

The international Committee for the Conservation of the Industrial Heritage



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Rendering of the proposed adaptation of the historic Bramley-Moore dock in Liverpool as a new stadium for Everton Football Club. This is the largest dock in the Liverpool - Maritime Mercantile City World Heritage Site. The club claim regeneration benefits of \pounds 1.3 billion to the economy and more than 15,000 jobs, but conservation agencies are raising doubts about the effect on the heritage. The historic interest of Liverpool's famous river harbour is explained on page 3. Photo:Thanks to Everton FC.

FROM YOUR PRESIDENT

Dr Miles Oglethorpe

I have a feeling that I will not be the only person who will have been glad to say goodbye to 2020.... It was quite a year, and mostly for all the wrong reasons. A number of people have been challenging each other to choose a word that best describes 2020, and for me the obvious one is 'viral', not merely because of CoVid19 itself, but also because of the digital revolution that it has induced.

Despite the pain, tragedy and loss, many of us have been propelled into a world of virtual meetings, workshops and conferences, and as a result have met people and done things we could never have imagined a year ago. Our reach has expanded exponentially, and in my case, so has my technical incompetence, fuelled by my failure to grapple successfully with time zones. However, despite some embarrassing setbacks, I have tended to win through in the end.

For the TICCIH Board and especially our Secretary General a key priority remains keeping our membership accurate. Experience tells us that people tend to let their membership lapse in between congresses, so this is the time when we need to remind people to renew and to get organised prior to the next General Assembly, due to take place at the Montreal 2021 congress. At risk of sounding repetitive, it's essential that all National Representatives ensure they have at least five current members in their countries. Without them, they are not entitled to vote in the elections. So, now is the time to revitalise your networks.



MILES OGLETHORPE

We have in fact being working hard on our **membership**, and if you visit our website you will notice there have been some changes. The first point I must stress is that we are encouraging all members to join individually so that they can take advantage of the benefits membership brings more effectively. In particular, it allows you to register in the **Members Directory** and plug into our growing international network. We recognise that some countries are finding it difficult to uncouple from their systems of collective membership, but we urge you to try to ensure that as many of you as possible sign up individually if you are able to do so. We really need to know who everyone is.

Meanwhile, we are delighted to welcome new members from countries where we have previously had no or very little representation. These include Nigeria, Indonesia and Pakistan. However, I'd like to reserve a special mention for Ivan Henares, who in a remarkably short period of time has set up TICCIH Philippines and collaborated with me to draft and sign a National Agreement (see elsewhere in this issue). All of which further demonstrates the unexpected positive impact of organised virtual encounters. Good recent examples of these have included three workshops staged by the Asian Network of Industrial Heritage, the Deindustrialization and the Politics of Our Time series, and the International Institute for Conservation's annual conference which had to go virtual and yielded some fantastic new contacts from across the world.

Naturally, some of you will be starting to wonder about the Montreal 2021 congress, and you will not be surprised to hear that so are we. There is no doubt that the availability of the new vaccines is going to be an enormous relief, but it is also true that there are huge uncertainties about how it will be administered across the world, the speed and efficacy of its impact and the extent to which the pandemic disruption afflicted on 2020 will abate in the coming months. For this reason, it is still possible that Montreal 2021 may become Montreal 2022. We will have to come to a decision in January 2021, but one thing is certain - our next major congress will not be virtual. We may include some live on-stream digital components, but we all recognise the urgent need to meet in person once again.

This doesn't mean that we will not be exploring ways in which we can meet virtually in the future. It may be, for example, that we will have to have a digital General Assembly if the main congress is delayed. Equally, there will be opportunities to organise all sorts of thematic and regional digital events. We have been empowered by the new communications technologies, and there is no excuse if we do not take full advantage and exploit them as much as we can.

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TICCIH is the world organization on Industrial Heritage, promoting its research, recording, conservation and dissemination and education on industrial heritage. It holds a triennial conference and organises interim conferences on particular themes. Individual membership levels range from \$10 to \$40 (USD), corporate membership is \$65, and student membership levels range from \$5 to \$10.

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.

Back issues can be downloaded as a pdf file from the TICCIH web site, <u>www.ticcih.org</u>





NOTES

NATIONAL REPORTS FOR MONTREAL 2021

The national reports which have been published for each TIC-CIH Congress since 1973 are now being prepared by national representative or coordinators in each country. A template to guide the content and format of the reports has been sent out, but if you have not received it, or have doubts about who is preparing the report for your country, please contact the editor. The deadline to submit the report is June 1, 2021.

CORRECTION

Stefan Berger and Steven High wish to correct the list of partners involved in the 'Deindustrialisation and the Politics of our Times' featured in the last issue of the TICCIH Bulletin. The Landschaftsverband Rheinland, mentioned as a partner, is not a partner; instead the Landschaftsverband Westfalen-Lippe is, and so is the Deutsches Bergbaumuseum in Bochum, also not mentioned in the article. We regret the confusion and omissions.

REPORT

UK

LIVERPOOL DOCKLANDS, CONSERVATION OR CONSTRUCTION?

John Hinchliffe and Tim Darmody

The post-industrial adaptation of Liverpool's historic waterfront is one of world's best-known regeneration strategies, crowned by World Heritage inscription in 2004. Restructuring the city's economy moved on, however, and within ten years the city council's stewardship of Liverpool-Maritime Mercantile City prompted UNESCO to threaten delisting. Current controversies include perhaps the first adaptive re-use of a historic harbour warehouse as a soccer stadium for 52,000 fans.

1848 was an annus mirabilis for the growth of Liverpool's docks. It was the year that Stanley, Collingwood, Salisbury, Nelson and Bramley-Moore Docks were all opened on the same August day, built to the design and under the supervision of Jesse Hartley, Dock Engineer to the Port of Liverpool from 1824 to 60. It was a remarkable achievement of civil engineering and enterprise: approximately 4,000 men working for four years to excavate three million cubic yards of rock and mud. The system of five interconnected docks was opened just two years after Prince Albert opened the Albert Dock adjacent to the town centre, built in the tidal margins of the River Mersey and close to the site of the world's first commercial enclosed wet dock of 1715.

All of these historic docks (and more) are within Liverpool's UNES-CO World Heritage Site, which was inscribed in 2004 on the theme 'Liverpool - the supreme example of a commercial port of the 18th, 19th and early 20th centuries'. When the ICOMOS assessor Dr Ray Bondin came to assess the nomination in 2003, he wrote 'Liverpool has the biggest and most complete system of historic docks in the



Liverpool docks around 1864 before construction of Tobacco Warehouse. Ordnance Survey.

world.' These are crucial to Liverpool's Outstanding Universal Value and to its DNA.

The renaissance of Albert Dock as a mixed use leisure/business and residential attraction in the 1980s is an international icon of heritage-led regeneration. Albert's brother-docks to the north have had to wait longer, however, following their industrial obsolescence due to changes in shipping practices, increase in size of ships and containerization.

The adaptive re-use of Stanley Dock is progressing with a vision and



The restored North Warehouse as the Titanic Hotel with the NW Gateway showing Hartley's characteristic stonework, the castellated Hydraulic Power House and the Tobacco Warehouse in the background.

assuredness to match its original creation. When it opened, it was connected to the Leeds and Liverpool Canal by a flight of four locks (also built by Hartley), to its own railway yard, as well as to roads, and so that it became a multi-modal transport interchange for the transhipment of a variety of goods being imported and exported. Although Stanley Dock itself opened in 1848 with its own dock security wall (it was the only dock outside the main security wall), it has evolved since then: two hydraulic powerhouses were built in the early 1850s (one since demolished); two monumental fire-proof warehouses went directly on the North and South quaysides in the mid-1850s; the dock was partially filled at the end of the 19th century for the gargantuan Tobacco Warehouse which opened in 1901; a huge concrete grain silo was built in 1913 (since demolished); a large concrete extension to the South Warehouse in 1915 (also demolished); the destruction of the east end of the North Warehouse in World War II; and the construction of a replacement Rum Warehouse with a barrel vaulted concrete roof in 1953. This evolution adds rather than detracts to Stanley Dock's multi-layered historic significance.

The Dock's two early warehouses replicated much of the basic structural form of the warehouses at Albert Dock, with cast-iron columns and hogback inverted-V beams, brick walls and vaulted ceilings with wrought-iron tie bars. They were bonded warehouses, in which goods could be held without paying duty - every door had

two padlocks, one key held by the warehouseman and the other by the customs and excise officer.

Stanley's two hydraulic powerhouses were built in Hartley's trademark cyclopean granite stonework and his Romantic castle-like style, as were the four corner gatehouses. The hydraulic accumulating towers were amongst the first in the world to generate power through relatively low weight bins rather than through water in tanks at much greater height. The power was used to operate cranes and other lifting gear with the power multiplied by the use of jiggers. The system was invented by William Armstrong in 1850. Hartley went to see them in action in Newcastle and reported to the Dock Board:'...I think it one of the most important acquisitions which can be given to warehouses and docks' and he ordered some for the new docks and warehouses in Liverpool. The accumulator tower and weight bin of north powerhouse survives although most internal equipment has been lost.

The 1901 Tobacco Warehouse was the largest in the world. It is 220m long and 50m wide and had a staggering total floor area of 15 hectares. Its fourteen stories swallowed up 27 million bricks, 30,000 panes of glass and 8,000 tons of iron. It was designed specifically to accommodate up to 70,000 huge hogsheads (barrels) of tobacco, each stacked singly on end. The structure illustrates the transition of high-rise structures, with cast-iron columns (in diminishing di-

ameters) but steel beams and floors of in situ cast concrete. It was described in an early survey as being '...of a magnitude unparalleled in the United Kingdom...' and in 1969 as 'the King Kong of dock-lands'! It was designed by A G Lyster (the dock engineer of the day) although the architectural draughtsman Arthur Berrington had a hand in some aspects of the design, notably the decorative high-level terracotta.

After decades of near-disuse and neglect, the future of Stanley Dock was in grave danger in the early years of this century due to its absentee owner, the intrinsic challenges of its size and design, the huge scale (and cost) of the task of adaptive re-use and its unfashionable location in the grubby hinterland of the docks.

However, the whole site was bought in 2010 by Harcourt Developments who had the vision and capacity to set out on a long-term regeneration programme. The North Warehouse was converted into the Titanic Hotel and Rum Warehouse events centre in 2014 and has been a great success, with high occupancy rates and winning many awards from both the hospitality sector and construction/ conservation bodies. It has been the catalyst for further regeneration in the surrounding area, now known as Ten Streets and being promoted as a new cultural hub. Work on the conversion of the Tobacco Warehouse is well advanced, with the first occupants due to take up residence this year. The scheme has included the creation of three full-height atria through the building to let in light and the partial demolition of alternate floors to create mezzanines and double-height rooms adjacent to external walls. This limited demolition has (temporarily) revealed the simple matrix construction of the warehouses and has enabled its beneficial re-use. Stanley Dock, at least, is in safe hands.

Collingwood, Salisbury, Nelson and Bramley-Moore Docks are within the separate, but even more ambitious, Liverpool Waters regeneration site. An outline planning permission was approved by Liverpool City Council in 2013, following the British government's decision not to call the application in for a public inquiry, despite objections to some aspects of it from the English conservation agency Historic England and from UNESCO. The approved proposal retains all the historic docks as active, open water spaces, including a new marina in Bramley-Moore Dock as it is the only one in the huge site with operational river dock gates.

No detailed applications have been submitted for Collingwood, Salisbury or Nelson Docks and they remain disused and closed to the public behind the 'Great Dock Wall of Liverpool'.

