

The international Committee for the Conservation of the Industrial Heritage

Number 73

3rd quarter, 2016

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Upcoming



The famous Queen St Mill in Burnley, Lancashire, is one eleven museums that the country council is closing under pressure of Britain's austerity measures. The famous mill still contains 308 Lancashire looms in the once-typical north-lit weaving shed, driven by a horizontal steam engine and hand-stoked Lancs boilers. <u>See Ian Gibson's report.</u>



Save the last coal processing plant of Flanders

Patrick Viaene

A few years after the Beringen coalmine in Flanders, Begium, closed in 1989, all the important constructions preserved on site were protected as historical monuments. Since legal protection was adopted in 1994, Beringen is the only coalmine of the Flemish basin to be integrally preserved.

But in 2013, the coal processing or washing plant, the most impressive part of the former coal mine, was threatened with demolition for the first time. Public authorities came under pressure from the real estate agency redeveloping the mine grounds partially for additional new functions (a swimming pool, shopping area, housing, etc.) to repeal the status of protected monument.

After a successful action and press campaign, the competent Minister (Geert Bourgeois) luckily decided to maintain the monument status of the plant.

Today, the real estate developer on site ('B-Mine') insists on partly demolishing these outstanding technical installations for unclear reasons... Once again, local experts and associations, the Beringen Mining Museum, the heritage platform "Coalface - Het Vervolg" and individual experts have joined efforts to convince the authorities of the uniqueness and the great importance of the coal processing plant.

Opinion

defence of a large-scale industrial site:

The demolition of a legally protected industrial construction after exemption of the protection status is a dangerous precedent. In Flanders, very few listed buildings are industrial monuments. The procedure to protect the coal washing installation in 1994 was a long process and was correctly adopted. An important reason for the legal protection was the crucial location of these installations in the middle of the mine constructions and their strong visual impact on the skyline of the entire mining complex.

Beringen is the only completely preserved coalmine of the region and is the main visitor centre, discovered by a rising number of tourists from different regions and countries. The mine of Beringen is the "gateway to the Flemish mining region" and the Museum is the starting point of the discovery of the mining heritage. Visits are always followed by guided walks through the mine buildings and their impressive technical equipment, culminating with the discovery of the last conserved coal washing plant of the mining basin.

The different components of the mine, including the processing and washing plant, form a unity and cannot be disconnected or understood separately. The former mining site is indeed an impressive series of buildings and landscape elements. The pithead gears and elevators, the tip heaps, the shafts, cooling towers, ventilation building, power hall, lamp room, washing plant, etc. cannot be understood separately: the alteration or destruction of one of these elements is problematic for the comprehension of the site and the logical cohesion of the totality.

The Beringen coal processing plant is the only conserved specimen of the Flanders-region and one of the last of such dimensions in Belgium and Europe. All the equivalent equipments (in Zolder, Houthalen, Zwartberg, Eisden, Waterschei and Winterslag) were demolished. In Wallonia, only two small scale former coal washing and processing buildings survive: one building in Blegny (Charbonnage d'Argenteau - Province of Liège, partly reused as offices and exhibition space for the touristic visitor's centre) and another one in Peronnes-lez-Binche (Charbonnage St-Albert & St-Aldegonde" near Binche, Province of Hainaut), but dating from the post-Second World War period, actually in transformation as a centre for archives. To experience large scale coal processing plant, visitors have to travel to Zollverein in Essen, Germany, or to Silesia, Poland or to Ostrava-Vitkovice Czech Republic.

The transformation of a coal processing plant for new uses is not easy, but is without doubt possible. First of all, it is important to stress that not every part of a listed building ensemble needs a new function. Re-use may not be compulsory or necessary. On the other hand, the new uses of the coal processing plants in Blegny and Péronnes-lez-Binche (Wallonia, Belgium), of the coal processing plant of Zollverein and other ERIH anchor sites, demonstrates clearly the possibilities of adaptive re-use of this kind of technical buildings and equipments.

The arguments deployed to save the mine buildings are a classic Another example of good practice is the re-use of the mining and metallurgic site of Vitkovice, gradually redeveloped since 2000 as a new economic incubator and as regional cultural clus-

> The relative poor condition of the monument-listed coal processing plant should not serve as reason for demolition. Despite many years of neglect, the formation of rust in certain parts of the building, broken windows and other signs of deterioration, the structural condition of the coal processing and washing plant seems reasonable. Re-used mining buildings in more problematic states of decay have been successfully renovated, for example the machine hall and ventilation building of the nearby mine in Zolder, in ruinous condition and brilliantly re-used since 2015 as a center for professional training and education (called "De Verdieping") and as an attractive visitor center ("De Luchtfabriek"). Nevertheless, appropriate preservation measures are urgent and necessary, especially during the ongoing planning and transformation process of a shopping center nearby, preservation measures leading to a sustainable restoration of the coal processing plant.

> The coal washing and processing plant is the heart of the wellpreserved old mining site. Apart from the historical cluster of buildings, nearby vacant plots offer possibilities for new, additional functions. Despite its spectacular dimensions and a height of circa 50 m, the coal washing and processing plant occupies only a small part of the large mining area surface, offering enough alternative space to the developers for the realisation of new functional programmes. There is no justification for the destruction of the coal washing and processing plant.

> To repeat, removing it from the list of historical monuments is a dangerous precedent. Demolition, even partial, would mutilate the coherence of the entire historical mining site, and make the Beringen coalmine skyline unrecognizable. We know also that the promise to reconstruct technical structures after possible demolition is simply not realistic: destructions never come back...



The monolithic ten-story coal washing plant has metal walls and was raised on columns above the railways in order to load the coal.

Report

3D digitisation of Nantes historic harbour

Benjamin Hervy, Ecole Centrale de Nantes, IRC-CyN laboratory, Florent Laroche and Jean-Louis Kerouanton, Universite de Nantes, Centre François ViŠte, and Christophe Courtin, Musée d'histoire de Nantes, Chateau des ducs de Bretagne

Among the hundreds of thousand of objects hosted by the Musée d'histoire de Nantes, the urban history museum located at the Chateau des ducs de Bretagne, France, there is a large model of the city harbour as it was at the beginning of the 20th century. Designed by Pierre-Auguste Duchesne in 1899 for the 1900 World's Fair in Paris, it is 9.20 m long and 1.85 m wide, modelling the city at a 1/500 scale. Such an object is quite uncommon and a significant element in the museum's collection.

In 2007, the museum started a collaboration with Nantes University and the Ecole Centrale de Nantes engineering school to set up a research project dedicated to this object and the related industrial heritage. The question was: would it be possible to use the model as a witness of urban history using novel museographic techniques and interdisciplinary research methods?

At that time, there was very little information about the model and Nantes' harbour history that it displayed. <u>The scale model</u> could provide visitors with an interesting historical feedback about itself, and some key ideas about the harbour and industrial heritage. Indeed, Nantes harbour has a great historical potential thanks to its rich heritage: historic cranes, one of the first concrete water mills, shipyards, vessels and many companies dedicated to shipbuilding processes (chemicals, wood industry, assembly).

We started from some research works on reverse-engineering and knowledge management for technical heritage, This is a significant field of research in industrial engineering, but cultural heritage has many specificities and the original aspect of our work rests upon the adaptation of engineering techniques to technical heritage (data modelling, objects' lifecycle management, multi-dimensional analysis, 3D computer aided design, virtual reality, etc.). Various specialists worked together to design a framework dedicated to digitizing and developing the historical scale model, which was built upon three main principles:

- separation between technologies used for promotion and the historical material for reusability,
- long-term documentation of the object with further research results,
- collaboration between historians, engineers, curators, visitors.

Firstly, the scale model was digitized, providing a virtual 3D artefact of the object. This 3D model makes the connection between digital information and the physical object. It was also the starting point of research opportunities in the field of 3D information processing, such as automatic segmentation of point clouds and automatic geolocation. This work is still in progress because of the complexity of such objects.

