workers House
10:30–14:00

Red Bricks: Labour Movement Buildings in the UK

Nick MANSFIELD
People's History Museum, UK

With its early industrial revolution, Britain's labour movement is the oldest in the world. Paradoxically this has made it relatively poor at the preservation of its own material culture. This is especially true of the built heritage associated with British trade unions and left wing political parties and cultural organisations.

This illustrated paper will outline UK labour movement buildings, whose survival relates more to chance than systematic preservation. Examples cover a wide range over a period of two hundred years. Starting with public houses associated with artisan trade societies, and moving to purpose built trade union premises, the survey continues with large meeting halls, like the Manchester Mechanics Institute; birthplace of the TUC and home to part of the People's History Museum. Some accidental survivals also relate to clashes with state or employers in the 19th century.

Most of these working class buildings were cheaply constructed and were without any distinctive style. However from the 1830s, meeting rooms and rural communities erected by the Owenite socialist and Chartist movements, reflected their social theories. The buildings of late 19th socialist movements adopted, at least in decoration, the Arts and Crafts ideas associated with William Morris and Walter Crane. The growth of the consumer co-operative movement in the same period was marked by a flowering of all sorts of associated buildings; shops, factories and holiday camps. The paper concludes with a discussion of conservation and interpretation.

New Perspectives for Exhibiting Industrial Heritage in German Museums

Rita MÜLLER
Saxon Museum of Industry Chemnitz, Germany

1906 the "Deutsches Museum – Masterpieces of Science and Technology" opened in Munich to encourage men to be a competent engineer or a hard worker. Until today it demonstrates the fascination of technological advance.

Most museums exhibiting industrial heritage were established in 1980s and 1990s (e.g. Berlin, Mannheim, Hamburg, Oberhausen). Starting point was not enthusiasm for engineering, but insecurity and scepticism about future technical and social developments. The museums added aspects like economy, working and living conditions.

In the eastern part of Germany a lot of museums are founded at the turn of the 21th as a result of political and economic change (e.g. Brandenburg, Chemnitz).

In 2010 the deindustrialisation (industrial transformation) is far advanced. Most of the exhibited technologies are not more present in the way young people think and often they are not interested in the industrial past.

How can museums deal with this? What makes them sexy?

Which topics are relevant for museums in the "postindustrial" society (Europeanization, globalisation, climate change, demographic change, migration etc.)

What are the promising ways of presentation and education (more hands-on, interactive exhibitions, science centres)? What are the challenges in the future? In Saxony, for example, we search again competent engineers and hard workers! The Landesmuseum für Technik und Arbeit in Mannheim, established 1990 is newly renamed as Technoseum to strengthen the natural science, to complete hands-on and labs. Is it a new trend?

InnoApaja: Innovative Learning at the Museum of Technology

Leenu JUUROLA
The Museum of Technology, Finland

The Museum of Technology in Helsinki is a national museum specialising primarily in preserving and displaying objects related to Finnish technology and industry. In 2006 the Museum launched a project called InnoApaja to provide schoolchildren with new ways of learning in a museum environment.

History and innovation
The purpose is to turn museum visits into active experiences. The InnoApaja learning paths are similar to typical routes of innovation processes in business and industry and focuses on supporting the learner's own creativity and problem-solving skills. Learning path comprises of an introduction to the theme and methods, gathering of information at the exhibition and an innovation workshop or a game.

The Museum of Technology is packed with Finnish innovations and their stories. The museum invites students to track the links in innovation chains: How has the structure of a ski changed? What might skis look like in the future? At the same time students are developing their own innovation: a new 'toy' for the Museum's resident ghost or a futuristic technological hit product. The hands-on models, extra materials and innovation game support learning experience.

The InnoApaja project will produce a concept, which will include educational material, learning environment and learning paths employed in the exhibition. The learning paths and the observation tools will also offer the wider public a hands-on experience of learning about the amazing innovations, inventions and stories at the Museum of Technology.

Finlayson Area as an Example of Using Industrial Heritage in Museum Education

Hanna YLI-HINKKALA
Finnish Labour Museum Werstas, Finland

The Finnish Labour Museum Werstas is located in the middle of historical Finlayson area, in old cotton factory premises. Location in old industrial area has offered good possibilities for museum education in themes of industrialisation and life in industrial society. Those themes have been used in museum education in various ways and for different age groups from pre-school children to vocational students. Today another important target group are adults as well. Last year (2008) museum had 3 000 visitors from schools.

In presentation I will tell how the museum education is related to the school curriculum in Finland and what subjects beside history teaching are included, and how the museum co-operates with schools and teachers in developing the content of museum education. Werstas co-operates also with Tampere City Museums and its pedagogical unit in the case of Textile Industry Museum.

Museum education principles will also be discussed, such as goals like teaching "the literacy of heritage" and how to use old industrial environment in different ways. Presentation will show also, what kind of activities museum offers to different groups in practise, mainly in guided walks and workshops, like melting metal or creating "value-line" of child labour, for example. And finally, how the museum education will be developed in future, especially for adults and what kind of activities there will be.

FRIDAY
Session F1B
Vooninki Hall
8:30–10:00

SYMPOSIUM ON THE SOCIAL HISTORY OF MILITARY TECHNOLOGY V

Organiser & Chair: Barton C. HACKER, Smithsonian Institution, USA

Serving in Serbia during WWI: Volunteer Women's Hospitals and Adaptations for Field Healthcare

Marianne P. FEDUNKIW
York University, Canada

When WWI broke out, a group of female, British-trained physicians offered their services to the British War Office to serve as triage physicians and surgeons on the front line. Their offer was declined. This did not deter a group of them, among them Dr Elsie Inglis (1864–1917), who started the Scottish Women's Hospitals, and English physician Dr Dorothea Clara Maude (1879–1959).

In fact, Serbia was one of the first beneficiaries of the women's offer of medical aid: through 1914 and 1915, hundreds of British women, including physicians, nurses, cooks, ambulance drivers and "grande dames" of English society travelled to war zones to set up hospitals that aided Serbian military and civilian wounded and helped check typhoid and malaria epidemics. Many of these hospitals were not only run by women, but were also staffed and stocked almost entirely by women. Funds were raised independently and many of the materials, including the tents and other supplies were found inadequate for the Serbian terrain, weather, and culture. The resourcefulness of the women physicians and staff to adapt to the challenges of the Eastern European frontier – as well as the surprising acceptance of women in charge by the Serbian military officers – has not yet been adequately studied.

My primary research is based upon the World War I diaries of Dr Maude, who independently headed up five different WWI field hospitals in France, Belgium and Serbia. Excerpts from the diaries were found in the Wellcome Trust archives and I was awarded one of the first Alchemy Awards from The Wellcome Trust in 2004 to use this material to bring history of medicine to a wider audience via a three-act stage drama which has been read in Oxford, UK and in Toronto, Canada.

From Great War to Cold War: French Chemists and Military Research, 1914–1968

Patrice BRET
Department of History of the Centre for Higher Studies, Armament, France

This paper focuses on propellants and high explosives, as well as toxic gases, as the subject of research by French chemists, and secondarily biologists and physicists, for military purposes. It looks particularly at the significance of the sites of research, either in the scientists' own laboratories during World War I and after World War II or in military labs between the wars.

Critical Infrastructure Dependence in Swedish Tank Development

Petter WULFF
Swedish Defence Research Institute (FOI), Sweden

Sweden acquired its first tanks in the aftermath of World War I. They were German and weighed ten tons. When the general staff sat down to specify tank requirements, weight came to be a main consideration, and a limit of 12 tons was stipulated on the recommendation of the civilian road construction authority. That was as much weight as Swedish bridges were supposed to sustain.

However, if tanks had represented an extreme demand on bridges in the 1920s, civilian vehicles were rapidly catching up, and when a thorough re-evaluation of bridge capacities was presented in 1935, the vehicle against which the bridges were measured (and supposed to hold) was a 15 ton road roller. That would obviously have allowed the 12 ton restriction on tanks to be raised, but it wasn´t.

It took seven more years and the successful drive of an armada of German 10–20 ton tanks through parts of Western Europe to finally lift the Swedish tank weight barrier. The direction of tank development then shifted drastically. If tank weight in the preceding period had never exceeded 12 tons, it was never less than 20 tons afterwards.

This case invites reflection on the military acquisition process and especially to the military-civilian interface.

Brass bands and Beat Bands. Exhibiting 20th Century Mining Culture and Regional Identity

Dagmar KIFT
LWL-Industriemuseum, Germany

In 1966 the coal crisis in the Ruhr area finally turned into a structural crisis: Many mines had already been closed, many more were to follow. In that year a number of miners' clubs organized a big meeting in Dortmund to show – and ask for – solidarity with the miners now threatened not by temporary unemployment but by a permanent loss of jobs. Although the meeting primarily documented the ongoing economical change its musical programme highlighted a shift of emphasis in the industry's culture: The performing brass bands and beat bands represented the two most important post-war aspects of the regional coalmining culture: the re-vitalisation and partly re-invention of tradition which dominated miners' culture in the 1950s and the attraction and reception of Anglo-American popular culture which took its place after 1966.

The paper will present some recent research into the cultural history of coalmining between 1945 and 1966 and give insights into the exhibition "Kumpel Anton, St. Barbara und die Beatles" which is based on that research (Hannover Colliery of the LWL-Industriemuseum in Bochum between 17th July and 10th October 2010). In combining themes such as mining tradition and pop culture the paper primarily deals with topics such as "new perspectives for exhibiting industrial heritage" and "collection policies". It also touches on topics such as "company cultures", "workers' culture" and "exploiting images of the industrial past" from the sub-theme "Cultural History of Technology".

FRIDAY
Session F1C
Bertell Hall
8:30–10:00

Danish Cooperative Movement 1871–2012

Henning GRELLE
The Workers' Museum, Denmark

Historical Background

The cooperative movement is officially considered the Danish labour movement's third party and thus stands abreast with the political party and the trade union movement. At least, this was once the case, but is it true today? It is beyond doubt that the major parties of the labour movement – the political party and the trade union movement – are far more known by the general public and hold a prominent place in Danish history. Yet today, who knows the cooperative movement?

Until the 1950s the cooperative movement was a familiar part of the daily lives of working-class members. They did their shopping in the co-op stores under the capital's Co-operative Society, bought their bread from the workers' cooperative bakeries, milk from the cooperative dairy "Enigheden", beer from the cooperative brewery "Stjernen" and also in bigger provincial towns foodstuffs were supplied by local co-op stores. The activities of the Co-operative Society were many – from coal and fuel supply, banking and consumer information to funerals and the last farewell. The cooperative movement embraced consumer- as well as producer-controlled corporations.

Since then activities and co-op companies have succumbed, one after the other, but many new emerged and some of the original ones are still going strong. So, the cooperative movement is indeed alive although it does not hold the same place in the minds of working-class members. The cooperative ideas survive, but it is uncertain how companies actually put them into practice and adhere to them. The reason may be that co-op companies no longer form an integrated part of the programmes and goals of political parties and the trade union movement. The cooperative principles have evolved over more than 100 years, however their current status receives very little mention.

It is hard work to find relevant literature on co-operative principles and the development of the cooperative movement. The political party and the trade unions have constantly produced extensive works, but the cooperative movement has never been the subject of a comprehensive study. Most of the pamphlets, educational literature and jubilee publications are from the period up to 1950. The lack of literature and presentation of the recent development of the coop-

erative movement has led to myths and a general bad image: Companies went under due to bad management, due to salaries that were too high and productivity that was too low. This may be true in some cases but it hardly presents a fully satisfactory explanation. It is a fact, however, that the companies that had to close never got a chance to defend themselves since the cooperative movement did not take initiative to give a more varied picture of the movement, nor of its history.

But there are of course many encouraging stories: companies that were sold and merged for instance into the Co-operative Society, companies that had a difficult competitive start. But the whys and wherefores were never discussed and analysed. So the myths still exist, like the one surrounding the closing of the co-operative brewery "Stjernen" 50 years ago although we know nothing about the real events back then. In this way, the cooperative movement falls into oblivion and only the myths remain.

Det kooperative Fællesforbund (DKF) (The Co-operative Union of Denmark) was established June 10, 1922 for the purpose of co-ordinating and contributing to the development of the cooperative movement and to bring out information about their activities. No one has investigated how the co-operative union handled its task, nor what discussions took place or which were the strategies chosen by the co-operative union. Again, there is no empirical testimony of the basis of its work. Being a central federation of the cooperative movement, ups and downs, principles and practice must have been subject to discussion and analysis.

In the course of the next two years The Workers' Museum & The Labour Movement's Library and Archives will study the cooperative movement in Denmark and present the findings in a book. We will attempt to answer some of the questions raised in this paper and to put into perspective the future of the co-operative movement.

The Industrial Pictures in the Finnish Art

Ulla JASKARI
Finnish Labour Museum Werstas, Finland

Since the beginning of the industrialization the factories, the factory workers and the circle of their lives have been subjects for painters, artists and sculptors. This presentation deals with the works of art of the industrialized Finland and especially those connected with the industrial work.

In the beginning of the industrialization the works of art were descriptive and their intention was to present not only artistic talent of the artists but the factories as an innovation, later as the basis of the welfare of the bourgeois society. With the rise of the working class descriptive art gave way for the critical social art. One important reason was the expansion of the amount of artists as members of class society. In the 1800´s most of the artists were members of the higher social classes or peasantry. In the beginning of the 1900´s there began to appear working class artists whose ambitious feeling was to portray their own circle of life. The artists criticized the social ills and worked for the better society. The art had social power and the influence was reciprocal.

The industrial society offered a rich variety of subjects. All the artists pictured industrial environments and work regardless of their political attitude. The views of the mills were interesting because of their constructions. The muscular human bodies were ideal to picture, but the working class artists were able to see the dark sides of the workers life also.

The Breadth of a Scientific Process

Anthony STRANGES
Texas A&M University, USA

How did a nineteenth-century laboratory-scale scientific process called hydrogenation become a twentieth-century industrial scale process whose applications were unpredicted and totally unrelated to the original hydrogenation reaction? Hydrogenation, the reaction of hydrogen gas with another element or compound, was initially a simple organic reaction between hydrogen gas and an unsaturated organic compound. Early in the twentieth century it found a new application in its reaction with nitrogen gas to form ammonia gas essential for the production of food and fertilizers. This was Fritz Haber's synthetic ammonia process. A few decades later hydrogenation found another application in its reaction with coal and then with carbon monoxide to produce a synthetic liquid fuel. Although each of these reactions was a hydrogenation and therefore chemically related, what provided the common link? This paper will show that the emergence of a talented research leader and the establishment of a respected research program linked the development of the hydrogenation process.

FRIDAY
Session F1D
Kisälli Hall
9:00–10:00

The Contact between Science, Industry and the Society in Finland

Panu NYKÄNEN
Aalto University, Finland

The technical education started in Finland in 1840's following the Prussian model of vocational education and the structure was fixed in to be a part of the government's administrative structure. From 1860's on the scientification of technology took place in the curriculum of Polytechnical Institute, and the technical sciences got their independence from the governments organization in 1872. Even after this the scientists were quite often wearing two hats, at least when it came to the vital industries of the national economy and to the building of the national infrastructure.

The research in to the impact of the science to the industry has been problematic, because it has not been a custom to report the secondary occupations. But due the several examples drawn from the archives the big picture of the mode can be cleared out.

After the Finnish independence 1917, because of the lack of qualified personnel, it became a common habit that the scientists were used as counselors of the government and the industry, and also as the leaders of the industry. Up to 1960's it was more like rule that the most important developing projects of the national economy and industry were led at least partially by the scientists. The close contacts between the science, industry and the state has been up to the modern times a most important factor when turning Finland to be a state producing most of its national income due the high technology.

Long-term Changes in CO_2 Emissions in Austria and Czechoslovakia – Identifying the Drivers of Environmental Pressures

Simone GINGRICH
Julia STEINBERGER
University of Klagenfurt, Austria
Petra KUŠKOVÀ
Charles University, Czech Republic

From the perspective of a materialist environmental history, industrialisation can be viewed as a transition from a solar-energy-based to a fossil-fuel-based energy system. This transition entailed new environmental problems such as global climate change, caused by the large-scale emission of previously fossilised carbon into the atmosphere. Interestingly, similar patterns of this transition have been observed under very diverse political and historical circumstances.

In our presentation, we investigate changes in energy use and CO_2-emissions in two Central European countries, Austria and Czechoslovakia, and their socio-economic drivers. While both countries were part of the Habsburg Monarchy in the 19th century, they followed very different paths in the 20th century, with a "social market economy" evolving in Austria, and a communist planned economy in Czechoslovakia. Since the "Velvet revolution" in 1990, Czechoslovakia has entirely restructured its economy.