However, a definite proposal has emerged for the redevelopment of the Bramley-Moore Dock. This is the largest dock in the World Heritage Site and lies at the very north end of the docks in the World Heritage Site, next to a new wastewater treatment works, built with the approval of Historic England and UNESCO, recessed within Wellington Dock to improve the water quality of the River Mersey. Everton Football Club wishes to move out of its antiquated and hemmed-in Goodison Park stadium and has submitted a planning application to build a new waterfront stadium at Bramley-Moore Dock, naming it The People's Project. Although the proposal has the potential benefits of continuing the regeneration of this part



The west end of the former Tobacco Warehouse.

of North Liverpool and being an impressive monumental structure on the waterfront, there are drawbacks. These include infilling Bramley-Moore Dock, puncturing the great dock security wall with new openings, and demolishing the only surviving transit shed in the World Heritage Site. Bramley-Moore Dock and the dock security wall are Grade II listed buildings and within both the Stanley Dock Conservation Area and Liverpool WHS.

Liverpool City Council's adopted Supplementary Planning Document for the World Heritage Site seeks to protect the docks and their associated structures: Section 4.7.6 states The surviving areas of docks in the WHS and Buffer Zone, including historic dock retaining walls, quaysides, artefacts and their water spaces should be conserved, retained and enhanced...

The elected mayor of Liverpool, an Everton supporter, has publicly backed the proposal for the stadium and a public consultation is overwhelmingly in favour of it. The City Council approved the North Shore Vision in 2020 which says Liverpool's North Shore will be an international exemplar of heritage-led regeneration that delivers sensitive development alongside urban renaissance and economic prosperity. The area of the North Shore Vision encompasses four distinct projects: the on-going restoration of Stanley Dock, the implementation of the Liverpool Waters proposal, the implementation of the Ten Streets Strategic Regeneration Framework and, the People's Project.

Historic England gave careful consideration to the impacts of the proposed stadium on the heritage assets and concluded 'We consider that the proposal to infill the dock...would result in substantial harm to the significance of the Grade II-listed Bramley-Moore Dock and cause harm to the World Heritage Site....Due to the impact of the proposals, we regrettably think that this application should be determined by the Secretary of State and will ask for it to be called in for his determination.' Historic England also said the application should be refused 'unless the decision-maker concludes that the public benefits would outweigh the damage to Bramley-Moore dock and the harm to the World Heritage Site'.

UNESCO's World Heritage Committee reviewed the development issues in Liverpool at its meeting in 2019 and repeated its 'serious concerns' over the impact of some of the proposed developments. It has previously threatened to delete Liverpool from its World Heritage list if proposals which it considers to be damaging are approved and implemented. One such proposal is for mid-rise developments in Liverpool Waters on the site of the former Clarence Dock Power Station.

The long-term international debate which seeks to reconcile the tensions between development and protection of cultural heritage goes on globally but is especially keenly felt in Liverpool. The key to mutually acceptable solutions in such cases is usually found through continual dialogue, mutual understanding and compromise by all parties. In this particular case, is it naive to suggest that the solution could be to relocate the proposed new stadium to the site of the former Clarence Dock Power Station? It is a cleared site with the same owners as the dock. It would be nearer the city centre, cheaper to build, avoid damage to the historic docks and replace the proposed mid-rise development which Historic England and UNESCO considers to be damaging. Just saying...

John Hinchliffe IHBC RTPI (www.HinchliffeHeritage.com) is an independent heritage consultant and the heritage consultant to Harcourt Developments for Stanley Dock.

Tim Darmody (www.darmodyarchitecture.com) is the architect for Harcourt Developments on Stanley Dock.

WORLDWIDE

SWEDEN

ÅGESTA NUCLEAR POWER STATION

Magdalena Tafvelin Heldner, Curator, Tekniska Museet

Ågesta Nuclear Power Station has been proposed by the Stockholm County Administrative Board to become a state building monument but this proposal was rejected by the Swedish Government. Several alerts from the industrial circles, including TICCIH, has stressed that Ågesta is an extremely important nuclear site both in a national and international context. It has also been a constant focus of public interest since its closure, a fact which confirms a wider public appreciation of its importance. The architectural, technological and human aspects of the site have established a valuable educational resource. Indeed, the level of scholarly interest was demonstrated by the success of the international research conference Nuclear Legacies conference held in Stockholm in 2017. Despite these efforts the site is going to be decommissioned. The final dismantling work begins in 2020 and will last for 3-4 years.

Ågesta Nuclear Power Station was the first nuclear power reactor

to produce power and heating for the market in Sweden, operational between 1963 and 1974. The plant is situated 15 km south of Stockholm, and had an output of 80 MW: 12 MW for electrical generation and 68 MW for heating. The plant was built as a prototype heavy water power reactor. After the facility was shut down, the plant was emptied of fuel and heavy water and the area is currently used as a training site by Stockholm's fire services.

The National Museum of Science and Technology (Tekniska museet) in Stockholm is currently working on a new documentation financed by the Swedish Government. It includes experimental and inclusive methods as well as a public approach to reach a broad target group. In the project, we will also make a digital visualization of the history of the Ågesta Nuclear Power Station. This also means that the Station unfortunately only will be preserved in the archives and digitally.

This documentation is the second time that the site is mapped and evaluated by the museum. In the period 2005-2008, it documented the Ågesta Nuclear Power Station with Stockholm County Museum and Stockholm County Administrative Board. The result, including an evaluation of the cultural value, was published in Ågesta kärnkraft som kulturarv in 2008.

Almost 300 photos from the documentation are collected by National Museum of Science and Technology, and the images are available to public at DigitaltMuseum.se.

The history of the Power Station

The Atomic Age, starting in the late 1940's, transformed the industrial, political and emotional landscapes. Sweden was one of the first countries to invest in this modern technology. The first experimental reactor in Sweden was operational 1954-1970.

Ågesta Nuclear Power Station was the result of a fruitful collaboration between the Atomic Energy Company, Vattenfall, jointly responsibly for the nuclear part and the City of Stockholm Electricity Authority, responsible for the conventional part. It consisted of one pressurized heavy water moderated and cooled reactor of the pressure vessel type. The reactor was fueled with natural uranium. For safety reasons, the reactor was put under ground inside the bedrock. The plant supplied mainly the nearby suburb Farsta with district heating, but it also produced a small amount of power for the National Electrical Power grid.

Several other plants were planned but in the end of the 1960's a

decision to stop use the heavy water technique was taken. The light water technique was so much more efficient.

Today there are eight nuclear stations in operation and Sweden in total has about 25 nuclear sites across the country, with installations for nuclear waste and cargo transports. A few years ago, the Swedish Government reversed the nearly 30-year-old ban on running and building nuclear power plants and gave the green light to a new generation of reactors.

Learn more

Interest in nuclear power as cultural heritage has also begun to be recognized, both nationally and internationally lately. An article on Ågesta Nuclear Power Station presented at the conference Nuclear Power Stations Heritage Values and Preservation, Perspectives in 2017, that was arranged by TUI in collaboration with the German section of ICOMOS and TICCIH.

USA

DENIM WORK BLOUSES: THE RISE OF A WORK JACKET

Z.P. Liollio, edited by Ben Jenkins

The concept of utility is something with which all denim lovers, past and present, are familiar. The 1860s represent a critical point

for workwear and its fashion and functionality. Few garments evoke mid-19th century men's fashion more than a fitted woolen frock coat. This changed shortly after the American Civil War. Frocks, with quilted chests, rear vents, and seamed skirts extending below the waist, began to compete in earnest with sportier sack coats (a predecessor to today's blazers). A shorter length wasn't limited to fine broadcloth and linens either. Farmers began to utilize short denim blouses for chores. Although relatively spartan in nature, these garments would have a lasting impact on the fashion world. They are a missing link in the evolution of an international icon: the blue denim work jacket.

The utilitarian waist-length coat became popular almost a century





Detail of The Yankee Pedlar by Thomas Wood, 1872. Collection of Terra Foundation for American Art, Daniel J. Terra Art Acquisition Endowment Fund.

prior. Short jackets on sailors can be seen in 18th century engravings. Ashore, contemporary farmers and laborers donned short woolen or 'jean cloth' coats (a blend of wool and other fibers). In the United Kingdom, specifically, Spencers were a gentlemen's short coat dating from the 1790s, essentially a double-breasted tailcoat with the tails omitted. Similarly, close-fitting jackets, nicknamed roundabouts, were adopted by the British and U.S. militaries in the early 19th century. These were made of wool or cotton depending on budgets and fashions. Cut at the waist with standing collars, they were particularly common among mounted troops. The skirts of a frock coat would otherwise hinder movement in the saddle. Roundabouts were also a versatile and active choice for boys' clothing, sometimes imitating military trim. A generation would reach adulthood in the 1860s-1870s, developing their own sense of style and short coats along the way. Thus, roundabouts and other short jackets helped inform the eventual design of denim work jackets.

Meanwhile, in the western goldfields of California, the overshirt became symbolic of toil and prosperity. Often made of wool or cotton, these shirts were as ornate as they were functional. Buttoned



Ben Jenkins' stitch-for-stitch rendition of the Wilcox Blouse, 2014. John F. Wilcox was an 1860s-era resident of New Brunswick, New Jersey, and the garment was likely made by his wife.

plackets and exterior patch pockets were common features. Many examples showcase intricate prints, gilded buttons, and tape trim around the collars and plackets. Evidence of both overshirts and close-fitting jackets can be seen in workwear post-1860. The legendary denim work blouses of the 1870s, however, are more closely related to the hard-wearing overshirt.

What made these blouses iconic was less of their cut and more of the material; blue denim. Ben Jenkins, a researcher and producer of reproduction historic clothing, explains, 'Denim fabric in the mid-19th century was typically batch-dyed bull denim. That is, the finished cloth was dyed as a whole.' This gives it a consistent indigo color on both sides. The term 'bull denim,' in the 19th century, referred to heavier denim fabrics. Today, bull denim is sometimes used to describe batch-dyed denim. Contrast this to the coats introduced in the 1870s under brands such as Levi Strauss and Boss of the Road. Yarn-dying some threads before weaving gives the fabric its 'white side,' which is now ubiquitous. It is uncertain when this practice became common. In either case, other weaves and prints were utilized for the short work blouses as well. Striped fabric, oriented vertically, is a documented variation. Local production adds a nearly limitless possibility to materials, prints, and colors. Despite this, imagery points to the commonality of blue cotton denim-like cloth.

The denim blouse serves several purposes that farmers found advantageous. Banded collars do not rub the neck. The 1860s also saw the popularity of banded collar shirts and separable collars. The Wilcox Blouse (dated ca. 1870), formerly of Ben Jenkins' collection, features a standing collar by contrast. As with all of the aforementioned work coats, their short length allows for freedom of movement. Constructed with stout cloth, they also shield the clothing underneath from soiling. Gathered cuffs further hint at their overshirt roots. At the time, coats did not commonly have gathered cuffs and it was a popular feature on shirts. The basic pattern described here would define the American farmer. In a nation that was rapidly industrializing after the Civil War, it became practical for miners, railroaders, and tradesmen to adopt it as well.

Closures varied from coat to coat, but there are some common traits. Before the rivet patent (pre 1873), four-hole buttons were exceedingly common on workwear. Bone (dyed or undyed), brass, enameled tin, leather, white metal (alloys of tin and lead specifically), and more were all within the utilitarian realm. One photographed example does appear to have shank buttons, however. Pockets varied from user to user too. Welt pockets without flaps had become popular on men's coats in the era, and these appear to be no exception (if front pockets can be seen in the image).