Secondly, a dedicated knowledge database has been designed to keep historical material, associated metadata and historians' knowledge. The city harbour points of interest are connected to related historical documents and pieces of information provided by historians and curators. One of the particularities of the system lies in the connections which can be made between those pieces of information. Based on similarities of interest between objects, the different points of interest of the history of the harbour are connected, providing serendipity during the exploration: one of the hypothesis we made was that such an approach would hapilly provide unexpected information for both experts and the museum public. This part was done partially in collaboration with experts, but also thanks to algorithms thus opening new fields of research in historical information processing.

This system also allows a participatory experience for different types of users. Museum visitors can contribute to the project by providing material related to any of the harbours' heritage topics (photographs, stamps, postcards, testimonies...). After being digitized, these contributions can be uploaded to the database and keep the project developing. Museum curators can use the material to create new interfaces like geo-located applications, bringing knowledge out of the classic museum tour.

As far as the museum collection object is concerned, a museographic system has been designed. Digital technology is used to provide interactivity in the searching activity, thanks to touchscreens and video-projectors. Historical material is accessible through touchscreens by selecting areas of interest on a highresolution scrollable photograph of the scale model.Videoprojection makes the link between virtual actions on the screen and the real object selected on the scale model.

One of the emblematic technical systems in Nantes harbour is the transporter bridge built in 1903 and dismantled in 1958. It is modelled on the scale model and historical information is available about this element in Nantes' industrial heritage. Based on historical sources like original technical drawings and notes, we designed a 3D mock-up of the bridge. This virtual artefact can be added to the existing documentation in the knowledge database about Nantes harbour industrial heritage. Moreover, it can also be used for augmented reality applications. In addition to displayed information through the museum interactive application, one can virtually comtemplate this technical object on the actual site it was located, access more detailed information, and make it virtually operating.

Report

Currently the only way to access data is using the museographic augmented reality system but museum teams can manage the database, add documents, create specific set of documents for guided tours with a museum guide, and so on. The database is simply based on PostgreSQL, with PostGIS for geographic information, so that data and associated metadata could be exported to another system in the future, and eventually accessible on the web, one of the main objectives of the initial project.

The example of Nantes transporter bridge gives an overview of new possibilites for promoting industrial heritage. Inside and outside the museum walls, inhabitants and tourists can have access to valuable information. Finally, as the main tourism entry point of the city, the museum can now catch visitors points of interests to extend their understanding of heritage in situ. The scale model is both an historical object giving an overview of the harbour and also a central point into a more global tour in the history of Nantes industrial heritage.



Augmented reality overview of the Nantes transporter bridge. The 3D model is a reconstruction of the bridge based on originary technical drawings and plans. Users can manipulate the 3D model and see the bridge in action thanks to mobile device.



The museum's scale model of Nantes harbour in 1900, with touchscreens and videoprojection.

Mexico

The Renaissance Aqueduct of Padre Tembleque

Belem Oviedo Gámez, Archivo Histórico y Museo de Minería, TICCIH México, and ICOMOS Mexicano

Industrial Heritage lived a special year in 2015 with six new sites added to the List of World Heritage, one of them in Mexico. The country has now added to its 32 recognized places the Hydraulic System of the Aqueduct of Padre Tembleque, built in 1553 to transport water from Zempoala's water springs to the Indian town of Otumba.

This magnificent work of engineering, in a Renaissance style, is the first major testimony of technology transfer for hydraulic works from Europe to America, specifically from Spain to Mexico. It is considered the first great aqueduct of the "new world" with 48.22 km of channels and six series of arches; A distinctive feature at a worldwide level was the use of 33 m walls of adobe, used to replace wood platforms and false work in its construction, due to the lack of wood in this region. The work was conducted by Indians who were experts using this material and who left evidence of their presence by engraving symbols on the arch stones. Their work can also be noticed on the irrigation ditches made with fired clay.

The site integrity, authenticity, preservation status, and construction period were other elements taken into consideration by experts who assessed the site. Eusebi Casanelles concluded that"...the aqueduct of Padre Tembleque is an exceptional technical testimony, especially when the whole work is examined, from the water collection areas to all the buildings constructed along its path... being a unique representation of the ingenious fusion of traditional Mesoamerican and European construction, that combined mestizo traditions with water conduction systems developed during the Roman period."

Written history is not static, finding new sources can improve it and modify it until being able to transform - sometimes - the idea we had about an event. In the 16th century, Otumba was being affected by water shortages. In 1541 fray Jacobo de Testera proposed to build an aqueduct; the work had to wait 12 years in order to be resumed by fray Francisco de Tembleque. Spanish king Carlos V granted a Royal Decree to the town of Otumba, exempting it from the payment of taxes equivalent to 3,000 pesos during three years because the work was considered to be finished during this time. This money was insufficient to finance the construction, therefore they had to use the towns' funds; but once works were started in Tepeyahualco, where the highest point of the arches is located, a request to extend the royal decree for ten more years had to be submitted.



The most spectacular section in the middle which rises through three levels, has 68 arches and a height of 39.65 m, with a central arch of 33.84 m. It is the highest aqueduct built during this period.

Photo: Carmelita Thierry, Creative Commons

to evaluate the appropriateness of approving this request. Once work advancement was approved, as well as the use of money and the need of this vital liquid in Otumba, and the towns of Zempoala, Zacuala and Tlaquilpa, he informed that ten more years were needed because the aqueduct had to go around mountains, ravines and hollows.

Studying a report located in the General Archive of the Indies in Seville, Spain, sent by judge Alonso de Bazán to King Carlos V in 1558, historian María Castañeda de la Paz contributed to the site's history. Without taking any merit away from the construction of the most important hydraulic engineering work of the Hispanic world in the 16th century, this document contradicts some of the premises expressed in the file submitted to UNES-CO: yes, the government participated and Francisco Tembleque had economic resources and architectural knowledge.

Castañeda indicates that Tembleque knew how to build an aqueduct, he worked as hydro surveyor with Juan de Zarca de Agüero who, as surveying engineer, prepared the 'blueprints'. Drawing on the document mentioned above, she adds that around 600 people worked on a daily basis, from them 200 Indians were in charge of the construction work with an equal number of helpers.

Alonso de Bazán was sent by the King to New Spain in order It is important to highlight the existence of a water sales contract dated on February 11, 1553, entered into by and between Zacuala and Otumba; it is the first contract of this type between Indian towns found until today in an archive. Between 1572 and 1674 the aqueduct took water from the area of Zempoala to Otumba.

> What happens following World Heritage designation? After 462 years, the Aqueduct of Padre Tembleque stands as a testimony to the union of knowledge and work conducted by Spanish people and original inhabitants to take water to Indian towns. After it was declared World Heritage, tourism to the region has increased. However, it is a concern that a Management Plan has not been established yet to assure the integral preservation of the whole structure. In December, 2015, members of the Padre Tembleque Foundation reported some damage to the aqueduct to take water to hydroponic vegetable greenhouses. In January, 2016 the Secretary of Tourism and Culture of the State of Hidalgo informed that this site does not have basic services for tourism and that applying the plan is a slow project which is the responsibility of the National Council on Culture and Arts.

> These experiences have been happening repeatedly in several sites. I consider that a requirement to accept proposals submitted to UNESCO should be based on the results obtained from a first stage, the application of a Management Plan, and the commitment to follow-up the case by the authorities responsible of the project and national representations of UNESCO.



Industrial Heritage Re-tooled: The TICCIH guide to Industrial Heritage Conservation.

James Douet (ed.). Lancaster: Carnegie. 2012. 71 colour photos. pp. 244. ISBN 978-1-85936-218-1

The book is available at retail and online book sites and stores and directly from the Publisher.

This volume comprises the authoritative work from the International Committee for the Conservation of the Industrial Heritage - the international group dedicated to industrial archaeology and heritage - detailing the latest approaches to the conservation of the global industrial heritage. With contributions from over thirty specialists in archaeology and industrial heritage, Industrial Heritage Re-tooled establishes the first set of comprehensive best practices for the management, conservation, and interpretation of historical industrial sites. This book:defines the meaning and scope of industrial heritage within an international context;-addresses the identification and conservation of the material remains of industry;-covers subjects as diverse as documentation and recording of industrial heritage, industrial tourism, and the teaching of industrial heritage in museums, schools, and universities.