We present and compare data on primary energy consumption and energy-related CO_2-emissions in the two countries for the period 1830 to 2000. Based on a structural decomposition analysis we assess which were the most important factors explaining the differences in CO_2-emissions between Austria and Czechoslovakia in the 20th century, distinguishing the effects of (total) population, total GDP, energy composition and energy intensity. We also analyse proxy data on the economic structure of the two countries. With this comparative approach, we aim at a better understanding of the specific processes of industrialisation and de-industrialisation which took place in the two countries, but also at a discussion of temporal patterns of industrialisation and their environmental consequences in general.

Does History Offer Hope that We Can Reduce the Risk of Global Warming?

Jan KUNNAS
Finland

One of the pivotal questions in researching the environmental effects of Finland's energy consumption is the divergent paths of carbon dioxide and sulphur dioxide emissions. This paper argues that the initial decline of sulphur dioxide emissions in the 1970s was mainly a side-effect of changes in industrial processes rather than an outcome of a deliberate policy. Furthermore, anxiety about large and widespread damage to the forests was a major reason for active measures to decrease sulphur dioxide emissions since the mid-1980s. Thus the emissions themselves provoked their downturn. Although the risks facing Finland's forests might have been overestimated, without active measures the emissions would eventually have reached a level in which the forests would have been seriously damaged.

From an environmental viewpoint, it does not matter whether an emission decline is a result of environmental considerations or a by-product of economically dictated technological change, or whether the engine of change is increased wealth or public unease with pollution. However, there is a big difference in the policy implications. For future development of carbon dioxide emissions, the story of declining sulphur dioxide emissions in the 1970s inspires hope that the reduction of emissions could be part of normal technological development. If again the environmental damage has to become severe enough to create pressure to reduce the emissions, then in the case of carbon dioxide the prospects are grim indeed. At that point, when the negative consequences are revealing enough to convince all skeptics, it is already too late. Another option is that, as in the case of sulphur dioxide, the anxiety about possible serious damage in the future can be enough to create a downturn in emissions.

A Monument of Mining Industrial Heritage of North Greece, in Search of its International Meaning – The Mining Complex of Kirki

Theodoros PRIGOPOULOS
Prefecture of Evros, Greece

The subject of this paper is the industrial complex of the Kirki mines, which is a point of reference regarding the mining industrial heritage in the northeast of Greece. It combines significant history with a remarkable architectural industrial complex, unknown to the public.

Greece, due to its geotectonic position and its geological composition, presents a big number of metals such as gold, lead, tungsten, uranium, coal etc, which establishes the regions of East Macedonia and Thrace one of the most important mining areas in Southeast Mediterranean. In Kirki region there was an increased intensive interest by Greek and foreign companies since 1925.

During WWII, a modern industrial complex for metal enrichment was built by German companies, in order to establish major mining activity in the region.

The mines worked, under different ownership, between 1945 and 1999 when they were finally halted.

Today, the buildings carry significant damages due to material ageing, mine waste toxicity and humidity. Furthermore, the mechanical equipment and metal parts of the buildings are gradually disappearing due to illegal dismantling.

The aim of this thesis is the formulation of a proposal for the restoration and reuse of the Kirki's industrial complex.

The proposal includes, apart from the reuse of the existing buildings, the design of new multiuse building. The whole new complex will work as a scientific and technologic park, with a mining museum.

The analysis and documentation of the study required extensive literature search and visits to the site. The main source for the research was the documentation kept at the Inspectorate of Mines of Northern Greece.

FRIDAY
Session F1F
Kutomo Hall
8:30–10:00

From Fragments of Early Industrial Copper Factory to the Geo-Montanic Industrial Park

Eva KRALOVA
Petra AMBRUŠOVA
Barbara BORIKOVA
Faculty of Architecture Slovak University of Technology, Slovakia

The territory of central Slovakia was known as the important locality of early copper industrial factoring of Europe in early industrial period – from 16th till 19th century. Very sophisticated system of technology and labour organization from that period were abandoned in the 20th century after the copper sources were exploited. Until nowadays there are conserved numerous isolated torsos of originally unique technical buildings and facilities as well as the numerous vestiges of human intervention into the environment.

The environmental changes in the surroundings of then copper factory were radical and strong in technical aspect, but at the same time, they were accepting the natural potential in the aspect of energy sources (water) and natural sustainability (forestry), too. The vestiges of such thinking and practicing are perspicuous here and there in that industrial territory up to this day. But, many people do not know it.

It is why the local enthusiast together with old people knowing the history and keeping in mind the technical principles of original processes as well with the researchers and students of universities developed the idea of geo-montanic industrial park on the territory of industrial county of Špania Dolina (before Herrengrund). The paper will present the obtained experiences and results about how such environmental-industrial park is growing.

Technology of Sado Gold and Silver Mine

Ryo USAMI
World Heritage Inscription Promotion Office, Niigata Prefecture, Japan

There were some large-scale mines which had been developed from the middle of the 16th century and those remains are preserved in good condition on Sado Island off the coast of mainland Japan. Sado Gold and Silver Mine is now aiming to be inscribed on the UNESCO World Heritage list.

During the Edo Era (1603–1867), Sado Gold and Silver Mine had the resources to support a monetary economy both in and outside of Japan as the largest gold and silver mining operation in the nation. Some gold/silver refining processes, such as Cupellation, Cementation process with sulfur and Cementation process with salt, which were not seen in Europe after the 16th century, were implemented in Sado Mine. Those processes can be seen on a lot of mining picture scrolls as well as in remains.

After the middle of 19th century, refining technology in Sado Mine was changed and improved independently as a result of the introduction of Western technology. They implemented Flotation process which had originally been used for copper refining, as well as Amalgamation and Cyanidation process.

As such, there are a variety of mine-related heritage sites and cultural landscapes, cultivated over the past 400 years, and they are still well preserved all over Sado Island. Sado Island is famous for its unique setting where the entire history of human mining technology from placer mining to modern technology can be observed across the island.

TRANSFORMATION OF INDUSTRIAL ENVIRONMENTS: PROCESSES, TOOLS, RE-THINKING III

Chair: Anna SIVULA, University of Turku, Finland

Reuse of Industrial Spaces in the South Bank of River Tagus' Estuary

Eugénia SANTOS
Polytechnic Institute of Setubal, Portugal
Madalena Cunha MATOS
Faculty of Architecture of the Technical University of Lisbon, Portugal

The industrialisation of the south bank shore of River Tagus' estuary was facilitated by the proximity to the capital, the readily available fluvial transport of raw materials and the construction of the southbound railroad system. During the 19th century, significant industrial developments were undertaken. These created a vast migratory flux, largely from the southern part of the country, of people hoping to find better life conditions. Some of the industries played a paternal role by creating social infra-structures to assist the workers' families, with the intent of maintaining the working population near the factories. As a consequence, housing, nurseries, schools, hospitals, canteens, social shops, etc. were built nearby these plants. At the turn of the century, CUF – "Companhia União Fabril" – created the largest Portuguese chemical industrial complex, where one can still find many of these social infra-structures.

By the 21st century the old industry has ceased its functions. The closure of the plants gave way to their abandonment, ruin and consequent dismantlement. However, encouraging changes took place in some of the old structures. In the area under scrutiny there are some interesting cases, especially in the County of Barreiro, where industrial and social structures have been adapted and given new use. The paper will present these factory plants and show how these infra-structures due to their grandeur and architectural character leverage new usages resulting in the safeguard of these historical buildings.

The sources for this paper were mainly supplied by the industries themselves, by the municipalities and by precious testimonials given by local people who knew the structures well having worked there. However, many documents have been lost. In addition, frequently industries were not registered, which makes it difficult to obtain any information regarding their initial purpose and facilities.

In Portugal the concern with Industrial Archeology is recent. The Portuguese Association for Industrial Heritage, having as its main objective the promotion of the safeguard of this heritage, was founded only in 1997; much work of documentation and analysis remains to be done.

Industrial Archaeologies and Urban Regeneration: A View from Steel City, Sheffield, UK

James SYMONDS
ArcHeritage & University of Oulu, Finland/UK

This paper will explore approaches to industrial archaeology and the archaeology of the recent past drawing upon recent work on former cutlery and steel making sites in Sheffield, UK. I will argue that the archaeology of former industrial communities can act as a form of psychotherapy with 'redemptive and therapeutic powers which help individuals and communities cope with painful contradictions that otherwise would remain unarticulated' (Lucas and Buchli, 2001: 17). In this sense urban interpretative historical archaeology is far more than a contractual obligation to be undertaken ahead of development, and has a vital role to play in community renewal, looking as much to the future as the past.

FRIDAY
Session F1G
Demola Hall
8:30–10:00

Use and Transformation of European Industrial Culturescapes

Jenny HÄLLSTRÖM
Lund University, Sweden

The factory played an important part of the urban landscape in the industrial age. Novel and site specific architecture then turned into a Colossus and a relic from past times. But can change and transitions in architecture and design be incorporated in the reuse of former industrial sites as well as integrate temporality of modern society? The industrial heritage can portray both the complexity of long term durability as the transforming scene of contemporary urban life and material culture.

Trans Europe Halles is a European network of independent cultural centres formed in 1983. Many of them housed in former factories and industrial heritage sites. The main office is located in the former Dairy, now "Kulturmejeriet" in Lund, Sweden, and will be discussed as an example of user resistance acting against the local establishment and of adaptation of existing architecture turned into a representation of urban reuse. The Dairy in Lund was established in 1896 after a Danish model and rapidly became the largest dairy producer in the first half of the 20th century in the province of Scania. Production rationalization ended the factory's lifespan in 1969 leaving the brick buildings to stand on their own. After a decade of neglect the emerging music and theatre actants became interested in the buildings as a site for the local youth and independent scene. Following many political struggles architects and volunteers created a multifunctional arena where the former abandoned structures now signalled progression and urban street culture.

Open Labour Museum

Kalle KALLIO
Finnish Labour Museum Werstas, Finland

Accessibility, social inclusion and open learning environments are keywords for the 21st century museums. Museum institution was formed and supported by the propertied classes and early museums used to function as conservative institutions. In the late 19th century, first innovative museums tried to solve social problems with art and by educating the workers. Yet, they were still far from true inclusion – museums kept working on elite's terms.

Labour museums and museums of social history offer an interesting perspective on social inclusion. These museums should tell everyday history and stories of the lower classes although the museum is not a common media for the common people. Accessibility has risen high on the political agenda and cultural institutions are encouraged to widen their audience. Yet, the terminology of accessibility does not work in practice: museums cannot really be for everyone and actually they choose the groups whose accessibility will be improved.

The Finnish Labour Museum Werstas tries to develop open and inclusive learning environments. For example, the brand new permanent exhibition can be meaningful and interesting for different visitor groups. During the years 2010–2012 we also take part in a project funded by the European Social Fund. Our task in this project is to find ways to create museum services especially for unemployed people who need help to construct positive identities. These two cases exemplify accessibility, social inclusion and learning in the museum field.

Preservation by Production. Useful Printing in Museums as a Method, to Keep Museums Alive

Jürgen BÖNIG
Museum der Arbeit, Germany

When the age of letterpress printing ended in the 1980's, a lot of equipment came into the museum depots – often collected and demonstrated by skilled volonteers of the former trade.

If you want to preserve the work of the Industrial Age, you should not only keep and display the machines – most of the work was done by persons who added their individual skills and bodily knowledge to the functioning of the machinery.

When we started the print department in 1985, we understimated the importance of actively using the printing and typesetting machines. The visiting public is always attracted by running equipment – making noises and producing take aways.

To keep this going we started to train artists in letterpress printing and composing – and we looked for products, which are worth the old traditional techniques.

The Association of European Printing Museums tried to establish such an education for demonstrators on an European level – we have already achived a cooperation in exchanging necessary materials, machines and skills, persons and products, but we have to go on to keep printing museums alive and attractive.

New Audiences for the Museum with Tourism Product Development. Case: Working for the Company! in Serlachius Museum Gustaf

Päivi VIHERKOSKI
Serlachius Museum Gustaf, Finland

A new museum presenting industrial history had difficulties in finding broad attention by the public and therefore growth to its visitor quantity. The increase of visitors was however possible with product development methods used in tourism industry.

At first a target group analysis was made: the most potential target groups were determined and the expectations and needs of the target groups were studied. It became eminent that the museum did not adequately take into account the wishes of two growing customer segments, business customers and bus touring groups. These groups expected of their museum visit in addition to information also entertainment. More over a service module was needed that could easily be combined with other programmes of the group.

The success of tourism products depends on their easy availability; services have to be conveniently purchaseable, the production costs as low as possible and their delivery reliable. Succesful cultural tourism product is also experience-based and at the same time genuine and true. All these conditions could be taken into account and a hit tourism product was born.

This product is a guidance service which has its origin in a historical situation of seeking employment. The museum guide acts as an employment official from the year 1951 and treats customers like potential employment seekers. The service gives grounds for vivid interaction between the guide and the visitors.

FRIDAY
Session F2B
Vooninki Hall
10:30–12:00

SYMPOSIUM ON THE SOCIAL HISTORY OF MILITARY TECHNOLOGY VI

Organiser: Barton C. HACKER, Smithsonian Institution, USA
Chair: Margaret VINING, Smithsonian Institution, USA

French Military Defeat 1940: Cultural and Political Bars to Strategic and Technical Innovation

Robert BELOT
Laboratory RECITS, University of Technology of Belfort-Montbéliard, France

An enigma remains in the French collective unconscious. How could the French army, one of the world's foremost in 1940, collapse so quickly before the German assault? A long-standing thesis, still widely shared, attributes defeat to political and ideological causes. The nature of the French regime (a "decadent" democracy) and French politicians ("improvident and incapable") precipitated the fall of France. Historians have recently cast doubt on this analysis. They argue that France's material, industrial and moral preparation for war was largely satisfactory, but that the French high command refused to revise its strategic conceptions and to adapt the military technology required for a war of movement.

This is not mere hindsight. In June 1940, General Charles de Gaulle issued from London his appeal to the Resistance. He proposed a *technical reading* of the France defeat. "Our military defeat is the simple result of outdated conceptions, in the name of which the French army was prepared and commanded as to fight the previous war, instead of seeking renewal, with a view to future war, its means, its tactics and its strategy. If the nation was a victim of such a *technical aberration*, as it had been formerly in Crécy and in Sedan, it implies not at all its infirmity, its unworthiness."

This paper takes up the question, at present much debated in France: Why did French military and political elites display *the cultural incapacity* to accept *the theoretical and technical innovations* that de Gaulle proposed; namely, the creation of a "mechanical strength" based on allying tanks and aircraft? Such an alliance might have allowed French forces to counter effectively the German "Blitzkrieg."

Technology as a Matter of Survival: Work on Radar Devices in Great Britain and in the USSR During World War II and the 'Cold' War

Vasily BORISOV
Institute of the History of Natural Sciences and Technology, Russian Academy of Sciences, Russia

On the eve of World War II it became clear that the early warning of an enemy attack demands for the development of advanced radar networks.

J. Randall and H. Boot, Birmingham University, designed in February 1940 a cavity magnetron generating electromagnetic radiation at a wavelength of about 10 cm. The GEC Research Laboratories staff within four months introduced developments to this device which produced a powerful UHF valve, meeting the urgent wartime need. As Ch.P. Snow wrote, the English had to do their utmost to survive in the War. Therefore they were the first to use many scientific achievements, to begin with the magnetron. Also in 1940 Soviet scientists N.F. Alexeev and D.E. Malyarov published an article describing an invented by them cavity magnetron working at 9 cm wavelength (then it was printed in Proceedings of the IRE). The War interrupted works on magnetron in the USSR; other weapons had been considered to be paramount.

In fact, work on the radar technology with exerting every efforts started only at the end of 1940s. Under conditions of the "Cold" War the USSR needed a shield – completely new systems of air defense. Taking into consideration a threat of possible nuclear weapon attack, the systems would act at enough remote locations. The situation somehow reminded what had taken place in Great Britain ten years before. The experience of the Ally was used: some of the first magnetrons had reproduced British patterns. Then the home production achieved the needed world standards.

FRIDAY
Session F2B
Vooninki Hall
10:30–12:00

The OODA Loop: Linking the Technology of Aerial Combat to Corporate Strategy

Margaret VINING
Smithsonian Institution, USA

The OODA loop is the brainchild of Colonel John Boyd, an unconventional US Air Force fighter pilot who, while serving in Korea in the 1950s, conceived of a combat decision-making time cycle theory. He refined and expanded his concept for almost forty years in hundreds of lengthy, passionately animated lectures, gaining disciples in both the military community and in the civilian world.

