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Celebrations at the Petrila coal mine in Romania in 2013 hoped to use the mining heritage to help reboot the town. TICCIH is working towards a research agenda for 20th century heritage - see page 17.

Photo Planeta Petrila and Andrei Dacalescu

Opinion

Pit and quarry: Pennsylvania's slate and cement landscapes

Frank Matero

**Professor of Architecture and Historic Preservation,
School of Design/University of Pennsylvania**

In order to bring a more critical approach to the preservation of a much neglected category of America's industrial heritage, the University of Pennsylvania's School of Design, through its Graduate Program in Historic Preservation and PennPraxis, and with funding from the J.M. Kaplan Fund, is examining the slate and cement industries of Pennsylvania's Lehigh Valley. The Lehigh Valley gave rise to several world class extractive industries including iron, steel and cement production, coal mining, and slate quarrying, all of which would dominate the American and international scene by the first decade of the 20th century.

The region's cement and slate industries created a complex landscape with dramatic quarries, enormous kilns and mill buildings, and canal and rail networks all within a narrow geological belt between the Delaware and Lehigh Rivers. These quarryscapes, the intersection of geology, technology, and culture, were an important part of American life and their stories are still accessible through the visual testimony of the land, the structures and machinery, as well as the stories of those who last labored there.

Opinion

As proven elsewhere, this industrial legacy holds the key to revitalization of the region by “regeneration through heritage,” not only in the preservation and possible re-use of these sites, but as catalysts for reviving and maintaining the social and cultural fabric of their surrounding communities and natural environment. Cultural and environmental conservation become powerful partners in the reclamation of this complex landscape through ecological as well as architectural concerns.

The current project seeks to work within the proposed TIC-CIH/ICOMOS guidelines on identifying quarry landscapes with the potential to be nominated for inscription as World Heritage Cultural Landscapes. The project will be divided into three sequential phases: 1-survey and inventory of extant slate and cement quarries, structures, and other industrial landscape features that made up these regional industries; 2-recording and

analysis of the most significant of these sites and landscapes using current recording technology; and 3-recommendations for preservation strategies in conjunction with an advanced project team based on the data collected in the first two phases.

The intent is to produce a well-documented and methodologically driven spatial database that clearly identifies the critical components of this neglected industrial landscape and explores options for preservation in consultation with local, state and federal partners. A final exhibition/publication and website are planned to maximize the ability of this project to build capacity for these and similar sites and industrial heritage in general. Partners in this project include: the National Park Service-Historic American Landscape Survey (HALS) and the Historic American Engineering Record (HAER) as well as the Pennsylvania Historical and Museum Commission, the Delaware and Lehigh National Heritage Corridor, and local community partners.

Report

Rebirth of the Petrila coal mine

Cristina Sucala, ADERF, architect

2015 was a deeply challenging year for the industrial heritage of the Petrila mining site in the Romanian Jiu Valley. After almost 12 months waiting, the listing of the ensemble as a monument was officially published at the beginning of January, 2016. The one year protection given by the listing process would have expired by the 12th, leading to the demolition of the whole site as the contractors and the Closing Mines National Society were waiting around the corner. If the procedure had been more fluent the listing should have happened around May, 2015.

Hope came with the change of Romanian Government in November and a new Ministry of Culture, one that has openly declared, and has already done a lot, to radically reform the once powerless, overwhelmed and rigid heritage system that has brought us more destroyed monuments in post-communist Romania than before 1989.

Romanian industrial heritage is little known as there were very few listed sites. But in the last few years things seem to change as NGOs and civil society have got involved more and more in a bottom-up strategy that searches to awaken and capacitate local communities as well as stimulate the creation of policies from the decision makers which most of the time, as we are talking about almost abandoned – economically declining regions, are functioning in a quite corrupt environment.

Our association PLUSMINUS NGO connects architecture professionals from different cities (Bucharest, Cluj and Paris) in urban planning, social strategies, industrial heritage, socially activating cultural programs in different cities (Galati, Bucarest, Cluj, Petrila), with the local artistically active NGO Romanian Condition, which has been animated by the well known artist and caricaturist Ion Barbu. We started a daring bet back in 2012.



A panoramic view over the main shaft, built around 1935, and the sorting station.

Photo: Alexandru Păun

Report

This bet was on the fact that industrial heritage could save a society in strong economical decline. The mining site is the oldest coal exploitation in the country and a true lesson of history. As it was being prepared to be closed and doomed to be erased completely by 2016 against the local opinion and will, our project planned a series of workshops to address the notion of urban regeneration through industrial heritage.

The series started in 2012 and 2013 with two international student workshops focused on analysing the situation from all points of view, and then generating complex strategies that would involve the re-use of the existing heritage and help kick-start the local economy. The results were assembled into a pre-feasibility research that was presented and adopted in the local council. The purpose was to re-direct the funds allocated to closing the mine in order to at least take all necessary emergency safety measures on the existing structures. But as the administrative stakeholders started to feel pressure from the Mine Closing National Society and the demolition contractors, the process slowed down and ended in demolishing already some structures on the site.

In parallel we engaged in listing the ensemble as a monument, which included on-site measuring and research in order to build up a strong case, one that was widely appreciated when presented to the local and national Monuments Commission at the beginning of 2015. Our project started to focus more on the social stakeholders, the inhabitants of Petrila, with the clear aim of taking their involvement to the next level. As a response, in 2014 we did a 1 to 1 scale rehabilitation of the small former pump station, and with the help of some still-working local miners we transformed it into a cultural centre, the new PompaDou Centre, which is still used today by the local NGO for their events.

The last event, at the end of the summer of 2015, in the anticipation of the listing, was the celebration of the Industrial Heritage days in Petrila by investing the bridge that connects the city to the mining site with a huge table for all the locals who were invited to bring pancakes. The following day, a biking tour in the surroundings was organised with everybody, aiming to familiarise local people with their own heritage: the mine and the typical housing that evolved along with the mine from the end of nineteenth century. This event helped them see their own city and heritage with different, more positive, eyes so that at least for the time, from being the symbol of failure the site became a symbol of possible rebirth.

Of course, today we are far from a happy ending, but the listing brought a change in the administration's attitude. At least at a declarative level, it is now willing to get involved for the first time in supporting a real feasibility study and looking for financing, so we are able to continue our work. As we believe that an important issue is the lack of competence in the local administration, an improvement could be brought if there would be a will and a possibility for them to share and learn from the experience of other administrative stakeholders that have already been successfully involved in industrial heritage.

The team: Cristina Sucala, ADERF, architect, Ilinca Paun Constantinescu, UAUIM Bucuresti, architect, Dragos Dascalu, FAU Cluj, architect, Ina Stoian, PLUSMINUS Bucurest, architect, Ion Barbu, Cultural Foundation Romanian Condition, artist



The children's band on the other river bank in front of the mine.

Photo: Planeta Petrila and Andrei Dacalescu

Worldwide

Spain

The heritage of modern roads

**Rita Ruiz, Assistant Professor,
University of Castilla-La Mancha**

The great historic and documental relevance of roads built by engineers from the 18th century has been the subject of theoretic study by a number of authors. These infrastructures, built for horse-drawn carriages and deeply transformed after the appearance of motor vehicles, provide valuable insights into the prevailing technology and engineering employed in their construction. The building of roads over this period in many parts of Europe was favoured by the wave of reforms driven by the rational principles of the Enlightenment. For the first time, qualified technicians were responsible for their design and construction and, from the second half of the 18th century, civil engineering colleges and institutions were founded. This led to an accumulation of hydrological and geomorphological knowledge that served to define routing techniques and criteria.

Roads were essential for the movement of goods and people during the Modern age and, subsequently, for the economy and trade in different countries. In this respect, several authors have stated that the volume of goods and passengers transported by road over the 18th and 19th century was considerably higher than that commonly suggested and that these infrastructures had already begun to consolidate a domestic market system in different countries.

But despite their significance, roads constitute a heritage that has received comparatively little research attention. Even though several authors have maintained that roads also form part of the industrial legacy, the majority of works that have focused on the heritage of transport infrastructures have done so primarily with respect to the railways and canals.

The very few works dealing with the archaeology of roads have tended to concentrate purely on the specific structures related to these roads, such as bridges or inns, and have given little or no consideration to the infrastructure that provided the very basis and meaning for these buildings.

This lack of attention towards the territorial scale of roads is repeated in the inventory of assets proposed by the TIC-CIH. While this inventory does consider linear infrastructures such as the Canal du Midi, Rideau, Pontcysyllte and Shushtar canals or the Semmering and Rhaetian railways (all included on UNESCO's World Heritage List), the very few assets related to roads that have been incorporated are all nodal elements. In this respect the list only considers the Vizcaya bridge and the old bridge of the city of Mostar (a 16th-century structure) and ignores the roads or paths that incorporated these elements.

The problem is aggravated by the fact that this is a particularly vulnerable heritage, subject to constant modification and aggression, since with very few exceptions it continues to form part of the current road network. Unfortunately, a large proportion of historic roads have been demolished to make way for new infrastructures and the number of sections that have undergone little change has been reduced to a few kilometres.



The Contreras mountain pass between Madrid and Valencia, Spain. This section was designed and built by the engineer Lucio del Valle in the mid-19th century. Its aim was to provide access, as far as possible, to a point on the Mediterranean coasts to allow the supply of goods from Valencia and Catalonia to Madrid in the most effective and economic manner.

Photo: Jean Laurent. Source: *Biblioteca virtual del Patrimonio Bibliográfico del Ministerio de Cultura*.

Worldwide

The great wealth of this heritage and its vulnerability makes it necessary to create far greater awareness among the general public and within the different public sectors in order to promote the introduction of new approaches that allow the correct identification and conservation of sections of historic roads. In this respect, the heightened awareness of engineers, historians or archaeologists and the corresponding action and intervention by TICCIIH is deemed essential.

Furthermore, the singularity of roads could commend the consolidation of a group of experts who could suitably define and tackle the heritage complexity of these assets. This group could promote preservation strategies that take into account not just isolated structures but also those objects and minor works that

at the outset appear less valuable, but which give meaning and coherence to the infrastructure as a whole. The study of these assets would similarly overcome the problem arising from the fact that roads constitute a type of heritage that commonly retains its transportation function to this very day. In addition to those sections that remain more intact and conserve elements that unquestionably relate to their time of construction, it would be also necessary to consider those that are still in use and have undergone profound transformation, as these serve as testimony to the development in science, technology and forms of mobility.