Portugal

The Age of Steam research project

Jorge Custódio and João Sequeira

In 2012-2013 a group of researchers from the Institute of Contemporary History from the NOVA University of Lisbon with Jorge Custódio as the Principal Investigator joined efforts to develop a project entitled the Age of Steam in Portugal (1820-1974), funded by EDP (Electricity of Portugal).

The project aims to record and study the steam engines existing in Portugal and the different uses these had in diverse economic activities such as factories and workshops, terrestrial and maritime transport, mine exploration, leisure, agriculture, electricity production, among other uses. The date frame was established from the time when the first steam engines are said to have been installed in Lisbon for steam navigation or to process cereal and operate foundries, and 1974, the year of the Portuguese Revolution, when the last steam engines were still operating in Portugal.

Although during this period Portugal still had a large territorial empire, the project focuses exclusively on Portugal's territory from North to South as well as its Atlantic islands of Madeira and Azores.

The main objectives of this project are to develop a systematic inventory of stationary and movable steam engines in Portugal that were used between 1820 and 1974, based on field evidence and documentary information. The information is not always clear and the team is noticing that these documents are true interpretation challenges. In this sense the research is supported by two different methodologies. Firstly, the field surveys where the team finds surviving steam engines and does a thorough recording of the equipment, describing it, photographing and drawing some examples. Secondly, an exhaustive documentary research looking for every type of document where these engines are referred or represented such as maps and photographs. One of the major sources of information comes from the overhaul survey that public entities had to do with every steam engine in Portugal, containing a careful record referring among other things to the size of the boiler, horse power, constructor and country of origin. These records are kept at public offices and the national archives.

Another objective is to create a record and a distribution model for steam engines in Portugal according to their location and use (industry, agriculture, terrestrial and maritime transportation, mines, among other commercial and cultural uses), with databases, photographs and descriptions. The purpose is to create a database with free online access which will permit everyone to know where these engines are (if still surviving) and what they were used for, providing important historical information. On the other hand it is significant to identify, in addition to where these engines were located, what were they used for, who owned them, and who actually worked with them, recovering economic, social and even cultural information.

Most of these engines were associated with architectural structures for many different purposes. It is also the project's objective to record those structures and if possible to contribute to their conservation as industrial heritage in accordance with the <u>Dublin Principles</u> from ICOMOS and TICCIH. Steam engines, in spite of their size, abundance and historical value, do not have any legal protection in Portugal and many of this physical evidence of industrial heritage can be found in scrap yards together with other iron-made objects.



A German traction engine by Henschell & Sonn used in road building (no idea about the production date). Infraestruturas de Portugal, Portalegre, Portugal.

Exception must be made to the ones which are already classified as monuments such as Barbadinhos, Vale de Milhaços or in the Electricity Museum, to name just a few. In this sense, it is the team's purpose to develop protection thoughtfulness around such equipment and, when possible, to integrate them into museums or under some public protection.

The project has already given some results. Among the thousands of engines which used steam as energy, boilers were in fact the most frequent. In the early years most of them were made in England and other countries by different companies such as R.Wolf A.G., Hawthorne & C° Ltd, Thomas Smith & Sons, Les Nouvelles Usines Bollinckx, De Nayer & Fils or Babcock & Wilcox Ltd. This continued until the early 20th century when many of these boilers start to be made in Portugal by João Peres, Eduardo Argibay, Frederico Guilherme Burnay, Empresa Industrial Portuguesa, Harry & Son, Companhia União Metalúrgica or Bernardo Manuel, among other manufacturers. These boilers were used in many different industries as well as in maritime transportation. Considering portable steam engines, hitherto the majority of the identified equipment was made in England by companies such as Brown & May, Clayton & Shuttleworth, Davey Paxman & Co, Marshall & Sons, Ransomes, Sims, & Jefferies (or Ransomes, Sims & Head), Robey & Co or Ruston & Proctor, to mention just a few. In the 20th century some portable steam engines were recorded as already being made in Portugal by the Fundição de Massarelos (Porto), Fundição do Ouro(Porto), Empresa Industrial Portuguesa (Lisboa), though contrary to boilers, this was not a florescent industry in Portugal. Though these portable steam engines had different uses, they are recorded to have been employed mostly in agriculture for driving olive oil mills or threshing cereals, as well as sawmills, water drainage or quarries. There are indications of such mobile engines being used in small industrial units for soap production, chemical fertilizers, canning fish or even paper production. Traction engines are also found in documents and also produced by English companies such as John Fowler, Ltd. or Aveling & Porter, and generally in road construction.

The project's next stage will be to develop the website where all this information will be made available for free as well as the publication of several papers in Portugal and in other countries.



The 125 HP stationary steam engine in the gunpowder factory at Vale de Milhaços, Corroios, Seixal, Portugal, built by Joseph Farcot, St. Ouen, Paris, 1900, construction n° 2085

United Kingdom

Queen Street Mill museum closing

Ian Gibson, retired Head of Lancashire County Museum Service

Queen Street Mill in Burnley, Lancashire, was built in 1895 and is the last cotton mill in the world powered by a gigantic steam engine with 400 working looms. It continued weaving cotton cloth on its original looms until 1983. It is owned by <u>Lancashire County Council</u>. There are 308 Lancashire looms in the weaving shed driven by the 500hp steam engine (called "Peace") which is still operated using its original hand-fired Lancashire Boiler. Other types of loom and aspects of the mechanised weaving industry are shown on the site. Higher Mill at Helmshore was built as a water-powered Fulling Mill in 1789 while Whitaker's Mill at Helmshore was built around 1828 and includes the only surviving complete Arkwright 96-spindle Water Frame in the world).

As well as the three textile museums, Lancashire County Council operates eleven museum sites. In November 2015 it announced that it would be closing about forty libraries and all its five wholly owned museums, together with other service cuts. This meant that Queen Street Mill and Helmshore would shut down permanently, together with the other three museums, on 31st March this year.

Both Helmshore Textile Museum and Queen Street Mill have statutory protection (Queen Street Mill is entirely Grade I Listed and at Helmshore both the textile mills are Scheduled Ancient Monuments). This protects not only the building structures but also the in-situ contents of machinery etc. Under U.K. law any detrimental interference with, or failure to properly maintain, these buildings and contents would be a criminal offence.

The only way the Council can free itself from the costs of owning these textile museums is to find another organisation willing to take them over and operate them. The current situation is that there is a deadline of 2nd August for any organisation to submit a detailed plan of how it would operate any of the five museums after 30th September. If there is/are suitable plan(s) submitted by 2nd August then a final decision by the County Council to agree to any particular plan(s) would be announced on about 15th September.

A large national organisation may be willing to take over both Helmshore Textile Museum and Queen Street Mill Textile Museum. In the writer's opinion this would be a good outcome. However, this organisation is unable to meet the dates for submission of detailed plans to L.C.C. At a meeting at the end of June their representative suggested that they seek more time in which to make their application. Since no other organisations have shown any interest in applying to take over the textile museums it does not appear to be in the interests of the County Council to refuse to negotiate. Whether that will result in the textile museums remaining open beyond 30th September is not yet known.



The original tandem compound horizontal stationary steam engine with Corliss valves drives a 14 feet (4.3 m) flywheel running at 68 rpm. The 500 horsepower (370 kW) engine was built and installed by William Roberts of Nelson in 1895. Power is taken from the crankshaft by a series of directly driven line shafts to the looms inside.

Photo: Betty Longbottom, Creative Commons

Brazil

International contributions to the Brazilian railroads

Taís Schiavon

During the 19th century, the most developed nations held technical and technological dominance in railway development, allowing resources and expertise to be applied in countries with lower indexes of development. Starting its development belatedly, Brazil represents a wide field of intervention and international dependence in which the disjointed railway network and infraestructure was a consequence of the absence of any strategic planning.

Even with British hegemony, the 19th century opened new possibilities for the diversification of investments. Facilitated by the establishment of new territories, 'trailblazers' of different nationalities maintained contact with their embassies, who demanded that the Brazilian Government improve its territorial infrastructures, influencing the determination of many projects.