An acronym for Observe, Orient, Decide, Act, the OODA diagram charts networks of cognitive action to outline a critical thinking, action, learning cycle. Boyd developed his theory for describing how fighter pilots' minds work in the heat of combat and why U.S. fighter pilots seemed to beat their adversaries. He demonstrated that it was not necessarily his pilot skills, but use of the strengths and weaknesses of an airplane to advantage that gained pilots dominance over opponents. The key to victory in the air, Boyd theorized was not a plane that could climb faster or higher but one that could begin climbing or change course quicker – to get inside an adversary's time/cycle loop.

The OODA loop has been applied widely to solving human problems in technical change in diverse fields from weapons procurement to business competition. Its military adherents credit Boyd with breakthrough thinking in military strategy and doctrine equaling Sun Tzu's *Art of War* or Carl von Clausewitz's *On War*.

ENERGY-Route of Lusatian Industrial Heritage – Tourism Product and Marketing Network

Antje BOSHOLD
International Building Exhibition (IBA) Fürst-Pückler-Land, Germany

Industrial tourism has to meet the needs of the market. The purpose of the ENERGY-Route was to develop a clear profile, i.e. to enter the market with an unequivocal topic in order to be perceived on an international level. Furthermore the Route is an "explainer" of the "landscape in change" that is currently transformed from an open-cast mining region into the Lusatian Lakeland.

The Route is a network of 10 locations, that are accessible for tourists and offer experiences concerning the topic of energy being the determining factor of Lusatian industrial history. It gives a complete overview from coal mining to coal treatment and includes active factories and landscapes.

The establishment of the route is the result of a regional discussion process combined with international expertise. An Interest Group developed criteria with regard to the content of the sites for the general admission of locations. In a second step – according to the touristy amenities, the chosen locations were classified into highlight locations, places of interest and insider tips.

This determined and purposeful approach proved to be successful. The "European Route of Industrial Heritage (ERIH)" admitted the ENERGY-Route as one out of 11 "Regional Routes".

The clear orientation towards one single topic, the conscientious selection of the locations, the presentation with the utmost honesty as well as the marketing cooperation with the new Lusatian Lakeland are the main success factors.

FRIDAY
Session F2C
Bertell Hall
10:30–12:00

ERIH – European Route of Industrial Heritage – a Network of Industrial Heritage

Wolfgang EBERT
Rainer KLENNER
ERIH, Germany

The build industrial heritage has been widely accepted as a valuable asset of common worldwide history within the last 20 years. This is based on the long lasting development of industrial archaeology as a science. As a result the number of museums of industry, science-centres etc has been growing and growing. And very often it was a mixture of history, culture and business which made many of them successful. And this even as hot spots for economic growth. One key to successful regeneration was the creation of Local Town and Country Planning policies which reflect the value of revitalising industrial sites to promote development of their districts, by both the private and public sectors.

An indicator for the success of the Industrial heritage was the developing of a special 'Industrial Heritage Tourism'. Good examples are the 'Route of Industrial Heritage at The Ruhr in Germany, or the growing network of 'ERIH – European Route of Industrial Heritage'.

Industrial heritage is developing quickly as an attractive part of the tourism industry. This is a very successful way of re-using the industrial heritage.

www.erih.net
www.route-industriekultur.de

Mockumentary: Making Scotland's Industrial Heritage Palatable for the Viewing

Rowan BROWN
National Museums Scotland, UK

Scotland's Industrial Heritage is back in vogue. No fewer than three concurrent television series have appeared on terrestrial television in the last month as part of a contribution to the wider Homecoming* festivities.

Within the Scottish sector, we have long noted the discord between the appetite for televised industrial heritage, the footfall at industrial heritage sites and the Scottish Government's arts spending priorities. But the question of how to capitalise on such opportunities remains unanswered.

Is television the route to better advocacy and engaging with a wider audience? Does it create an overly simplistic version of industrial, social, economic and cultural history? Are we exploiting images of the industrial past?

I intend to compare documentary viewing figures with visitor numbers, interview curators, producers and directors and screen clips of contemporary and archive industrial film. I will compare and contrast text from guide books and exhibitions produced by National Museums Scotland with sound bites from BBC and impendent sources.

I will conclude with a summary of the transferable skills that may be accrued by working with broadcasting companies, and quantify the immediate impact, if any, that such collaboration may have on our reputation, impact and resources.

*A government-sponsored tourism and heritage initiative to encourage expatriates to visit Scotland. November 2008 – November 2009.

FRIDAY
Session F2D
Kisälli Hall
10:30–12:00

SCIENTIFIC PROCESSES AND INDUSTRIAL PRODUCTS II

Chair: Alexander HERLEA, UT Belfort Montbéliard, France

Calcium Carbide Products: How to Meet the Challenge?

Elisabeth BJØRSVIK
Norwegian Museum of Hydropower and Industry, Norway

This paper focuses on changes in demand of two calcium carbide products prior to 1930, namely acetylene gas as illumination and calcium cyanamide as fertilizer. The first commercial producer of calcium carbide was located in Spray, North Carolina, in 1894. The number of factories increased rapidly, both in the US and in Europe, in areas with massive hydroelectric power. Acetylene gas was at the time described as *the light of the future*. However, within two decades the demand for acetylene gas declined. Electricity was the new source. Overproduction became a reality around 1900. Two German chemists found that when calcium carbide reacted with nitrogen at a high temperature it forms calcium cyanamide. Calcium cyanamide was used as a nitrogen fertilizer. It became one of two industrial alternatives to the natural sources of Chile saltpetre. However, from the late 1920ies onwards the Haber-Bosch method for producing fertilizer dominated the market.

The Norwegian carbide producer Odda Smelteverk AS is used as a case. The factory started operation in 1908 with British capital and a contract with British railways using acetylene gas for lighting. Some of the questions we are asking in this survey are: Was production of cyanamide part of the initial strategy for the Odda plant? How did the factory meet changes in the markets prior to 1940? Sources are international statistics, annual and internal reports, and newspaper articles. The survey reveals that the decision to build a cyanamide factory on the same site as the carbide factory was, in the long run, a success. In the short run, however, it was not. The carbide production, more than the cyanamide production, explains why British Oxygen bought the company in 1937.

Value of Works from the Laboratory for Experimental Physics of Kiev University on the Study of Critical State of Matter for the Development of Steam-Engine

Alla LYTVYNKO
G.M.Dobrov Center for Scientific and Technological Potential and Science History Studies NAS of Ukraine, Ukraine

In connection with the development of the steam-engine finding the critical values was one of the most important problems in physics during 70–80s of XIX century. Professor at Kiev University, founder in 1874 the first research laboratory for Experimental Physics in Ukraine Mikhail Avenarius made a significant contribution to molecular physics and the study of critical state of matter. In 1862–1864 he was sent abroad to Berlin and Paris. In 1865 M.Avenarius defended his dissertation and headed Department of Physics in Kiev University. Since 1873 he has focused on study of liquid and vapor at the changing of temperature and pressure.

The most successful period of the Avenarius laboratory was 1877–1886. Despite difficult conditions, Kiev laboratory works received recognition. During the 1875–1889 years M.Avenarius with his disciples V.Zayonchevsky, O.Straus, K.Zhuk and O.Nadyezhdin performed a series of studies of critical values for many substances that are included in the basic foundation of physical values and long remained unchanged. M.Avenarius also established formula of heat expansion of liquids, which determined the change in fluid volume, first indicated that the in critical point the hidden heat of evaporation is zero. The first direct determination of the critical temperature of water was done in 1885 by pupil of M. Avenarius O. Nadyezhdin by the aim of invented him device – the differential densimeter.

Industrialisation and Mathematics

Galina A. ZVERKINA
Moscow State Railway Engineering University, Russia

Industrialization had the great influence on development, contents and ideology of mathematics. Prior to the beginning of industry's rapid development practically all mathematicians-researchers had works with practical application of mathematical methods in engineering, economic researches and in natural sciences.

However industry development has entailed necessity of preparation of a many engineers and technicians owning mathematical methods for calculation of constructions and for analysis of industrial and economic measurements. Many technical educational institutions have been created and there were many mathematicians-teachers never doing own researches on application of mathematical methods. These "theorists" looked at mathematics as on end in itself, and it have started researches of the foundation of mathematics. At this time bases of a mathematical logic, set theory, measure theories etc. have been created

These mathematicians have formulated a problem of axiomatization of all mathematical knowledge including the mathematical theories concerning to physics, economy and sociology. Solution of this problem has started in the beginning of XX-th century.

Development of exclusively theoretical approach to mathematical knowledge has led to new representation about the mathematics as on the abstract science scooping ideas of the development from himself. The new path of development of mathematical knowledge has started.

This approach to mathematical knowledge has reduced to appearance of some mathematical geniuses (self-taught person) like Srinivasa Ramanujan (India) or Ivan Pervushin (Russia) who saw in the mathematics a resource of magic manipulations of numbers and geometrical objects.

And mathematicians-theorists were surprised incomprehensible effectiveness of mathematics…

ENERGY USE VS. THE ENVIRONMENT V: HOUSEHOLD ENERGY CONSUMPTION AND THE ENVIRONMENT AT THE 20TH CENTURY

Organiser: Timo MYLLYNTAUS, University of Turku, Finland
Chair: Matti KOJO, University of Tampere, Finland

Exposing the Modern World: German Household Exhibitions and Their Impact on Energy Consumption and Environment, 1920–1960

Nina MÖLLERS
Deutsches Museum, Munich, Germany

Technological exhibitions and fairs (re)use industrial past to explain the present and point to the future. Through the selection of objects, design and accompanying material, their creators generate public knowledge about the history, production and utilization of technological artefacts. In the first half of the 20th century, exhibitions served as showcases of a modern society symbolized by the rationalized and increasingly electrified household. Producers of domestic appliances as well as gas and electricity companies, however, were not interested in advancing energy-efficient technologies but rather aimed at stimulating energy consumption through the display of state-of-the-art domestic devices. This attitude, combined with environmental history's concentration on the period since the 1970s has led to an undue neglect of the early century's energy history. Yet, the persistent competition between gas and electricity as systemic energy suppliers as well as fundamental technological and cultural changes such as the division into separate cooking and heating devices call for a more thorough analysis of Germany's early modern energy history.

Using two household displays staged in Munich in 1928 and 1957 as objects of investigation, the talk examines how energy use as a 'modern way of life' was mediated through exhibits and how contemporaneous ecological knowledge or rather ignorance was constructed.[1] Based on a close study of their visual and textual documentation as well as their reception recorded in newspapers, magazines and visitor books, I argue that the exhibits contributed to the conditioning of consumers by inducing patterns of energy use in the private household which were primarily oriented at saving labor, not energy. A detailed and comparative examination of these exhibits and associated vested interests of participating actors promises fresh insights into the role of mediating institutions in the domestication process of household technology as well as into the development of ecological (un)awareness against the background of entangled constructions of modernity, technology, energy and environment.

1 Cf. the theoretical concept of the 'mediation junction' as developed by Ruth Oldenziel/Adri Albert de la Bruhèze, "Theorizing the Mediation Junction for Technology and Consumption," in: Manufacturing Technology, Manufacturing Consumers, eds. Bruhèze/Oldenziel (Amsterdam: aksant, 2009), 9–39.

Is There an Eco-script? Kitchen Appliances and Inscribed Sustainability

Sophie GERBER
TU Munich, Central Institute for the History of Technology, Germany

As the energy consumption of the kitchen as part of the private household is underestimated, this particular setting should play a key role in the debate concerning energy use, the environment and sustainability. The vast number of kitchen appliances and their contribution to everyone's "energy footprint" in the past three decades are worth a closer look. Do they teach their users environmentally responsible behaviour?

In order to analyse this, I suggest the method of de-scription, resp. the theoretical framework of scripts, introduced by Madeleine Akrich[1], which can be applied as a powerful tool to describe the networks between technological objects, the ways in which they are used and ecological effects. With regard to gender scripts, similar approaches were made in the past, e.g. using the example of razors and how they configure femininity and masculinity.[2]

In this context, I intend to "read" the objects – kitchen appliances such as refrigerator, microwave and stove in the collections of the Deutsches Museum – in terms of environmentally friendly or even harmful instructions of use, which are inscribed by designers and producers. Furthermore, advertisements and user's manuals, as mediators between innovators and consumers, will be taken into account: How do they show users how to interact with their domestic appliances in a sustainable way?

At the same time, as past research has shown[3], increasing efficiency does not have to result in reduced energy consumption. Thus, my talk is going to investigate the question, if this fact implies that users refuse to play their intended roles in order to define their own (non-)ecological program of action.

1 Madeleine Akrich, "The De-Scription of Technical Objects," in: Shaping technology, building society, eds. Wiebe E Bijker/John Law (Cambridge, MA: MIT Press, 1992), 205–224.

2 Ellen van Oost, "Materialized Gender: How Shavers Configure the Users' Femininity and Maculinity," in: How Users Matter. The Co-Construction of Users and Technologies, ed. Nelly Oudshoorn/Trevor Pinch (Cambridge, MA: MIT Press, 2003), 193–208.

3 Elizabeth Shove, "Efficiency and Consumption: Technology and Practice," in: Energy and Environment 15, no. 6 (November 2004), 1053–1065.

Tracing the Users of Household Appliances

Nina LORKOWSKI
TU Munich, Central Institute for the History of Technology, Germany

As a consequence of the energy crisis of the 1970s, society became aware of the risks of formerly carefree energy consumption and regarded it as a social problem that concerned everyone. How-to-Do-Literature, published in the 70s and 80s, is evidence of this changing attitude towards energy consumption in the private household: The handbooks contain advice for energy-efficient usage of domestic appliances and suggestions to reduce utilities as well as proposals for sustainable consumption and a more healthy living. They are written by users for other users. For this reason they have to be considered as an alternative kind of instruction manual. As such the examination of How-to-Do-Literature is a fruitful approach to shed light on the terms of (ecological) use of technical artefacts in private households by consumers.

The handbooks point out problems during the daily routines and suggest alternative manners of use. Furthermore, they advise less consumption or advocate ways of mechanical manipulation to create new options of usage. In this way users appropriate domestic appliances in a creative and individual way. These users' appropriations and modifications oppose implied operating instructions of the appliances and therefore can be understood as resistance to technological domination. In fact, the changing attitude towards energy consumption that becomes apparent in these sources did not lead to the expected decrease of energy consumption. Nevertheless, a close examination of How-to-Do-Literature as an alternative instruction manual offers a unique way to explore new and creative ways of using technology and negotiating attitudes towards energy use. Thus I want to spotlight consumers as co-producers of technology.

FRIDAY
Session F2F
Kutomo Hall
10:30–12:00

TECHNOLOGIES OF TELECOMMUNICATION AND SOUND

Chair: Viktor PÁL, University of Miskolc, Hungary / University of Tampere, Finland

From an Artisan Handcraft to a Full Mechanized Industry. German Piano Making Companies in the Late 19th and Early 20th Century and How They Use(d) Their Industrial Past

Sonja PETERSEN
Offenbach Academy of Art and Design, Germany

Usually the handcraft of piano making is still seen as an artisan craft. But through the late 19th and early 20th century this branch developed to a full mechanized industrial manufacturing sector. The small artisanal one-man workshop has developed to large industrial shops based on the division of labor. Also machines have been used within the entire manufacturing process. Piano making companies established scientific laboratories and also collaborated with external experts, for example with physicists, to develop special components of their instruments and exchange thoughts and ideas with them. My contribution deals with the industrial transformation of piano making, the relationship between artisans and machines, how local work experience changes and which opportunities for the production of pianos occurred through the industrial development of this branch. My thesis is that beside the industrial development of piano making companies, single components of the old artisan handcraft technology, embodied knowledge and experiences could not be replaced and are still used today. Also I argue that piano making companies use(d) their industrial development to demonstrate their technological improvements and to distance themselves from the received opinion of piano making as an backward sector. Based on a case study of the piano making factory Grotrian-Steinweg in Brunswick I would like to show with company internal sources like descriptions and historical photos of the manufacturing process, individual notebooks of workers and different types of printed advertising materials how this branch turned from an artisanal handcraft into a full mechanized industry.

From Analogue to Digital-Television Sound Moving Towards New Media

Ahti KORHONEN
University of Jyväskylä, Finland

This text handles television sound´s technical phases and eras and the new situation that is coming. Two main eras are the Divergent Era of Sound and the Convergent Era of Sound. There are also three technical phases which are the Mechanical Phase of Sound, the Electrical Phase of Sound and the Digital Phase of Sound. The new phenomenon is technological segmentation and contents in broadcasting.