Few people could have imagined in the 1860s what a lasting impact this simple blouse would have. Collars were changed in the 1870s to a more familiar form. Patented methods were also introduced, such as those employed by Jacob Davis and Levi Strauss. However, the basic cut remained relatively the same. For a comprehensive look at denim innovations in the late-19th century, Jeans of the Old West:A History by Michael Allen Harris is a trove of information. To summarize, while aesthetics are not patentable, construction methods are. Jacob Davis and Levi Strauss riveted reinforcements were protected until 1890. During this period, a plethora of competing strengthening gusset styles and cut geometries were introduced. While these patents by-and-large were intended for canvas and denim pantaloons and overalls, the jump to jacket design was not far. No matter which brand or proprietary style was chosen, the blue denim-clad workforce had a lasting home in American culture.



Unidentified portrait, 1860s. Jeremy Snyder Collection. Reproduced with permission.

The U.S. military would even adopt denim coats of their own in the early 20th century. While militaria sometimes inspires practical workwear, the reverse was now true on the eve of World War I. This denim work jacket would thus remain an indelible piece of wardrobe for the next century and beyond.

INDIA

STREETS AS REPOSITORIES OF INDUSTRIAL IDENTITIES

Priyanka Panjwani, conservation architect

Over centuries, trade routes have facilitated the exchange of commodities and ideas and played a significant role in commerce, industry and diversity of nations. As the definition of Industrial Heritage in South Asian countries such as India is under formation, it is vital to explore the importance of historic streets in the context of the country's industrial growth. Apart from being used for transport and cultural parades, streets have also been shared public spaces to view the displayed wares and interact, negotiate and generate transactions. Historical archives such as the online collection of the Victoria and Albert Museum, London contain several watercolour paintings, lithographs and photographs of native street scenes in various cities of India. They illus-



Maritime Heritage - Mural at Lion Gate, Naval Dockyard, Mumbai. Photo: Artist Brinda Miller, brindamiller.com

trate a specific period in history and give a sense of the people and their lifestyle, a hint of the goods and services being bartered, the architecture of the time as well as the ancillary activities that occur in the expanse of the street scene.

Documentation and value assessment of historic streets in India seems to be urgent at a time when important heritage thoroughfares like the Central Vista in New Delhi are under a risk of impact by new interventions. In December 2020, the Smart Cities Mission of the Government of India initiated a nationwide competition namely, 'Streets for People Challenge' and under this, winning designs will be given an opportunity to implement on site. While the need for formal re-structuring of several old and new streets is felt by residents, pedestrians and vehicle drivers alike, the historic aesthetics, multicultural texture, industrial identities and the overall character of many streets become vulnerabilities and these must be dealt with inclusivity and sensitivity.

Streets give identity to a neighbourhood; they are closely linked with the tangible as well the intangible heritage of a city. Several urban design elements impart historic integrity to a street. These include street edges, shop fronts, signage boards, lamp-posts, furniture including seating, dustbins, manhole covers etc., natural elements such as tree cover and landscaping, ground surface topography and material such as cobblestones, sculptural elements such as water fountains and statues, and sight lines that are shaped by flanking building facades and street vistas.

While unravelling the layers of Bombay (now Mumbai), one finds that the city once found prominence as a vibrant Trading Port of the East India Company in the 18th century. As one walks through the lanes of the now corporate district of Ballard Pier heritage precinct in South Bombay, one is transported to the port towns of South India by the names of some of these lanes- Calicut Road, Cochin road etc. The walk also presents visuals that showcase a time when shipping activity was bustling in this area before reclamation of the early 20thcentury. To name a few, the ship sculptures on spandrels of the Port House, a small stone gateway of the Ballard Bunder on the edge of the Naval Dock precinct, the crumbling warehouses on the Eastern Freeway road and the murals painted on the high boundary walls of the Naval Dockyard near the Lion Gate, are examples of the maritime industry and heritage of Mumbai.

To the west of the Naval Docks is the arterial D.N. Road; it is lined with arcaded Neo-Classical buildings of Grade 2 heritage, many



A photo-collage of the Chor Bazaarstreet and shops in Mumbai, India. Top: Bruce Peck (1994), Satish Vijaykumar (2009), Bottom: Naresh Fernandes, Facebook, 21 November 2020.

which began as insurance companies. This road is distinguished today as the Heritage Mile because of its exceptional urban architecture. Author Samuel T Sheppard of the book Bombay Place Names and Street Names, 1917 explains that the Arab lane in Grant Road was probably named after the Arab Pearl merchants who lived there and Bora Bazaar after the Bohras who are 'excellent businessmen engaged in every branch of trade and commerce'. Sheppard also notes that the Dalal street, on which Asia's oldest stock exchange is located since 1875, was a street where share brokers assembled for business. Political agendas may approve renaming of streets to bring relevance to the local community, but this change certainly affects some facets of memory of the place. For instance, the earlier Bank street is now renamed as G.Vaidya Road and the Forbes Street is Dr.V.B. Gandhi Marg, and these new names do not immediately resonate with visitors to the Banking District of the Financial Capital of the country.

Fourteen years after the nomination of the CSMT Railway station (an icon of industrial heritage of the city), Mumbai achieved its third UNESCO World Heritage Site in 2018 as the Victorian and Art Deco Ensemble- a collection of buildings that signify 'an important exchange of European and Indian human values over a span of time'. These are best appreciated from the coastal Marine Drive street and streets around the open space of the Oval Maidan. Among examples from the ensemble, the sculptural bas reliefs on the Neo-Classical Institute of Science and the aerodynamic patterns on the Art Deco window grilles of the Sunshine building undeniably have several stories of technology and progress to narrate to a curious passer-by.

UNESCO designated Mumbai as a 'Creative City' due to its film industry in 2019. Maulana Shaukat Ali Road in Grant Road is dotted with a few of the city's oldest single screen 'talkies' such as the Royal Cinema and the Alfred Talkies. Although less preferred by the multiplex generation, they evoke nostalgia and stand as silent symbols of the now biggest film industry in India. In the last five decades, Mumbai has seen enormous growth in the informal sector economy which is reflected in its popular culture through various Fashion Streets and Khau Gallis (literally, Eating Lanes). Also, one cannot fail to recall the many antique stores of the archaic Chor Bazaar streets, frequented by tourists, locals and movie producers. The ongoing redevelopment project of the Bhendi Bazaar area has resulted in demolition of many of these shops during the 2020 pandemic lockdown, to make way for wider streets and modern amenities.



The 1930s Amman Electricity Hangar re-used as a contemporary space for socio-cultural events Photo: Hers Khazeen

JORDAN

A STRUGGLE AGAINST PRIVATIZATION AND NEOLIBERALISM

Nedhal Jarrar, architect

Industrial heritage has recently emerged In Jordan as a new subject in the public view. The role of privatization and neoliberalism have focused attention on the deindustrialized environment in the Middle Eastern country, positioning it as central to an understanding of the times we live in.

The vast majority of modern industrial heritage sites or buildings in the country were constructed after the nation-building era that began in the 20th century. This represents the period between the 1920s and the late 1970s, with some exceptions regarding earlier Ottoman Hejaz railway structures, and the few major industrial projects implemented in the 1980s. This short-lived period of modern industrialization projects also represents a transitional period between the end of colonialism and the beginning of state sovereignty over its resources. However, this issue is debatable, as many of those projects were based on foreign aid and recommendations. This reflects the public sector's role in significant projects in the emerging country. Furthermore, that period was associated with early development projects, particularly electrification, transportation and irrigation projects. It should be noted that some of those structures have their own historical and political narratives, such as the case of Amman Electricity Hanger and the Jordan First Hydroelectric Power plant in Baqoura, while other cases were intensive irrigation projects that have been implemented in the Jordan valley, such as the East Ghor Canal and many dams. Most of those industrial structures were characterized by vast spans and large volumes and had the ability to accommodate multiple functions that supported the national economy over the past decades.

Despite the small number of such sites in Jordan that can be classified as the industrial heritage compared to Western countries, they played a significant role in the history of the Jordanian state's emergence and expressed its strength at some point. One can count dozens of these sites and buildings, which have unfortunately been marginalized and neglected over the past decades. This coincides with Jordan witnessing a significant decrease in welfare mechanisms and the removal of state subsidies through the beginning of the privatization of sectors, including water, electricity, and telecommunication.

It is worth noting that most of those privatized sites are of high significance with architectural, historical, symbolic, and social values. Furthermore, they are essential projects at the national level. Therefore, it is necessary to gain a deeper understanding of industrial heritage structures in the country which have transferred to the private sector. This shift in ownership pattern concentrates on the industrial heritage sites and buildings, especially those belonging to the energy sector. It should be linked to neoliberalism as well, because of Jordanian state's recent openness to the West and the capital coming from rich Arab countries.

In fact, the last two decades witnessed a systematic destructing of industrial heritage sites in Jordan, the most important of which were the satellite earth station in Al-Baq'a, grain silos in Aqaba, the old glass factory in Ma'an, the Jordanian ceramic factory in Zarqa, the salt refinery in Azraq, and the Marka power plant in Amman.

It is worth noting that Jordan's government decided in 1997 to restructure the national electric power company by separating power generating activity from transmitting and distribution activities. Since then, several private companies have announced their purchase of stakes in those companies or even their entire purchase.Among the most important events that crossed this issue was the old power station in Marka, and the Hussein thermal power station in Zarqa, as the first was demolished in 2018 while the second was scheduled for demolition soon. These buildings, which are some of the first government power plants in the country, and considered landmarks of the industrialization and development era, are a real wealth that Jordan has lost and is still losing rapidly due to neoliberal investments' focus on profit..

Meanwhile, the situation was not better with other industrial heritage sites. Many of them belonging to national corporations specializing in extractive industries, such as phosphates, potash, cement, or other vital industrial sectors such as Aqaba Old Port and Earth Satellite Station in Baqaa, have suffered the same fate. Moreover, there is another type of ownership of these industrial heritage sites that fall under the category of semi-public ownership, as they are financially and administratively independent. This type of property is represented by the Jordan Hejaz Railway.

Finally, no one can deny that industrial heritage sites played and still play an essential role in Jordan's economy. This type of heritage is not on the priorities of Jordanian governments. In other words, the change in the state's discourse regarding the industrial heritage sites is fundamental, but in a negative way, where one of the most critical aspects of this change is the withdrawal from infrastructure projects. The government should protect the industrial sites by stopping the privatization of national facilities that fall under the classification of modern industrial heritage.

These marginalized sites and buildings are considered historic assets linked with the nation-building era, showing that the current role of this heritage is vital, whether it be inhabited places or economic activities. Moreover, it is clear that privatization of these sites, under-investment arguments or because of the lack of appreciation are the most common reasons for the destruction or dismantling of industrial heritage sites, as it is a shared responsibility of the state and society to preserve them. Protecting and re-using the industrial heritage sites would be the potential to provide information on a particular period of industrialization era in this part of the world that conveys a sense of place, memory, and national identity.

CANADA

WALKERTON HYDROELECTRIC GENERATING STATION - A RELICT INDUSTRIAL LANDSCAPE

Doug Evans, BES, BArch AAGradDipl

The early 20th century hydroelectric generating station south of Walkerton on the Saugeen River in Bruce County, Ontario is an important relict industrial landscape. However, it has never been studied or surveyed and is not on any archaeological register or other form of heritage list, and the concrete structures on the site are deteriorating. This article provides a brief history of the site and argues for its protection.

The Walkerton hydroelectric generating station was completed in 1911, and visible features of potential heritage value on the site



LEFT: The construction of the New Dam on August 12, 1911, looks like a town picnic suggesting the power plant was popular with the community.