The Noroeste do Brasil railway, a kind of 'penetration' railroad opening the hinterland of the Western portion of São Paulo State, represents an exception in the strategy and investment source in the State. The beginning of the company in Bauru, the railway's headquarters, enabled the approach of French and Belgian investments to the State of São Paulo with the creation of the *Compagnie Génerale de Chemins de Fer et de Traveux Publics* outsourcing national contractors, hiring engineers and assigning foreign suppliers and materials, needed in the railway planning, construction and operation.

All this process reveals the work of French engineers such as Emilio Schnoor, responsible for determining the route between the cities of Bauru and Corumbá. He also worked in other regions of Brazil, Argentina and Bolivia. The participation of Sylvio Saint-Martin enabled the identification of rivers and waterfalls. His work is also important to Bauru, with urban sanitation projects. If we consider the stations as the maximum representation of the company, we should identify the role of Eugene Lafón, nephew and a trusted agent of one of the investors. He was the author of the first project for the station in Bauru (1905), close to the style of the grandest gares françaises, but this project was not realised, considered 'unnecessary to the real interests of the company'. For many years, the Noroeste used a wooden structure and facilities of the Railway Sorocabana, another company based in Bauru. Only in 1939 the Noroeste inaugurated its station, in a period where the company had no more foreign influences.



The railway stations of Noroeste in Bauru, 1905 and 1939.

Files in the Bauru railway museum.

Another French engineer was François Chartier who was responsible for projects and part of the urban design of Araçatuba, seeking similar features to the urban ideals established by Haussmann in Paris.

Interference was also reflected in the machinery. The first trains and wagons came from of United States and Belgium, mainly the companies Pierre Niard (1910), Middletown (1920), Dyle and Bacallan (1925), and La Burgeoise (1939). National enterprises also have been identified, among them the production of wagons by Noroeste in *Bauru* (1932).

Following the valleys of the rivers, the railway needed the aid of 'works of art' as bridges. Among the French and Belgian influences the most challenging path was crossing the *Paraná* River, between the States of *São Paulo* and *Mato Grosso*, almost 1,000 m across. Before the opening of the bridge, only in 1926, the crossing of trains was carried out by *chalands* ordered from the *Compagnie Argenteuil* (Argenteuil, France, 1909). The first project planned for this crossing had metal profiles purchased from the *Societé Anonyme du Nord de Li*ège (Liège, Belgium) which were

stored for a long period in a warehouse of *Sorocabana* Railway in *Barra Funda* (São Paulo), since after the first shuttle to *Bauru*, the engineers of the *Noroeste* noted that the frameworks would not bear the weight of the trains. Gradually these were employed in smaller bridges and in the process of replacement of precarious wooden bridges.

The nationalization of the railways in 1917 resulted in the end of foreign activities, strengthening the national performance. From this period, the national railways started to show the gaps in its network, and against this trend the strategies around the *Noroeste* brought in new investments, in pursuit of the realisation of the dream of Transcontinental Railway *Santos-Arica*, and uniting the Atlantic and Pacific Oceans with national and international railways.

Today only the documents and structures scattered in the territory are narrating this whole scenario. Even the degraded ones are witness to the great development achieved throughout the region, as a result of the opening of the hinterland by the *Railway Noroeste do Brasil.*



The first project for a bridge across the Paraná River, with the descriptions of the Socyeté Anonyme du Nord de Liége, and Miranda bridge, where the first project structures to the Paraná River were used.

Files in the railway museum of Bauru.

Sweden

EU Water directive threatens industrial heritage

Bengt Norling

The European Union Water Framework Directive was launched in 2000 to achieve good statutes for all water bodies. One part of the directive is named River Basin Management and aims to restore the ecological continuity of rivers allowing fish migration and sediment flow. Fulfilling this part of the directive implies an alarming threat against several thousand industrial heritage sites in Sweden as well as other countries of the EU.

A couple of Swedish official reports on the subject have been produced and in 2014 an investigation on a change of the water legalization was released. The investigation committee suggests that all owners of water flow properties have to apply again for historical given possession rights. This process demands both time and money. The costs for the owner to considerate the dam rights may run to €20,000 to €100,000 for a small-scale structures, but gives no guarantee to the applicant receiving the rights back. The effects of a rejection can be quite appalling since the applicant will be obliged either to construct a flow beside the dam or demolish it, and may also be liable to compensate diminishing real estate values of neighbours whose properties are affected.

Facing these costs, the owner will most probably choose the cheaper demolition alternative, which will lead to a mass-slaughter of the industrial heritage.

Swedish industrial history has a close relationship with water. Along many water courses there are valuable cultural sites which will become subject to destruction. Dams, hydro-electric power stations, buildings, flour mills, saw mills, engineering works and also transport structures, log flumes etc. are at high risk from demolition. Counting all sorts of dams and works, there are about 7,000 waterworks and dams without legal permission.

This may be one of the most important challenges ever to Swedish industrial heritage, as well as river sites in other EU countries. As the destruction is ongoing (for instance, the EU recently decided to subsidize the clearing away of historic floatways in northern Sweden) there is an urgent need for support for local heritage organizations. The Swedish National Heritage Board has shown little interest for the problem.

It is necessary to organize the defence of the industrial heritage internationally, which calls for an organization to represent the industrial heritage of the European states. TICCIH is probably the only organization with the necessary qualities for a mission like this, perhaps in concert with other conservation organizations.



The dam by the Lancashire-forge at the World Heritage site in Engelsberg, Sweden one of many pastoral views at risk from conflict between heritage and environmental values.

Czech Republic

The Old water treatment plant in Prague: an industrial pearl

Sarka Jirouskova

The first modern waste-watertreatment plant in the Czech Republic was built in Prague in 1906. Nowadays, Stara Cistina is a cultural site providing unique evidence of the history of architecture, technology and above all, the collection and treatment of wastewater in an urban area.

Like other industrial cities, the capital city of Prague started to deal with the question of systematic wastewater collection in the middle of the 19th century. By the beginning of the 20th century the harmful impact of untreated wastewater disposal was well-known, so the new concept of wastewater being purified before being released into local water systems was incorporated into the plans for new sewage systems for big urban areas.

The Prague sewer system project was designed by an acknowledged water engineering expert, the British civil engineer Sir William Heerlein Lindley. An essential part of this project was the mechanical treatment of wastewater. That meant the collection and transfer of wastewater out of the city and construction of a suitably located sewage tank which would be large enough for holding it while it was treated through a sedimentation process. The appropriate fixtures and machinery for wastewater treatment and disposal as well as the engines needed to run the system had to be installed. The construction of the Prague sewer system started in 1899 with the wastewater treatment plant at Bubenec was built at the very end, the. This still-functioning sewer system and the ecological disposal of wastewater qualitatively ensured conditions for the further development of the city of Prague into a more modern city.

Because it was not possible to extend the use of the old treatment plant, a new one had to be built nearby. This unique and comprehensive industrial site with its logical spatial composition and rational design, from the whole to the smallest detail, is testament to the precise work of the craftsmen who constructed it as well as historical evidence of water engineering at the very beginning of the 20th century.

The well-maintained machinery is a very rare and historically valuable record the technological level of the period related to the use of mechanical pistons, paddle machines and electromotors. Open to the public as part of variously themed events, especially on World Water Day and the European Heritage Days, these events are traditionally accompanied by programs of theatre performances, concerts and exhibitions, and special programs for children. The unique atmosphere and informational value of the plant can be experienced by visitors who take the guided tours thanks to well-kept original plans and pictures taken during its construction.



The working steam engines and boilers built in 1903 by Breitfeld and Daněk are unique in the Czech Republic. Photo: Jiří Durdík, Pavek Vašek

This year we are celebrating the 110-year jubilee of the plant, which went out operation in 1967. Since 2010 it has been leased and operated by the non-profit *Továrna o.p.s, správa industriálních nemovitostí* based on its own concept and renewal plans. The intention is to preserve regular public tours through the authentically preserved compound where visitors can see the restored original machinery. The business model includes multiple-use spaces for cultural events and space rental in order to bring in the funds to ensure a solid economic future. The Old plant as well as its cafe is open to the public all year. There are various programs loaded with lots of interesting events, services offered for customers and guests of the plant and tailor-made services (night tours, family celebrations, student meetings...