Please contact me to join this group.



The Contreras pass was successively realigned by the N-IIIa, built in the 1960s over a dam, and the A-3 motorway, built in the 1990s, which crosses the area via three viaducts and two tunnels. This has made it possible to conserve several structures that go back to the original time of construction, signaling and roadside protection. The zig-zag section currently serves as one of the most valuable examples of Spanish road layouts prior to the arrival of the automobile.

Belgium

Industrial archives Christopher Boon

The Belgian Association for Documentation (ABD-BVD) has decided to put Industrial Heritage in the spotlight on the occasion of the closing of the “European Year for Industrial and Technical Heritage”. The 2nd quarter issue of its *journal Cahiers de la Documentation / Bladen voor Documentatie* <http://www.abd-bvd.be> will be devoted to a special commemorative issue about industrial and technical heritage:

- industrialisation has generated huge quantities of information, documents, and archives;
- the preservation of all this documentation is important from an historical point of view, but also for communities to apprehend and understand their past and present (at a local level, on a much larger national scale, or even abroad);
- information specialists from all horizons (archivists, librarians, documentalists, ...) must play an important role in gathering/selecting, preservation, treatment and diffusion of all this information, documents and traces of the past.

Thanks to their knowledge and expertise in information management and their competences in creating adequate and specific tools to preserve and make this information available, information specialists show that they can be essential auxiliaries for IH specialists.

More than twenty articles will handle various topics or initiatives related to industrial heritage information and documentation: management of industrial archives, collecting of interviews of contemporary witnesses, exploiting of ancient mine workers documents for historical studies, reallocation of industrial facilities to libraries or archive centers, recording of disappearing sounds of the industrial society, industrial postcards as an iconographic source for the historian, industrial ephemera, installation of a university learning center in an old steel industry site, use of industrial archives for the study of soil contamination and remediation, preserving of offshore oilfield history through documentation websites, history of the first Belgian industrial archeology center, collecting of Belgian trade catalogues, preservation of multimedia or born-digital artwork technologies,...

Articles will be published in French, Dutch or English. Publication is foreseen in June 2016

Worldwide

Mexico

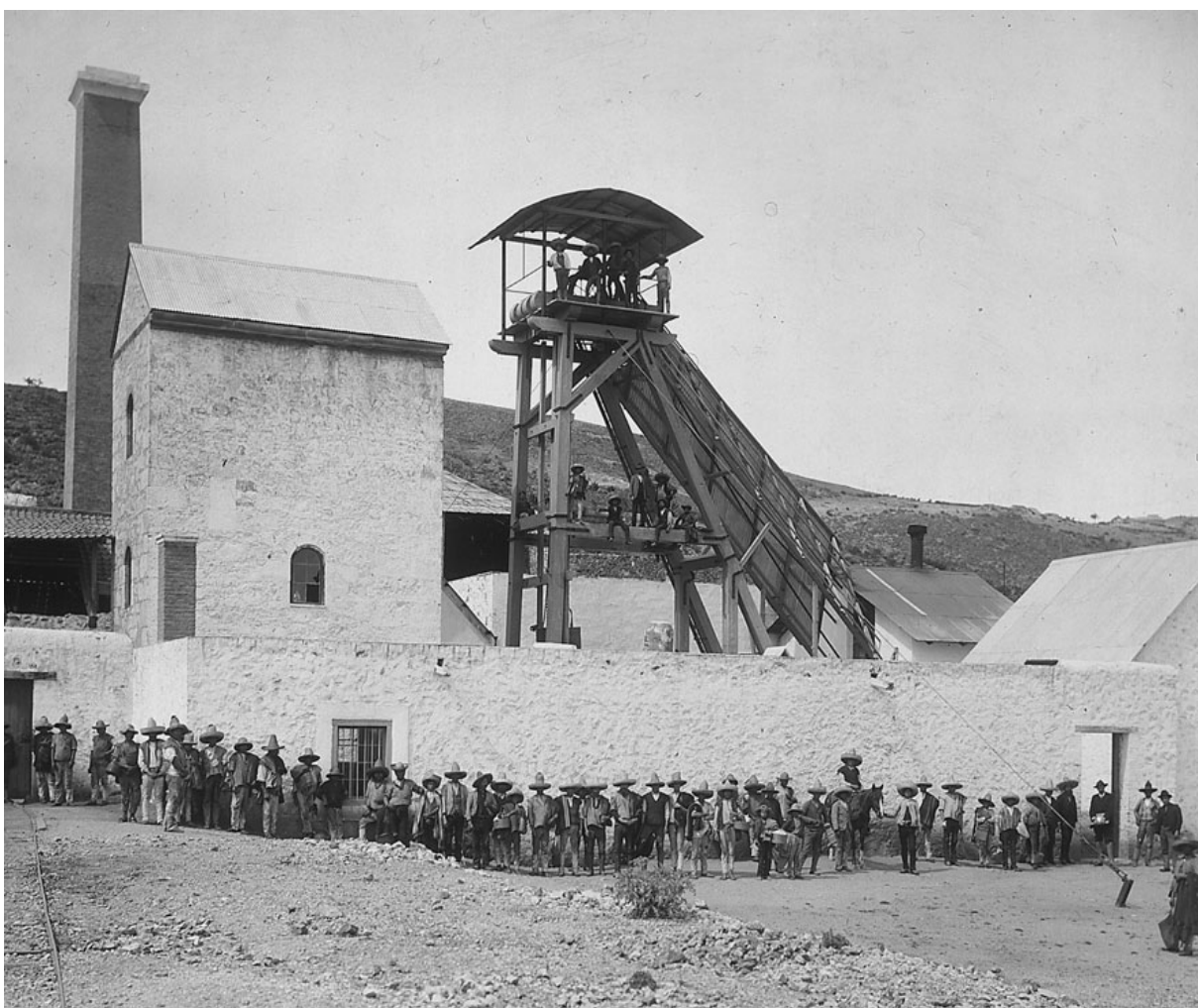
A mining heritage of technology transfer

Belem Oviedo Gámez,
Directora Archivo Histórico y Museo de Minería,
A.C., TICCIH National Representative

From Spanish Colonial times the silver mines of Real del Monte and Pachuca were the lifeblood of their towns. Their bonanza was a promise of life; their closure meant abandonment and decline. So the inhabitants of Real del Monte were filled with high hopes when the English Company of Adventurers in the Mines arrived to this ailing town in 1825, having sailed from England with 1,500 tons of equipment manufactured in Cornwall including nine steam pumping engines and their boilers. Real del Monte came back to life. The landscape was transformed with engine houses and steam boilers, wooden head frames and smoky chimneys. At the beginning, the thundering boilers and the billowing smoke were confusing and intimidating; afterwards they became a symbol of certainty.

The English company focused on the Dolores, Guadalupe, Santa Teresa, Santa Brígida and San Cayetano mines in Real del Monte. Later, it was Mexican entrepreneurs who worked the mines of Pachuca on a large scale, with the help of Cornish steam engines; the Rosario mine, with more than five engine houses, was a symbol of wealth and on-going productivity in the 1860's.

The Company of Adventurers left in 1849, but its workers and employees stayed on. Cornish immigration remained constant until the first half of the 20th century. Three of the four Cornish engine houses which are still standing were built during the second half of the 19th century: Acosta, Corteza and San Pedro La Rabia.



The Purísima Shaft of the Corteza Mine, Pachuca, with Mexican miners lined up outside in 1899.

Photo: AHMM, A.C. Phototeque

Worldwide

In 1886, tin mining within the county of Cornwall began declining steadily, sparking severe economic and social problems and triggering the exodus towards countries with a mining tradition. The money sent from various mining centres around the world, of which Mexico was one, aided and strengthened the economy of the English county, which managed to overcome the crisis.

In Pachuca the Methodist School, built in 1877, and the Episcopal Methodist Temple, built between 1882 and 1900, are important architectural monuments dating back to this second wave of immigrants with the architectural features of the latter making it the only example of Romanesque and Neo-Gothic styles in Hidalgo's capital.

In 1896 Francis Rule, a very influential mining entrepreneur born in Cornwall, commissioned the construction of one of Pachuca's most emblematic buildings, known as the Casa Rule, which since 1985 houses Pachuca's Town Hall. Other nineteenth century constructions, testimony of advanced English technology, are still standing.

During the 21st century, they were turned into a site museum and will host design and arts and crafts workshops organised by the Archivo Histórico y Museo de Minería, A. C. The building that used to house the offices of the Company of Adventurers in Pachuca is now home to an elementary school.

This cultural and industrial Cornish heritage, combined with the technological, architectural and cultural contributions of the many Mexicans and also Americans who worked in the mining district, constitutes one of Mexico's most important industrial legacies. This has been acknowledged in the Ruta de la Plata (Silver Trail) Project organised by the Historical Archive and Mining Museum.

Hidalgo and Cornwall, apart from making significant contributions to the English and Mexican economies, have given the world a cultural and industrial wealth that is helping to revive both former mining communities and is slowly but surely being



The Dolores Mine, Real del Monte

Photo: Marco Antonio Hernández Badillo

The preservation of Shanghai Industrial Heritage

Zuo yan

**College of Architecture and Urban Planning,
Tongji University, Shanghai**

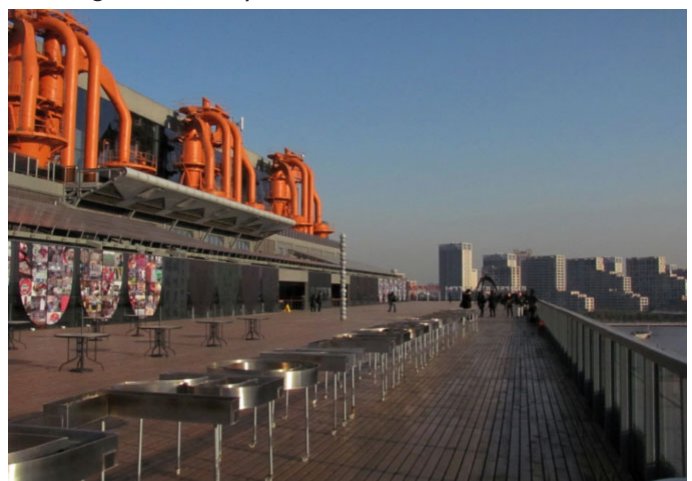
Shanghai is the Chinese city with the longest industrial history. The port opening and its locational advantage rapidly made the city an international metropolis. The distribution of Shanghai's industrial heritage had a close relationship with urban modernization. In the early stage of industrial development, industry mainly depended on traffic location and the convenience of resource access. Suzhou creek, the mother river of Shanghai, begins in Taihu lake and flows 53.1 km in the city area. After the Second Opium War (1857 to 1860) capitalist industry and commerce developed violently. Industry and warehouses which had a strong dependence on water like ship building, mechanical equipment etc. rose up at both sides of the creek. The earliest Chinese textile mill, flour mill, brewery, wool factory, the earliest water plant as well as power plant were all located on both sides of the Suzhou Creek, making it the original place of Shanghai modern industry. At the same time, railway lines became a good location for many industrial enterprises.