BELOW: SVCA HEPC Track 41.

include a dam across the river, a headrace canal, and foundations of the original power house. Other features of potential heritage interest are discernible below water level, and in the boggy swamp and overgrown vegetation on the site.

The site is located on a bend in the Saugeen River with the river as its northern and western boundary, with private farmland to the east and an unopened road allowance to the south. The geology of the region is glacial from the Cenozoic Quaternary period and the immediate site is modern period river alluvium comprised of silt, sand, and pebble and cobble gravel. The landscape is part of the river's riparian corridor so vegetation is predominantly moisture loving species including the large white willow tree. The site is part of a 31 hectare managed forest owned by the Saugeen Valley Conservation Authority (SVCA).

Bruce County was not opened for settlement until 1847, and the town of Walkerton was founded soon after in 1851 on the Saugeen River by Joseph Walker. In 1852 Walker erected the first dam across the Saugeen and built the town's first saw-mill, followed by a grist mill in 1853, both powered by water. The development of hydroelectric power began in the late 1870s, and by 1900 hundreds of small hydropower plants were in operation as the emerging technology spread across the world. In 1906, the world's first publicly-owned electric utility was created in Ontario Canada, the Hydro-Electric Power Commission (HEPC).

In Walkerton, electricity generation developed much as it did throughout North America, from small private mill to local power company. Joseph Walker sold his mills in 1867, and by the late 1870s they were powering a small electricity station. The station was purchased in 1882 by two local businessmen, John Rowland and David Robertson, but demand for electricity in the town soon outstripped the generating capacity of the small mill station.



Rowland and Robertson, operating as the Walkerton Electric Light and Power Co., purchased a lot 3 km south of the town and in 1908 began construction of a new dam across the Saugeen. Construction of the new hydroelectric power station was completed in 1911, and it began operation in 1912.

When completed, the new hydro-power station was the largest rural

generating station in the region and comprised a reinforced concrete dam, 220 m long by 2.5 m high, the headrace canal with head gates, 600m long by 14 m wide, and the power house including a 285 hp turbine direct-connected to 150 kva generator, a 110 hp turbine belt-connected to a 75 kva generator; the plant's maximum capacity was 395 hp.

In 1928 Rowland and Robertson sold the station to the Foshay Power Co., an American holding and utility company. A few years later, Foshay sold the station to the HEPC, and by then the Walkerton plant was the most financially successful electricity generating plant in the Georgian Bay network.

Post-war redevelopment brought great expansion of much larger hydroelectric generating stations, and by 1960 the Walkerton station had fallen into disuse. In 1963 the station was decommissioned and the entire site including the dam was sold for \$1,000 to the Saugeen Valley Conservation Authority. Prior to selling, the HEPC removed the stoplogs from the dam's flume, and the canal's headgate was blocked up with an earth plug. The power house was eventually demolished leaving only the foundations.

The Walkerton hydroelectric power station site is a cultural-industrial landscape worthy of protection for its heritage value. However, more research is needed to confirm this. The internationally accepted definition of cultural landscapes (UNESCO: Operational Guidelines for the Implementation of the World Heritage Convention, 2008.) divides them into three main categories: designed, evolved and associative. Recent research helps to show how the Walkerton hydro-power site can be identified as a cultural-industrial landscape, namely I) a designed landscape, with features including the dam and headrace canal; 2) an evolved relic landscape, where the industrial and socio-economic activities of generating hydroelectric power have come to an end; and 3) an associative cultural landscape, where the landscape is important due to the powerful associations the site has with the development of hydroelectric power generation in Ontario, and with the natural elements.

These cultural landscapes categorisations can help to inform further research which should include:

- I. Physical and archaeological investigations to record the site's designed features;
- 2. Condition surveys to assess the degree of surviving historic integrity, particularly the extent to which man-made features have deteriorated;
- 3. Ecological/ fauna surveys to show how the site has evolved, particularly how natural vegetation has reclaimed the site;
- 4. The development of hydroelectric power in Ontario and at the site;
- 5. Historic and contemporary social and cultural associations between the hydro-dam and the Saugeen River.



The Walkerton hydro dam in 2020.

Currently the dam, headrace canal and other historic features are suffering from 'demolition by neglect', so once research has progressed sufficiently, the protection of the site should be enhanced. A2014 study looked in detail at the impact of current policies on neglect and concluded with four key recommendations to prevent neglect:

- Carefully drafted local provisions led by local stakeholders: Both the SVCA and the Municipality should be encouraged to promote the Walkerton hydro-power site for its cultural heritage value, and the municipality should take more of an active role in how the site is managed and maintained.
- 2. A multi-jurisdictional regulatory system that monitors heritage properties: The site is currently managed as a natural resource. To protect its cultural heritage value, the site should also be designated as an historic place by the local municipality under the Ontario Heritage Act.
- 3. Legislation which provides incentives for heritage maintenance and enforces substantial penalties on owners who allow neglect to occur: Amending existing legislation will have to wait for a future government that has a more sympathetic heritage agenda.
- 4. A combinational approach which is both local and built into regional growth goals: Promotion of the site's cultural heritage value should include Bruce County. Completing the County's archaeological management plan and ensuring that it includes the Walkerton hydro-power site would be a good first step.

Doug Evans is a Board Member, Architectural Conservancy of Ontario and Expert Member ICOMOS IIWC, ISCCL, PRERICO and TICCIH.



Ma-ao Sugar Central in Bago City, Negros Occidental, Philippines.

PHILIPPINES

THE NEWEST NATIONAL COMMITTEE

Ivan Anthony S Henares, Assistant Professor, University of the Philippines

Industrial heritage scholars and advocates in the Philippines have organized their own TICCIH national committee. While the Philippines has many industrial heritage sites, such as the historic Manila-Dagupan Railroad and sugar centrals in Luzon and Negros Islands, raising awareness about the sites needs much support. By organizing the national committee, TICCIH members in the Philippines hope to raise the profile of Philippine industrial heritage, in TICCIH as well as within the country. An agreement was signed by TICCIH Philippines and TICCIH earlier this month formalizing the committee's recognition.

The national committee is headed by Ivan Anthony Henares, Assistant Professor at the University of the Philippines, who has done work with the San Fernando Train Station and the Sugar Cultural Landscape of Negros Island. Joining him are Neil Solomon Locsin of the Negros Occidental Historical Council, Ryan Palad of ATAGAN (Tayabas Studies and Creative Writing Center) which has been safeguarding the stone arch bridges of Tayabas, Quezon; Ivan Man Dy of the Heritage Conservation Society, cultural researchers Edgar Sembrano, Estan Cabigas, and Georgia Sagum, and Robby Galang, who taught Philippine economic history at the Ateneo de Manila University before joining the World Bank Group.

Looking at the Philippines Registry of Cultural Property, Prof. Henares notes, 'While there are several lighthouses and bridges, other categories have not been represented.' He adds, 'The all-steel San Sebastian Basilica is also in the registry. Recently, the National Historical Commission of the Philippines opened a museum at the aqueduct tunnels of El Deposito, the first water reservoir in the Philippines, which was part of the Carriedo waterworks system. And the Negros Occidental Provincial Government was able to get



Friends and colleagues in the new Philippines section of TICCIH.

the Chapel of Saint Joseph the Worker of the Victorias Milling Company, Ma-ao Sugar Central, and the Sugar Simborios (Smokestacks) of Negros Occidental declared as Important Cultural Properties.'

Neil Locsin shares 'The sugar industry has always been part of the city of Silay's historical, cultural and economic identity. Protecting this heritage acknowledges the industry's role in the long line of statesmen, industrialists, and artists who traced their roots to the industry whose sugar centrals like Hawaiian-Philippine Company are tangible reminders of our rich heritage.'

'Various local governments along the Manila-Dagupan Railroad are working hard to protect their historic train stations. There are

also the historic mines of Benguet and Lepanto, we have not even looked into that and what remains of mining heritage sites,' Prof. Henares points out.

'The Philippines' industrial heritage is a vast, untapped resource,' according to Architect Michael Manalo, Commissioner at the National Commission for Culture and the Arts. He adds, 'This is why the establishment of a Philippine committee for TICCIH is important, as it can foster the much-needed dialogue on industrial heritage in the country. TICCIH can open the doors to a wider understanding of this important area of heritage in the Philippines.'

FIND TICCIH ONLINE: WWW.TICCIH.ORG

& ON SOCIAL MEDIA:





Brewery in Pancevo, 2020. Photo: Szilard Antal

SERBIA

INDUSTRIAL HERITAGE OF VOJVODINA

Anica Draganić, Department of Architecture and Urbanism, University of Novi Sad

In 2013, the Society of Conservators of Serbia declared industrial heritage as the most vulnerable category of historical material remains at the national level, explaining this condition as a consequence of an obsolete legal framework which did not recognise historic industrial sites as a specific type of cultural heritage. Although conservationists consider industrial heritage as part of the total corpus of cultural heritage, the current condition of industrial sites indicates an inadequate approach. This article will present the differences in interpreting conservation paradigms in legislation, theory and practice, which have led to many failures in the process of preserving industrial heritage in Vojvodina, the northern region of Serbia.

Until the mid-19thcentury, Vojvodina was a poorly developed peripheral area of the Habsburg monarchy, whose economy was based on manual processing of cereals and the production of bricks, leather, linen, soap, saltpetre, oil, beer and spirits. At the end of the century, the industry based on the processing of local raw materials achieved prestigious results compared to other parts of the Empire.

With the development of the railway, Vojvodina was integrated into the state economic system. Major branches of industry were brewing, milling, silk production, sugar production, brick making. Dating back to the mid 18th century, beer production was the first activity to develop the characteristics of industrial production. The brewery in Pančevowas the first steam-powered brewery in southern Hungary. Furthermore, by the beginning of World War I, the milling industry became the most developed, as evidenced by more than 200 mills. Besides, Vojvodina played a leading role in silk production in Hungary, with three state silk factories. In the early 20th century cultivation of sugar beet became one of the state agricultural policy priorities. Systematic investment in industrial sugar production resulted in the construction of three sugar factories (1910-1912). Given the quality of the soil, with a high percentage of clay in it, ceramic materials produced in Vojvodina were very popular across the Empire. Even many of those factories did not survive the great economic crisis between the two world wars or the socialist socio-economic transformations, according to recent preliminary reconnaissance of the terrain, over 150 industrial buildings and remains have been recorded.



Brewery in Apatin, 2020. Photo: Szilard Antal

Conservation approach

A modern service for the protection of cultural properties was constituted after World War II when Vojvodina became a part of the Socialist Federal Republic of Yugoslavia. Following the liberation, the Law on the Protection of Cultural Monuments and Natural Rarities from 1946 was passed, initiating exploration and documentation of destroyed properties with cultural and historical significance for the new state. Industrial buildings confiscated from the capitalists, who were of mostly German and Hungarian origin, did not have cultural or historical significance in the new political context. Old factories were an ideal platform for the implementation of the new state ideology - self-managed socialism. Legal protection of cultural heritage was further supported by the Law on the Protection of Cultural Monuments from 1977. A systematic approach to the study of immovable cultural properties was marked by dividing them into four groups: cultural monuments, spatial cultural and historic sites, archaeological sites and significant places. Industrial buildings, complexes or sites were not allocated to any of those four categories. For the first time in the system of legal protection, cultural properties were categorized depending on its significance, but since evaluation criteria were not specified within the Law, some theorists have questioned the evaluation system as such. Unfortunately, in socialism, the process of valorisation was an expression of personal, subjective assumptions. Due to that, the industrial heritage of the German community, for example, was completely neglected.