This historic site can also offer a lot of unusual activities. One is a secured climb to the top of the ventilation chimney from where participants are able to rappel back into the underground spaces of the plant. Raft rides through the sedimentation tank in the subterranean chambers of the plant is another popular activity. During guided tours visitors walk through the real, disused sewer and try to open the sluice-gate which regulated the influx of wastewater. Until electrification, the machinery in the plant was powered by both steam engines and water wheels.

Since 2010, the Old plant has been an official national historic landmark. In 2016 it became an anchor point of the ERIH tourist network (European Route of Industrial Heritage), the only representative of a water treatment plant, showing the history of water purification in Europe. This stimulated the creation of a special themed WATER regional route ('VODA' in Czech) which will connect similar historic buildings. Another intention is to establish a working relationship with other wastewater treatment sites around the world.

The Czech committee ICOMOS is supporting the incorporation of this historical monument in the national tentative register of buildings for eventual incorporation into the UNESCO world heritage list. Prague town council, which owns the site, has to acknowledge the unique cultural value and valid reasons for preserving as authentically as possible this industrial heritage because it is a site wih great potential for displaying our industrial history and we should definitely perceive it in exacty this context.



Special bricks that could withstand enormous pressure and retain water were manufactured and their use in a variety of forms brings a special elegance to the building and its interior.

Photo: Jiří Durdík, Pavek Vašek

Cultural heritage routes

South Wales Route of Industrial Heritage: Valleys that Changed the World

Following the discussion of tourist routes opened in the last issue by Massimo Preite, John Rodger presents the Route for which he is responsible on the Board of the European Route of Industrial Heritage (ERIH).

The South Wales Route of Industrial Heritage is one of several regional routes that have been developed within the framework of the <u>European Route of Industrial Heritage</u> (www.erih.net). This article describes the South Wales Route, the aims in establishing it and the process and challenges of building and maintaining the route as a sustainable network.

South Wales played a leading role in the formative years of the Industrial Revolution during the late 18th and the 19th century. World prices in iron and steel, copper, tinplate and coal were set in South Wales. The importance of the regions' industrial heritage was confirmed when the Blaenavon Industrial Landscape was inscribed as a World Heritage Site in December 2000.

The region is defined by a series of deep valleys cut by rivers into a large mountain mass, and the South Wales Route of Industrial Heritage is promoted as "Valleys that Changed the World". The area was rich with coal seams and iron ore deposits. Limestone and fireclay could also be sourced for use in iron and steel making and in the development of infrastructure for the rapidly growing industries, including canals, railways and the sea ports on the Bristol Channel. Hundreds of thousands of people came to work in the growing industries. Settlements grew rapidly with rows of terraced houses on the valley sides.

Following the pattern established throughout ERIH, the South Wales Route presents a hierarchy of sites based on their significance, visitor facilities and interpretation. At the highest level there are two ERIH 'Anchor Points' - Big Pit National Coal Museum and the National Waterfront Museum in Swansea. The second level comprises twelve 'Key Sites' which range from the Blaenavon Ironworks (1789), the best preserved ironworks from that period in the world, to the Welsh National and Universal Memorial at Senghenydd, which commemorates all mining disasters in Wales. At the third level are thirty-six 'Other Sites', often unmanned, spread throughout the region's industrial landscape. Wales' world domination of heavy industry has gone forever, most of the scars have disappeared and the valleys have become green again, however that period of heroic endeavour can still be traced through the network of sites in the ERIH South Wales Route.

"The ERIH South Wales Regional Route aims to secure a role for industrial heritage in the region's economic and social regeneration with a focus on cultural tourism".

The Route aims to protect what remains of the original industries, monuments, museums, historic structures and buildings, including modest remains to attract visitors from home and abroad. The peoples' story is also seen as a crucial element in the presentation of the region's industrial heritage.

During the late-20th century government policies were directed at removing the remains of industry. Communities which had suffered many hardships and eventually lost their livelihoods also wanted to see their industrial past obliterated. The South Wales Route aims to increase residents' interest and pride in their industrial roots and to find a place for industrial heritage within the social and economic renewal of South Wales.



Big Pit Wales, National Coal Museum.

Cultural heritage routes

The South Wales Regional Route was established in 2008 as part of the ERIH project, but by 2014 it had become necessary to update and revive it as a more effective and sustainable network. In 2015, 'Visit Wales', the Welsh national tourism organisation, linked their plans to promote Wales' industrial heritage with ERIH. This resulted in the development of a revised ERIH South Wales Regional Route – 'Valleys that Changed the World'. The route leaflet and website were launched at a meeting of all interested parties in January 2016.

'Familiarisation' visits were organised in late 2015 and early 2016 for heritage site staff to enable them to appreciate other sites in the region. Staff training was organised around the aims of the route and how sites could best work together in promoting the "bigger picture" of the region's industrial history.

There have been a number of significant outcomes from this project, namely:

- 'Visit Wales' has become directly involved with the ongoing development and management of the ERIH South Wales Route.
- The National Museum Wales, which has responsibility for the two Anchor Points on the Route, is committed to supporting and promoting other smaller industrial heritage sites in the region.
- Local authorities' tourism and heritage officers are directly involved in the promotion of the Route.
- Growing awareness of individual sites in their shared heritage.
- The network provides opportunities for sites to meet, share best practice and discuss issues of mutual concern.

- The South Wales Route leaflet has been translated into German and made available at important ERIH sites in the Ruhr. Germany is one of the Welsh Government's top targets for visitors.
- Direct links have been made between industrial heritage and other sectors of tourism, particularly outdoor recreation.
- Leaflets and the website have proved an impetus for the promotion of the region's industrial history.

Notwithstanding the above positive outcomes, there are still a number of issues facing both the South Wales Route and the heritage tourism sector in South Wales. South Wales is a very socially and economically deprived region and industrial heritage cannot attract the attention and funding it requires because priority has to be given to more pressing matters. Individual sites are working under severe financial restraints and find it difficult to commit resources to maintaining the South Wales Route. There is still insufficient understanding of the role industrial heritage can play in community regeneration and renewal. It is proving difficult to identify an organisation or individual(s) to coordinate the network. Finally, while individual sites recognise the benefits of being part of the South Wales Route, more still needs to be done if they are to maximise the benefits of ERIH membership.

In conclusion, we can see that the South Wales Route has provided a catalyst for government agencies, tourism officers and individual sites to work together and provide an impetus in marketing the region's industrial heritage. However, keeping the network alive as a forum for the long term sustainability of the route is an ongoing challenge, particularly against the background of limited financial resources in the region.



Newport Transporter Bridge.

World Heritage experiences

Bochnia Salt Mine, Poland: an inspiration for local communities

Krzysztof Zięba, Board Advisor, CEO of the Bochnia Salt Mine

The Bochnia Salt Mine is the oldest mining plant in Poland and active since the year 1248. The mine was inscribed on the UNESCO List of World Heritage Sites in June 2013, during the 37th session of the World Heritage Committee in Phnom Penh. The historic underground parts the Bochnia mine were entered as an amendment to the Royal Salt Mines in Wieliczka, itself inscribed in 1978. The UNESCO position includes the Saltworks Castle in Wieliczka, once the historical seat of the Saltmaster (Żupnik), in charge of the royal mines. The Royal Mines of Wieliczka and Bochnia are a testimony to the material and spiritual culture of European miners. As a historic monument, these sites reflect all the historical stages of mining technology development from the 13th to the 20th century.