Foreign concessions and war also had a significant impact on Shanghai industrial distribution. With the development of industry, a large number of small factories firstly settled along the coast of Huangpu river and Suzhou Creek and later increasingly moved into concessions after the defense war of Sihang warehouse in 1937. A large number of small domestic factories (called Shanghai alley factories) were located in the local Linong housing area, it took the shape of a unique industrial pattern and urban cultural phenomenon that no other cities in China have.

Preservation of Shanghai's industrial heritage took the first step after the end of the 1990s. It began by artists spontaneously leasing old warehouses. Teng kunyen, a Taiwan architect, took the lead to reuse a 1933 warehouse along the Suzhou Creek as his design studio in 1999 and another unused factory along the Huangpu river in 2004, resulting in an upsurge of transformation and reuse of industrial heritage within the whole country. After a survey and study of the surroundings of Suzhou creek, the Shanghai municipal government put forward a specialized plan for industrial tourism in China called the Shanghai Industrial Tourism Development Planning (2006-2010), and in 2006 established the earliest local standard of industrial tourism in China - Quality Requirement of Service for Shanghai Industrial Tourism Attractions. It showed that local government had defined a clear urban development goal by changing production-oriented economy into service-oriented economy for the sake of enhancing international competitiveness. Many old factories in the city were refurbished as creative industrial parks, some of them were reused as industrial theme museums through conserving industrial featured technology, production functions and so on to promote industrial tourism.

In recent years, along with the diversity of investment demands as well as policy adjustments, the preservation and reuse of industrial heritage has changed its pattern gradually from single use creative industry park into diversified uses, such as community service facilities, business, leisure culture, hotels, and urban open spaces. Some become local commercial centers or public cultural spaces, Mo Ganshan 50, Riverside Creative Industrial Park, Tian Zi Fang, Red Town, Shanghai Contemporary Art Museum, as well as the reuse of other old factories in Shanghai 2010 Expo. Many budget hotels and international youth hostels took a fancy to the characteristics of industrial buildings for their large spaces, easy to divide, etc. In addition, industrial heritage could be integrated with public green spaces to make up new urban landscapes, for example, some old buildings in Greater China Rubber Plant had been kept well and integrated into Xu Jiahui public green space.

The preservation and use of Shanghai's industrial heritage has developed quickly. It passed several phases: government-led at the beginning, later all parties involved, spontaneously from bottom to top lately. It still has some problems, such as similar oriented functions for creative industry, lack of attractive functional features, gentrification, lacking of cohesion with surrounding communities, and so on. Therefore, preservation work in future should combine industrial heritage with supporting service and community revival in order to promote holistic vitality of areas and spatial quality. Under the macroscopic background of the development of economic transformation, the problem which relevant departments decide solve is to formulate corresponding policy for reasonable transformation of industrial land. It will undoubtedly help and give a positive effect to the development of Shanghai's inner city area.



Shanghai Contemporary Art Museum in 2010, a former electricity generating station.

Worldwide

Russia

Heritage transformation of a Urals steel town

Nadezhda Solonina,
Urals state university of architecture and art

The Ural's industrial heritage has been studied actively for more than 30 years. Initially the main issue was the reconstruction of historical ironworks and the preservation of industrial relics. Later, industrial infrastructure of the region has experienced a series of transformations. Many industrial enterprises were closed, rebuilt or demolished, and today the Ural's regional functional reorganization and new ways for regional development are the main issues for many entrepreneurs and other active persons who love the Urals and its specific industrial culture.

A study of the current state of the industrial heritage was conducted on the territory of Sverdlovskaya region. 102 sites have been detected dating back to the beginning of the 18th century to the 1920s. These industrial heritage sites have different preservation degrees and that's why they required different methods for preservation, presentation and popularization which were united by technologies and connected by waterway, railways and roads.

Staroutkinsk is an old settlement which was founded in the 17th century by immigrants from Central Russia. This period of the Ural's history development associated with discovering new lands and new resources. One of the first Ural iron factories was built here in 1729. The settlement located on the bank of Chusovaya river – the ancient transportation waterway in the Urals. The company-town of Staroutkinsk has valuable architectural and cultural elements in a historical industrial landscape – the pond and dam, the ruins of blast-furnace and foundry shops and others. The location was an important factor of iron works development.

The iron factory operated until 2000. Iron-smelting and steel-foundry production functioned on that historically formed industrial territory. But the economy of the 1990s and mismanagement by the new factory's owner led to the breakdown of the company and it is now partially demolished and abandoned. It was a good place for wild industrial tourism and weekend hiking during some years.

In Staroutkinsk there is a young museum devoted to the history of the company-town and the old iron-factory. The museum is created by enthusiasts and local ethnographers with the help of local residents and a school. The exhibition is on the ground floor of the first stone building of Staroutkinsk, dated back to the 1760s. The number of exhibits is not so high but every year the museum collection grows. People bring something which was excavated in their gardens. Others discover interesting old things in lofts. The department of architectural theory and professional communications of the Ural's state university presented a collection of historical layouts of Staroutkinsk's industrial territory and iron works, which were discovered in its archives.

The director, Ludmila Smirnova, is a school teacher and ethnographer. She carefully collects all exhibits and gradually creates the museum atmosphere together with her pupils. And the museum is a small local cultural center which accumulates historical information, heritage items and creative potential for topical events. A big collection of old photos of Staroutkinsk company-town and iron factory made by a local photographer and dated back to over a 100 years is preserved thanks to museum activity.

The ancient industrial waterway of the river Chusovaya with part of Staroutkinsk settlement. It was an important strategic point of the time of active waterway exploitation. A dock for transportation of iron and steel production of many Ural's metallurgical enterprises was organized close to the factory.



Worldwide

Today Staroutkinsk has acquired a new meaning, embodying recreation functions. The historical territory became a platform for an art festival and many touristic activities. The touristic potential of the Chusovaya river and Staroutkinsk areas is very high. Local touristic and creative organizations combine wild tourism and art. One of important tasks is now to improve the quality of infrastructure and increase the number of visitors. The festival is a nice method to attract a creative community and public attention to the historically important territory. Local industrial and nature landscapes are unique and beautiful, with historically formed industrial views, many picturesque crags and other unique nature relics.



The ruined blast-furnace shop of Staroutkinsky iron-factory.



Artists from all over Russia take part in the festival and paint the ruins of the furnace shop and dam. The festival attracts other creative resources and has become a feast for local residents and visitors. The sponsors have many ideas of the festival direction's extension and the development of the historical territory infrastructure.

The heritage of mobility in Brazil

Taís Schiavon
architect and urbanist, Universidade de Évora

The construction of the railway *Noroeste do Brasil*, located in the western portion of São Paulo State, Brazil, can be characterized as an example of the internationalization of European and Brazilian companies, that in addition to connecting the country sought the communication between the Atlantic and Pacific Oceans. All the process included in this strategy demonstrated the potential of scientific circulation and technical progress in the country, enabled the creation of a network of studies, narrating the urban contexts developed by the railways and the impacts with the transition to the highway model of transport intensified since 1960.

The context described by the advance of the railway axes in Brazil, allows the identification of the main constructive characteristics, superimposed to the urban and socio-economic development. Its study is able to structure the urban landscape as a means of valorization of the 'Industrial Heritage' and also the 'Heritage of Mobility' in the country.

As a consequence of the great size of Brazil, progress toward the center of the country was confronted with historical difficulties in the ways of communication. The 'March to the West'

in the second half of the 19th century can be characterized by the quest for new areas of cultivation and colonization, mainly concentrated in the State of São Paulo. If we consider that 65% of the territory of the State was urbanized with the aid of this process, we can understand the importance of the railway companies in Brazil, promoting communication between the 19th and 20th centuries.

The *Noroeste do Brasil* railway, opening in the hinterland, in less than 10 years permitted communication between the States of São Paulo and Mato Grosso. In this way, the railway became the first means of communication, settlement and industrial dissemination throughout the region, featuring a distinct logic in relation to other railways companies open until then in Brazil.

The *Noroeste do Brasil* began its development in 1905 in the city of Bauru, demonstrating along its route a fast and strong feature of urbanization. The opening of the hinterlands by rails could demonstrate a dynamic process of urban development, with the creation of cities supporting the progress of the railway company and its urban needs. In a short period a network of cities were reconfigured or built by the company, attracting plant and industries, including the production plants of the *Noroeste* company.

In 1908, the *Noroeste do Brasil* railway, planning connections between Brazil, Bolivia, Peru and Chile, allowed the connection to be made between the Atlantic and Pacific Oceans.

Worldwide

The inclusion of the company in an international context came at a time when the creation of international railways was constant in countries with great economies, a breakthrough for a country only independent since 1889.

With some sections still in operation, all this historical development started to show a large retraction from 1970 when the elements of the national rail complex began the process of abandonment. The replacement of the railways by roads in Brazil created problems for the urban continuity, requiring cities previously served by the rails to undergo the restructuring of its urban spaces and economy.