The current condition of industrial heritage in Vojvodina is that the Central Register of Immovable Cultural Property has inscribed 39 sites with the characteristics of technical or industrial heritage, categorized as the cultural property (CP III), the cultural property of great importance (CP II), and the cultural property of exceptional importance (CP I). Since data are incomplete and out of date, it was necessary to conduct a terrain survey to determine the condition of the buildings and machines. An overview of the listed sites was made according to the thematic categories adopted by TICCIH.

Analysing the current situation of listed industrial buildings, the following conclusions were derived at. Despite legal protection, six monuments were demolished, two of which were of great importance. There is no information about the reasons for their destruction. Watermills, roller mills and thermal power plants were the oldest examples of their kind in Vojvodina. Three monuments, including the first steam brewery south of Budapest, are very vulnerable, almost destroyed. Most of the monuments with dilapidated architecture do not have preserved equipment. However, there are two examples, a silk damask weaving workshop and a Czech warehouse, with completely preserved equipment, that require a proper presentation. Both cultural properties of exceptional importance are abandoned. Only seven monuments are well preserved, mostly reused. A blacksmith's workshop is the only example of integrative preservation of both tangible and intangible heritage.

Conclusion

The current condition of protected industrial properties is extremely poor due to a partial evaluation. Documentation shows that many properties have not been researched and valorised before legal protection. Consequently, the subsequent conservation works were implemented partially, often without prior analysis and expert opinions. Considering the insufficient awareness of certain monuments' importance, later generations of conservationists and local communities have allowed dilapidation and destruction of unique examples of technical heritage.

According to the comparative analysis of data in decisions on proclaiming, documentation and current condition of listed industrial sites, deficiencies in the process of evaluation have been identified. It means that a new methodological framework should be based primarily on theoretically verified valorisation.

ARGENTINA

THE OIL LANDSCAPE OF COMODORO RIVADAVIA

Dr Graciela Ciselli, Universidad Nacional de la Patagonia San Juan Bosco

The oil industry influenced the urban design of Comodoro Rivadavia, the place where the first Argentine well was sunk in 1907, and the current oil center of the San Jorge Gulf Basin. After the discovery of oil by the National State, numerous private companies such as Shell,Astra, Compañía Ferrocarrilera de Petróleo requested exploration permits, developed extraction sites and built new infrastructure and functional settlements to extract the resource. In some areas close to the wells they built camps that in some cases became company towns where various phases of the industry were carried out.

This article analyzes the global oil landscape of Comodoro Rivadavia to the extent that the spatial practices of this industry have shaped the built environment expressed in goods that are part of the category of industrial heritage. The San Jorge Gulf Basin is the ideal setting to relate the oil landscape with the valuation that people make of it under the rubric of industrial heritage. To facilitate understanding of the entire production process and its urban impact, Carola Hein proposed in 2018 the concept of the global petroleumscape as the scale at which the industry expresses itself spatially and representatively.

The spatial layer of oil

The first layer of the spatial oil landscape is related to the presence of oil towers and the creation of an appropriate building infrastructure for the development of extraction sites, building functional and industrial spaces. In this way temporary camps were born, with buildings of sheet metal and wood that slowly became oil company towns. In this transition of the industry in the territory from the ephemeral to the durable, the construction materials and urban forms were transformed.

The second layer of the spatial oil landscape is the retail network of products derived from crude oil. In Comodoro Rivadavia, the arrival of the automobile in 1906 soon combined its service with the railroad that was built around 1910 and the appearance of service stations built with light-weight materials. The third layer refers to the administrative and research facilities that the companies located in Buenos Aires, while Comodoro Rivadavia was chosen for the regional administration. The fourth layer of the spatial oil landscape corresponds to the auxiliary spaces of the oil industry, that is, those buildings associated with housing, leisure, health or education of workers and employees that were provided by the companies themselves in the area of the wells.

The fifth layer aims to appreciate the development of the petrochemical industry and to unravel the use that has been given to its materials in all areas of daily life, with companies managing to influence both financially and politically in the various governments.

The representative layer of the oil landscape

The oil companies promoted the construction of identities associated with their presence. Every 13 of December, to commemorate the discovery of oil, first the state oil company and then the other private companies joined the festivities. Since 1947, YPF promoted the election of the queens of oil in Comodoro Rivadavia, which was carried out withOut interruption until 1970 after which it lost importance until in 2004 the provincial state of Chubut decided to ritualize it again.

Advertising companies promoted the use of petrol by associating it with social tourism. In this way, Shell Magazine advertised summer resorts such as Mar del Plata, Mendoza or the Iguazú Falls, highlighting the beauty of these places as tourist destinations. Several artists became aware of the changing and growing physical oil landscape, such as the Austrian photographer Federico Kolhmann who has left a collection of more than three hundred photographic postcards from all over the country, documenting with ninety-eight of them, the city of Comodoro Rivadavia and of the camps of the state oil company YPF.

Assets valued in a socially cOnstructed space

Oil exploitation is still physically present in the San Jorge Gulf Basin, so there oil derricks, office buildings and the entire infrastructure required by the industry still exist, despite changes in ownership, objectives and views. Comodoro Rivadavia has a thematic museum, the National Petroleum Museum, built by Y.P.F. in 1987, around the historic Well No. 2 from which oil emerged on December 13, 1907, considered a Site Museum and declared a Site of historical and cultural interest in 1997 for being the largest in Latin America dedicated to oil, and unique in the country.

Neighborhoods with an oil past have been declared as cultural heritage of the city by Municipal Ordinance in 2014 and their buildings and objects inventoried, contributing to the interpretation of the heritage with a systemic nature and generating tourist circuits aimed at knowing and valuing related tangible and intangible heritage to oil production.

By way of reflection

In Comodoro Rivadavia, the urban design of the company towns constitute testimonies of a way of territorial occupation mode and

with a valuable industrial heritage that, historically, are part of the productive system. A system that covered all spheres of corporate institutional life and workers' lives: the workplace and housing, private and public spaces, daily and social life, which wove networks that interrelated health with sport, education with work, recreation with social life and control with well-being that were building socioterritorial identities that still exist despite having been dismantled in private companies during the 1960s and in the state company around 1990.

Contact the author

INDUSTRIAL MUSEUMS

NORWAY

THE BIGGEST STUFF THERE IS: THE NORWEGIAN PETROLEUM MUSEUM

Björn Lindberg, Fagsjef / Curator, Norsk Oljemuseum

The Norwegian Petroleum Museum (NPM) has since the turn of the millennium documented some of the Biggest Stuff there is, specifically the monumental platforms installed offshore Norway. Offshore installations on the Norwegian Continental Shelf (NCS) include the world's tallest (Troll A) and heaviest (Gullfaks C) objects moved by man, and are designed to produce, process and export petroleum, by far the most important export product in Norway. More than 80 fields are currently in production, and five of the most important ones have been thoroughly documented over the last eighteen years. More than 900 articles, 13,000 photos, hundreds of books and periodicals are now made available and searchable online.

The idea of creating a dedicated oil industry museum in Stavanger arose as early as in 1974, the foundation was established in 1981 and the building opened in 1999. Covering 5,000 m2, the museum is situated in the heart of Stavanger and incorporates exhibition space, cinema, restaurant, library, meeting rooms, and offices. The Documentation and Research department is headed by a geologist and consists of researchers, photographers, a librarian, and collection caretakers.

The drill floor on Ross Isle in 1989. Photo: Husmo Foto/Norwegian Petroleum Museum

The Museum's tasks include:

- Collect material and use for research on the petroleum industry and its influence on the Norwegian society – technical, economic, social, political, and cultural.
- Conduct independent research within these topics and make material and sources available for others.
- Carry out exhibitions, research, and other educational and outreach work about the petroleum industry as well as the science, history and technology attached to it.

The value and impact of the petroleum industry on Norwegian economy cannot easily be measured. Oil and gas constitute around 50% of the total exports value from Norway, and its contribution to the Norwegian GDP has fluctuated around 10% for the last 40 years. An estimated 160,000 persons were employed in petroleum related work in 2019. The first oil field to start production on the Norwegian continental shelf was Ekofisk in 1972, and at year end 2019, 88 fields were producing, and 25 fields had been shut down.

With the monumental role that oil and gas has played in modern

Norwegian history, it is a given that were these installations onshore and in plain view, some would have been preserved as industrial heritage representing the first phase of the petroleum age in Norway. However, operating offshore (in the case of Ekofisk 140 km offshore at 70 m water depth) with rough conditions, preserving a platform is not an easy task.

Given the sheer size of the installations, along with their initial design - which did not include removal in one piece - the practical task to preserve some of these installations is a hurdle both logistically and from an HSE point of view. The next, and perhaps decisive one, is the cost aspect. It would not be feasible economically to remove, transport and subsequently maintain these installations for a foundation such as the NPM, and nor is it seen as the responsibility of the operator.

Around the mid 1990's, the first-generation oil and gas platforms were becoming redundant either due to drained reservoirs or replacement by newer and more efficient units. As plans were made to decommission the first-generation platforms on Ekofisk, the NPM along with authorities (Directorate for Cultural Heritage, Norwegian Petroleum Directorate) and the operator (Phillips Petroleum, later ConocoPhillips) came together for discussions on what could be done. This resulted in a three-year pilot project on Ekofisk, financed by the production license which Phillips operated.

The Ekofisk Project

The purpose of the project was twofold: to assemble and make available sources as basis for current and future research, and to convey stories from the fields to the public through bite size articles, interviews, and photos and films. Keeping in mind that even though the industry is such an important part of Norway, the fact that it is located offshore means most Norwegians have never seen a platform, let alone been offshore to experience one.

The project involved researchers (historians), photographers, and librarian at the NPM and was carried out in close collaboration with the Norwegian National Library, the National Archives, and the operator Phillips. The project was given access to internal publications, photos, employees and gathered sources from various other places such as newspapers, radio, TV among other things. All the sources of information were sieved, selected, and compiled as archives within the involved institutions and can be made available for relevant investigations. To the public, the visible result was comprehensive web pages containing articles, photos, videos, and graphics presenting the story of Ekofisk with its people and technology. Embedded in the web pages are also a searchable compilation of relevant sources in the National Library's relevant database, including photos, periodicals, and books (access to some of the material is limited to Norway).

The web pages are divided thematically into Field – Operations – Work life – Economy and society – were each topic is thoroughly presented with articles and pictures.

Field – this banner covers the field's discovery, geology and reservoir, development and subsea installations. Under **Operations**, the



A satellite being hoisted on to Statfjord A platfrom, June 1978. Photo: Knut Olav Dalene/Norwegian Petroleum Museum

history and development of Health, Safety, and the Environment is described, including major incidents and accidents. All platforms (a total of 35!) are pictured and explained. Work Life chronicles some of the experiences by the many thousands of people who have worked on the platforms in the Greater Ekofisk Area, including how they have been organised in unions. A description of the various roles onboard a rig is also provided. Under the banner Economy & Society, the development of Ekofisk and the major impact it has had on the economy and society in the city of Stavanger, the county of Rogaland, for the industry and the nation as a whole. Finally, there is a History timeline where one can browse through the highlights and milestones in the history of the field.

Following suit

The Ekofisk project was followed by a similar documentation of Frigg, a gas field extending to the UK side of the border. The Frigg field was about to be abandoned and was as such a given candidate for documentation. The project was carried out in collaboration with the University of Aberdeen and resulted in a web page like that of Ekofisk as well as a printed book (Øye Gjerde, 2010¹). In addition to the written and digital documentation, an impressive and tangible piece of industrial heritage was put on display outside the museum from Frigg, a 10 metre and 88 ton excerpt of the bridge connecting two platforms that crossed the boundary between UK and Norway.