Almost a quarter of a century ago the Bochnia Salt Mine definitely discontinued mining the salt deposits. Bochnia as a town was established and developed during the past 750 years together with the mine. As well as the Sutoris and Campi shafts seen in the Bochnia landscape, many other architectural and topographical elements testify to the origins of the mining town. Beyond the preserved historic underground, buildings, street names, above all it is the unique and specific sense of the constant presence of mining tradition in the minds of the residents. Although the mine has ceased to be the leading industrial plant in Bochnia, for its inhabitants it is still the most important place and a unique symbol of the town. It would not be an exaggeration to say one can find traces of the history of the mine in every Bochnia family.

Both mines share a common, centuries-old history. Due to the Bochnia mine's less regular salt deposit – strongly undulating, not too thick layers requiring slightly different mining techniques – it does not have such spectacular mine workings as the huge chambers of the Wieliczka mine. Nonetheless, it is here that salt mining began and for many people in Bochnia, entering the mine on the UNESCO list was the culmination of the intensive efforts made by mine managers to keep the mine open as a tourism centre and sanatorium. For years the mine existed as if in the shadow of the famous Wieliczka. Organized tourism began in Bochnia less than 20 years ago. Today, it has 150,000 visitors each year, and the number is increasing.

Entering the mine on the UNESCO list certainly contributed to this increased interest. But this is not just a spectacular singular growth in the months immediately after the entry on the list. There has been a steady increase in attendance of about 10% per year. Tourists especially appreciate the authenticity of the historic underground mine workings and the unique atmosphere of the medieval mine. Concerts, shows and other cultural events organized in the enormous Ważyn Chamber, 250 m underground, are of great interest.

So what's in it for us? The reaction of Bochnia residents to this prestigious honour bestowed upon their beloved mine was by no means related to expectations of some extraordinary financial gains after joining the world map of cultural monuments. Inscription resulted in many social initiatives whose main goal is to try and change the image of the city itself, actually restoring or distinctively marking its 'saline' character within the urban space.



The chapel of St. Kinga, 220 m underground.Tourists now ride through on the mine railway.

Photo: Adam Brzoza

World Heritage experiences

The historic mine as an inspiration for local communities. Bochnia and Salt, Salina Nova, Salt & Art, New Town of Salt, Bochnia 3.0, et.al. are all social initiatives registered in the overall atmosphere of pride caused by the nomination of the mine. The common idea of these initiatives is the hope that, following the development and increased significance of the mine on the tourist and cultural maps, Bochnia will also gain impetus to develop further and become more attractive, not only for its residents but also for a multitude of tourists. Practically every existing restaurant, cafe or shop uses in its name a word that refers to the salt mining tradition ("Bread and Salt", "Salina", "Sztygarówka" [The Foreman's Den], "Galeria Solna" [Salt Gallery] etc.).

The Bochnia cultural association Kotłownia [The Boiler Room] has produced a number of artistic projects, events, concerts, open air photographic sessions inspired by the mine, and even organized the Art & Salt project in the mine aimed at developing a common, active and modern space that will release artistic and creative potentials based on both the unique saline heritage of Bochnia.

One of the more visible and effective initiatives is the newly established foundation "Salina Nova". This focused its activities on a quest to restore the former saline character of areas in the centre of Bochnia. A series of meetings with planning specialists (also from abroad) and representatives of government bodies, but foremost the inhabitants of Bochnia and entrepreneurs who are not indifferent to the development and image of the city was followed by a clear action plan for the development of former saline areas, forced the City Council to hold back approval of the Local Revitalisation Plan (LRP). The Chairman of the City Council invited the foundation representatives to present their ideas to the Council, which were finally included in the LRP.

Entering the historic mine workings of the Bochnia Salt Mine on the World Heritage List undoubtedly boosted interest, not only among tourists but also townsfolk. Appreciating the historical values of the mine by granting it the prestigious title has become a source of local pride, while also stimulating the inhabitants of Bochnia to bring forward specific initiatives leading to revitalising the town's image.

The 1909 horizontal winding engine at the Campi Shaft worked without break until the coal boiler supplying steam to the engine was closed down in 1996. Photo: Krystian Kurzywilk



Descending post-mining chambers in Bochnia, which were drilled in vertical deposits leaving slender, narrow vaulted shafts.

Photo: Adam Brzoza



Modern Industrial Museums

Tekniska museet, Sweden

Magdalena Tafvelin is Curator of Collections and Education at the <u>Tekniska museet</u> in Stockholm, the National Museum of Science and Technology. Exhibitions at Sweden's biggest museum of technology are becoming more participative and it was the Association of Swedish Museums and Swedish ICOM choice this year for Museum of the Year.

The Tekniska museet's mission is to 'make the world more understandable by reflecting technology from a contemporary perspective, with history as the starting point and the future around the corner'. Since it was founded in 1924 the museum has received millions of children and adults curious to see, feel, touch and understand technology in our society. Schools and families are the main target groups and with about 350,000 visitors a year.

Exhibitions on space, inventions, energy and the environment sit alongside other areas of topical interest in what is hoped are fun and inspiring displays. The archives and library are open to everyone, and the focus is as much on preserving and conserving the collections as on building and acquiring new knowledge. Most of the museum's collections are at <u>Digitalt museum</u>.

The five-year Documentation, Artefact Collection and Exhibitions programme is a strategic platform governing priorities over the coming years. These are Dialogue (communication technology), Life Science, Movement (transportation) Environmental Technology and Science+ - the hybrids produced by mixing technology, science and art. It also contains areas of methodology development for monitoring the world such as Co-Creation, user-perspective, storytelling, immaterial innovations, service innovations, ethical considerations when children are informants, and the use of social media and user-generated information on Facebook, Twitter or Instagram.



100 innovations exhibition: the display on the Internet is to the right, the car and glasses in the back and make-up is on the left.

Photo: Anna Gerdén, National Museum of Science and Technology.



The Museum's strategies in this context include strengthening its role as a national museum and as a resource for the entire country through initiatives such as regional artefact collection projects. One its most important objectives is to be a 'museum without walls', utilising new technologies and outreach activities to receive visitors in the new digital spaces such as Wikipedia, Flickr or Youtube, and in unexpected places such as shopping malls. The Museum places a high value on inviting the public in as co-creators.

The programme is part of a repositioning towards young people based on the Tekniska museet as 'the favourite place of every small genius': We want to change the self-image away from that of a traditional science and technology museum by actively enriching the collections from a contemporary, current interest, democratic and accessibility perspective. This means contemporary issues are presented in the light of history and reflect future threats and opportunities, social relevance, the user's perspective, to increase diversity and broaden representation in the collections and exhibitions.

Traditionally, the Tekniska museet has been good at documenting and collecting artefacts from the perspectives of the producer and innovation. Increasing diversity and broadening the collections demands an increased focus on the user's perspective. We need to know more about how technology functions for people – how it is/has been used and the role it has/has had in people's lives.

Several themes stand out. Innovations have always driven mankind forward, they are essential for sustainable societies. But how do they arise? What role and importance, and what consequences have they had – socially, environmentally and economically? How are they used in Sweden and what impact do they have in other parts of the world?

Another area of interest is dialogue: What consequences might web-based augmented reality (AR) have, and how can this technology be brought to life in the Museum? Is it possible to detect if the person next to you could be a potential partner? This imagined future is set against questions surrounding older technology for communication and dialogue – what threats were seen, and what opportunities? How do today's fears and hopes relate to previous encounters with new technology?

Modern Industrial Museums

Life science covers a range of scientific disciplines from medicine, biology and chemistry to technology, informatics and materials science. Many different sciences are needed - genetics to understand heredity; psychology to understand human behaviour, thoughts and emotions; mathematics and informatics for the analysis of data; and engineering for technological development. Sweden has long been at the forefront in this area and a number of innovations have been collected in the area of medical and dental technology. For instance an IVF-equipment, suture needles for eyes surgery, insulin injectors, and a dentist's equipment from 1939 until 2003. An ongoing project will raise questions about the relation between humans and machines, materialised in documentation, new artefacts and an exhibition.

The Museum's collections contain a large number of artefacts of movement including steam engines, cars, locomotives and aircraft. It is a good way to combine the past, the present and the future, allowing young people to wonder how we might transport ourselves in the future. The theme is also about how new technology such as robotics and various forms of power transmission work and is used. Environmental technology or Clean Tech is another priority area with the Tekniska museet striving to become a 'Green Museum'.