During the divergent era, sound was the common thing. As a technological development era, years 1870–1920 was important. Typical for the era was that the innovations were developed simultaneously. The components of communications were taken advantage of to other communication innovations. Phenomenon of society whereas the Mechanical phase of Sound was closely related to technologies. The divergent era reached its top in 1930. The role of communication sound equipments were strengthened during the Divergent era of Sound. For several periods television, radio and other communication implements sought their directions. It was until 1945 that the Digital phase of Sound started the integration of technologies to societies.

The Convergent era of Sound is the phenomenon that is related to digital technology which is a part of the general development of technology and changes in society. With television sound, the convergency can be seen as a part of change and joining the new media. Signs of this are new broadcasting systems and networks. Plural networks have changed sharings of television sound and also hybrid functions are coming. Using the Sound Applications, technologies and sound contents are signs of the new situation in television sound.

The Mechanical phase of Sound is a part of the Divergent era of Sound and it is a phenomenon of technological development. The Electronical phase of Sound followed the Mechanical phase of Sound as a logical continuum and the usage of electricity and radio waves were generally in use. The Digital phase of Sound was the phase when digital technologies were adapted to computers. The Digital was the phase of Sound when digital technologies converted bit by a bit from the comvergency to Technological Segmentation. This new phenomenon is related to the change of television sound as a part of new media. This situation is a consequence of technological development and continual convergency of media. Segmentation can be a sign of new productivity in media.

The Finnish Sound Insulation Requirements of 1967 as a Result of Technology

Mikko KYLLIÄINEN
Tampere University of Technology, Finland

The Finnish Association of Civil Engineers published the first Finnish sound insulation requirements of buildings in 1967. The drawing up of the requirements was first time suggested in 1948, and several drafts were done in the 1950's and 1960's. At the same time, there was no chair for building acoustics in Finland, neither a modern acoustical laboratory. Thus, the possibilities to do foreign research were quite limited and different organizations and researchers had to get information of building acoustics from other countries.

In Finland, the German measurement methods of sound insulation were adopted and used through the 1950's and 1960's. Since the end of the 1940's, the Finnish engineers had close contacts with their colleagues in the Scandinavian countries. In the end of the 1950's, the Nordic countries tried to make a common draft for sound insulation requirements, but no consensus dealing with the measurement methods was not achieved. When Sweden decided to publish new requirements on the basis of ISO standards, Finland made a similar decision in the middle of the 1960's. During the 1960's, the contacts with Sweden had generally become more important: for example, VTT Technical Research Centre of Finland had started a research project dealing with prefabricated residential houses as knowledge of problems in their sound insulation was got from Sweden.

The paper is based on analysis of the contemporary research reports, drafts for requirements and articles published in the Finnish journals. As an archive source, also the material of the Acoustical Society of Finland.

Death Is not the End – Structural Change and the Metamorphosis of Urban Development in Berlin-Schöneweide

Dirk MAIER
Ruth KELLER
BIWAQ / HTW Berlin, Germany

In the last decade of the 19th century Berlin-Schöneweide became one of the most dynamic places for the growth of the young electro technical industry. Early speculators used clever strategies to attract entrepreneurs and engineers. Well known companies – spearheaded by the AEG – settled there and produced a wide range of products. Innovative techniques within spectacular factory buildings generated the core of what was called "Elektropolis Berlin".

About a hundred years, and four social systems later the perspective for urban development is more open than ever. After a ten-year-process of rapid de-industrialisation the industrial legacy is looking for a new orientation and sense. The reuse of the industrial environment now has to follow distinct and complex social requirements and aims for urban planning. With the relocated University of applied science (HTW Berlin), spin-offs, small businesses and artists are the new players pioneering the paths for the future.

In close cooperation with the HTW-Research-Cluster with the subject of "Regional Industrial Culture" the long-term ESF/BIWAQ-Project (2009–2012) will use the heritage potential as the cultural source for further regional-management producing concrete aims and purposes for the development measures, such as start-up-consulting, local-branding or expansion and development of industrial tourism.

The presentation gives an insight view and an evaluation of the first results of these projects.

FRIDAY
Session F2G
Demola Hall
10:30–12:00

Relevant "Techno-logized Landscapes" in Carpathean-Danubean-Ponthean Space/Romania

Liviu SOFONEA
Elena HELEREA
Transylvania University of Braso, Romania

In this elaboratum are analyzed and illustrated in aesentia:

a. Main relations between Homo Technicus & Techno-logicus / Technique-Technology: in interactio / and the Natura/natural and social aspects: landscapes, pollutions, metamorphosis;
b. Dramatic /relevant changes in the History of Romania occurred in the second half of the 20th century: main technical-technological aspects, social phenomena and processes, ecological consequences, et al.;
c. Casus:
   c.1. The problem Anina-Crivina /a cholary and electrical plant in ruins located in Banat,
   c.2. The situation of antique "Dacia-Romana"-ean Potaisa, transformed in situs Turda, located in Transilvania,
   c.3. The ideate project /cogitatum/ Danubius Banatiensis and some aspects of the technical projects developed on this bases,
   c.4. et.al.

   Are considered mainly recent ecological & museological aspects.

Continuity and Discontinuity in the Conservation of Industrial Heritage in Minas Gerais/Brazil: Factories, Railways and Houses in Juiz de Fora

Fabio Jose Martins de LIMA
Cassio de Castro Martins FERREIRA
Raquel Fernandes REZENDE, Raquel von Randow PORTES
Universidade Federal de Juiz de Fora, Universidade Federal Fluminense, Brazil

In the first decades of the twentieth century, the city of Juiz de Fora, in Minas Gerais, Brazil, had a fabulous picture of industrial expansion. Considered the Manchester Mineira, a modern and progressive industrial city turned out to be stacks of joint manufacturing, and housing for workers in the series. The progressive decline of industrial activities, from the 1950's, generated a process of obsolescence. Blasting, demolition and replacement, became part of the city life. Initiatives have been made, today, for the protection of the references related to this industrial heritage. In this sense, we present the current frame related to the reuse of the heritage of the Companhia Fiação e Tecelagem Industrial Mineira, later renamed Ferreira Guimarães Company and its suburbs. Certain singularities of the built environment are not considered, particularly with regard to housing workers, who tend to be replaced, the same with respect to equipment and tooling, related to manufacturing processes. With regard to railroads, this also has not been covered by protective measures. Remain therefore only referrals intangible cultural heritage related to these stored in the memory of older people. We need to review these actions, to make visible what still remains in material terms, the important legacy of industrial heritage. To reiterate this discussion by the search for a collective awareness that not only the "noteworthy", considered "exemplary", but also the singularities related to organic production. It must be said that this research is supported by the Ministry of Culture, CNPq and FAPEMIG.

FRIDAY
Session F3A
Werstas
Auditorium
13:30–15:00

DIGITAL INDUSTRIAL HISTORY

Chair: Torsten NILSSON, Arbetets museum, Norrköping, Sweden

Reusing the Industrial Past by Digital Streaming

Osmo PALONEN
Mikkeli University of Applied Science, Finland

Industrial past is often difficult to reconstruct when factories have been demolished, mines filled with water and mills converted to new processes or loft buildings. Since 20th century there still has been an option to preserve the memories by using recorded moving images. Unfortunately these methods are not sustainable and difficult to access. This paper is to explain how The Central Archives for Finnish Business Archives (Elka) and Mikkeli University of Applied Sciences (MiUAS) have developed and implemented a system to preserve and give access by digital streaming to the audiovisual material. By using those can the access to 20th century industrial heritage be accessed also in the 22nd and 30th century.

MiUAS has created is based on centralised preservation and digitisation services to the memory organisations, archives, libraries and museums. "Centralised" means in this case better production quality, access and digital preservation. As a single operation – museum or another memory organisation – cannot have the knowledge and resources needed to sustain contents and services for centuries in the digital world. That is also why archives, libraries and museums need each other and technology partners like MiUAS.

Industrial Memories in Cyberspace

Linea HANSEN
The Frederiksvaerk Museum of Industry, Denmark

One of the primary challenges that industrial museums are facing today is how to attract and keep up with new users, their expectations, their ways of learning, networking and communicating.

Acknowledging the multidimensional nature of this challenge, The Frederiks Vaerk Museum of Industry has decided to go for a direct approach. Instead of expecting all our guests to be *visitors at the museum*, we expect a larger part of them to be *users of the museum*. Users who might never set foot in Denmark. The museum is consciously applying the social media as a way to address potential users who might never have heard of the museum, but have a broader interest in history or industry.

The Facebook page *www.facebook.com/indmus*, although it is not fully developed, represents a synergi between the users and the museum. It bears witness to the possibilities of network based media. At present The Frederiks Vaerk Museum of Industry has well over a hundred committed fans that are participating actively in the work around the museum and its activities.

However, the effort to link the museum and its users more closely together, does not rest here. In June 2009 the Flickr-profile *www.flickr.com/indmus* was launched. Close to 10,000 pictures, showing different industries, have been uploaded with great success. The profile has up to 700 visits per day and has proved itself as a new way of reaching out. This literally means, that users fond of industrial photography, machinery, vintage pictures, steel etc. has got thousands of possibilities to attain exactly such knowledge via the pictures on Flickr. In short, it seems to be a highway for making the industry of Frederiksvaerk relevant to a whole new group of interested people.

FRIDAY
Session F3A
Werstas
Auditorium
13:30–15:00

Online Collection of Everyday History

Kimmo KESTINEN
Finnish Labour Museum Werstas, Finland

The Finnish Labour Museum Werstas has built a new collection management system in co-operation with several participating organizations. What are the key benefits when combining forces with institutions struggling with similar problems in collection management? The management software is the most important computer software for a museum or similar institution, because everything depends on it.

There have been many ill-fated stories of management software, some of them even quite recent. Now the museums are starting to move from the first generation of programs to new ones, with more to offer. The focus has turned now to interoperability. Much of the weight is now on the internet and compatibility with the national internet services.

One of the key points is, what one can expect from a contemporary collection management system. How the ever changing technology is influating the expectations of our customers? Is it better to turn to commercial closed systems or is the open source alternative ripe enough? I'm also going to discuss about the need for common terms and ontological concepts in use in online collections.

Sound and Noise as Weapons of War

Outi AMPUJA
University of Helsinki, Finland

In my presentation I will discuss how different sounds and noises have been used as weapons of war. Firstly I'll describe and "map" the soundscape of modern war, and how solders and commanders interpreted it and learned to "read" (mostly technological) sounds, and even follow the course of a battle to some extent merely by listening to the sounds. Secondly I will look at how different sounds and noises have been used as deception in war and also means of torture. Thirdly I will discuss how noise was used as psychological weapon – especially when it was added to the most modern and technologically advanced weapons at the time. And why loud noises are feared even noise can't kill us?

The presentation also includes a story of a war prisoner told through memories attached to sounds. By the stories becomes evident that the most feared and dread sound of all was a cry of a wounded man. The cries of fellow men haunted the veterans more than any sound produced by technological killing devices or weapons – no matter how clever psychological engineering may be behind them. It also became evident that sounds and noises are very closely attached to feelings, and when talking about sounds of war the veterans very soon started to talk about how they felt in the front. And soon we started to talk about fear.

Examples used are mostly from the Second World War and the main source materials are the interviews of Finnish war veterans, completed with references from various studies and literature concerning warfare around the world.

FRIDAY
Session F3B
Vooninki Hall
13:30–15:00

Rising from the Ashes: Iran's Military Technology in Revolution & War

Farzin NADIMI
University of Manchester, UK

The Iranian revolution took place amid a huge and rapid military technological buildup, which servedas a catalyst for the political and social change in the country, mustering popular support behind the overthrow of the Shah. Adding to the effects of the withdrawal of thousands of Western technicians and advisors and political purges, the revolutionary propaganda projected a corrupt and incompetent image of the Iranian military not only in Iran, but also outside its borders, a notion that was not left unnoticed by the newly consolidated leadership of the neighboring Iraq, as on September 22, 1980, the Iraqi armed forces invaded Iran hoping to encounter little resistance and achieve a quick victory. This paper investigates how the growing, yet still maturing, military technological capability of Iran, which was caught in the eye of a revolution at this vulnerable time of its development, and therefore exploited by the revolutionary leadership, rose again from the ashes and stood up to expectations, in the face of the Iraqi onslaught.

This matter will be especially important knowing how the West viewed and analyzed Iran's postrevolutionary military capability, showing signs of an orientalist approach. This mindset continued to refuse to accept – at least openly – the ability of a 'third world' country to master advanced military technology following the withdrawal and termination of the large-scale Western support, especially for its air force. This question is particularly relevant given the length and intensity of the Iran-Iraq War, and the amount of support the opposing side had been receiving at the time. This paper will mainly draw on primary material for its analysis.

Monumentalising the Cold War

Wayne D. COCROFT
English Heritage's Archaeological Survey & Investigation Team, UK

Twenty years since the end of the Cold War, this paper will explore various initiatives in Europe, and further a field, to preserve and conserve Cold War military installations. Many Cold War facilities were highly specialised structures designed to house and operate state-of-the-art military technology, including electronic communication hubs, radar, and missile systems. During the 40 year stand-off, rapidly changing technology and military doctrine often led to the rapid obsolescence of facilities, equally their specialised design presents challenges for economic reuse. Some structures have found new roles as secure homes for computers server farms, while others have been preserved and opened to the public. Where institutional bodies have sponsored such schemes they may be motivated by educational, economic and commemorative needs. While, in other examples facilities are maintained by groups of veterans or enthusiasts. All are repositories of late 20th century technology, some mundane, such as, diesel generators and air conditioning plant. Elsewhere, they represent unique survivals of obsolete computer systems and information technology.

FRIDAY
Session F3C
Bertell Hall
13:30–15:00

TRANSFORMATION OF INDUSTRIAL BUILDINGS TO MUSEUMS & CULTURAL SPACES

Chair: Caroline DONNELLAN, London School of Economics & Political Sciences, UK

Industrial Architecture Converted to Museum Use in Finland

Marja-Liisa RÖNKKÖ
University of Helsinki/Museology, Finland

I take here as industrial architecture factories, warehouses and traffic buildings. Our important industries have been the saw mill, the paper, the textile and the metallurgical / engineering. Industries in modern sense started with ironworks during the 17th century, the oldest existing buildings date back to the end of 1700s, serving today as museum in such.

One of the oldest paper mills is the Verla groundwood paper mill and cardboard factory, founded in 1870s. It closed the doors in 1964 and has been kept untouched ever since. It has accepted to UNESCO World Heritage List, and is now a "living village", close to the idea of ecomuseum.

Yet, there are only few factories left as they were, the most have been renovated more or less completely, depending on the new purpose. Big complexes were built on the banks of rapids through the 19th century, and towns then gradually grew around these. Today many are in the core of the City, as in Helsinki (Nokia Cabel Fabrik), Tampere (Finlayson and Tampella areas) and Pori (Cotton factory), converted to cultural and shopping centers. Furthermore have a couple of hundred of smaller factories, railway stations, locomotive garages, customs houses, power plants, water filter halls, dairies, spinning houses, public grain stores etc. from the mid 1800s to 1920s given their spaces to museums.

Normally they are used by the city or technical museums, but the most inspired have been the modern and contemporary art museums.

Re-built and re-spoken Old Paukku – Cultural and Industrial Heritage

Helena TERÄVÄINEN
Aalto University, Finland

My research "Vanha Paukku" (Old Paukku) concerned the planning and decision-making process of the re-use of an old industrial area. Lapuan Patruunatehdas, owned by the state had been since 1923 in Lapua. Paukku area was situated in the city centre but because the process was secret, the area was forbidden to non-employees. In 1976 there was a terrible accident in the factory. In the 1990's the state sold the area to Lapua municipalities, and relocated its industry outside the town.

What should Lapua do with those old factory buildings? The decision was heavy to make: some wanted to pull everything down, others preferred industrial re-use. There was also rising the idea of cultural re-use, but this visions seemed to be let down in official and public opinion. But the country was going into deep recession. Experts could indicate the economical benefit for the library instead for late-coming industrial investments. In 1994 Lapua town councils decided the reuse of Old Paukku: an entrepreneur-culture centre. As town architect I was responsible for the planning and design, until 2000 I left my position and started to work on the regional level and as researcher. The Library and art gallery were opened in 1997, Music School and Citizens' Institute in 1998.

With my case study I returned to Old Paukku and my research question about the discursive formation of the cultural heritage was answered. Further answers I got 2005, when I did the visualization of the Industrial Museum for the culture center of Old Paukku.