Unknown territory, the Western portion of São Paulo State saw its expansion in the early 20th century in the context

around the territorial strategies produced by the railway system of transport, replaced by the road system in the middle of that same century. This process shows a huge landscape and industrial complex built as a result of the railway age, gradually abandoned by the greater dispersion of cars and highways, highlighting an important field of study.

Heritage par excellence the Railway *Noroeste do Brasil*, was responsible for the construction of cities and their economic development, in this way, the rail industry involved not only their stations and workshops, but a complex system that involves urban structures and industrial landscapes, narrating in this way the dispersion of techniques and knowledge in an expressionless territory in a short time.



Usina Miranda sugar factory and coffee farm (1930), an example of plant developed in the region of the Railway *Noroeste do Brasil* and a symbol of the economic potential dispersed in the 'wild territory' with the opening of the railway.

Source: Railway Museum archives of *Noroeste do Brasil* in Bauru



The railway station of Bauru and abandoned cars and locomotives in 2015.

Photo: the author

Cultural heritage routes

Cultural heritage routes

The valorisation of the industrial heritage in the framework of cultural routes

Massimo Preite
TICCIH board member

The gradual extension of the European Route of Industrial Heritage (ERIH) <http://www.erih.net/welcome.html> network in the last few years is the result of two bold moves: an awareness that the industrial heritage represents a common European heritage, which all countries are called upon to enhance and protect; and a firm belief that this valorisation must be expanded, spreading out from individual monuments (referred to as Anchor Points) to include the industrial regions to which they belong.

This is the aim underlying the 18 ERIH regional routes, offering visitors surviving remains of the industrial past, transformed into lively industrial venues and attractive centres for cultural and tourist events.

The importance which Regional Routes have begun to have in the promotion of Europe's industrial heritage justifies the decision to offer our readers a review of some of the most significant cases, by means of a number of articles aimed at shedding light on the organisational models, and the factors behind their success. The review begins with the Industrial Monuments Route of the Silesian Voivodeship and will continue with other regional routes, starting with the South Wales route, in Britain, in the next *TICCIH Bulletin*.

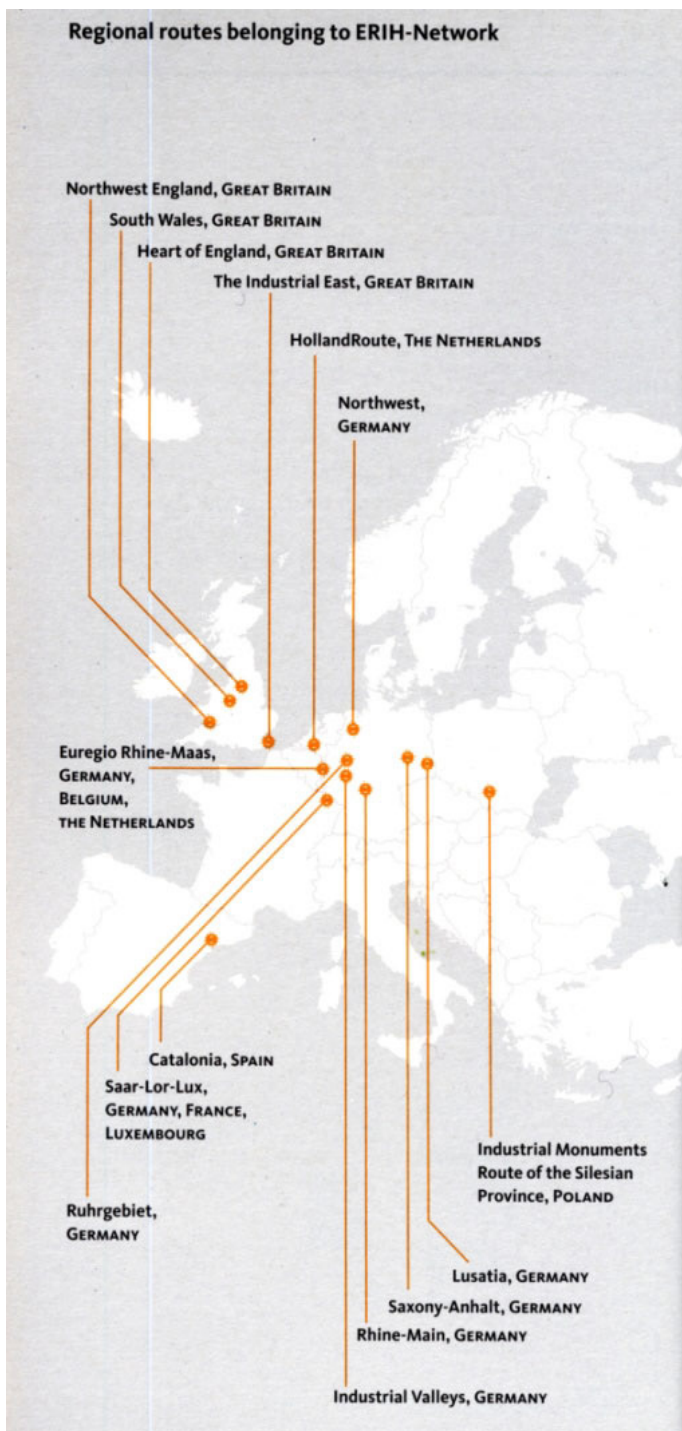
Although existing within the broader model of cultural routes, the ERIH Regional Routes represent an application that displays highly original features. Accordingly, we are interested in highlighting their aspects of innovation and originality.

The first two cultural routes received certification in 1987. *Ways of Pilgrimage to Santiago de Compostela* was a network of routes which has played a highly symbolic role in the construction of Europe and which is travelled by tens of thousands of pilgrims who walk to Santiago de Compostela each year. *Architecture without borders* was on the theme of cross-border rural vernacular architecture created during the European Campaign for the Rural World, with a particular focus on the Grand Duchy of Luxembourg, Belgium, Germany and France.

These two initial experiences were devised as tools for raising awareness of the shared European heritage and they came to form a model which could be transferred to other issues and sectors of the cultural heritage with a similarly unifying capacity. In the years immediately afterward, the issue of cultural routes was at the centre of discussion and debate in the most important forums for international debate.



Regional routes belonging to ERIH-Network



Cultural heritage routes

In 1994 the concept of “routes” or “cultural itineraries” was discussed by the UNESCO experts’ meeting in Madrid on *Routes as a Part of our Cultural Heritage*, and a concept of heritage route was put into sharper focus:

- based on the dynamics of movement and the idea of exchanges, with continuity in space and time;
- referring to a whole, where the route has a worth over and above the sum of the elements making it up;
- highlighting exchange and dialogue between countries or between regions;
- having a multi-dimensional nature, with different aspects developing and adding to its prime purpose which may be religious, commercial, administrative or otherwise.

The sum of these characteristics led the experts at the meeting to define the new notion of “heritage route” as “a dynamic type of cultural landscape”, the new category of registration which had been added to UNESCO’s *Operational Guidelines* two years earlier.

However, the concept of cultural route was still far from having reached its definitive form. An initial reformulation was established in Resolution 98(4) of the Council of Europe on 17 March 1998. This document stated that cultural routes are the means for bringing out “the spread of the major European currents of civilisation in the fields of philosophy, religion, culture, the arts, science, technology and trade”. The resolution also sets out, for candidate cultural routes, the corresponding certifications, awarded by the Council of Europe, and also establishes a list of eligibility criteria and three different categories of inscription: “Major Cultural Route”, “Cultural Route” and “In the framework of the Cultural Routes of the Council of Europe”.

In 2004 the European Institute of Cultural Routes, established in 1997 in Luxemburg and tasked with dealing with the increased demand for technical assistance for the setting up of cultural routes, drew up supplementary wording for the previous resolution by the Council of Europe. This is extremely interesting for the application of cultural routes to the industrial heritage. Acknowledging that “the extension of the industrial crisis made an increasingly large number of local authorities adopt development strategies based on the use of this heritage for both cultural and economic ends”, the European Institute proposed a new category: European Routes of the Industrial Heritage. According to the principles of the TICCIH *Charter of Nizhny Tagil*, these routes should include the dimension of industrial culture and that of industrial society. In this way, the naming of industrial routes on the basis of the industrial sector which they belonged to (the European road of iron, ceramics, glass, textiles, etc.) could have effectively alluded also to trans-frontier aspects, or the social and cultural connections, as well as to the industrial characteristics per se.

The European Institute’s proposal, although drawn up in a very summary way, merits very close attention since for the first time the industrial heritage was recognised as a fertile, and non-ephemeral, field for the application of cultural routes. Their construction could represent a fundamental watershed in policies for valorising abandoned industrial sites, *since the communities involved in the creation of a new industrial route would find themselves facing the need of not giving a nostalgic or solely museum image to these activities; on the contrary, they should ensure their survival within a specific frame-work of social and sustainable development.*

In October 2008 the ICOMOS *Charter on Cultural Routes* was prepared by the International Scientific Committee on Cultural Routes, and ratified by the 16th ICOMOS General Assembly in Québec, Canada.

At the time, this document probably represented the most wholesale and exhaustive formulation of this new category of cultural heritage. It specifies, first and foremost, that “the Cultural Routes as a new concept or category do not conflict nor overlap with other categories or types of cultural properties—monuments, cities, cultural landscapes, industrial heritage, etc.—that may exist within the orbit of a given Cultural Route”. Accordingly, in the classification of cultural assets, a *cultural route* represents the most inclusive category, the one able to embrace all the others “within a joint system which enhances their significance”.

Despite the express recognition that “Cultural Routes are not simply ways of communication and transport ..., but special historic phenomena of human mobility and exchange... which reflect reciprocal influences between different cultural groups as a result of its own peculiar dynamics”, it is equally true that, in the ICOMOS Charter, cultural routes are primarily described as “any route of communication, be it land, water, or some other type, which is physically delimited”. Therefore, the criteria for the existence or otherwise of a cultural route depend entirely on its being a physical part of the heritage, and, therefore, on the fact that it constitutes, or is the result of, a “project planned a priori by the human will” or the consequence “of a long evolutionary process”.

The requisite of tangibility of a cultural route is also reaffirmed by the five definition criteria established in the Charter: context, content, cross-cultural significance as a whole, dynamic character, and setting. The context is “the natural context where cultural routes occur”; complying with the criterion of “content” means that “a Cultural Route must necessarily be supported by tangible elements that bear witness to its cultural heritage and provide a physical confirmation of its existence”; the criterion of setting requires that “the geographical setting has helped to shape the Cultural Route, either determining its path or influencing its development over time”.