With Science+, the Tekniska museet aims to demonstrate hybrids from mixing technology, science, art, etc. (Science + Smart materials, Science + Food, Science + Fashion, Science + Art). It is inspired by the <u>Science Gallery</u> in Dublin and the Guggenheim Foundation's Art and Science project. Questions about expected and unexpected uses and how the technology affects everyday life are again topical.

Some years ago the Tekniska museet asked Swedish people to single out the 100 most important innovations. The ones they chose are exhibited in a 2,000 m2 exhibition, the largest the

museum has ever produced. Alongside old favourites are the next generation of innovations, some still just a clever idea on a crumpled napkin. By encouraging visitors' innate curiosity the exhibition encourages creativity, problem solving and an interest in entrepreneurship. To show how our understanding of industrialisation has changed, the steam engine did not even make the children's 100 list.

Has Google changed the life of more people than the compass? Is the iPhone a more important innovation than the washing machine? For seventy years we had been producing exhibitions based on the priorities of experts so now it was time to try something new. 100 innovations is produced in co-operation with 1000 youngsters, and 1000 adults, an exhibition of co-working and exchange between the public and the museum. The results present a new perspective on what is important to people, an alternative history of innovations, with many not even in our collection. So we started a WANTEDcampaign through social media. Suddenly, people from all over the country were contributing to the collection with objects such as contraceptive pills, an excavator, a modem and computer games like Minecraft and Myst. Gaps in the collection opened before our eyes, and gave us a new and inspiring mission: to try harder to collect artifacts and stories to be relevant to people today and in history.

Our goal is to preserve our cultural heritage. The Tekniska museet aims to develop and communicate knowledge about and experiences of our cultural heritage and thereby provide perspective on societal development. And the charter of the Museum is to shed light on development within the engineering arts and their basic sciences and within industry. Within these fields, the Museum is to both pursue and promote scientific research and documentation, and to conduct educational and information activities.



100 innovations exhibition:Social and service innovations, together with clothes, the combustion engine and the aeroplane. Visitors vote for the most important innovation and their updated views are displayed as part of the exhibition. We want to find out if it has fulfilled the museum's dream to tickle the audience's creativity and improve their innovative thinking.

Photo: Anna Gerdén, National Museum of Science and Technology.

Conference report

III International Congress on Industrial Heritage – Reuse of industrial sites: a challenge for heritage conservation, Lisbon, Portugal, June 17-19th 2016

José Manuel Lopes Cordeiro, Portugal National Representative

Over two days researchers, academics, post-graduate students, and professionals of museums and governmental agencies from Portugal, Brazil, Spain, Italy, UK, France, Greece, USA, Chile, Mexico, Peru, Czech Republic, Slovakia, Turkey, Japan and China presented 116 papers and posters that covered subjects such as the reuse of industrial sites, study, preservation and promotion of industrial heritage, conservation and restoration of industrial heritage, cultural landscapes of industrial heritage, industrial museums and conservation of technical and industrial collections, company archives, geological and mining heritage, railway heritage, industrial tourism, and art and industrial heritage. Three documentaries were also presented during the Congress, "Battersea Power Stations: selling an icon", "Ode to the abandoned factory" (on the Basque Country industrial heritage, Spain), "From wire to wick" (on abandoned wool factories in Castelo Branco region, Portugal), as well as three magnificent films on the 19th century Tua Railway, in the Alto Douro Wine Region (World Heritage Site by UNESCO since 2001), which will be soon submerged by the reservoir of a very controversial hydroelectric power station.

The congress was organized by the Portuguese Society for Industrial Heritage (APPI/TICCIH Portugal), the Lusíada University of Lisbon, and the Research Centre for Territory, Architec-

ture and Design, the Congress was coordinated by José Manuel Lopes Cordeiro and Miguel Ângelo Silva. Professor Julián Sobrino of the University of Seville and TICCIH Spain Vice-chair gave the opening address on "the role of the culture of work in reviewing the current paradigm heritage: industry, memory and forgetting".

The post-conference tour visited several sites located on the left bank of the river Tagus. The huge Margueira Shipyard ceased operations in 2000 and is currently in an urban renewal process, while the former Gunpowder Factory in the Milhaços Valley, classified as a Building of Public Interest, is an extension of the Municipal Ecomuseum of Seixal. Its most emblematic element is an operational Joseph Farcot steam engine from 1900, with 125 hp, with a 1911 wood-fired boiler. (See the photograph in The Age of Steam research project, above)

Participants also visited the Memory Space, opened in June 2014 and dedicated to local identity and heritage, the House Museum and the Mausoleum of Alfredo da Silva, one of Portugal's leading entrepreneurs, which played an important role in the industrialization of Barreiro, the workers dwellings of the Companhia União Fabril industrial complex, and the Barreiro Industrial Museum, installed in a 1935 diesel power station and displaying the heritage of the former Companhia União Fabril, the most important Portuguese chemical factory of 20th century. It was definitely a great Congress, the best-attended event on industrial heritage ever organized in Portugal, with an excellent scientific level and tours greatly appreciated by participants. The organisers promises to publish the proceedings in a very near future.

Anyone interested, please contact <u>appi.dir@gmail.com</u>.



The emblematic 300-ton gantry crane in the Margueira Shipyard beside the river Tagus, a major regeneration project.

Publications

Welsh Slate - Archaeology and History of an Industry, David Gwyn, pp. 291, profusely illustrated. Aberystwyth: Royal Commission on the Ancient & Historical Monuments of Wales, £45.00, 2015

By the late 19th century as much as a third of all the roofing slates produced worldwide came from Wales, Great Britain, competing with quarries in France and the United States. This book traces the industry from its origins in the Roman period, its slow medieval development and then its massive expansion in the 19th century, through to its long drawn-out decline in the 20th.

In cultural terms it was also of great importance, sustaining a large upland Welsh-speaking population that produced distinctive industrial townscapes of workers houses set within landscapes of precipitous tips. The difficulties of transport in this terrain led to the evolution of distinctive narrow-gauge railways whose use was also a trigger for an international diffusion of small scale steam-railway technology.

This is the first book to provide an evaluation of all aspects of the industry going beyond a detailed technical study to a cultural exploration examining the workers' homes as well as the typologies of their workplace. The emphasis is on the physical remains of the slate industry in what is fundamentally a technological and archaeological study with the necessary national and international historical context provided. It is encyclopedic in range and immensely detailed in research, all produced in very readable and accessible language. This was a material that roofed the industrial age. It also allowed a traditional minority culture to grow and thrive.

As Dr Gwyn asserts, the most remarkable instance of technology transfer from the Welsh slate industry was in the adoption worldwide of railway systems to a gauge of 0.6 metres. Among the railways inspired by the Ffestiniog slate railway is the World

> Collected essays from the first meeting of the European Quarry Landscapes Network, James Douet (ed.), Teruel+, Life programme of the European Union, Ayuntamiento de Teruel, 2016

From the conference on conserved landscapes of stone quarrying held in Teruel in 2014 comes this collection of twelve essays, including David Gwyn's discussion of slate quarries and World Heritage criteria. Other contributions are Tom Heldal's A practical guide to the characterisation of stone quarries and quarry landscapes, Christian F. Uhlir's Historic quarries database and heritage values, and Ian Thomas' Securing Heritage Quarries – developing a strategy.

The report can be downloaded from the EQLN website.



Heritage Darjeeling Himalayan Railway in India. Elsewhere in the world, vast networks of this gauge have largely disappeared. In the later 19th and early 20th centuries these lines were influential in opening up developing parts of the world to European influence, whether for good or ill, in waging war and in enabling marginal industries to become profitable.

Dr Gwyn is one of the editors taking forward the draft World Heritage Study of the International Building Stone Industry being prepared for ICOMOS by TICCIH.