FRIDAY
Session F3C
Bertell Hall
13:30–15:00

Make It Sexy & Sustainable! A Danish example of Regeneration Through Heritage

Marie BACH
The Frederiksvaerk Museum of Industry, Denmark

The National Heritage Monument, the industrial town Frederiksvaerk situated some 50 km northwest of Copenhagen, based its very existence on production from the beginning. Throughout 250 years this place has been known for high quality bronzecanons, tons of gunpowder, glossy copperplates and its iron- and steelworks employing a majority of the local laborforce. Like similar areas such as Coalbrookdale in England or Bergslagen, Sweden, this community lost its momentum and dropped into a state of general depression. The reconstruction of the majestic foundry marked a turning point in 1996. The political vision is to create regeneration through heritage. The young industrial museum was born with a mission! This paper will focus on the longterm process, the strategies and the applied tools – such as close interaction with the townplanners, documentation and publication of peoples own stories and lives, networking in a broad sense, schoolchildren as heritage ambassadors etc.

The Re-Usage of Large-Scale Industrial Areas

Maths ISACSON
Uppsala university/Royal Institute of Technology, Sweden

What happens with large-scale industrial built areas when the industrial companies have closed, diminished or changed the production which has reduced the need for older industrial buildings? I will give examples, mainly from Sweden, how municipalities, which often have taken over former industrial areas, and companies have treated these areas since the 1970s. I will also discuss reasonable explanations to the patterns of change as well as similarities and differences in time and space. One important factor is the interest among former employees, other inhabitants and politicians in the local society to preserve and transform old industrial areas. This interest – or lack of interest – is connected to the memories and narratives of the industrial period (bad or good memories). Another factor is the local demand for these kinds of huge buildings and the possibilities to finance a renewal for some (economical) justifiable purposes. Furthermore, it is significant to pay attention to possible environmental disadvantages and the costs for renovations. In my description and analysis I use source materials from three industrial heritage conferences during the last two decades, courses I have been involved in, field studies, articles in journals and newspapers and information on the web. My analysis ends up with nine different categories to handle former large industrial sites. All these will be introduced and discussed.

FRIDAY
Session F3D
Kisälli Hall
13:30–15:00

Living with a Giant Joker – The Steelworks in Frederiksvaerk

Frank Allan RASMUSSEN
The Frederiksvaerk Museum of Industry, Denmark

The Danish Steel Works were established in 1940 and thereby Frederiksværk became the only Danish town of true modern heavy industry. This huge plant was the only steel works in the entire country. It handled scrap metal and supplied the shipbuilding industry and the fast-growing construction industry with rolled steel.

The Steelworks became a success. From the 1960s it employed around 50 percent of the local laborforce and even had to acquire manpower from abroad. Steelworkers were taken in from Yugoslavia and Pakistan. Step by step The Steelworks had obtained a dominant position at all levels of the local society.

It has had a strong international orientation and can be seen as a typical example of globalisation. Today the compagny is devided into three. The Electro Steelworks are owned by Ukrainians. The DanSteel is owned by Russians and the Duferco Danish Steel Company is driven by Italians with Swiss capital.

The Electro Steelworks have been closed down recently and the prospects for the remaining parts of the plant are highly uncertain.

This paper raises several important questions: How does a relatively small society handle this situation? How does it affect local officials and politicians? How does the the local industrial museum face this challenge? Will it be possible to regenerate this particular corner of Denmark through industrial heritage? Furthermore the paper invites to share knowledge and jointly develop approaches and ideas on how to tackle the life with a giant joker.

Turkish Modernization through Industrialization, Progress and Electrification

Övgü PELEN
Middle East Technical University, Turkey

Turkey had entered to a totally new period for its history from its declaration as Republic on 1923. There had been rapid revolutionary political, social, cultural, economic, educational actions taken place in the following decades 1920s and 30s. Turkey has not only changed its political system, but also its capital city, Ankara became the new capital. Together with the new bureaucracy, political power changed and new planning institutions or attempts were accomplished. Alongside Ankara's declaration as capital, it has become the role model for other cities of Anatolia in terms of development and to be modern. The main goal of Turkey was to be a "civilized" country, to be industrialized, to pace the Zeitgeist, in other words to be a "welfare state". A rapid industrialization process started and a new architecture with all of its new programmes like mass housing, schools, hospitals, universities industrial areas with all the utilized propagandistic tools.

Electrification with its literal and symbolic meaning was an indispensible part of modernization industrialization and progress. The search for the process of electrification in Turkey and how it is materialized in urban space in different scales in indoor and outdoor is the aim of this study. Looking for the effects of electrification via making a discursive analysis and taking into consideration the objects in substance, concerning the practice itself, and searching for the transformations in the urban space and in urban living are the main objectives. Consequently, popular media is the main source to look for how electrification was materialized and depicted in the publicity and decipher how discursive formations were constructed. The intervals of the research period are the heydays of these Modernist discursive formations, mainly the 1930s. Being the symbol and generator of electrification in the new capital; Ankara Gas and Electricity Factory will be examined as a case study. The theoretical framework of this study will take the "Modernity Project" in the Turkish Republic, focusing on how the idea of "welfare state", collective memory and social identity was constructed at that time by looking at the popular media.

FRIDAY
Session F3E
Kehräämö Hall
13:30–15:00

ROUNDTABLE DISCUSSION: HISTORY OF TECHNOLOGY VS HISTORY OF SCIENCE: POSSIBILITIES AND CHALLENGES OF THE INTERACTION

Organiser: The Finnish National Committee for the History of Sciece and Technology
Chair: Panu NYKÄNEN, Aalto University, Finland

Panelists:

Professor Helge KRAGH
Aarhus University, Denmark

Dr. Sebastien SOUBIRAN
University of Strasbourg, France

Professor Éva VÁMOS
Hungarian Museum for Science and Technology, Hungary

Professor Maija KALLINEN
University of Oulu, Finland

Professor Tapio MARKKANEN
University of Helsinki, Finland

Documenting the History of the Timber Industry in the Klamath Basin, Oregon

Anne HILLER CLARK
Mark CLARK
Oregon Institute of Technology, USA

The Klamath Basin is located on the border between the American states of Oregon and California in the high plateau east of the Cascade Mountains. Isolated from the rest of the United States economically until the arrival of the Southern Pacific Railroad in the early 1900s, the region contained the largest remaining stand of virgin timber in the lower 48 states. Over the next century, these timber resources were extensively exploited, using a variety of harvesting and processing techniques. Until recently, the history of the timber industry in this region was not well documented. As the result of a multi-faceted effort implemented by the Shaw Historical Library, including the collection of archival materials, photographs, and oral interviews, a comprehensive picture of this industry is now emerging. The library has produced a volume of its journal devoted to the history of the local timber industry, a series of lectures and seminars on timber history, and has cooperated with several local museums to produce or upgrade exhibits on the subject. This paper gives a brief overview of the history of the region, the efforts that have been made to preserve its history, and an outline of future plans to expand preservation efforts.

Studying, Representing and "Reusing" the Industrial Past: The Case of a Greek Cultural Foundation

Helen BENEKI
Piraeus Bank Group Cultural Foundation, Greece

Despite the contested period of industrialization of the Greek economy, it is essential to record and study the relevant heritage, before any remained trace disappears. The Piraeus Bank Group Cultural Foundation (PIOP) conducts research that corresponds to its statutory goals; in particular that of inventorying, preserving and communicating pre-industrial and industrial technology in Greece and carrying out an in-depth study of modern Greek society's technical and economic facets.

Taking the challenge to exploiting and disseminating research results and scientific work to broader groups of the public, the Foundation's studies on industrial past constitute an integral part of its threefold action: research – exhibition – publication. We focus on economy, technology and traditional techniques but also on people, labour, wealth, growth and material culture produced. Research is interdisciplinary and consists of:

- archaeological field research,
- archival, historic and ethnographic research –based also on oral history to create testimonies archives,
- architectural measure drawing and documentation of industrial buildings,
- documentation of machinery and reconstruction of production lines – to prepare demonstrative-explanatory operation,
- documentation of objects, to meet with the Foundation's collection policy.

The paper will address the challenges and opportunities of studying objects, stories and voices from the industrial past, and representing them within the context of a thematic technological museum (mainly housed in a reused industrial building), or, more accurately in a network of such museums, established by the Foundation and located in the Greek provinces, according to each territory tradition on a particular production sector. Using specific case studies, the paper will also explore how economic and industrial history of the country can motivate local economies to "reuse" their industrial past via cultural tourism development.

Artist in Residence: A Case Study in Strategic Applications of Industrial Heritage & Adaptive Reuse

Stephen CAFFEY
Texas A&M University, USA

In the 1980s, developers and construction companies from America's west coast purchased, razed and harvested construction materials from abandoned industrial buildings in midwestern American cities such as Peoria, Illinois. In order to preserve the cultural fabric of their community, Peoria's residents sought ways through which to transform long-abandoned manufacturing facilities. This paper offers a critical summary of the origins, transformation, present functions and future plans for the Peoria's Prairie Center for the Arts, one such adaptive reuse project. Drawing upon the Center's extensive unpublished archive, I present the project's history, evolution, current status and future prospects in four contexts: 1) industrial heritage with an emphasis on 20th-century manufacturing facilities; 2) heritage conservation with an emphasis on protecting and preserving the cultural fabric of small to mid-size American communities; 3) the integration of industrial manufacturing technologies into contemporary arts practices; and 4) the impact of visual and performing arts on quality of life in small to mid-size American communities. I then offer a brief evaluation of the project as a manifestation of criteria articulated in the literature of New Urbanism and *Artist's Communities: A Directory of Residencies That Offer Time and Space for Creativity*, two of the sources cited as influences by the Center's founders. Conclusions: 1) artists' residencies can serve as models for adaptive reuse and community preservation+renewal initiatives in small to mid-size cities, and 2) the lessons exemplified by the Prairie Center can be translated into larger urban settings.

FRIDAY
Session F3G
Demola Hall
13:30–15:00

From Abandoned Machinery to Sustainable Industry Heritage – Strategies of the Conservation and Adaptive Reuse of Sugar Factories in Taiwan

Chao-Ching FU
National Cheng Kung University, Taiwan

Taiwan has a long history of producing cane sugar. Although the island's sugar exports dated back to the 17th century, it was not until 1900 that modern sugar factories were established widely on the island by the Japanese colonists. During the high development, there were more than forty sugar factories in Taiwan. Taiwan Sugar Corporation (TSC), reorganized from four major Japanese-managed sugar companies after the WWII, was inaugurated on May 1st 1946 and thus became a state-owned enterprise. Between 1952 and 1964, sugar was Taiwan's leading export commodity.

TSC's sugar industry has contributed considerably to the prosperity of Taiwan's economy and stimulated the development of all the other industries on the island. TSC has offered many job opportunities to Taiwanese people and sugar industry is an inseparable part of many Taiwanese people's life. However, the industry has waned as a result of Taiwan's changing economic structure from the 1980s. When TSC became privatized, most sugar factories were forced to close or to reduce their products. The development has led to the emergence of abandoned factories. In recent years, some of these deserted factories have been reused as functions such as arts center, café, exhibition hall and museums. This paper will review the conservation and adaptive reuse of sugar factories in Taiwan and argue that, through appropriate strategies, abandoned machineries will turn into sustainable industry heritages.

UNESCO World Heritage Site Völklingen Ironworks – From a Shut Down ironworks to an Exciting Cultural and Touristic Destination

Peter BACKES
World Heritage Site Völklingen Ironworks, Germany

The beginning of the end? When in 1986 in Völklingen the blast furnaces went out for ever, a more than 100-year-old era came to an end: The era of the iron.

In 1994 UNESCO declared the Völklingen Ironworks the world cultural heritage of the humanity. A giant step: A monument of work and technology is ranged on the same level like the Cologne Cathedral and the pyramids of Gizeh.

The message is the mix: The four pillars of success

Pillar one: The site
The monument forms the base. His uniqueness, his aura and his monumentality – and his status as a world cultural heritage of UNESCO as well – are the basis on which the further work is based.

Pillar two: The Education
The predicate "world cultural heritage" implies a challenge which aims quite a special target group: The industrial monument will be inherited to the next generation, the people of the following generation are the heirs of the Völklingen Ironworks.

Pillar three: The Culture
Without the presentation of major exhibitions the successful development of an industrial monument like Völklingen Ironworks is not imaginable. The exhibitions are an additional impulse for the visit of the world cultural heritage.

Pillar four: The Tourism
In regions which were for long time formed by the heavy industry and suffer now from the widespread decline of this industry the tourism constitutes an important economic factor. The world cultural heritage site Völklingen Ironworks contributes as an attractive destination with numerous visitors a lot to this development.

FRIDAY
Session F3H
Hydro Power Station
13:30–15:00

TICCIH WORKSHOP ON CONSERVATION ISSUES

Chair: Patrick MARTIN, Michigan Technological University, USA

Repainting and Maintenance of Painted Steel Heritage

Patrik REUTERSWÄRD
Swerea KIMAB, Sweden

Possibility to present case studies about practical conservation issues.

Comments by TICCIH president Patrick MARTIN.

Discussion

Mirror Effects. Advertising & Targets at the Museum

René CAPOVIN
Micheletti Foundation, Italy

The Cinema Museum of Rodengo Saiano (BS) maintains the heritage of important Italian industries, in particular the production systems and the archives of «Gavioli Film», an European leader in the creation of movies and cartoons in the 1950s and 1960s.

Roberto Gavioli's most influential creation was «Carosello», a singular mix of cartoons, short movies and advertising. «Carosello» works as mirror where visitors can see the signs of the birth of Italy as a modern nation of consumers.

At the museum the social role of advertising can also be observed with reference to more recent sources, i.e. Italian local commercial television during the 1980s. The digitization of the productions of one of these «wild» TV offers many elements for a contemporary history of italian cultural and political identity.

The large overlapping between the target of advertising and the public of the museum permits us to consider the social function of industrial museums from a new perspective.

SATURDAY
Session S1A
Werstas
Auditorium
8:30–10:00

Museum Arbeitswelt Steyr and the "Austrian Route of Iron"

Udo B. WIESINGER
Museum Arbeitswelt Steyr, Austria

Museum Arbeitswelt (MAW) is situated in an industrial building from the 1860s. Steyr has been centre of Iron Industry for many centuries. In the museum we are presenting exhibitions which deal with history and presence of industrialisation – especially social and political history. E.g. now we are showing an exhibition about globalisation.

The museum is part of the Upper Austrian Iron Route.

In my presentation I'll show the situation of the historic region, the chances and problems of presenting museums in old factories and especially the challenge of running such museums by people on a voluntary basis. Many of the small museums have problems and so the protection of historic monuments is endangered.

One of the ideas to improve the situation of the industrial region is to become part of the UNESCO – world heritage.

The Museum of the Post Time after Time

Rosaria DE FAZIO
Italy

The Museum of Post and Telecommunication in Rome witnesses the evolution both of the way and the system to communicate among the men, and of delivery correspondence, from the antiquity up to our days.

The Italian Departement of Economic Development has included a part of the heritage conserved at the Museum of the Post in the realization of the Made in Italy Museum. For this reason, and also in view to celebrate 150 years of the unity of Italy, according to the public administration of belonging, the Museum of the Post and Telecommunication of Rome intends to renew itself and to open to the public.

To succeed in this goal, it is considering new approaches of promotion of the cultural heritage maintened, trying to involve in a part of the project important pubblic and private partners too. Between the many and various strategies, it is going to be chosen the one which will give it visibility first on local and national level, then international too.

The Ticcih Congress in Tampere is the occasion to share the planned activity/ies individuated as the best ones, the adopted methods and the phases of realization of the activities which will be run out during the year, the expectations proposed and, if already possible, the results that will be joined.

SATURDAY
Session S1B
Vooninki Hall
8:30–10:00

TECHNOLOGIES OF OIL AND GAS II

Chair: Tuija MIKKONEN, National Board of Antiquities, Finland

100 Years of Explotation at Natural Gas in Romania

Dumitru CHISALITA
SNGN ROMGAZ SA/Romanian Natural Gas Museum, Romania

The presence of natural gas was recorded in Europe, between 100 year after Hristos in Roman imperium.

In Romanian province Transylvania, in 1909, the drillings, targeting sodium and potassium deposits, highlighted the presence of natural gas as high pressure accumulations in the eart crust.

Rated, at that time, as the fourth gas well in the world, based on its gas flow rate, well w2 Sarmasel (Romania country) is considered to be the first natural gas well from Europe.

Since the discovery, in 1909, of natural gas on the present day territory of Romania, rendering 100 years of history in exploration, explotation, transport and distribution natural gas experience. The first 100 years natural gas experiences in Europe.