Cultural heritage routes

Barely two years after the ICOMOS Charter, there was a new resolution of the Council of Europe in December 2010, establishing an Enlarged Partial Agreement (EPA) on Cultural Routes. Despite the brief time involved, the EPA resolution is a document which has developed an approach that is considerably different from the approach of the ICOMOS Charter. It took its main characteristics from the experience derived from the increased number of “cultural routes” that have been set up. The figures showing the implementation of the experience that began as far back as 1987 (with the institution of the first two Cultural Routes), and which then continued in later years, has proved to be more than satisfactory: In 2010, 29 routes were awarded the prestigious certification of the Council of Europe. They cover a great multiplicity of themes: European peoples, migrations, great trends of civilisation, the ways of pilgrimage, religious heritage, European figures, and two for industrial heritage – the Hansa and the Pyrenean Iron Route.

However, the EPA does not restrict itself to taking stock of previous experience; the document has the merit of fully highlighting a number of aspects of strategic importance which, in the previous formulations of the concept of cultural route, remained below the surface: a conception of “cultural route” as being strongly oriented to the project; and a new identification of the supporters of the project.

In the EPA resolution, a cultural route is defined as “a cultural, educational heritage and tourism co-operation project aiming at the development and promotion of an itinerary or a series of itineraries based on a historic route, a cultural concept, figure or phenomenon with a transnational importance and significance for the understanding and respect of common European values. It is therefore more than just a road, route or path in the conventional sense, which connects various towns”.

The difference compared to the previous formulations could not be more marked: in the EPA resolution the institution of a cultural route is founded not so much on the heritage values generated by historical processes of human mobility, as on a strong degree of intentionality, in terms of planning, designed to “shape a shared cultural space, and foster awareness-raising about heritage, education, networking, quality and sustainable cross-border tourism, and other related activities”. The cultural route must therefore become a lever for “the development of a sustainable tourist offer, thus contributing to the economic well-being of regions”.

This aspect of cultural routes as projects of educational and sustainable territorial development also leads to the second new aspect which we referred to above: the need to constitute a project support network, which must stem from “the involvement of grassroots networks and associations, local and regional authorities, universities and professional organisations”. In the light of these two new directions – project design and participation – the future mission of Cultural Routes appears to be to act primarily as an ‘open-air’ laboratory of European construction.

At this point, the question is as follows: Can cultural routes be a valid means for valorising the industrial heritage? The question may seem rhetorical given that, as we have already seen, the industrial heritage is one of the key thematic categories referred to by routes which have already been recognised by the Council of Europe. However, it is less rhetorical if we ask ourselves the extent to which the issue of Industrial Heritage may gain greater centrality in the development of cultural routes in Europe. ERIH is the right thermometer for measuring the growing use of the routes as a means for expanding, to a wider and wider social sphere, an awareness of the extent to which industry has been crucial in the construction of a shared idea of the history of Europe, and the construction of Europe. To date, ERIH has 18 Regional Routes, spread across 8 countries. The concept of Regional Route drawn up by ERIH is founded on a select nucleus of principles, some of them structural (“The Regional Routes link landscapes and sites which have left their mark on European industrial history”), and others analogical (“Each region has its own speciality. In this respect European industrial heritage is just like food. Its strength lies in the fact that it unites many different traditions within a single idea”). Insofar as they are “regional”, the ERIH Routes are not cross-border in nature; however, they contribute effectively to the construction of a common European identity by virtue of the very fact that they belong to ERIH’s trans-national network.

The limited space available here does not allow us to list, even in summary, the characteristics of ERIH Regional Route – the Ruhrgebiet Regional Route (Germany), the South Wales Regional Route and the Cornish Route of Industrial Heritage (UK), the Holland Route (Netherlands), etc. – which largely fall into line with the principles set out for cultural routes by the Council of Europe. For a more detailed analysis, we therefore refer readers to the illustrations which will follow in subsequent *Bulletin* issues.

In the meantime, we present the Industrial Monuments Route of the Silesian Province, curated by Adam Hadjuga, ERIH Vice-President and Head of the unit for the promotion of the industrial heritage of Silesia Voivodeship. In it, one can see significant points of contact with the main new features in the EPA resolution.

The Silesian Route shows both the marked project-based aspect which oversaw its construction (“as a branding network tourist product of the region”), and the broad, differentiated dimension of involvement expressed by the multiplicity of “local authorities, regional government, private investors and companies on a micro as well as macro scale” that have had a hand in its formation process. This article has the further merit of associating this dimension of broad involvement with a recurring event that has achieved great success, and growing success with the public – *Industriada* one-day festival celebrating the Industrial Monuments Route at over forty post-industrial sites.

Cultural heritage routes

Industrial Monuments Route of the Silesian Voivodeship and the INDUSTRIADA festival

Adam Hajduga,
Head of unit for promotion industrial heritage,
Silesia Voivodeship, Poland

Silesia is the most industrialized region in Poland and one of the most industrial areas of Europe. The abundance of resources as well as innovative impulses of economic policy by Prussia, part of which was Upper Silesia, were the starting point for almost 300 years of industrialization. It transformed the region completely, guaranteeing it unprecedented civil promotion, followed by predatory exploitation and degradation of the environment.

The transition from a centrally planned economy to a market economy which took place in Poland after 1989 and resulted in the necessity to undertake a thorough restructuring of the region, foremost of which was to transform the archaic monoculture of industry. Over half of 66 coalmines active in the 1980's and several steelworks and electro machine factories were liquidated.

The tangible traces of the industrial era are numerous post-industrial sites which in many cases present phenomenal testimony of the time. Most of them represent coalmining which by providing energy determined the development of the other branches of industry. One of the most precious are "(...) sites created in the middle of coalmining development period, that is the second half of the 19th and the beginning of the 20th century" [Lachowska, Owczarek, 2013: 8]. The examples include the coalmines "Królowa Luiza" (former "Königin Luise", and after 1945: "Zabrze"), "Guido" and "Main Key Hereditary Adit" (German: Hauptschlüssel-Erbstollen) in Zabrze, the "Saturn" mine in Czeladź, "Pułaski" shaft in "Wieczorek" coalmine (former "Giesche") in Katowice, "Ignacy" mine (former "Hoym") in Rybnik and the silver mine and "Black Trout Adit" in Tarnowskie Góry.

The second strong branch in the region was the steel industry. Unfortunately, in this case, not many sites were preserved. The loss is even larger considering that in the region Royal Cast Iron Foundry was operating (German: Königlich Preußische Eisen-gießerei, currently Gliwickie Zakłady Urządzeń Technicznych S.A. in Gliwice) where under John Baidon's direction "(...) the first in the European continent coke fueled blast furnace was constructed, from which on 10th of November 1796 the first pig iron was obtained" (...), "and between 1797 and 1802 one of the most modern steelworks in Europe was built, its name was translated into the name of the new urban area – Królewska Huta [German: Königshütte, current Chorzów, ref. A.H.]" [Greiner, 2011: 316].

So industrial heritage, being a material testimony of the development and profound transformations that took place throughout the last two hundred years within the area of contemporary Silesian Voivodeship, constitutes the specific character of this area and is a characteristic feature of local cultural identity. It is an integral part of European industrial heritage and a factual trace of the industrial revolution. These are the remains of a great technological civilization, which was the power of Silesian area and today should be used as an asset.

The Industrial Monuments Route of Silesian Voivodeship (IMR), and its festival *Industriada* are two excellent examples of marketing and tourist initiatives for industrial heritage promotion, in this case by the regional authorities of the Silesia Voivodeship in Poland.

The IMR is a touristic and cultural, themed car route, around 470 km long, connecting 36 sites which constitute unique examples of the tangible industrial heritage of the region. They represent the entire range of industrial heritage. Among them are four so called "Stars of the Technology": Historic silver Mine in Tarnowskie Góry, Coalmine "Guido" in Zabrze, Tyskie Br-ovarium in Tychy and "Żywiec" Brewery Museum in Żywiec. These offer visitors high quality and diversity of services alongside the unique content-related value. The 36 sites constituting the route were visited by some 724,000 people in 2014, up from 467,000 in 2009.

The sites are connected with mining (the biggest number of them), steelwork tradition, power industry, railway, communication, water production and food industry.

Objects constituting the route are functioning museums, heritage parks, inhabited workers' settlements and operating establishments. There are underground routes as well as preserved machinery, devices and production lines, the examples of impressive industrial architecture and exceptional urban design, viewpoints, spaces used for various cultural activities as well as many examples of intangible cultural heritage of particular sub-regions of the Silesian Voivodeship.

The sites are characterized by authenticity and uniqueness. Some of them have preserved their integrity, meaning their completeness and ability to function, and production is still realized. The chief asset of many sites is their symbolic dimension. Their significance for the local communities may be treated as an indicator of a sense of attachment to the inhabited area. On one hand the Route reflects its specific character and presents the industrial heritage constituting, as it was mentioned, one of the crucial elements of regional identity. On the other hand, these actions reinforce and transform the existing social identity.

Cultural heritage routes

In spite of major landscape transformations and constant elimination of industrial symbols and depriving the space of characteristic landmarks, within The Industrial Monuments Route we can easily find some characteristic landscape leitmotifs such as mines' headframes. The idea of the founders of the route was it to become a USP - unique selling proposition - of the Silesian Voivodeship in the regional tourist offers market. The route can be perceived as a branding tourist product of the region, distinguishing Silesia on the tourist map of Poland and one of the key elements of promoting the region. Since 2010 it is part of the European Route of Industrial Heritage (ERIH).

An established cultural and tourist route is supposed to reflect the specific character of the region. The material creations of industrial culture have undergone a long and difficult process of perception: from symbols of economic prosperity, prestige and pride, through the metaphor of communist backwardness, a sign of economic fall and crisis, as well as the embodiment of ugliness and dirt, up to the valuable legacy connecting the next generations with the past.