Stephen Hughes, TICCIH Secretary

Renew your TICCIH membership for 2016 at www.ticcih.org

Publications

Bergverk i Norge. Kulturminner og historie (Mining in Norway. Industrial Heritage and History) Norwegian Mining Museum and Fagbokforlaget, (Norwegian), 2016

The intention of this new publication is to present a national overview and an evaluation of the most important mining heritage in Norway in a historical perspective and is the result of long-lasting heritage work by the Norwegian Mining Museum. As original initiator of the project, the Norwegian Mining Museum provided a considerable resources in realising the project. It is organized into nine parts, presenting about 100 mining sites. A general part presents an outline history of the mineral industries in Norway from the Stone Age to present. The remaining parts present a selection of mining sites structured by types of raw material, such as precious metals, copper and pyrite, iron, other metals, industrial minerals, natural stone, energy minerals, and crushed rock and gravel. The selected locations are presented in brief chapters containing a short history, vital data, type of deposit and mining structure, social history aspects, list of cultural heritage and a brief evaluation of preserved remains.

The authors are historians, archaeologists and geologists, drawing on the expertise of national and regional institutions and authorities as well as local museums, and have written for both a professional and a non-professional audience. The authors draw heavily on a substantial visual documentation archive in order to present the mining heritage as vividly as possible and the numerous maps and photos are an integral part of the book.

The book is a by-product of the heritage project SKE (stateowned property of cultural/historical interest) involving the elaboration of national conservation plans for various public sectors. Plans have been submitted for technical sectors like railway stations (1993), infrastructure of railways (1997), lighthouses (1997), telecommunications (1998), defence and military installations (2000), national roads and road bridges (2002), and hydro-electric power stations (2006). Their aim is to submit listing of objects worthy of legal protection, providing the basis for a protection order according to the Cultural Heritage Act by the Directorate of Cultural Heritage.

The Ministry of Trade and Industry commissioned a national conservation plan for six mining sites reverted to state ownership according to the concession law.



In the conservation plan submitted in 2012, the museum listed the Knaben Molybdenum mining site in Agder for legal protection, due to high scores on historical, environmental, symbolic and architectural values, as an excellent example of functional relations within a mining site that is readable for the public.

The Ministry of Trade and Industry extended its sectorial responsibility beyond the property portfolio to cover the whole sector. The ministry was committed to policies stated in government white papers, reiterating the principle of sectorial responsibility. The various ministries are responsible to work out evaluation and management plans within their sector with the purpose of securing heritage values through selection and listing of the most interesting monuments. The ministry agreed to contribute to a national survey of mining heritage. The book would follow the scheme of the national conservations plans, but without listing of objects.

Frode Sæland, curator industrial history, Norwegian Mining Museum



The international Committee for the Conservation of the Industrial Heritage

Publications

Villages ouvriers et villes usines à travers le monde, Gracia Dorel-Ferré, Éditions de l'Université Savoie Mont-Blanc, French, pp.288, 2016

In the extensive field of industrial heritage study the question of workers' dwellings has generated a large worldwide literature and continues to nourish a fruitful reflection.

This book, edited by the French scholar Gracia Dorel-Ferré, shows the richness of the ongoing work at an international level and is already a reference in the field. Indeed, Dorel-Ferré first offers us a helpful introductory summary of the issues in the long term with a comparative approach: without omitting references to ancient times, she proposes a periodisation in three divisions which then structures the main sections and twentythree contributions in the volume.

The first is that of the "manufactures" from the 17th to the early 19th nineteenth century. Familiar places are compared including Saint-Gobain, Arc-et-Senans or Dijonval in France, Stupigini in Italy, Las Alpujarras and San Lucio in Spain, but also some less known such as the factories in the Urals. The five articles in this chapter develop examples in Spain, Scotland and Mexico.

The second period runs from the early 19th century until the 1870s. Alongside the worker-village appears the factory town, and the question of housing workers becomes a subject of shared reflection that finds expression at the Universal Exhibition of 1867. Emblematic projects are built at that time including New Lanark, Grand Hornu and the Guise. Collective housing appears in various forms, with a gender variation: boarding schools for girls with very severe rules.

The Industrial Revolution in Shropshire, Barrie Trinder, The History Press, £20.00, 2016

Only a few books on industrial archaeology or local history get to be reprinted, but this is now in its fourth edition. Its first appearance in 1973 coincided with the official opening of the open air museum at Blists Hill and the First International Congress on the Conservation of Industrial Monuments (later TICCIH), organised by the Ironbridge Gorge Museum. A second edition was published in 1981 and a much-revised third edition in 2000. It is this edition which has now appeared as a paperback. It is regrettable that the publishers were unable to make possible any updating but it is good that a work described in the Birmingham Post by Vivien Bird as 'one of my top half-dozen books' is now available for a new generation of industrial archaeologists.

Those criticisms will not apply to a second edition of the same author's The Industrial Archaeology of Shropshire, which has been thoroughly revised and updated, and will be published by Logaston Press for the AIA conference at Telford in September 2016. This is to control the workforce, but also to design appropriate housing, responding to some new standards of defined by hygienists. Education is also a necessity with the *ad hoc* buildings. Seven essays refer to cases in England, France, Belgium, Spain, Russia and Japan.

The third section covers the period from the end of the 19th through the 20th centuries and present a distribution of models of workers' habitats to suit the diffusion of European businesses outside their borders. The essays look at eleven different countries: Egypt, Brazil, USA, Chile, Argentina, Uruguay, Brazil, Soviet Union, China, Iran and Canada. Dorel-Ferré suggests change in this period in three stages, marked by European political events: the First World War causes first caesura. Until then, workers villages built by the booming industrial companies are closely watched places as in the case of mining coal basins and under private law. While some initiatives may have aimed for social progress, they were often through an alliance with religious power. The interwar period with the necessary reconstruction and economic development is the second with the concept developed of the garden city, but also large factories cities or company towns. Finally, from 1930 industrial expansion has led companies to develop real urbanization and construction programs to support industrial activity. These new cities are places of expression of economic, social and political thought, by dominant companies but also of resistance and / or hybridization of cultures for the people who settled there.

In total, this is a remarkable synthesis of an extremely large and fascinating subject, whose issues are still relevant to the 21st century.

Florence Hachez-Leroy

Ladrillos, fierros y memoria (Bricks, iron, and memory), Camilo Contreras Delgado, El Colegio de la Frontera Norte, (Spanish) Mexico, 2015

This book is the result of the dialogue between those who manage and those who study industrial heritage in Mexico and Spain. The text reveals the evolution and necessity of a multidisciplinary approach. First, there was archaeology but now many other disciplines such as history, anthropology, architecture, sociology, economy, and geography, have obtained valuable developments in the field through the different perspectives of industrial heritage.

There is a pernicious division of the work in industrial heritage: while some are in charge of studying, others are managing it. This book contributes to the debate around the collective memoir in Mexico and is the first step in a further aim: to collaborate in the placement of industrial heritage in northern Mexico.

Upcoming - 2016

Portugal

ICOHTEC Symposium, Technology, innovation, and sustainability: historical and contemporary narratives. www.icohtec.org/proposal-guidelines.html

26-30 July: Porto

Portugal

<u>Docomomo Annual Congress, Adaptive Re-use workshop</u> considering the huge MMC industrial facility. 6-9 September: Lisbon

UK

<u>Understanding Industrial Assets - Conservation & Management</u> 5-6 September: University of Leicester

Guatemala

VI Encuentro sobre Patrimonio Industrial, Museo del Ferrocarril 5-7 October: Ciudad de Guatemala

Spain

XVIII Jornadas Internacionales de Patrimonio Industrial – Incuna 2016 5-8 October: Laboral Ciudad de la Cultura Gijon

Portugal

ERIH Annual Conference, "European Industrial Heritage - How to tell the International Story? 26-29 October: Porto

2018

Chile

XVII TICCIH Congress, the first in Latin America. 13-15 September: Universidad Central de Chile, Santiago.

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There is an online membership form on www.ticcih.org

The **TICCIH Bulletin** welcomes news, comment and (shortish) articles from anyone who has something they want to say related to our field. The Bulletin is the only international newsletter dedicated to industrial archaeology and the conservation of the heritage of industrialisation. The TICCIH Bulletin is published online to members four times a year.

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