Hint on the Development of the Italian Oil Industry in the Emilian Apennines

Francesco GERALI
Accademia Luningianese di Scienze, Italy

In the history of the Italian oil the provinces of Parma and Piacenza are places well known: here from the second half of the nineteenth century the oil mining evolve from business little more than craft in a well organized industry, featuring indelibly the local economy.

Thanks to the growing importance of this neo-industry Parma and Piacenza will be the forge of an important and original know-how. The wealth of the underground resources will draw the interest of Italian businessmen who will locate here their businesses, contributing to the birth of the main Italian oil district.

The goal of this presentation is to outline the technical and economic development of the first decades of this industry. The realization of this research was made possible thanks to literature sources of the nineteenth century and the discovery of original and unpublished documents collected in various local archives.

SATURDAY
Session S1C
Bertell Hall
8:30–10:00

NATURE AND TECHNOLOGY COMING TO TERMS WITH URBANITY, INDUSTRIALIZATION AND THE ENVIRONMENT

Chair: Eva JAKOBSSON, University of Stavanger, Norway

Strategic Management of Water Services in Tampere City and Industrial Water Services 1835–2010

Tapio KATKO
Riikka RAJALA
Tampere University of Technology, Finland
Petri JUUTI
University of Tampere, Finland

The history and development of Tampere, the biggest inland city in the Nordic countries, have been shaped extensively by issues related to water and water management over the years. Tammerkoski Rapids and its banks were a favourable location for a town due to the available water power and the lakes suitable for waterborne transport. In the beginning of the 19th century, peasants built a channel in the upstream part of the rapids; a cotton mill and an engineering-works were founded in the early 1820s followed later by other industrial activities. As early as in the 1830s, water was pumped from the upstream lake and led via a wooden pipe to the centre while the first, bigger water works and sewerage system was started in the early 1880s.

This paper describes the key strategic decisions and principles applied over time that mostly affected overall development. Decisions had to be made between public and private ownership, ground and surface water sources, water metering, water closets, nearby and distant water sources, wastewater treatment, integration of water and sewerage services, and ways of cooperation at various levels. Several of these issues are discussed at international water forums in the early 2000s, which too often – purposely or not – have tended to forget such lessons, as if our present and future options could be determined in a historical vacuum.

Some of the current challenges are related to the aging infrastructure and the question of regional wholesale water supply and waste water treatment. How far such systems can and will be expanded, should be assessed also in long term development context. The role of water in the future city and land use planning will also be discussed in the paper.

The Environmental Consequences of Industrialisation and Deindustrialization in the Sami Domicile of Finland from 1945 to the Present Day

Jukka NYYSSÖNEN
University of Tromsø, Norway

While the Northernmost Lapland is far from the industrial centre of Finland, the effects of industrialisation and deindustrialization were felt there as well. In the north, the process was about the mobilization of the timber resources for the increasing paper industry as well as building water energy for the industrializing Finland. To begin with, the project of mobilizing the natural resources and introducing timber processing plants to northern Lapland was a project, which both the Sami and the Finns living in the region advocated. I aim to follow the industrial project from a point of view of the history of forestry and environmental history. The focus is on the environmental consequences and the gradual erosion of the process, as the Sami movement and environmentalist movement, as well as the state of Finland begin to raise competing issues on the agenda. The consequent deindustrialization and its environmental consequences are studied. Which environmental consequences did these processes have? Were the environmental consequences the cause for the crisis and deindustrialization? Have the forest resources diminished or increased? The sources are gathered from both Forest and Park Service and the Sami Parliament, for example.

SATURDAY
Session S1C
Bertell Hall
8:30–10:00

'The Combination of Nature, and Human Invention': Green Design in an Early Industrial City

Jane WEISS
Kingsborough Community College of CUNY, USA

Tampere has been referred to as the "Manchester of Finland" but it might be more precise to call Tampere Finland's elaboration of a theme epitomized by Lowell, Massachusetts. Lowell's developers in the 1820s attempted to demonstrate that mass manufacturing need not entail degradation. Industrial utility and green engineering converged; spillways were landscaped with leafy promenades, and corporations planted street trees and placed gardens in factory yards. Flowers even thrived in workrooms: "A beautiful variety of plants is placed around the rooms, giving them more of the appearance of a flower garden than a workshop," wrote Sarah Bagley. Archeological findings, Corporation records, and the operatives' writings, both personal and published, attest to the significance of the city's green spaces.

The balance between industry and nature was difficult to maintain as Lowell's population swelled and the mills multiplied. Much recent scholarship has questioned the paternalist motives of the corporations, representing the "Lowell Experiment" as an arc of inexorable decline. But the relevant question now is not, "Was Lowell utopia?" but "Was Lowell better than some industrial models?" Lowell is now a post-industrial city, but this is not a post-industrial world. In contrast to the quasi-rural visions of Frederick Law Olmstead, Lowell's developers and workers celebrated the cultural as well as commercial benefits of urban density, seeking a city less disdainful of human needs, more sustainable than Manchester or Sheffield. Lowell's early efforts toward environmentally responsive industrialization offer inspiration for industrial and post-industrial development today.

The Case of Noormarkku Ironworks – The Industrial Past as Capital

Maarit GRAHN
University of Turku, Finland

In this paper, I will examine the use of the industrial past from the point of view of a family business: how and why does an industrial enterprise produce and utilize its tangible and intangible cultural heritage? As a case, I will use a Finnish enterprise A. Ahlström Osakeyhtiö: I will examine how this company has since the late 19th century consciously produced its cultural heritage and utilized it both in company's internal and external activities. My study is based both upon literature and archive material and the subject is related to my forthcoming doctoral research that examines the interplay between a changing organizational culture and a place.

The history of this company is tightly connected to West Finnish Noormarkku ironworks. Awareness of the past and respect for the past has affected the actions of the company and along with that the locality: Noormarkku was destined to be the domicile for the company and the Ahlström family. The company was headquartered from Noormarkku till the end of the 1960s which gave the ironworks its unique features.

Today, A. Ahlström Osakeyhtiö still operates in Noormarkku and one of its tasks is to preserve the old residences of the owners, workers' dwellings and old industrial plants. The ironworks is symbolic capital and a place of memory for the globalized company and the Ahlström family. In the 21st century, the company also utilizes the industrial heritage as economic capital.

Areas of Inequality

Satu KANKKONEN
University of Tampere, Finland

This paper focuses on concept of inequality connected to housing districts of working people in Finland and Tampere in turn of nineteenth century. The term inequality can be used when one is trying to describe the relationship between social classes and urban space. In addition this approach attempts to picture the inequitable ways of comprehending or fashion the working people areas.

Mobilization was one of the multiple changes that occurred in Finnish society on turn of century. The growth of the towns however had been controlled and elite remained in the city centre while the working class people begun to search cheap houses and lots on the outskirts of the city. In Tampere migration was caused by the industrialization which was not the case in other larger Finnish cities.

Although working class people left urban core it was not only the cheaper lots that drove them away. These people also looked after freedom and independence. This was at least the case in some of the districts outside Tampere. However the public opinion of that time tells us an alternative story. If that narrative is followed we face an area with wretched hovels, its poor and all manner of immoral behavior. This opinion was represented or that picture was constructed mainly by the bourgeois entertainers and social reformers. Yet some of these inequitable ways of imagining have been repeated by historians. In Finnish history this could be called as the administrative mindset.

The Imagined Continuation. Comparing Cultural Reconstruction among Transforming Single-Industry Communities

Simo HÄYRYNEN
University of Eastern Finland, Finland

The paper asks what is the use of industrial conventions and institutions in reconstructing a community after the industry is set down. The study is inspired by recent structural changes leading to shutdown of forestry-based production plants in Finland. The problem is topical in many industrialized areas and in most basic industrial sectors from the arctic mine towns to the traditional port-cities. Experiences from previous studies show that no solutions separable from their national or cultural context work with such community problems. The paper stems from the research tradition, examining the utilization of industrial heritage for constructing a symbolic continuum between the different phases of communal transformation. The study entails an international comparison of post-industrialized communities in two small states, Finland and New Zealand that share many historical, economic and social similarities but differ by their ethno-cultural lay-out. The actual empirical comparisons are all culturally outstanding communities with strong industrial backgrounds: Patea (freezing work) and MacRae's Flat (mining) from New Zealand; Outokumpu (mining) and a forestry-based factory town from Finland (to be decided later). Theoretically the study discusses local identities, collective memories and "the manipulation of social genealogy" in respect of community transformations. The question is: in which way the institutional regulation – the symbolic governance of change – is implemented by people with different backgrounds in respect to the industrial tradition. Whose reactions generally form "a local voice" during and after the transitional periods? The aim is to use global examples to increase local capacities for response the problems of single-industry communities.

SATURDAY
Session S1E
Kehräämö Hall
8:30–10:00

HISTORY OF TECHNOLOGY AS A SOCIAL RESOURCE

Chair: Hans-Joachim BRAUN, Helmut Schmidt University Hamburg, Germany

Power and Conservation: The Importance of the History of Technology

Angus BUCHANAN
History of Technology at the University of Bath, UK

Visiting the famous Boulton and Watt factory at Soho, Birmingham, in 1776, James Boswell reported Matthew Boulton saying to him: "I sell here, Sir, what all the world desires to have – Power". This quality of physical power, enabling people to make and do things, is the essence of technology, and the exploitation of non-human sources of power through machines and engines has been the outstanding characteristic of the process of industrialisation. The history of technology is thus largely concerned with understanding the nature of this process of power utilisation, and with establishing its role in the development of the modern world. A sympathetic attitude towards the conservation of industrial artefacts is both a product of such increased understanding, and an insurance that it will be carried forward in future policy-making. This paper argues the case for the crucial role of the history of technology in understanding how the modern world has evolved, and for the importance of enlightened conservation in order to achieve this objective.

Uses of Industrial Heritage by French Luxury Houses : When History of Technology Meets Brand Communication

Eugénie BRIOT
Université Paris-Est, IRG, Marne-la-Vallée, France

The luxury goods industry came to its own in the first decades of the 19th century at the same rate as the move towards more comfort and quality for growing sections of society. A large number of the companies that today constitute the cream of French luxury goods producers were established at this time, out of this generalised burst of activity. Just as in other industries, older production tools and machines were slowly replaced by more innovative technologies. However, "savoir faire" and technical know-how is at the heart of the heritage of the luxury goods industries, crafts being often specifically conserved to be passed on. In a sector where brand image relies heavily on authenticity and savoir-faire and is considered the most precious asset of a luxury goods manufacturer, the idea of getting the most from this heritage is a priori considered to be a good thing. Along with Louis Vuitton, Hermès, Christian Dior, Christofle for instance, and a number of wine and liqueur manufacturers, Bernardaud and Baccarat, in 1998 and 2003 respectively, chose thus to open their company heritage to the public. We intend here to focus especially on these two last examples. Their heritages indeed are similar but they chose radically different options for its exploitation and display. For such houses, heritage is an essential advertising and communication tool as it provides a constant supply of museum pieces and is a well of inspiration for contemporary design and creativity.

SATURDAY
Session S1E
Kehräämö Hall
8:30–10:00

Tesla, Marconi, de Forest, and the Race to Develop Wireless Telegraphy

W. Bernard CARLSON
University of Virginia, USA

Much of the early history of radio has been written in biographical terms, focusing on exclusively on the work of one specific inventor such as Guglielmo Marconi, Nikola Tesla, and Lee de Forest. No one has, to my knowledge, considered how these inventors may have been in a true race, with each closely watching the other and shaping his actions in response. In this paper, I will recount the rivalry between these three inventors, arguing that Tesla's decision to conduct experiments in Colorado Springs in 1899 was in response to Marconi's success in transmitting signals across the English Channel. At the same time, I will suggest that Marconi decided to attempt to send a message across the Atlantic in response to Tesla's bold prediction in early 1901 that he would send a transatlantic message within a few months. And finally, I will talk about how de Forest's questionable stock-selling activities in 1903–04 discouraged financiers from investing in this new technology, with the result that Tesla was unable to raise additional capital at crucial moment in his work. Overall, this paper should serve to remind us how technologies are not the product of lone genius but rather a social process involving competition and interaction among several talented individuals.

JUST WHAT IS IT THAT MAKES TODAY´S HOME SO DIFFERENT, SO APPEALING? FROM WC TO PC – TECHNOLOGIES OF EVERYDAY'S LIFE AND ITS SOCIAL, CULTURAL AND POLITICAL DIMENSIONS (1870–2000) I

Organisers & Chairs: Timo MYLLYNTAUS, University of Turku, Finland & Roman ARTEMENKO, Institute for History and Science and Technology of Russian Academy of Sciences, Russia

Soviet Consumer Radioelectronics – Cripples and Orphans of the Military Industry or Victims of the Wrong Way Economy in the 1970s and 1980s?

Roman ARTEMENKO
Institute for History and Science and Technology of Russian Academy of Sciences, Russia

The paper gives a brief view on Soviet electronics for home use, presents some of most popular models, as well as discuss of strong and weak points of design and complex reasons of the national electronic industry decline in the late 1980s.

During the last decades of Soviet regime its hi-tech industry showed some amazing results – take for example system "Energia-Buran" and first ever space-shuttle automatical landing or giant aircrafts "Antonov-128" and "Antonov-225" or transcontinental Il-96-300, fighters Mig-29 or Su-27, helicopter Mil-26, project 971 atomic submarines and so on… Electronic components and systems of high reliability, which are a vital part of any modern military or civilian technology, in conditions of iron curtain were produced in sufficient quantities at numerous secret factories (so-called "P.O.Boxes"). According to the central plan economy same factories usually were forced to produce some amount of consumers electronics. Unlike their military "colleagues" Soviet consumers electronics (Radio, TV sets, hi-fi and so on) were usually much less reliable – due to the lack of quality control during the process and since frequently were based on using of poor quality components which were ineligible for military or any other application. Due to total deficit and lack of commercial competition such consumers goods anyway still have been widely in demand in the country during the 1970s and 1980s.

In the end of 1980s situation began to improve – now it was possible to buy some electronics from west Europe or Asia and compare it with own ones. In my paper I'll try to present results of it.

SATURDAY
Session S1F
Kutomo Hall
8:30–9:30

Some Confessions of a Neophiliac

Colin A. HEMPSTEAD
University of Teesside, UK

A feature of the industrial revolution was the continuing quickening pace of innovation, one driver of which was the introduction of science into industry. Since the end of the 19th century increasingly innovation has come from science, and the sophistication of recent 'hi-tech' consumer goods have not only become more «user friendly» but have added a number of new words, concepts, knowledge to humanity. The routes to modern technologies are lengthy and tortuous. Many were foreseen and predicted well before the enabling technologies were available, and early visions prepared consumers to try new technologies. Often the wealthy first adopted the new but the economic forces and the knowledge capital inherent in human societies drove the democratisation of innovation. The author recently purchased a digital TV of modest size but with a bewildering set of potentialities: it can be used as a computer display and can access the 'net', it has a HD mode, its digital radio reproduces excellent audio, it can derive signals from cable, blu-ray devices, and antennas and it can allow tape and DVD recorders to copy and replay programmes and it operates automatically. It was only necessary to connect the various peripherals with the TV, switch on and wait. In due course, with no more input from a human the system worked, unproblematically.

This paper centres on a digital TV and various peripherals, and will consider the interactions between science, consumers and historical contexts in order to present some tentative conclusions concerning processes of innovations.

REINTERPRETING TOMIOKA SILK MILL: JAPAN'S INDUSTRIAL HERITAGE IN TRANSITION

Organiser & Chair: David G. WITTNER, Utica College, USA

SATURDAY
Session S1G
Demola Hall
8:30–10:00

Perspectives on Japanese Industrial Heritage and Hybrid Technology

Toshitaka MATSUURA
World Heritage Promotion Office Gunma Prefectural Government, Japan

The silk industry was the driving force behind Japan's 19th century industrial miracle. There were neither industrial products nor mineral resources which Japan could export at this time, and in the end the export of Japanese raw silk provided the funds with which to build modern Japanese industry.

The Japanese government relied greatly on the silk industry and introduced the newest technologies for the improvement of silk products from Europe and founded a modern factory at Tomioka. But the factory was too advanced by Japanese technical standards. Japanese businessman gave up trying to modernize all aspects of their operations at once. Many decided, however, to adopt new technologies when possible and positively combine them with conventional technologies. For example, private firms substituted waterwheels for steam engines which they could not produce, even if they were capable of building and operation concentrating steam boilers to provide heat for boiling cocoons. I think that this differentiates Japanese industrialization from other countries at the time.