The elements of the Industrial Monuments Route are owned by local authorities, regional governments, private investors and companies in micro as well as macro scale. 17 are museums or local government culture institutions or private posts. There are two heritage parks, two art galleries, six functioning factories and plants and three inhabited workers' settlements. The Industrial Monuments Route and its festival INDUSTRIADA are financed by the Silesian Voivodeship government which has spent around €3,5 million from autumn of 2006 until the end of 2014.

Industriada is a one day annual festival in June, at over forty post-industrial sites all over the Silesian Voivodeship. It became the main marketing event for the IMR. During this special day using industrial heritage, art and craft, habitat and history, cultural property is presented. In this way the mutual links between regional identity and the space transformed by reorganization are being renewed.

In 2015 80,000 people participated in the Festival of Industrial Monuments Route, in 42 sites, with 372 different events: interactive workshops, shows presenting technology, special visitors trips, sports competitions, games, presentations, tastings, exhibitions, concerts, performances and spectacles.

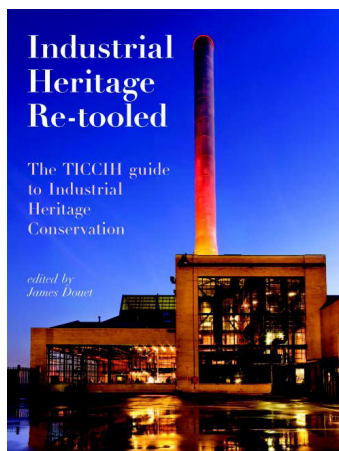
The Silesian Tourist Organization commissioned research during *Industriada* 2015 which showed that 43% of the respondents declared that during the festival they visited the chosen post-industrial site for the first time.

In 2012 *Industriada* was awarded one of the most prestigious creative advertising prizes in Poland, *KREATURA*, in the event/ambient category, beating brands such as Samsung or Ikea. In June 2013 *Industriada* won the Grand Prix Welcom Festival, First International Marketing Places organized in Warsaw, and the Golden Arrow in the experimental marketing/event marketing category ahead of commercial brands such as Coca-Cola or the Polish Oil concern Orlen.



The *INDUSTRIADA* festival is the largest post-industrial cultural heritage event in Central and Eastern Europe, held every year in June in the Silesia Province along the Industrial Monuments Route.

Photo: ©2016 Ministry of Foreign Affairs



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.

Or order it directly from Routledge:

<https://www.routledge.com/products/9781629582030>

The TICCIH Guide to Industrial Heritage Conservation is also available from TICCIH in the USA to USA members of TICCIH. This offer is only for mailing addresses in the USA and as supplies last. Shipping to locations outside of USA is cost prohibitive.

Research

20th Century Thematic World Heritage Study re-starts

It became clear once again at the ICOMOS World Heritage Panels I attended on behalf of TICCIH in 2014-15 that there was a huge need for World Heritage Studies to contextualise individual World Heritage Nominations. The types of 'OUV' – Outstanding Universal Value – suitable for each type of tentative World Heritage Site need to be more closely defined so that the criteria & attributes justifying a particular site or building's suitability for inclusion on the World Heritage List becomes clearer.

The ICOMOS 2005 'Filling the Gaps Study' defined both the '20th Century' & 'Industrial Archaeology' as two areas that were under-represented on the World Heritage List. The concept of developing a Twentieth Century Historic Thematic Framework was initiated by the ICOMOS International Scientific Committee for Twentieth Century Heritage (ISC20C).

The Getty Conservation Institute supported the ISC20C efforts by organizing an experts meeting at the GCI in Los Angeles in 2011 to discuss how to forward the project. I was asked to represent TICCIH at that meeting. Much of the impetus for examining the 20th century heritage has come from the influential DOCOMOMO organisation (International Committee for Documentation & Conservation of buildings, sites and neighbourhoods of the Modern Movement). However, ICOMOS has insisted that this process includes technological, political and other drivers besides purely architectural determinants. The 2011 meeting agreed to examine how TICCIH World Heritage Studies might feed into that process but felt there had to be a general overview of the whole of the twentieth century heritage and that that would be most suitably be done by a consultant.

As a follow up to the 2011 GCI Experts' Meeting, the Getty Foundation provided funding to the GCI to undertake the actual writing of the historic thematic framework as outlined by the ISC20C. The GCI will develop the historic thematic framework by forming a Project Reference Group and by hiring a consultant to write the actual framework document. In addition, the GCI has hired Sheridan Burke, from GML Heritage in Sydney, Australia, to get this process under way. Ms. Burke is also chair of the ISC20C. to monitor the framework document and for the Getty to begin the process of appointing a consultant.

The timetable to complete the project is quite tight, the first online meeting of the Twentieth-Century Historic Thematic Framework's Project Reference Group was held on 29 March. There will be periodic meetings with a review of the draft report by the Group at the Getty Conservation Institute in Los Angeles in May 2017. It will be finalised in June 2017 and made generally available for the use of those putting forward specific sites and buildings as possible World Heritage Sites, and for people generally to refer to.

Reference will be made to the specific World Heritage Studies, which are available at <http://www.icomos.org/en/what-we-do/disseminating-knowledge/publicationall/monographic-series/198-thematic-studies-for-the-world-heritage-convention>. Of the nine examples given in the Railways study for example two are from the twentieth century – the Moscow Metro & the Japanese Shinkansen

Active TICCIH special interest sections such as the hydro-electric & electro-chemical sections would be appropriate to contribute.

At the 20th century working session at the Getty in 2011 we identified 11 categories of 20th century sites: education; religion; commerce and industry; government and public activities; culture, recreation and leisure; transportation and communications; housing; health care; military activities; mixed used districts and communities & society.

Barrie Trinder & the late Michael Stratton in their excellent book on twentieth-century industrial archaeology (Taylor & Francis, Abingdon, UK, 2000, available as an ebook) identified the following headings as particularly important for this period: energy; the international transfer of technology; food industries; cars, ships and aircraft; the age of science and the century of total war: the great rebuildings: the archaeology of transport and expanding services.

Within these headings they identified 21 areas of particular interest to the period: Air Transport, Chemicals, Civil Engineering, Communications, Factories, Food Industry, Housing, Industrial Communities, Iron & Steel, Manufacturing Industries, Mechanical Engineering, Minerals, Power & Energy, Rail Transport, Road Transport, Seaside Holidays, Sea Transport, Service Industries and Textiles.

The ongoing programme of industry specific draft World Heritage Studies being discussed with ICOMOS is not specific to studies within the twentieth study but if someone feels they could contribute a useful essay or international study in one of these fields they should contact me. The 20th Century thematic study is expected to become very active from July-September 2016 until May-June 2017.

Information about the development of this framework document will be made available on the GCI website and I will report on progress within the TICCIH Bulletin.

Stephen Hughes, TICCIH Secretary.

Modern Industrial Museums

Technical Museum of Slovenia

Natalija Polenec,
Director of the Technical Museum of Slovenija.

The Technical Museum of Slovenia goes back to the early 1950s and a mission to collect and exhibit moveable elements to explain the historical development of the nation's indigenous crafts, trades and industry. It's housed in a 13th century Carthusian monastery in Bistra, a small town some 22 km from the capital of Ljubljana. As the collection has grown over the years the need for more space led it to expand into other specialist exhibitions across the country, some now independent museums in their own right.

The first collections in Bistra were of forestry and hunting implements. Today there are permanent exhibits about agriculture, transport, forestry and woodworking, hunting and fishing, textiles, printing and electrical engineering. In other parts of the country we have the Museum of Post and Telecommunications in Polhov Gradec, the Soteska near the Dolenjske Toplice open-storage depot, exhibition in the Tomaž Godec Tannery in Bohinjska Bistrica and graphics and printing workshop as well as a cartographic exhibition in the Wagensberg (Bogenšperk) Castle. As well as building the collections we try to keep heritage alive with different workshops, presentations, temporary exhibitions, guided tours, lectures, Sunday events, and Days of Science and Engineering

Ours is a national museum but presents only one part of the mosaic that is the diversity of Slovene cultural heritage. By definition we cover the technical heritage of the whole territory, to interpret technical heritage, explain and reveal technical achievements, innovations and the influence of it on production, life in Slovenia, and social habits. Other museums in Slovenia, national or local, also keep some collections that may be considered technical, but their perspective of presentation and study is ethnological or sociological. We try to maintain good collaboration among museums and we borrow and lend our exhibits to present them in different exhibitions.

Today we face a rapid collapse of different branches of industry and crafts due to modernization, development or economic crisis. So our efforts are focused on saving tools, machines and other devices that were important as Slovene technical achievements, or that were an indelible part of history because of their influence on society. At this point, our most important challenge is the problem of warehousing. Industrial heritage pieces are typically large and heavy, we do not have any proper storage and so we are sometimes forced to reject them. We do not have a regular acquisitions budget for buying objects that appear on the open market and could be important for our collections.



Natalija Polenec

Photo: Neža Renko

Digitalization means better accessibility to the museum and its collections, yet is a considerable challenge considering our material and author's rights. From 2008 to 2011 digitalization was financed through the EU Athena project, to create the common EU portal Europeana, and until 2014, the Ministry of culture financed systematically it in national museums. But our objects are very complex and digitalization is not simple. There is also a lack of employees to perform it regularly. We would need a photographer and documentalist who would work on digitalization professionally. We cannot describe it as a priority but I hope that in the near future this situation will change.

As majority of the TMS is in the Bistra castle, and at the moment we're in a very unenviable position. The castle needs complete renovation and also much of our exhibitions. The oldest, the hunting department, was first displayed in the 1970s. We are working on a foundation for new exhibitions with a more multidisciplinary approach. We would like to embrace new fields that the museum hasn't worked on, such as the history of Slovene airplane construction, building technologies... With the reconstruction of the castle we expect more exhibition space for new presentations. On the other hand, without solving the staffing problems we are forced to look modestly toward the future.

We are proud that a majority of our visitors are youngsters, coming to our special programs that promote science and engineering studies and involve students and their mentors in innovative presentations. Our pedagogical department works on specialized programs and workshops for different educational levels. We receive fewer tourists than we would if the museum was more easily accessible by public transport, and we are making links with local tourist organizations and agencies.