Then followed documentation of the Valhall, Statfjord and Draugen fields, each with the characteristic traits and stories, and web sites providing a unique description and collection of information. The methodology has previously been published.

I. Øye Gjerde, Kristin. Crossing Boundaryies, Frigg Industrial Heritage



Picture of Norwegian Petroleum Museum. Photo: Shadé B. Martins/Norwegian Petroleum Museum

Update and renewal

The initial web solutions have become outdated, and the NPM has now migrated the projects to modern day web platforms. Furthermore, a landing page for all projects has been established where background and additional information on the projects is provided.

One important new feature is the ability to search across all five projects, both in the articles and in the compilation of relevant sources at the National Library. This is a major lift and has already proven to be a valuable source for students, journalists, scholars, and others. More than 900 articles are available on these pages, as well as more than 13 000 photographs, close to 400 books in full text, and 1800 periodicals (including internal publications from the oil companies). Access to some publications is limited to Norwe-gian IP-addresses.

Industrial Heritage plan

As the industrial heritage projects progressed, it became evident that a plan and overview of the oil and gas industry in Norway was lacking. After several years of work, the book 'Oil and gas fields in Norway – industrial heritage plan' was published in 2011. The publication is available online and chronicles the first forty years of oil history in Norway, and describes and categorises the fields that were, or had been in production at that time. The contributing panel included representatives from the major oil companies, the Ministry of oil and energy, the Directorate of Cultural Heritage, and the Norwegian Petroleum Directorate. The categorisation is based on selected criteria to determine which fields should be prioritised in the upcoming industrial heritage projects

An updated edition is in planning and will include all fields (around 30) that have since come on stream. As the oil industry is facing changes of unknown impact in the time ahead, the documentation work becomes more important.

Financing

Each Industrial Heritage project is typically executed over the course of three years and may contain up to four man-years of work. The NPM is in no position to finance these projects on its own and is fully dependent on the collaboration of the operating companies and partners seeing the value of documenting their own history as financing via the production licenses. In comparison with the budgets of production, the industrial heritage projects are quite small, but in the context of documenting and making information

about the industry available for contemporary and future users, the value may be said to be immeasurable. ConocoPhillips, Total E&P Norge, Equinor, BP and Shell were helpful in both financing, granting archive access and not interfering in an editorial role in the projects. This is a model which we hope continues as we venture further along the documentation journey of the most important fields on the Norwegian Continental Shelf.

Contact the author

GREECE

KEEPING IN TOUCH WITH AUDIENCES DURING COVID-19: INDUSTRIAL GAS MUSEUM OF ATHENS

Maria Florou, Head of the Industrial Gas Museum, Despina Andriopoulou, Cultural Project Manager- Museum Educator, Argyro Batsi, Museologist- Museum Educator, Georgia Lazarou, Visual Artist- Museum Educator

The rich cultural activity of Athens' Industrial Gas Museum was interrupted by COVID-19 when the museum closed during the two lockdowns that took place in Greece (March-June 2020 and November until today-December 2020). This closure gave the opportunity to the museum team to step back and rethink the term 'audience development'. How do we fulfill our mission as a museum? How do we keep in touch with our audience and how do we attract new audiences by developing and redesigning the museum's content?

The Industrial Gas Museum (IGM) of Athens opened its doors to the public in 2013. It is situated in the premises of Technopolis (the ex- Gasworks), today a well known cultural center in Athens that hosts many events such as music concerts, exhibitions, and thematic festivals and accepts approximately I million visitors per year. The main aim of the Industrial Gas Museum is the promotion and protection of the old Athenian Gasworks, an industrial heritage monument that supplied energy and lighting in the Athens metropolitan area for almost 130 years, from 1862 to 1984.

The visit to the Museum includes a path with thirteen stops in six buildings which comprise the old gasworks. The museum path helps the visitor to follow the gas production line, observe the mechanical equipment and the old machinery, learn about the role of the managers and workers of the factory, find out about the working conditions, and become familiar with terms such as industrial heritage and archaeology.

The IGM holds a rich collection of photographs and archival as well as audiovisual material, including short films and oral testimonies of gas workers and residents of the area. The museum's collection is further enriched with objects from the Gasworks such as gas lamps, gas meters, gas appliances (e.g gas heater, gas cooker, gas hot water heater), as well as machinery in use.

Apart from its research and scientific direction (archival research, documentation, scientific publications etc.), the museum organizes cultural events, educational programs, summer camps, late night events, museum theatre performances that aim at the engagement and involvement of the broader public and local communities.

Digital transformation and new creations

The quick adaptability and the different backgrounds of a small museum team, just four people, led to the transformation of existing material into digital and to the creation of new material from scratch, aimed at different target groups, such as children, families, adults, and teachers. All this material was uploaded to IGM's site in a new category called IGM from Home. The first project was the transformation of the two guided tours entitled A walk in the Museum and A mouse in the old Gasworks (a theatrical guided tour) in order to be presented digitally. The Walk in the Museum is a tour from the museum professionals to acquaint the general public with the history and operation of the old Gasworks. The tour took place in selected museum stops and included the history of the site and the presentation of the relationship between the gasworks and the neighborhood.

The main target was to give the most important information in no more than 15 minutes. This museum tour was subtitled in English and in Greek sign language which gave us the opportunity to reach new audiences (19,000 views in social media such as Youtube, Facebook, Instagram, for the first two weeks) from different countries



A panoramic view of the Gasworks today, Technopolis and the city of Athens. © Industrial Gas Museum

some of whom may never have been to the museum otherwise. The second tour targeted children and families and is a short animated film during which a mouse living in the old gasworks is our digital tour guide and is based on the scenario of the original theatrical tour that we offer on site to families and school groups based on the principles of museum theatre.

Apart from the tours, we created digital material for creative learning. As the 80% of our physical visitors are schools and families that revisit the museum, we wanted to keep in touch with the most faithful audiences through creative learning activities such as DIY videos, Art Labs, Creative Fun Cards and video games most related to the gasworks. Short videos based on the stop-motion technique, were made by the museum educators and the graphic designer of Technopolis, in order to awake industrial heritage awareness. This material was also a useful tool for school teachers who could not visit the museum due to the restrictions. Thus, it was another opportunity for the IGM to design and produce educational activities digitally accessible to schools.

Concerning IGM's collection, during the pandemic, part of the photographic archive was digitized, while the already digitized photos were recorded to the museum's database, which can be accessed from the web site and is continuously updated. Another project launched is called Objects' histories, during which three museum professionals of our team act as 'talking labels'. Each one of them chose their favorite object (a gas radiator, a gas lamp and a gas water heater) from the permanent exhibition, made research and gathered material for the object they chose and unfolded their hidden stories and secrets. Through their online narratives, they explore the connections of the objects with their era, the people and the old Gasworks.



A guided tour: A Walk in Museum in Greek sign language © Industrial Gas Museum

This digital turn that the pandemic provoked radically to the museums has given us the opportunity to explore in a very short period new territories and to develop new skills in order to keep in touch with our audiences. A new web site, an updated e-shop and digital content, were created in order to cover the need of communication with the public. Although nothing can replace the physical connection with the industrial site, digital content can act additionally, in order to provide a holistic experience around industrial heritage issues without physical borders.

Contact the authors

CONSERVATION

AUSTRIA

THE RESTORATION OF STEAM LOCOMOTIVE 12.10

Birgit Lerch and Thomas Winkler, Technisches Museum Wien

We, the staff of a museum, see an object and often have to decide which story it should tell: which state is important for our collection and how much change of an object is acceptable without distorting its own history too much. In order to define such a state for the exhibition in the museum, we must study the historical background in detail and, if necessary, carry out additional investigations. All the knowledge gathered together will help us to define an approach that is as objective as possible.

The Austrian steam locomotive 12.10, as it stands in our museum today, has a very lively history. Built in 1936 as the tenth locomotive of the express train class 214, it was in service for nineteen years on the western line from Vienna to Salzburg or to the German border at Passau, and for another year on the southern line between Vienna and Graz, before it was finally taken out of operation in November 1956. Its class number changed during the Second World War to class 12.



Lifting the locomotive from the heavy transport with a 250 tons truck crane behind the museum building in 2019.

In the following years the machine had to spend most of its existence as a so-called monument locomotive in various places, mostly outdoors. It is the only surviving locomotive of this class in Austria. All this has left traces that bear witness to its history. And it is this history that is used to define an exhibition state, when restoration work on the locomotive began in the summer of 2019.

People like to talk about the original condition, not only for railway rolling stock. But what does this mean? Is it the condition of the object when it was first put on the rails, or is 'original' in the case of technical heritage also the working condition, which may change considerably over the years? - in addition, there is also the current condition that shows all the history of the object, with all the changes and damage over time. Of course, this is an exciting approach, but it is not necessarily understandable to everyone and perhaps not very attractive in a museum. The task of the custodians and restorers is to weigh up the existing substance, the given condition and the known history and to decide the restoration measures to be applied. In the case of our locomotive 12.10, the former class 214 from 1936 has already been modified too much for a reconstruction of the locomotive to its condition on delivery. The tender no longer corresponds to that period, nor do the wind deflectors and the lighting devices. The most interesting aspect for us was the appearance of the locomotive in its final years of service.

But the story of change continues. From 1962 the locomotive was brought close to a delivery condition of 1936 in the main workshops of the ÖBB in Floridsdorf. Metal parts and wood panelling were painted ivory white. The wooden floor was painted black to imitate a carbon black floor.



Assembly is beginning of the many restored parts already been delivered, with the locomotive pushed to its final location in January 2020.

After another 10 years as a travelling exhibition piece, the locomotive was placed in front of the Technisches Museum Wien in 1974 together with seven other locomotives of the railway museum. During the last intervention, in 1984, the entire outer shell was sandblasted to remove rust blooming and old paintwork. With this procedure, even heavily encrusted layers of rust on the metal can be removed, but this also removed any original substance from the exterior. All metal visible parts were again painted with a silver painting as corrosion protection. Then the outer skin of the locomotive was painted black with green decorative lines at the time of class 214. The slots of the drive rods were also painted black. When the Deutsche Reichsbahn took over the locomotive as 12 010, the ornamental lines were dispensed according to their paintwork standard for locomotives and the rods were painted in blazing red. After the end of the war, the newly founded ÖBB took over not only the colour scheme but also the series names until the end of the service.

For this purpose, there are many colour photographs to document these colour components.

The situation is completely different in the case of the driver's cab. There are neither detailed records nor colour photographs of the renovation work and changes to the driver's cab over the years. Therefore, it was not possible to identify an exact scientific state of the last few years in operation.

However, since the driver's cab has never been completely renewed during and after the operation of the locomotive, it was possible to use other investigation methods which can provide information about the various work steps.

To avoid creating a 'fantasy locomotive', paintwork samples were taken from the wooden walls and ceiling, the metal parts of the driver's cab and of the outer firebox. These samples were examined

CONSERVATION

microscopically and a layer analysis was carried out by the laboratory of the Federal Office for the Protection of Monuments on selected samples. On the basis of these cross-sections, the colour design of the last 94 years could be reconstructed by comparing up to 14 colour layers and incorporating them with existing knowledge.

A new blasting of the painted and heavily rusted surfaces was unavoidable. Finally, a modern 2-component lacquer was chosen as the new painting system. The formerly metal-faced, but since 1962 silver painted, parts were treated with glass beads as a softer blasting material. The metallic character of the attacked surface was restored by polishing and the application of a transparent corrosion protection.

Nevertheless, one of the biggest challenges was the size of the object. Even when dismantled, and the axles and numerous small parts had been removed, the locomotive body still weighed 80 tons. We had to identify specialised companies which not only had experience with large and heavy parts but also had a feeling for dealing with historical ones.