In Gunma prefecture, there are many modern silk industrial heritage sites that blended new Western and conventional Japanese technologies into technological systems such as specially adapting farmer's houses for sericulture, cold storage for silkworm eggs, the Western-style silk mill in Tomioka City, warehouses for cocoons, Japan's oldest filature school, a railroad built for cocoon and silk transportation, etc. In this paper I will discuss Japan's silk heritage in terms of the creation of hybrid technological systems.

Making Western Factory Buildings Japanese: Blending Architecture at Tomioka Silk Mill

Keiichi SHIMIZU
Center for the History of Japanese Industrial Technology, Japan

Tomioka Silk Mill in Gunma Prefecture, Japan, was the first of the Meiji government's model factories. The silk mill is a significant component of Japan's industrial heritage, having launched Japan's first industrial age. It is often said that Japan's industrial modernization was achieved by 'imitating' modern technology from Western countries. However, if one actually looks at the remains of industrial sites left in Japan, few examples of technologies that were imported from the West and used unmodified can be found. What becomes obvious when looking at such industrial remains is that Japanese-style manufacturing methods were used with imported machinery to form systems that were a blending of traditional and imported technologies. It was this choosing and recombining of parts of indigenous and imported technologies that facilitated Japan's rapid modernization.

Still remaining in largely original condition, Tomioka Silk Mill is a perfect example of this blending process. Although designed and portrayed as being fully Western, Tomioka's mill and warehouses are hybrids of Western and indigenous construction techniques. The brick buildings incorporate features that were familiar to Japanese carpenters who knew nothing of bricks or mortar when construction began in 1872. For the main body of this paper, I will discuss how Western and Japanese construction technologies were fused at Tomioka Silk Mill in an effort to help reinterpret Japan's industrial heritage.

Symbol for a Nation: Tomioka Silk Filature and Japanese Industrial Modernization

David G. WITTNER
Utica College, USA

Faced with the daunting tasks of nation building and improving the quality of raw silk for its export market, the Meiji government built a fully modern silk filature in 1872 – a model factory – that would come to represent the modernizing nation. Beyond being Japan's first, modern industrial site, Tomioka silk filature was a technological centerpiece and exemplar of "civilization and enlightenment" (bunmei kaika). That the factory would embody the government's principles of nation building was no accident. Every facet of Tomioka, from the factory's architecture and materials of its construction, to its imported machinery, was chosen to demonstrate Japan's ascending "level of civilization" in a Victorian world. Although Tomioka's technologies were often too complex and too expensive for private firms to adopt, entrepreneurs embraced the filature's symbolism while adapting its technologies to fit individual circumstances. By blending indigenous and Western technologies, Meiji Japan's silk reelers answered the government's call to improve the quality of Japan's raw silk. By claiming to use the "modern" technologies found at Tomoika, entrepreneurs simultaneously helped the government build a "modern" nation in terms of technological symbolism. Although few people realize that Tomioka filature still stands in mostly original condition, its legacy is enduring. Tomioka remains the most recognized symbol of Japan's modern industrial heritage.

SATURDAY
Session S2A
Werstas
Auditorium
10:30–12:00

COLLECTION POLICIES AT THE INDUSTRIAL MUSEUMS

Chair: Udo WIESINGER, Museum Arbeitswelt Steyr, Austria

How Much Is Enough? – Re-Evaluating Industrial Collections

Mari LIND
Museum Centre Vapriikki, Finland

Tampere has been the most significant industrial town in Finland. The range of industrial fields operating in the city has been huge. There has been for example many textile, shoe, metal, rubber and plastic companies in Tampere.

The history and the tradition of local industry has been one of the main focuses of Tampere city museums for decades. Its collection of industrial history includes product samples of many factories, machinery and other tools, and archive material. The museum has also been interested in everyday life of workers and their housing. The photo archive of the museum has collected photos from industrial activities and environment.

Structural changes in the late 1900s hit Tampere hard. Many of the traditional companies, for example textile mills and shoe factories, were closed down. The closing factories donated different kind of material to the museum. In these situations "the rescue operations" had to be done in a hurry without considering what to accept to the collection. Time-consuming and expensive documentation process is still going on.

It is estimated that the collection of industrial history includes now 160 000 items. It is obvious that the collection is oversized. Challenge is to find theoretical principles and practical tools for the removal process. In this paper I will discuss about the methods, which we have develop to solve the problem. Textiles and textile machinery will offer us excellent examples of concrete cases.

Challenges of the Collections Policy: Industrial Environment and Processes within

Teemu AHOLA
Finnish Labour Museum Werstas, Finland

Post-industrial society with its increasing flow of material and objects is setting serious challenges for museum collections. Rapid object growth is lowering the quality of the collections and filling the already limited storage space. The challenge is increased with the industrial environment and processes within. How to document the industrial operations into the museum collections? The traditional, object-based way is often not suitable due to massive size of the factory machinery. Furthermore, by storing the isolated physical objects, many important features and themes remain undocumented. Such as built environment, work processes, labour culture etc.

Creation of the museum´s collection policy is the starting point for the management of the collection growth. Collections policy sets the theoretical standards and practical tools for collection management. It gives the guidelines for acquisitions and defines the identity of the museum and it´s collections.

When dealing with the phenomena as industrial environment the mere collections policy is not enough. Acquisition of the large scale machinery is virtually impossible and one should consider anchoring the collections policy with the present day documentation. Museums are forced to search for alternative ways of documentation than the traditional object-based way. This paper ponders the problems and possibilities that present day documentation has to offer for museum collection management. These topics are discussed with the concrete example case, documentation of the local bakery and bread making industry in Tampere.

Collection Policy in Saxony, a Region in Transformation

Achim DRESLER
Sächsisches Industriemuseum Chemnitz, Germany

Saxony is a pioneer region of European industrialization with a strong recent industry (machine tool-, vehicle-manufacturing, IT, Energy, technical universities).

The Saxon Museum of Industry is the archive of especially three-dimensional artefacts (machines, products etc.). Its collection policy is orientated to the region, starts with the beginning of the industrial era 1800.

Two important challenges of this policy are:

1 Continuing the collection in the future

Because industrial history is defined by us as an ongoing process in the future, the collection has to be completed with objects of today and of tomorrow (products, machines etc.)

The challenges are to handle with the size of modern machine systems versus restricted depot space and logistic possibilities, availability of objects, long term-conservation of electronic objects and data, consciousness of industrial actors, to hand actual things over to the museums collection

What alternative policies or best-practice-examples exist in other museums? (virtual or exemplary collecting?)

2 Collecting the context of the objects (Knowledge, Memories, Skills etc.)

By the disappearing of engineers, skilled workers, entrepreneurs because of the demographic drift and biological age a lot of knowledge about the collected objects disappears too (Handling of machines etc.). Counter-strategies since 1990 were documentation (text, audio, video), oral-history etc. esp. with senior volunteers (transformation phenomena). What to do after they have left?

What policies exist in museums of regions, where industrial transformation is over, to keep knowledge about the objects?

The Role of Saltpeter in Early Modern Chemistry: Historical and Historiographical Issues

Ana M. ALFONSO-GOLDFARB, Márcia H. M. FERRAZ
Pontifícia Universidade Católica de São Paulo, Brazil

Several types of issues have hindered the project of writing a history of the knowledge on and practices with saltpeter. Problems in nomenclature and identification, thus, in recognizing saltpeter – considered a secret ingredient, it was veiled or omitted in written texts – were constant since remote times to virtually the 19th century.

An example is the English debate between 1640 and 1670, which reveals the intricate studies and controversies around saltpeter, an important material for trade. Such debate involved several members of the early Royal Society, as e.g. R. Boyle, B. Worsley and T. Henshaw, who found in saltpeter a source to discuss the origin and manipulation of matter. In this paper, we will discuss in particular a memoir by the latter, where also the former two are mentioned.[1]

In the beginning of the following century, scholars linked to the Académie des Sciences also entered the debate on the origin of "nitrous" materials, which were essential for the "fabrication" of increasingly more demanded products, such as gunpowder and glass among other chemicals and pharmaceuticals. Closely following this debate, L. Lémery published in 1717 a series of memoirs entitled "Sur le Nitre"[2], where he deals with materials containing a particular acid that when united to different substances or "earthy bases" resulted in salt-ammoniac or saltpeter.

For these reason, the works by Henshaw and L. Lémery are good lenses to analyze the different factions that in their respective times participated in the debate on the origin of nitrous substances.

1 T. Henshaw, "The History of the Making of Salpeter", in The History of the Royal Society, ed. T. Sprat (London: Royal Society, 1663), 260-76.

2 L. Lémery, "Sur le Nitre", Histoire de l'Académie Royale des Sciences, Année 1717 (Paris : Impremerie Royale, 1719), 29-34; 31-51 ; 122-46.

Why Here? Why Now? Places of Invention at MIT in World War II

Joyce BEDI
National Museum of American History, Smithsonian Institution, USA

Invention happens in all kinds of environments, from individual workshops to geographical regions. Whether impromptu or planned, place is an important element in human creativity. While bodies of scholarship exist on scientific laboratories and the geography of innovation, few historians have looked specifically at questions of place as they apply to invention and innovation. What is it about a particular place that excites a creative mind and makes it a "place of invention?" How do creative people shape the spaces in which they work? What combinations of elements make one place a hotbed of innovation while a similar place may founder?

To explore these questions, this paper provides a case study of three of the many labs founded or expanded at the Massachusetts Institute of Technology during World War II. Much has been written on the history of individual labs that supported the war effort, on Vannevar Bush and the NDRC and OSRD, and on the role of science and government in the War. Another dimension can be added to this scholarship by examining some common characteristics of places of invention observed across the campus as research and invention intensified. This discussion of the interplay of personalities and places offers insight into how the specific dimension of place supports and inspires inventors' work and the ways that creative people shape – and are shaped by – those spaces.

The Unmanned Aerial Vehicle (UAV) and Casualties in Warfare

Thomas WITHINGTON
France

Reports on the evening news routinely chronicle UAVs attacking targets in the Afghanistan-Pakistan border regions as US-led Coalition forces battle Taliban and Al-Qaeda insurgents in this area.

The invention of the UAV resulted from public disquiet over the loss of American aircrew performing reconnaissance missions during the Cold War and Vietnam conflict. The UAV was conceived as a way of reducing these losses by taking the pilot out of the cockpit. Almost fifty years since Vietnam, the UAV is now in routine operation in South West Asia.

However, while the UAV is still a preferred means of executing missions which could otherwise place a pilot in severe danger, public scepticism regarding these aircraft is growing. Some civilians are increasingly seeing the aircraft as unjust, causing significant casualties, both civilian and military, at no 'blood' cost to the country using the UAV. Not only is this phenomenon noted vis-à-vis the US-led Coalition's use of these aircraft in Afghanistan, but also by the Israeli Defence Force's use UAVs during the so-called 'Second Intifada'.

Rather than mollifying public concerns about air crew causalities, are UAVs in danger of being perceived as an irresponsible weapon inflicting casualties at zero cost to the user? Television audiences are increasingly informed about the conduct of the warfare and are comfortable questioning the tactics and strategies that their governments use. Is the UAV now coming under critical public scrutiny because of its raison d'etre?

SATURDAY
Session S2C
Bertell Hall
10:30–12:00

MISSION AND MANAGEMENT AT THE INDUSTRIAL MUSEUMS

Chair: Peter LUDVIGSEN, The Workers' Museum, Denmark

Interaction of the Historical Factory as Museum Building and the Mission of the Museum Working In It

Éva VÁMOS
Hungarian Museum for Science, Technology and Transport, Hungary

Science and technology museums are one of the best ways of reusing old industrial buildings but the co-existence of the genius loci and the mission of the museum institution is not always an easy task to solve. The mission is most often determined by the state or the community, and is usually broader than the presentation of the one-time manufacturing process. The paper will give examples of the different levels of harmonization of museum mission and industrial or industry-related buildings (e. g. fair halls). The author will come to the conclusion that the best solution is to have a broader mission than showing the given manufacturing process only but a broad neutral topic makes us lose the advantage of the original purpose of the building. In the individual categories one Hungarian and one European example each will be given.

1. The building dominates the mission.

2. The mission and the original function of the building are compatible

3. Slight but utilizable relation between the museum's mission an the original function of the monument building

4. House in the house

5. Technical and scientific museums in buildings of industrial fairs of the 19th and 20th centuries

Who Is Responsible for Preserving Industrial Heritage and Who Should Pay the Bills?

Kimmo LEVÄ
Mobilia, Finland

Museums should define themselves more service organization than owner organization. Especially important this is for industrial museums where objects are huge and very expensive to preserve. When museums define themselves as a service organization it automatically means that museums are not alone responsible for preserving history. Actually it means that museums are not responsible for preserve history at all. They are responsible to offer good services for those organizations that want and are responsible for preserving history of their own.

Museum as a service organization -attitude could solve most of the economical questions museums have. Of course it also cost something. Museums have to give up their authorization in many questions and they need to recognize that customer is a king. The role of museum must change from owner to server. The key question is, are we ready to change the way of thinking and the way of doing? Automobile and road museum Mobilia has done it and results are quite good.

The presentation will based to Mobilia's developing project which started at 2000 and finished at 2009. One part of this developing project was my MBA work "Profitability of Museum organizations" to Swansea University in Wales. The key results of my MBA work was that profitability of museum exhibition activities is week, museum's assets are to low and if museums will survive they really need to change their way of doing and thinking

SATURDAY
Session S2C
Bertell Hall
10:30–12:00

A Nation of Museum Builders

Torsten NILSSON
Arbetets museum, Sweden

A fresh breeze of innovation and entrepreneurship sweeps through museums in Sweden. It is not the publicly funded museums, but the small active work life museums that represent this new thinking. With the help of skilled professionals and live machines they tell the history of industrial society and the twentieth century, work and leisure. In Sweden we create museums as never before, and today there are 1 397 museums listed in the Museum of Work database.

Work life museums are not like other museums. There are few showcases but many machines and objects that appear in operation. Work life museums offer an experience for all senses. How many have actually heard a frame saw eat into the log, felt the heat and moisture from a steam engine and the squeezing icy cold in your arms when you rinse laundry in a hole in the ice? There is a strong credibility in work life museums mediation because they tell the story where it took place and it's narrated by people who took part. Most of the work is non-profit. The driving force is to be found in peoples commitment, the desire to tell a good story and the realization that this is important to pass on.

We rely on volunteers to cope with the preservation of industrial society. Is this a failure of the publicly funded museums or is it a great asset that we must be support by all means?

Reusing the Former Industrial Area of Meri-Toppila, Oulu Finland

Risto SUIKKARI
Kai TOLONEN
Özlem ÖZER-KEMPPAINEN
University of Oulu, Finland

This article deals with the transformation and identity of Meri-Toppila suburban area in Oulu, Finland. The area is formal industrial area, among with silo building designed by Alvar Aalto. Some of the old industrial heritage buildings are preserved and re-used. New residential buildings are built in the area since 1980s. Despite of well kept and designed new buildings, waterfronts and preserved old cultural heritage, the area has a great deal of social problems. This area has become the most multicultural neighbourhood in Oulu.

The article points out some of the difficulties which stem out both from intensive urban planning and architectural solutions.

Research projects MERA and KOLA are concerned about Meri-Toppila area. Urban designers and planners in the University of Oulu and City of Oulu, the inhabitants of the area and close-range neighbourhood employers are working together in order to get a better life. Making use of inhabitants' experiences can give valuable information. Culture Power Plant association has planned to renovate Alvar Aalto's Silo building for use of social art and resident activities. Silo building is one of the case studies.

The research aims to find usable methods to reinforce the local identity of the area through participation of its inhabitants. Idea is to strengthen the weak local identity of the new housing area by utilizing the former industrial buildings as an activity centre. As a result may emerge new social activities, improvements of public spaces and green interventions.

Despite of high quality architecture and industrial heritage, identity of Meri-Toppila is not very strong. Social art process might develop new identity of the area and increase local commitment of the inhabitants. If succeeded, the preserved visual industrial heritage will be integrated as a functional part of the local activities and basis for the local identity.

Heritage for sale: How Much Conservation Does a Monument Need?

Rasmus RADACH
Christoph WINTERLING
Planinghaus architekten BDA, Germany

The urban development project PHOENIX West in Dortmund, Germany, explores an alternative strategy for the preservation of large industrial heritage sites in times of decreasing public funding.

In order to retain a blast furnace plant as an identity-providing core to a new business location, the monument was secured with development funding for the promotion of trade and industry from the European Union in preparation for a sale to a private sector investor.

By identifying the essentials of the listed facilities, concentrating on sustainable interventions and permitting a suitable re-use of selected areas, the preservation concept equally accommodates these demands to assure the new location an unmistakable identity.