Modern Industrial Museums

Now we are working on more innovative programs designed for both domestic and foreign visitors. Our understanding of our mission is not only to present industrial heritage, we already focus our programs in technical education and this will probably remain our strongest advantage. In addition, we try to follow achievements in product design and present the competitiveness of Slovene builders, scientists and innovators. Besides, a function of museums is to capture and preserve that which becomes obsolete, or is in danger of being forgotten. It is hard to define a general strategy for industrial museums, there is such a diversity of approaches among them.

We are a rather small technical museum in comparison with other national museums, but it is worth your while to visit us. We are interested in cooperating in European projects.

We recently completed the very successful *Work with sounds* project, whose aim was to record the original sounds of operating machines, vehicles and tools (see *TICCIH Bulletin #70*). Now we have sounds available to the public that can be used for interpretation, exhibitions or for other purposes, even, for example, creating music.

As well as some very attractive collections and regular workshops, the museum is an ideal destination for spending an entire day exploring both a museum and its fascinating vicinity. Our collections are spread throughout Slovenia. Although it is more complex to maintain all these collections we are happy that this year we will move our exhibits from the depot in Bistra to new open-storage depot in Pivka, which will enable visitors to see more of our hidden treasures.



The Technical Museum of Slovenia from the air. As well as the former Bistra castle visitors experience the Bistra River and park.

Photo: Jure Korber

The blacksmith's workshop conserved in the Technical Museum of Slovenia.

Photo: Blaž Zupančič



Conservation

Blue Arrow train restoration

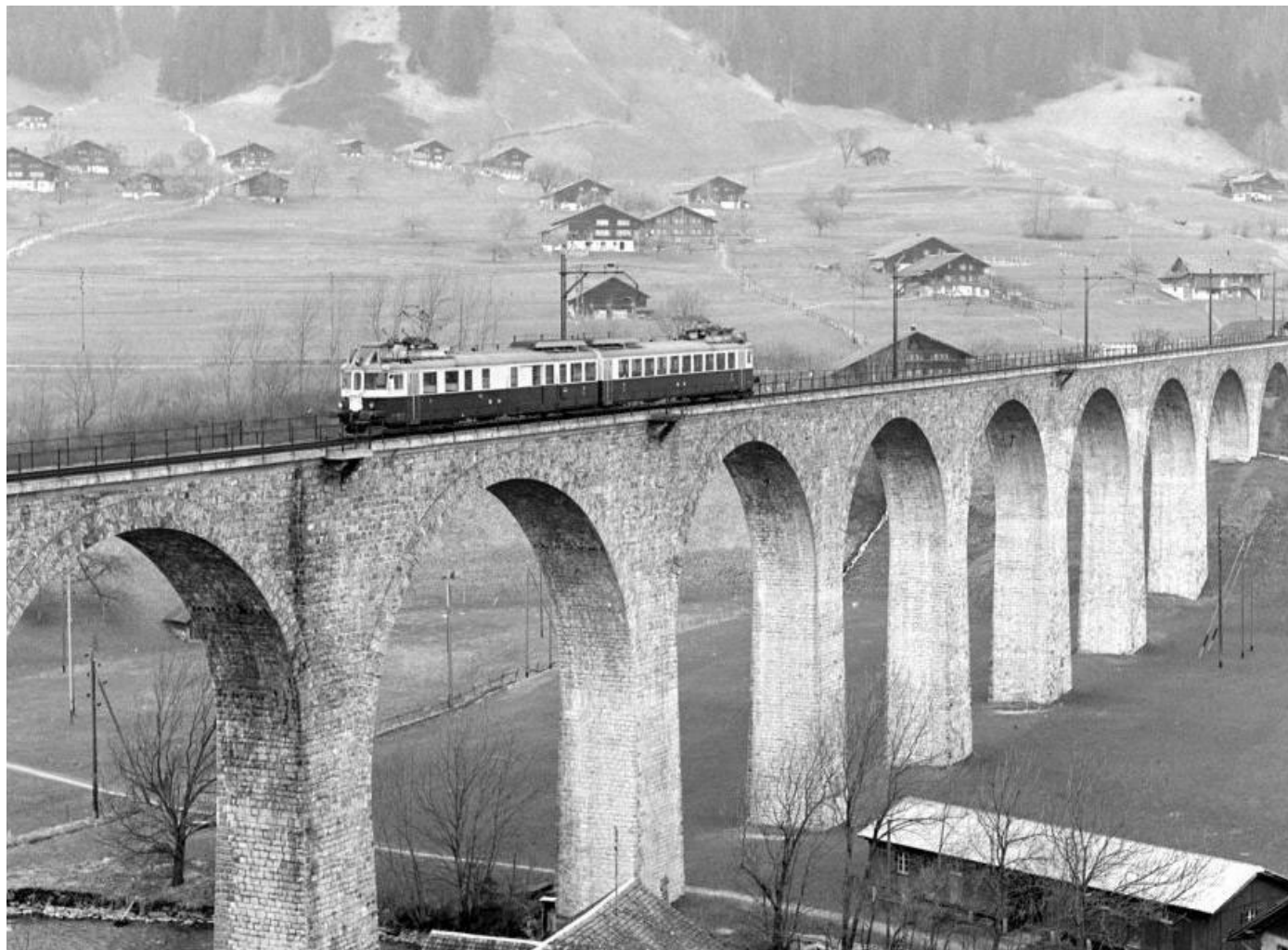
Kilian T. Elsasser

In 1994, Bern-Lötschberg-Simplon-Bahn railway established a foundation (BLS-Stiftung) to look after its historic rolling stock. The strategic mandate of the foundation is to preserve historical electric vehicles that were closely linked to the pioneering achievements of the BLS. In 2011, the foundation bought the *Blue Arrow* from the Tramverein Bern (Tramway Association Berne) who saved it in 1999 from scrapping. The *Blue Arrow* was built in 1938 and was as we would say today a low-cost vehicle. With its construction the weight per transported person could be cut in half and thus also the cost for the electrical energy.

The restoration of the train to running condition began in 2012. Thanks to the support of the Canton of Berne, the corporate sponsorship from BLS' industrial partners Bombardier and Stadler, as well as donations from private organisations and individuals, the overhaul was completed at the Bombardier works in Villeneuve and BLS workshop in Bönigen for 2m Swiss francs.

The maiden voyage was made in August 2014. The restoration project was completed in close co-operation with the patrimonial office of Canton Bern and placed an emphasis on saving as much historical substance as possible. This included making windows perfectly rectangular again, while repainting the unit into the 1938 blue and cream livery, replete with silver roof. The postal compartment and jail cell present themselves in the state of the building of the train in 1938 as does the third class compartment, with brown leather seats and light linoleum floors. Although the former second class compartment adjacent to the postal section was not rebuilt so as to maintain more of the historic substance from 1983, that part of the vehicle features elegant upholstered seating with a red fabric, in reference to the original style and purpose.

Now formally designated BCFe 4/6 736, the train may be chartered for private excursions. In 2015 the *Blue Arrow* won the Swiss award for the exemplary preservation of a historical monument. It is the first time a railway vehicle has won this prize.



The original *Blue Arrow* train crossing the Kandeviadukt in 1978.

Photo: Bernhard Studer

Conference report

VIII Latin American Colloquium on Industrial Heritage, March 14-16, Havana, Cuba

Kett Murphy, Beyer Blinder Belle, architects and planners, New York

The three days of parallel sessions on the topics of ports and factories, industrial reuse projects, sugar refineries, research, and cataloguing methods was kicked off by Gladys Collazo Usallan, from the National Counsel of Cuban Cultural Heritage. Plenary talks were given by Jorge Tartarini and Miguel Ángel Álvarez. Tartarini, associate researcher at the National Research Council of Argentina (CONICET) and director of the Museum of Water and Sanitation, spoke about railroad architecture throughout Latin America- the subject of his forthcoming book. Álvarez gave the final plenary talk on the subject of new uses for industrial heritage sites in Europe and Latin America. The talk used case studies to discuss the limits and possibilities of reuse projects as well as the role they play in regional development, cultural and industrial tourism, civic and social facilities, and the broader interplay between nature, culture, and industry.

A special exhibition curated by the National Counsel of Cuban Cultural Heritage was in place at the Palacio del Segundo Cabo as a compliment to the conference. A photographic exhibit introduced conference attendees to 18 industrial heritage sites in Cuba. A number of the sites from the exhibit were also discussed in greater depth in full-length presentations. Some of the sites were still fully operational. Tours, site visits, and an evening presentation about the Cuban rum industry gave participants the chance to learn more about Cuba's industrial heritage.

We visited a number of working industrial sites as well as some sites with uncertain futures including the Cemento el Morro factory. Defunct industrial sites that are not likely to draw visitors face many obstacles in securing government interest and

funding. In the absence of a private sector, the government acts as the primary client for major construction projects. Their support, therefore, is integral to large-scale reuse and preservation efforts.

While portions of the Havana waterfront remain industrial, other areas are dedicated to tourism, culture, and recreation. Participants were able to tour some of the newer waterfront reuse projects including a former 19th century warehouse that currently houses a microbrewery. The tourist economy is a significant driving factor in many restoration efforts. Unfortunately, many of the new commercial enterprises that occupy these spaces are geared towards tourists and are prohibitively expensive for local residents. This issue is compounded by the dual currency system currently in use.

The Fabrica de Arte Cubano is a reuse project that represents a convergence of interests from the government, the local arts community, and industrial preservation. FAC occupies a former olive oil factory in Havana's fashionable Vedado neighborhood. The building now houses a privately operated restaurant, a bar, and a Cuban Art Center. The momentum for the project originated with a local arts community.

Industrial heritage in Cuba is under threat from two very different forces. On the one hand, the lack of government funding and resources means that the sites most likely to receive government attention are either contiguous with larger established cultural tourism sites like the old city or are actively serving as pieces of industrial infrastructure and require maintenance to remain operational. The other more unknowable threat is linked to the nascent, but growing private sector which exposes the built environment to a possible influx of development money from abroad that could result in the demolition of former industrial sites that occupy desirable locations. Fortunately, the government recognizes the value of industrial heritage and is actively documenting important sites.



Conference attendees had the opportunity to participate in tours of Havana's waterfront and port.