The restoration of the wooden panelling and the metal parts of the driver's cab could not be completed until the end of summer 2020 because of the corona pandemic. Some details, such as lantern holder, or parts of the coupling, which were exchanged during the renovation in 1962 (to give the impression of the delivery condition), had to be removed again. Numerous rusty screws, which could only be disassembled by destroying them, had to be added. However, we always try to stay as close as possible to the materials used in the last period of operation in order to create a coherent and in particular historically accurate state of the locomotive.

After the locomotive was brought into the hall of the museum at the beginning of November 2019, assembly began. Here we were able to draw on the expertise of Friedrich Prohaska, a member of the restoration team and the curator for rail transport at TMW, and Thomas Winkler, to find the right place for all parts again and



Damaged and corroded parts in the driver's cab were partially de-rusted and painted over with a new coating system, and reassembled in September 2020.

to create a correct condition down to the smallest detail. The work was complex, as even seemingly small parts were very heavy and sometimes had to be worked in very inaccessible places, such as under the locomotive.

It took two years from the first inspection to completion of the project of the restoration of the locomotive 12.10, of which eight months were spent on assembling in the museum hall.

From now on the 12.10 tells the history of its life, displayed in the state of late operation.

UNITED KINGDOM

LOCH LOMOND'S STEAM PATENT SLIPWAY

J S Mitchell, project conservation engineer

The steam slipway at Balloch is believed to be the only remaining working steam slipway in the world. In the early summer 2021 it is hoped that the Maid of the Loch steamship will be hauled out for only the second time in 50 years for a much-needed hull inspection and possible repairs. This is a unique piece of industrial heritage upon which the world's last-built paddle steamer depends for its restoration and survival. When Henry Bell's steamship Comet began a passenger service on the Scottish River Clyde between Glasgow and Greenock in 1812, completing the journey in three and a half hours, the obvious but revolutionary result was that scheduled services could be inaugurated, with vessels freed from the tyranny of wind and tide. Other operators sprang up in competition and within ten years there were around fifty steamships operating on the wide sheltered waters of Firth of Clyde with its many sea-lochs and small towns. Steamer services were also introduced onto this loch with the little Marion appearing on Loch Lomond as early 1816.

By 1900 there were over 300 steamers in the estuary and on Loch Lomond. The trade had expanded rapidly as the new, ever-competing railway companies bought into and built their own steamship fleets. When the Lanarkshire and Dumbartonshire Railway proposed a line to Balloch at the south end of Loch Lomond, running near to the Edinburgh and Glasgow Railway route, an agreement was reached to make part of the line jointly owned. This was done in 1896, forming the Dumbarton and Balloch Joint Railway. Most of the original D&BJR line continues in use to the present day. With the railway came larger steamers - and the need for a modern slipway to haul them out.

A new steam-powered slipway was completed in 1902 on made-up ground to a length of around 175m at a gradient of 1:18 reaching out into the loch to a depth of around 4m at average levels. The slipway was of the 'patent' type, running on three cast iron rails with the central double rail enclosing a toothed rack as a single casting. The track has a gauge of nineteen feet and is laid on longitudinal greenheart sleepers on pile-heads. The slipway itself was built by Halliday's of Rothesay, a well-known pier and slipway builder on the Clyde. The engine is small, at 33I hp and is a twin horizontal single expansion engine, built by James Bennie of Polmadie, Glasgow, at their Clyde Engine Works. Bennie was a well-known shipyard machine tool maker, who provided the winch and engine on cast iron bed plates. The gearing reduction is 113:1

The carriage was built from pitch pine and weighed over 60 tonnes at 51m long, with about 80 cast iron bogies on 240, 200mm Ø cast iron wheels. It was strengthened more than once as larger ships were brought onto the loch, with its final 'upgrade' in the early 1950's to prepare for the new 555 ton paddle steamer, Maid of the Loch in 1953. The upgrades consisted mostly of adding ineffectual stiffeners made of old railway line. The carriage and winch house fell into disrepair when the Maid was taken out of service in 1983 and the carriage was effectively destroyed when the Countess Fiona was broken up on it in 1999.

The slipway was beautifully restored in 2005 along with the engine and winch, and a vertical boiler added to put the engine in steam for the first time in decades. (A compressor had been used for years.) Unfortunately, the timber preferred by the funders was Douglas Fir which was poor substitute for the no-longer available pitch pine, and it suffered catastrophic failure in January, 2018 while attempting to slip the Maid. This was partly due to rot at the bolt penetrations.

The good news is that restoration of the carriage begins in early 2021 using a steel and timber design. The timber will be a hardwood for longevity and the lighter steel framing will compensate for the heavier timber. The new slipway carriage will be subsumed into the 'A' listed steam-powered winch house, along with and above the underwater railway infrastructure. The new carriage replaces the two previous timber iterations.

The new carriage will be in steel but with structural timber elements on the outrigger chassis amounting to around 5 tonnes of (sustainably certified) Opepe, a West African hardwood. The original 80 cast iron bogies, running on 240 cast iron wheels, will be reincorporated, along with the riveted outrigger arms, silt ploughs and revised tow bracket. These are omitted from the 3D model for clarity, as are the new timber keel blocks. With a reverse angle on the



The Queen on the new Balloch slip in 1903.



The winch and twin horizontal single expansion steam engine, built by James Bennie of Polmadie, Glasgow, was restored in 2006. Surprisingly, it is the only working stationary steam engine in Scotland.

carriage and keel blocks, the ship will now sit at a 1:26.5 gradient.

The all-up weight of the carriage and ship, the Maid of the Loch, will be about 600 tonnes and the pull required from the steam winch will be about 100 tonnes at I metre per minute, the speed being limited by the boiler capacity. A load cell will be incorporated when the first slipping is carried out to measure loads for future reference.

The carriage design had to stay within the 60 tonne weight limit requirements, be able to bear the weight of the 550-tonne ship and the tension load of 100 tonnes. It also has to comply with the A listing (the highest designation of historic buildings in Scotland) requirements of appearance and working principles, which have

been achieved by using solid timber outboard lower chassis and the original running gear. Lightness is achieved by using longitudinal universal columns (H beams) to form the correct visual 'mass' but being internally hollow. The 51m carriage is made up of five coupled articulating units which can follow height variations on the track while keeping all the bogies in contact with the rails.

Inter-chassis stiffening is vital to prevent recurrence of the 2018 failure, so light-weight diagonal stiffeners, held by single steel pins to allow flexing, are repeated the full length of the structure and 90-degree cross braces are included to prevent the structure 'lozenging.' All of this has followed the principle of strength with controlled flexibility, weight suppression and of course, appearance.

BOOK REVIEWS

CONSTRUCTING INDUSTRIAL PASTS: HERITAGE CULTURE AND IDENTITY IN REGIONS UNDERGOING STRUCTURAL ECONOMIC TRANSFORMATION

Stefan Berger (ed.), Berghahn, New York, Oxford, 2020

Professor Massimo Preite, Università di Padova

DOES THE WORKING CLASS MATTER IN THE INDUSTRIAL HERITAGE?

Kenneth Hudson's words of forty years ago still arouse a profound echo, when he recalled the mood of those who, in the face of the disruptive effects of deindustrialization on industrial heritage, had been busily committed to recording and saving as many factories as possible before 'fires, bulldozers and old iron merchants eliminated all traces of the Industrial Revolution; the dominant psychology was that of a nation at war; first of all the war had to be won; only then would the moment come to discuss why it was worth fighting and what to do after peace '(Kenneth Hudson, 1979). The time to have that discussion, then postponed to save what can be saved from the action of the bulldozers, has now arrived; the time has come to ask ourselves why it was saved, how it was saved and by what values its conservation was justified.

To these questions, the book edited by Stefan Berger, which collects a large number of contributions from qualified scholars of heritage studies, offers an outstanding opportunity for reflection, through a broad comparison of policies, on the industrial heritagization in different areas of the world, Western and Eastern Europe, USA, Australia, and China. The narrow limits of this review inevitably imply a selection - necessarily subjective - among the many topics covered by Berger's book. However, it seems to me that the common starting point of the reflections of the various authors concerns the fact that the history of work, the working class culture and social life have been marginalized in the urban regeneration projects for

Constructing Industrial Pasts



HERITAGE, HISTORICAL CULTURE AND IDENTITY IN REGIONS UNDERGOING STRUCTURAL ECONOMIC TRANSFORMATION



cities devastated by deindustrialization. In the case of Glasgow, 'the municipal authority mobilized to rebrand the city as a cultural center and an attractive, stylish and safe place to visit' giving the former production sites transformed into consumption sites a new identity where the memory of the struggles of Red Clydeside finds no place (Arthur Mclvor, p. 56). Similarly, in the wave of the 'Manchester Miracle' during which 'more than 50% of the disused mills have been lost for fire, neglect or demolition', the few dark satanic mills that remained have been repurposed for create new shops, offices and apartments, destined to fuel a new economy whose beneficiaries have nothing to do with the values and memory of the industrial past (Paul Pickering, p. 38). If in other cases the patrimonialization was successful, this only happened 'for lack of alternatives of what to do with the sites after they had closed' (Big Pitt in Blaenavon, Rhondda Heritage Park in Rhondda Valley, etc.).

In a nutshell, it can therefore be said that in the interventions of industrial patrimonialization the references to working conditions, workers' struggles and class identity, which developed in opposition to the capitalist factory organization, have been lost. The memory of 'work' (understood in its subjective dimension) is the great absent in the narratives associated with industrial heritage. It is therefore the task of the 'heritage makers' to bring the memory of work to the heart of heritage policies, developing narratives that give centrality to the experiences of the working class. Despite being inevitably schematic, this synthesis places us in front of what I would call a real paradigm reversal: for Kenneth Hudson, and for many of us with him, every discourse on industrial heritage began with the primacy of knowledge and conservation of tangible properties, in the belief that physical evidence is the repository of information that cannot be modified or altered over time. This did not exclude, however, that the intangible heritage (variously defined) constituted a no less important component for the understanding of the material expressions of the industrial testimonies, but not prevalent on the patrimonial value of the physical properties. Today, as a growing literature emerging from the new branch of critical heritage studies claims, a conceptual revision is underway that downgrades tangible heritage to an increasingly auxiliary role, if it is true that, as Laurajane Smith argues, 'those things and places often defined as heritage must be understood as having no essential value as heritage'. They should rather be equated with 'a particular form of cultural tool that facilitates individual and collective remembering and forgetting' (p. 138).

On the basis of this assumption - of a dematerialized industrial heritage in favour of its intangible reinterpretation - it should therefore not be surprising to meet the absence, among the authors of this book, of experts such as archaeologists, planners, architects and restorers who, because of their disciplinary training, pay particular attention to the physical evidence of the industrial past. No longer the conservation of disused production plants; the new mission of industrial heritage is that of an activity aimed at 'to negotiate and continually create and re-create the historical narratives and values' connected to the experiences and memories of the class working.

The research path outlined in this way, however, risks breaking against the close association that the book establishes between industrial memory and the experience of deindustrialization, with the obvious risk of creating a temporal barrier that is detrimental to the wealth of themes and events that can become the subject of new narratives. The question that Berger raises at the end of the book 'how is industrial heritage connected to forms of deindustrialisation' is not under discussion, it is indeed a question well posed (p. 303). In effect, if it is true, as Françoise Choay argues, that the (all in all recent) idea of heritage is born when its survival is at risk (1992), this idea could not have found better confirmation in the sudden interest in the fate of industrial properties, awakened by the pitfalls of deindustrialization in the 60s of the twentieth century.