The paper outlines the development and exemplary execution of a preservation strategy to conciliate the conflicting interests of limited financial risk for investors, minimal public funding for safeguarding and effective monument protection. By focussing on the implementation of a visitors' pathway through the heritage as a major instrument for the gradual securing of the plant, the paper examines the challenging practical appliance of this strategy and addresses it's risks and chances by evaluating the results of the first construction phase.

Could the real engineer rise, please? Technical Education in Belgium during the first half of the Nineteenth Century

Willemijne LINSSEN
Catholic University Leuven, Belgium

The engineer is an obscure person throughout the first half of the nineteenth century: in England identified as a self-made men, in France a theoretically trained state officer. The position of the Belgian engineer remains rather un-clarified. Although state engineers can be retraced, references of 'engineers' working in industry make one assume that there existed a parallel track of (skilled) technicians with an intermediary position in the private sector.

Based on an analysis of technical and engineering education we try to understand the Belgian engineering profession. The link with geographical context and industrial branches turns out being an important factor and international side-steps deepen out the conclusions.

Contemporary educational reports helped reconstructing the situation between 1820 and 1850. Out of twenty selected initiatives, two institutes which ambitioned the training of 'engineers' were analysed: one state school for engineering, one privately founded society offering advanced technical education. The educational degradation of the latter tells an interesting story which sheds the light on failing ambitions, the importance of national identity and the influence of political choices. The comparison is based on in-depth archival research (study programmes, enrolment numbers, alumni organisations…). This information is confronted with the corps entrance examinations to analyse the booked results.

The engineer turns out to be a higher educated technician mainly working for the corps. A monopoly protecting the state schools for engineering influenced this development restrictively. Indeed this technician seems a rather rare phenomenon in the private industry throughout the studied period and important factories fell back on foreign technicians; entitled engineer or otherwise.

Creation of the Kiev Polytechnic Institute, and the First engineering in Metallurgy, Bridge Construction and Aviation (1898–1918)

Liliia PONOMARENKO
National Technical University of Ukraine, Ukraine

The Russian Empire's economic development in the end of the 19th century was putting forward its requirements and tasks to all economic sectors, such as coal, metallurgical, machine-building, transport, food and others. However, thought requirements were advanced by the life itself, it was not easy to solve and realize them. First of all the engineering staffs of high level qualification were absent. The necessity of new educational institutes was the most actual at that time. The important role in creating the Kyiv Polytechnic Institute was played by well known statesman of Russia S.Yu.Vitte. He underlined that the industrial growth and agricultural needs in the rapidly developing area (territory of Ukraine) put in the forefront organization the Higher engineering school in the south of Russia. The principles of education system of KPI were laid by D.Mendeleyev, K.Tymiryasev, V.Kyrpychov (the first rector of KPI) in 1898–1903, originate in the education principles of the well known at that time "L'Ecole Polytechnique". During the first years of KPI existence at four institute departments (engineering, mechanical, chemical and agricultural) 35 chairs with laboratories and educational studies, engineering museum, training garden, meteorological station and work-shops were created. From the beginning of KPI existence difference technological and scientific directions were organized. Thus, one of the famous metallurgists V.Izhevsky developed some original constructions of electric furnaces and gas generator, offered heating steel in hydrochloric baths, special chemical reactants for studying microstructure of iron – carbon alloys, published numerous works which are interest even today. The name of one of the most outstanding mechanics of the world S.Tymoshenko is also associated with KPI. He was brilliant expert in the theory of elasticity and resistance of materials. Later in 1920 he moved to the USA where S.Tymoshenko continued his work first in the Westinhaus company and then as Professor of the Michigan and Stanford Universities.

Searching for a (Social) Identity – Japanese Engineers in the 1910s

Erich PAUER
Center for Japanese Studies, University of Marburg, Germany

Despite the technological development and numerous examples of the Japanese engineers' successful work in various branches in the years of the industrial revolution, their social status and their prestige remained comparatively low before World War I. Contrary to the important role the engineers had played in building Japanese industry in the foregoing years, they often felt only as "tools" or "instruments" in the hands of the political and industrial leaders. They felt betrayed regarding an appropriate status within the society.

To gain an appropriate recognition the engineers took action: After 1914 an engineers' movement came into being. Naoki Rintarô and Miyamoto Takenosuke were two outstanding figures in this struggle to claim acceptance. Whereas the former gained publicity with his articles and novels, the latter started social movements, beginning with the "Kôsei-kai", the members of which were mostly elite engineers from public enterprises and institutions. This was followed by the "Nihon kôjin kurabu", an engineers' association which aimed at the mobilization of engineers and the enlightenment of the population. Another goal was equal rights and opportunities, or in other words "social status equality" for engineers. Last but not least a theoretical framework ought to be developed for establishing leadership by engineers. Based on their creativity engineers should become the "captains", steering Japan's technical and industrial development towards prosperity. For Miyamoto, the engineers should not only be "engineers", but also develop "managerial qualities". His ideas bear resemblance to ideas of Thorstein Veblen, and like him, Miyamoto in the following years developed ideas on a technocracy and leadership by engineers for Japan.

Engineers but Women by Nature

Johanna VÄHÄPESOLA
University of Tampere, Finland

The manliness of technology was emphasized as the number of women students in engineering grew.

The number and proportion of women architecture and engineering students from 1879 until 1939 have been calculated from the registers and year books of the Polytechnic Institute and the University of Technology. I have analyzed the women's experiences through autobiographical material. The more informal relationship between women and men students as well as the discussions related to women architects and engineers were expressed in the student magazines of the University of Technology published in the 1930's.

The first women in Finland to attend higher level education in technology started their studies at the end of 19th century. The number of women increased in the 1920's and 1930's, but it lagged behind compared to the number of other women university students. Despite the growing presence of women in the academia, choosing technology was proportionally as uncommon at the end of 1930's as it had been at the turn of the century. The conflict between women and the technological field was constructed by questioning the abilities and the femininity of women architects and engineers. The unsuitable match of technology and women was justified by referring to women's biological attributes, which made the concept of technology seem naturally masculine.

JUST WHAT IS IT THAT MAKES TODAY´S HOME SO DIFFERENT, SO APPEALING? FROM WC TO PC – TECHNOLOGIES OF EVERYDAY'S LIFE AND ITS SOCIAL, CULTURAL AND POLITICAL DIMENSIONS (1870–2000) II

Organisers & Chairs: Timo MYLLYNTAUS, University of Turku, Finland & Roman ARTEMENKO, Institute for History and Science and Technology of Russian Academy of Sciences, Russia

Standard Equipment in Finnish Households in the Early 1900s – WC, Water Pipe, Sewer & Hot Water

Petri JUUTI
Riikka RAJALA
University of Tampere, Finland

This paper concentrates on the development of the standard of equipment in households – WC, sewer, and hot water. As already in the ancient cities, the sewer systems in Finland were not originally supposed to be used for carrying the waste. This, however, happened when the waste problem of the cities were tried to solve by the WC.

In Finland the first legal WC was build in 1898 although some rich people had constructed them earlier without a legal permission. At the end of 1800s the WC was considered an improvement that saved people from unpleasant tasks – such as emptying a chamber pot in the morning. But not everybody rushed to exploit this new invention. The wealthy burghers could hire people cheaply from the countryside to empty the pots. In these circles the WC and other facilities that eased everyday life were not acquired until the lady of the house was alone taking care of the household or had perhaps only one servant.

It's notable that in the nineteenth century there were already dry compost and compost toilets in cities joined with different transportation systems. Choosing the water closet for the primary system in the late nineteenth and early twentieth century effectively stalled the product development of dry compost and compost toilets for over a hundred years.

It take quite a long time that WC, water pipe, sewer and hot water came popular in Finnish households. Compared to the founding years of city water works this period was several decades.

SATURDAY
Session S2F
Kutomo Hall
10:30–12:00

Household Water Consumption in Finland

Riikka RAJALA
Petri JUUTI
University of Tampere, Finland

The paper concentrates on the specific household water consumption (SHWC) of various types of housing, housing ownership, metering and billing arrangements in Finland. The study shows that SHWC levels of 120 l/capita/day, or less, can be achieved, while maintaining a high standard of service levels. Real estate managers acted as enumerators and collected data from 185 subcases in various parts of the country.

Explanations for declined consumption are quite site and case specific. On the whole, individual metering and related billing of water is favourable. In addition to it, proper water management includes introduction of modern water fixtures and inhouse piping, raising consumer awareness, and active follow-up.

Study shows: (i) SHWC still seems to decrease slowly in Finland. (ii) Individual metering affects consumption more than housing type or ownership. (iii) With proper management a consumption level of 120 l/capita/day and lower, can be achieved in every category without lowering service standards. (iv) Other factors affecting consumption rates include promotional, social, and other aspects. (v) Compared to other countries some similarities can be noticed in spite of different natural, environmental and social conditions.

Although decreasing consumption and the resulting fall in water sales are a challenge to water utilities, in the long run it will be feasible to use water wisely even in a country with abundant resources. The need for water conservation and leakage control is even more apparent in countries with less water resources, let alone water scarcity.

The Idea of the Functionally and Aesthetically Satisfying Light Fitting in the 1930s Compared to That in the 1950s: Case Alvar Aalto

Markku NORVASUO
Helsinki University of Technology, Finland

My paper discusses the relation of technological and aesthetic principles in the light fitting designs of Alvar Aalto, and his methods of innovation and cooperation. In spite of the fact that Aalto did not directly design many fittings for domestic use, especially his later designs have become an important element of modern home interiors.

The incandescent bulb attained its technically refined level around year 1930, and the rapid development of physical theory helped to understand the technological basis of lighting. Electric light offered new possibilities for design but also demanded good control of light. Already in the 1920s the problem was recognised by several European architects.

The work of Alvar Aalto offers an informative case because of two noteworthy periods in his interest in electric light. The first began around 1928 and extended until the wartime. The second began some years after the war and covered the whole 1950s, and beyond. Both his ideals of proper lighting and good design changed during these years.

Often the rational and decorative principles have been understood opposite to each other, especially in "home lighting", whose status inside professional lighting design has been ambiguous. Basically Aalto tried to fulfil both functional and aesthetic goals. Typically his models were results of building projects. However, there are also differences between the two periods, and the process of design changed. I am also considering the reasons for the popularity of Aalto's later light fittings.

TRANSFORMATION OF INDUSTRIAL ENVIRONMENTS: PROCESSES, TOOLS, RE-THINKING VI

Chair: Teemu AHOLA, Finnish Labour Museum Werstas, Finland

It Smells Again of Coffee. Reconstructing the History of Reusing Projects in the Warehouse City of Hamburg

Constantin CANAVAS
Hamburg University of Applied Sciences Faculty Life Sciences, Germany

Coffee from overseas stored in the free port of Hamburg is a typical example of a colonial product which became strongly associated with the prestige object and symbolic space of the New-Gothic Warehouse Town (Speicherstadt) constructed in the late 19th century on the occasion of the integration of the Hanseatic City of Hamburg into the German Reich. Warehouse construction, the outstanding climatic conditions of the storage rooms, as well as the manual work during offloading coffee bags are directly correlated with the eminent sensuous load of the product (colour, taste, smell).

Remarkably enough the main process step of coffee manufacturing, the one which is associated with the intensive and characteristic coffee smell, the roasting of the coffee beans, was banned out of the Warehouses area for safety reasons. Even after the end of the World War I and the end of the German colonial dream coffee remained a highly symbolic commodity handled in the Warehouse Town of Hamburg. However, because of the specific character of tax-free storage in the Free Port area, no real coffee shops were located in this area. The coffee smell perceived sometimes in this area was due to sample roasting in the buildings of a large coffee storing company. The process of deindustrialisation and transformation of the Free Port area led to the demolition of the coffee storage silos and the reduction of the manufacturing and storing activities in that area. At the same time the removal of tax-free storage regulations permitted the introduction of commercial restaurants and coffee shops. Thus coffee became the commodity through which parts of the industrial and economic history of the area could be symbolically retained and represented. The present study reconstructs the steps and the strategies of this retrieval – including the generation of false associations like that related to coffee roasting. One goal of the study is to illustrate the contribution of the several actors in the context of the specific historical periods of the transformation process.

Reuse of Defense Heritage

Masaaki OKADA
Kinki University, Japan

Defense heritages have been recognized as "Furthest existence" though have made great contribution for our daily life as well as other various industrial heritage. However, the defense heritage also tends to be related to the concept of "military affairs" or "the war", various opinions have always accompanied in their evaluation. Especially in Japan, compared with ones in middle ages, such as Himeji Castle (1346: World Heritage) or Matsumoto Castle (1592: National Treasure), ones built in the end of 19th or beginning of 20th centuries had been hidden or almost ignored for a long time. On the other hand, the latter, such as batteries or shelters before world war II have been re-evaluated in different ways. For example, especially after 2000s, batteries, shelters, or military slips were elected as civil engineering facilities of Japan Society of Civil Engineering, or as cultural heritages of municipalities. This fact means the obvious change of social recognition to the defense heritages and some are to be reused as history-educational, recreational or even artistic use. Defense heritages assumed peculiar atmosphere in their spaces or landscapes, and that attracted artists or photographers to create fascinating works related to their superficial properties, as charming ruins. Furthermore, defense heritages have been working as observatories or places for fishing and were introduced in general travel guidebooks.

This paper exemplifies some cases of the reuse of military heritages in Japan and European countries, such as Britain, and analyzes the difference of their manners in parallel with each social background.

SATURDAY
Session S2G
Demola Hall
10:30–12:00

Re-use of Industrial Heritage in Rural Settlements in Cyprus

Sebnem Onal HOSKARA
Eastern Mediterranean University Faculty of Architecture, Turkey

Cyprus, is a Mediterranean island that succeeded in maintaining its rich cultural heritage despite the changes in social, cultural, economic and political conditions after the industrial revolution. The island preserved if not increased its significance after opening of the Suez Canal for navigation. It fell under the domination of the rich and powerful civilizations of the era (Egyptian, Roman, Byzantium, Lusignan, Venetian, Ottoman and British). With the opening of the Suez Canal in 1869, the increasing strategic importance of the island in this region and large deposits of copper ore found in it resulted in growing interest of the British Empire, which was taking fast steps towards industrialization, to Cyprus. The Ottoman Empire, which was facing the Russian threat at the time, rented Cyprus to the British Empire with an agreement signed in 1878 in return of the alleged promise of the British to assist the Ottomans. Therefore the British Colonial Period (1878–1960) started in the island.

During this period, the most modern technological devices of the era were brought to the island to better exploit the existing resources of Cyprus. Therefore, the first steps towards industrialization were taken in the island of Cyprus. For the first time in this period, facilities and buildings needed for industrial production were built and production started.

After the British Colonial Period, the Republic of Cyprus (founded by Turkish and Greek Cypriots) Period (1960–1963) started. After the corruption in the administration of the republic the island was divided into two as the Turkish and the Greek sections after the Cyprus Peace Operation made by Turkey in 1974. However, these developments could not prevent industrialization on the island; on the contrary, many industrial buildings were erected in various parts of the island (both in the North where the Turkish Cypriots reside and in the South where the Greek Cypriots live) to increase the production.

Today, not only the major cities, but also the rural settlements have examples of industrial architectural heritage. These examples which inlcude mainly olive-oil production unnits, carrop storage and carrop extract production units, have been built during the British and / or Republic of Cyprus periods for the improvement and maintanance of the economical sustainability in the rural areas.

The focus of this paper will be the adaptive re-use of the industrial heritage in rural settlements in Cyprus – both in the North and the South parts of the island. This study is a part of a deeper research project funded by the Ministry of Education of TRNC and being conducted at the Eastern Mediterranean University between since October 2008. The actual research, which aims to sustain the industrial architecture in North Cyprus through scientific research, involves documentation of the industrial heritage in Northern Cyprus focusing on their urban, contextual, landscape, social, cultural, economic, political and regenerative values, and bringing proposals for their future conservation within the wider context of the international industrial heritage conservation movement.

In the proposed paper, only the industrial heritage in rural settlements will be presented thoroughly from social, cultural, economical and physical sustainability points of views. Accordingly the proposed paper is composed of four main parts.

The introduction part will summarize the general concepts and theories on industrial heritage addressing mainly the small-scale village industries and will highlight the place of Cypriot rural industrial architecture within this context. The second section will put forward the evolution and contemporary state of the industrial heritage of rural settlements in Cyprus, which is mostly facing neglect and ignorance. The third part will review the international documents and approaches on the conservation of industrial architecture / heritage focusing on rural industrial heritage. Finally, the fourth section will evaluate a number of industrial heritage examples from the rural areas in Cyprus based on site survey findings, with the intention of putting forward proposals for their future in order to sustain their economic, social and cultural contribution to their local and regional context.