Photo: Kett Murphy

Conference report

The vitality of Latin-American industrial heritage

Eusebi Casanelles, TICCIIH Life President

I have not visited Cuba since the II Colloquium Latin American Congress of Industrial heritage in 1998. The current city's landscape is very similar to those years. There have been no major urban transformations like those suffered by the majority of the other American towns and they have not built tall buildings. Havana maintains its identity created during colonial times (the last Spanish colony to gain its independence, in 1898) and during the postcolonial period in the first half of the 20th century. For the foreign traveller, this Caribbean town is unique and magical. Old Havana, declared World Heritage, glitters if compared with how it was twenty years ago. The slow restoration of its buildings, streets and squares has given much more visibility to the original buildings and has conferred on the area a great urban quality. Unlike in 1998 there are many more tourists and it exudes a better economic situation - and they have increased the availability of electricity, a very important issue thanks to Venezuelan oil imports.

Cuba retains a valuable industrial heritage. Best known is that of the sugar industry whose and the World Heritage pre-industrial town of Trinidad, which attained a great splendour thanks to the manufacture of this sweet product. Four museums of sugar have been created in industrial sugar factories. Second in importance is its railway heritage. Unlike the vast majority of Latin American countries (eg. see *Jorge Tartarini's report on Argentina, TICCIIH Bulletin #71*), it has kept an extensive railway network of 5,064 km, over 3,000 related to the transport of the food industry. This involves a significant heritage, much of great historical value such as the Bejucal terminal of the first Cuban railway built in 1837, as well as the monumental Havana train station. The Railway Museum in Cristina station in La Havana was opened in 2002. Here it is possible to contemplate some of the 250 or more steam locomotives. the heritage of coffee and tobacco should also be highlighted. Other areas discussed in the presentations were that of cement, beverage companies and the light manufacturing industry that produced different products in several parts of the island.

TICCIIH Latin American countries have organized uninterruptedly since 1995 a triennial Congress in the year following the

main TICCIIH Congress: first was Mexico in 1995, followed by Cuba, Chile, Peru, Argentina, Brazil, Mexico and Cuba. This symposium organised by the National Council for Cultural heritage of Cuba and TICCIIH attracted about 150 people from thirteen American countries plus Europeans, Australians and New Zealanders. Thanks to this Conference three new countries have joined TICCIIH, Paraguay, Bolivia and Costa Rica, added to Colombia and Guatemala which began their incorporation a few months ago.

The Conference covered several issues and many communications were of high quality. This showed the development of industrial heritage in Latin America. A good example is the excellent paper by Jorge Tartarini (Argentina) about the railway stations in Latin America as a result of a work done during several years, an overview of these monumental buildings, many of them now without activity because the closure of the rail line. The Latin American congresses impress Europeans by the youth and vitality of their participants. Countries such as Mexico, Argentina and Brazil already have a community of researchers, urban planners, architects and museum curators who work for increasing the knowledge, the preservation, the restoration and the dissemination of industrial heritage.

A visit to the port of Havana showed a magnificent industrial space located in the vast bay, twice as large as the London Docks. Its entrance is a narrow space where the city's most important fortifications and the magnificent Morro Lighthouse were built. This lighthouse and San José wharf are the two jewels of the 19th century. The trip allowed members of the Congress to see the jetties of the Sierra Maestra terminal, built in 1914, the railway station, the Tallapiedra thermoelectric plant and the Board of Trade building, in front of Old Havana and a number of buildings which Joan Alemany listed in his speech. The transfer of the port at Mariel will be a challenge for the preservation of these buildings.

In La Havana it is recommended to visit the cigar factories especially Partagas, the magnificent aqueduct and other buildings rehabilitated such as Ron Bacardit factory. The last day of the Congress saw the general Assembly approve preparatory work on the 2018 TICCIIH Congress in Santiago de Chile and the next Latin American Congress in 2019 in Guatemala.

See you there!!!

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Publications

Work Sights: The Visual Culture of Industry in Nineteenth Century America, Vanessa Meikle Schulman, Amherst: University of Massachusetts Press, 2015. 304 pp. 67 b&w illustrations. 978-1-62534-194-5 (cloth), \$95.00. ISBN: 978-1-62534-195-2 (paperback): \$29.95.

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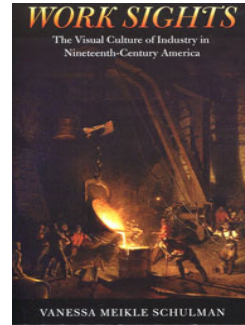
In her imaginative study of the nineteenth century visual culture of industry between 1857 and 1887, Vanessa Meikle Schulman explicates a wealth of images picturing American technological ingenuity. Her introduction, *Behold the Lightning Chained and Bound*, discusses how such representations helped the public 'make sense of often disorienting new developments that shaped both industry and daily life.' Americans were saturated 'with thousands of images of industry' during a turbulent period of radical change in communication, corporations, mechanized production, and distribution.

Schulman's purpose is ambitious: 'to ascertain some of the meanings these images had for their viewers, to explore how artists working in divergent visual media helped to shape American ideas about technology, and to consider hidden chains of association, teasing out how an image's visual armature creates rhetorical positions within a larger culture of debate and representation.' She considers dually the high art of painters as well as magazine illustrations.

Schulman's six chapters explore a broad range of issues. In the first, *Between Materiality and Magic: Representing the Railroad and the Telegraph*, she discusses the two main technological systems that structured commerce, travel, and communication. She demonstrates how magazine illustrations helped the public to both understand these new technologies as well as to apprehend the idea of a national identity based in 'a unified and technologically progressive nation.' The laying of the international telegraph cable and the completion of the transcontinental railroad were two events that transformed American transportation and communication, and whose standardization together created 'an image of the ideal nation.'

Two powerful paintings inspired by the West Point Iron and Cannon Foundry—The Gun Foundry (1864-66) and Forging the Shaft (1866-68)—are the subject of *Where Vulcan is the Presiding Genius: John Ferguson Weir, Metallurgy, and the Alchemical Sublime*. Industrial interiors were uncommon before the 20th century, and Weir's dramatic canvases 'explore the frightening and magical side of American industry.' The material transformations effected in the foundry represent an alchemical sublime achieved by active labor and fiery process. Weir's renditions of 'metallurgic subject matter' illuminated the 'irrational, awesome' side of industry, which in itself could be described as an 'alchemy of capitalism.'

In *Swords into Ploughshares: Reconstruction, Reconciliation, and Labor*, Schulman focuses the period after the Civil War when 'technological systems were imagined as increasingly national



in character.' Using representations of southern industries published in northern periodicals, she demonstrates how the North, in leading the nation in modernization, would reunify the South with the rest of the America. The political cartoons and illustrations printed in the popular magazines, *Harper's Weekly* and Frank Leslie's *Illustrated Newspaper*, presented an image of labor well adapted to the reconstruction and rehabilitation of the South.

Sugar, Shipping, and Cityscapes: Mapping Systems in Thomas Moran's Lower Manhattan from Communipaw, New Jersey explores key 'systems at the heart of American industrialization.' Manhattan is visible in the distance in Moran's painting, seen from an area 'densely packed with factories and shipping docks.' While best known for his spectacular renditions of the American West, here the artist portrays 'the tension between the manmade and the natural.'

The 'rise of an organizational culture' based on the 'rationalizing principles' of industrial capitalism is the subject of *Managing Visions of Industry: The Managerial Eye*. Artists employed three key compositional techniques — 'cut-aways, multi-paneled images, and panoramas'—to give viewers 'a sense of power, control, and knowledge over manufacturing.' The managerial eye thus enabled a viewer to 'understand at a single glance' the workings of an entire operation. She includes fascinating images of hog butchering and processing, and the sardine, textile, and ice harvesting industries.

Schulman's final chapter, *Laziness and Civilization: Picturing Sites of Social Control*, reveals the importance to capitalists of 'systems in the social realm,' as seen in the portrayal of 'factories, schools, prisons, and workhouses.' Progressive era philanthropy aimed to tackle the 'social ills of poverty, crime, and lack of proper education,' with the goal of teaching 'the value of labor' so as to shape them into 'properly productive workers.' Through careful social management and a system of public elementary and technical education, students who had been instilled with the 'values of application, diligence, and self-reliance' could secure gainful employment.

Schulman's conclusion, 'Twentieth Century Echoes,' shows that when halftone photography illustrations replaced the wood engravings used in the nineteenth century popular press, the image of industry and technological advancement changed once again. While this volume is focused on the United States, it offers useful approaches for the analysis of comparable phenomena in Europe.

Upcoming - 2016

UK

Celebrating the tin-working landscape of Dartmoor in its European context, Prehistory to 20th Century
6-11 May, Tavistock, Devon.

Croatia

7th International Industrial Heritage Conference PRO TORPEDO, 150th Anniversary of the invention of the "Luppis- Whitehead" torpedo.
19-21 May, Rijeka.

USA

SIA 45th Annual Conference, Kansas City, MO. --
2-5 June: Info: www.sia-web.org.

Canada

What does heritage change? Association of Critical Heritage Studies, with a session on 'Industrial Heritage: toward comparative perspectives'
6-10 June, Montreal

UK

6th International Early Railways Conference, Newcastle-upon-Tyne
16-19: June Info: www.earlyrailways.org.uk.

Singapore

Society for the History of Technology (SHOT) Annual Conference
22-26 June. Info: www.historyoftechnology.org

Portugal

ICOHTEC Symposium, Technology, innovation, and sustainability:
historical and contemporary narratives.
26-30 July, Porto. Call for papers

Portugal

Docomomo Annual Congress, Lisbon. Adaptive Re-use workshop considering the huge MMC industrial facility that produced food, uniforms and other goods for the Portuguese Army.
6-9 September. Info: <http://www.docomomo2016.com/#!/workshop/csen>

Guatemala

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

Portugal

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

Opinions expressed in the Bulletin are the authors', and do not necessarily reflect those of TICCIIH. Photographs are the authors' unless stated otherwise.

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TICCIIH is the world organization for industrial archaeology promoting conservation, research, recording and education in all aspects of industrial heritage. It holds a triennial conference and organises interim conferences on particular themes. Individual membership is \$30 (USD), corporate membership \$65, and student membership. \$15

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

The **TICCIIH Bulletin** welcomes news, comment and (short-ish) 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 TICCIIH Bulletin is published online to members four times a year.

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