However, the culture of industrial heritage that developed as a result of those threats ended up embracing a time span of events in which deindustrialization is only the final episode. The same is true for industrial memory: it is indisputable that the last phase of its formation is closely associated with the job insecurity of industrial downsizing and the destabilizing effects on the lives of workers and their families (Roberta Garruccio). Equally indisputable, however, is the fact that worker pride, an irreplaceable element of those narratives of industrial heritage whose focus shifts 'from things onto people' (B. Dicks, p. 84), is nourished by a multi-layering of experiences that often summarizes the collective biographies of several generations of workers. It is no coincidence that not a few of the authors of this book develop narratives referring to a time span that dates back to phases well before that of deindustrialization. This is demonstrated by Paul Pickering with his fascinating topographical reconstruction of 'Sooty Manchester', carried out on the basis of the original sketches and maps reproduced by the Soviet editor of Friedrich Engels' 'The Condition of the Working Class in England' (Moscow, 1973); by Arthur McIvor with his re-enactment of the numerous heritage initiatives to revive the traditions of Red Clydeside and 'the rich mosaic of working-class life and culture' that neoliberal policies in Glasgow in the 1980s / 1990s prompted to erase; and finally by Tibor Valuch and his demonstration of how the memory of the strong sense of intergenerational solidarity in the Metallurgy Factory of Ozd is the result of the experiences accumulated by the workers during their entire working life.

In these terms, the main interest of the book, in our opinion, is not only that of the specific memory of deindustrialization, but that of the strategies implemented, on the wave of deindustrialization, for the construction of an industrial memory inclusive of the great variety of phases and experiences that characterize recent and past workers' history. Who is the maker of this construction? The answer to this 'crucial question' is not easy, as the local community is not always fully involved in this construction. Marion Fontaine, for example, who does not escape 'the relative indifference of the population in the Nord Pas de Calais basin ... to put the spotlight on their collective memory', explains this social inertia by observing that for the new inhabitants, for whom the mining experience holds no tangible reality, 'it is difficult to use it as the foundation of a collective identity' (p. 194).

For his part, Stefan Berger notes that the local debate on the narration of the Ruhr industrial heritage has been silenced by the 'monolithic nature' of the official heritage discourse, focused almost exclusively on the promotion of regional identity, to the detriment of working class memory. Finally, it is always Berger who, returning to the low propensity of certain communities to remember, denounces the risk of loss of the industrial memory of Sesto San Giovanni, a fortress of the workers' resistance to the Nazi occupation, in the absence of initiatives aimed at preserving the example of that extraordinary season of mobilization of workers (personally, I can't help but add that this risk of amnesia of workers' history affects a large part of the industrial heritage in Italy, where, paradoxically, the strongest communist party in the West was active throughout the twentieth century).

In the absence of the direct holders, it was others who had to become interpreters of workers' memory and its values. Different types of actors emerge from the contributions collected in Berger's work. First of all, that of volunteers and community groups who were the first, through the collection of oral testimonies, to give voice to workers' stories that awaited an alternative narrative to the Authorized Heritage Discourse of official institutions. (A. Mclvor, p. 39). It is equally true, however, that without disregarding the undeniable value of grass-root initiatives, academic research made it possible 'to reveal a clearer picture of the Steel Industry in Welsh History and Heritage' (Louise Miskell, p. 92).

It is no coincidence that three researches on oral history appear in Berger's volume, scientifically carried out through interviews conducted by Roberta Garruccio to fifty retired workers and managers of former Falck Factory in Sesto San Giovanni; by Laurajane Smith to 4,502 visitors to 45 sites and museums in Australia, United States and England; and by Tibor Valuch to more than 80 workers of the former Metallurgy Factory of Ozd (Hungary). Another category of agents is that of museums whose role, in heritage making, is rather controversial: everyone knows the debate that has opened internally at ICOM on the possible transformation of museums into 'democratising, inclusive and polyphonic spaces for critical dialogue about the pasts and the futures' and for working 'in active partnership with and for diverse communities to collect, preserve, interpret, exhibit, and enhance understandings of the world' (Kyoto, 2019).

However, most of the industrial heritage museums examined by the authors are not yet suitable for carrying out this task: in the exhibitions of Manchester Museum of Science and Technology 'there is almost no reference to the dark side of the dark satanic mills '(P. Pickering, p. 40); in the Riverside Museum in Glasgow 'working class lives, work, culture, protest and resistance are marginalized within Zaha Hadid's wonderfully designed and sensuously sculpted space' (A. McIvor, p.48). A commendable exception is that of the new Swansea's Waterfront Museum, which, adopting the principle of the cultural participation, 'embraced this new social role with passion, placing social inclusion, participation and cultural rights at the heart of its Vision' (B. Dicks, 83).

Other authors have not overlooked the role that UNESCO nominations have played in the elaboration of appropriate forms of narration of industrial heritage: M. Fontaine pointed out how much the campaign for the inscription of Nord Pas de Calais Mining Basin (2012) has been supported by participative workshops 'intended to promote local mobilization and involve inhabitants in preserving the mining basin's memory'. However, a depiction of the mining world as a homogenous whole emerged from this participatory effort, without any reference to the conflicting relationships between the corporate managers, the working community and the representatives of the workers' unions '(p. 193). The other inscription examples mentioned in the book - those of 'Cornwall and West Devon Mining Landscape' (2006) and New Lanark (2001) - further confirm the notation of Smith, Shackel and Campbell that in UNESCO sites 'the focus on industrial heritage is often void of people and class struggle '(A. McIvor, p. 58).

This review would be incomplete without mentioning the last important question raised by the editor in its conclusion (p. 300): 'How memorial discourses on industrial pasts are connected to scenarios for the future?' A question not very dissimilar to the one that Laurajane Smith also asks herself (p. 130): how the heritage narratives address the political and social needs of the present? An exhaustive answer to such a complex question would require much more space than that is available. Let us therefore limit ourselves to recording, in the reflections of some authors of this book, some alarming signs that the societies of our time have expressed in contrast to the fundamental cornerstones of the working class culture, namely that of an intransigent internationalism of class sentiment in opposition to every narrow national vision of workers' condition. However, the most recent social and political evolution seems less and less available to share supranational interests and increasingly inclined to take refuge in national sovereignties or in small homelands: in China the industrial memory of the Third Front (and of its legacies of military and space industry) are used as tools of a grandiose nation-building project; some retired steelworkers interviewed by Laurajane Smith reveal the rhetoric of make America great again, so dear to the Trumpian right; the attempt at 'reigniting a common identity among the inhabitants' of the Nord Pas de Calais Mining Basin (through the UNESCO nomination) ended with the victory of the Front National in the last presidential elections of 2017; in Cornwall and in Wales the industrial heritage narratives have become functional to the development of strong regional identities (Celtic Revival, Welsh as ancient Britain's first people) in opposition to the Englishness and the UK national policies. It should therefore not be surprising if, as Hilary Orange points out, in 2016 Cornwall's electorate voted for leave the European Union (p. 112).

Personally, I believe that these collateral effects of local retreat by certain communities (in reaction to the fears that globalization, open society, neo-liberal politics inspire) in no way detract from the importance of the impressive interdisciplinary work that Stefan Berger has coordinated on industrial heritage and working-class memory. I also believe that the program Stefan Berger and Steven High presented (in the last two issues #89 and #90 of the TICCIH BULLETIN) for the continuation of the research carried out up to now with a new project on 'Transregional comparative history of deindustrialisation and the role of industrial heritage' deserves extreme attention and willingness to participate, as from the merge between memory studies and heritage studies it will be possible to obtain 'new theoretical insights into the study of industrial heritage and its multiple meanings in different societal contexts'.

Mario Tronti, an Italian scholar who in the 1960's proposed an original re-reading of Marxian texts, proposed a 'reversal of priorities between capital and labour' on the basis of which the development (technological, managerial) of the first would no longer explain the enhancement of class consciousness; it would instead be an increased level of the class struggle to explain a more advanced organizational level of the capitalist system of production (see M. Tronti, Workers and Capital, 1966). Personally I consider this statement to be the fruit of the ideological dogmatism of those years and I therefore agree with Berger on the 'need of theorization that moves away from Marxist class interpretation' (p. 303). But suppose there is something true; in this case why not dare, starting from the

'intangible heritage', that is from the memory and culture of the working class, an overall reinterpretation of the evolution of the capitalist industrial system in its tangible aspects: machines, technological innovation, production processes?

Contact the author

THE RAILROAD PHOTOGRAPHY OF J. PARKER LAMB

Kevin Keefe (ed.), (Madison, WI: The Center for Railroad Photography & Art, 2019). ISBN 978-0-578-48750-2. 208 pages. Hardcover, \$60.00. 160 b&w illustrations.

THE RAILROAD PHOTOGRAPHY OF DONALD W. FURLER

Scott Lothes (ed.), (Madison, WI: The Center for Railroad Photography & Art, 2020) ISBN; 978-1-7345635-0-4.216 pages. Hardcover, \$60.00.200 b&w illustrations.



Prof. Betsy Fahlman, Arizona State University

The Center for Railroad Photography & Art in Wisconsin, USA, possesses a rich trove of archival collections, and has been actively publishing handsome volumes to make them more widely available. The latest is a pair of books on their holdings of the work of J. Parker Lamb (b. 1933), comprising approximately 2,700 images, and Donald W. Furler (1917-1994), which consists of about 5,000 images. The Center's initiatives represent an extraordinary act of the preservation of not only of the work a pair of talented railroad photographers, but also the reclamation of stunning visual documentation of the American railroad, in this case during the 1930s, '40s and '50s. Both Lamb and Furler produced classic black and white photographs, including iconic images of the great curve of a long train traversing the American West and the dramatic plumes of smoke billowing above powerful steam engines (even better if it traverses a bridge).

Collectively, their work represents a geographically broad map of railroad America encompassing the Northeast (Massachusetts, New Hampshire, New York, New Jersey, Pennsylvania, Vermont), the South (Alabama, Arkansas, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Tennessee, Virginia, West Virginia), the Midwest (Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, Ohio); and the West (California, Colorado, New Mexico, Texas). Lamb traveled more widely in search of railroad subject matter, whereas Furler's major focus was New York, New Jersey, and Pennsylvania. Both photographers did some work in Canada.

The pair shared more than a passion for historical railroads, and both pursued careers as mechanical engineers. Skilled photographers, they had a good eye for effective composition and compelling images of trains and the men employed by the companies that ran them (during the period Lamb and Furler were active, the railroad and its many fans was definitely a world of men). Their work was published in Trains: Furler's first image appeared in 1941, and Lamb made his debut in 1954.

Scott Lothes, the Center's Executive Director, introduces Furler's biography and work in Quiet Monsters Coming to Life. Furler worked for thirty years at the American Can Company in Patterson, New Jersey (his home was across the street from the Erie Main Line). Acquiring his first camera in the thirties, with other rail fans, he traveled throughout the Northeast to make images; his particular interest was the steam locomotive. After sending a set of prints to Al Kalmbach, editor of Trains in January 1941 (the magazine made its debut in October 1940), he became a regular contributor through the 1950s. Furler's son Alan contributes an afterward, giving a personal view of the man who occasionally took him train chasing (most of his father's friends were rail fans).

Born in Alabama, J. Parker Lamb was five years old when his father opened an automobile repair business in Meridian, Mississippi, the leading railroad center of the state. Lamb pursued an academic career at the University of Texas at Austin, where he taught mechanical engineering for thirty-eight years (1963-2001). He made many images of the era of steam as it passed into history, but he was also fascinated by the big diesels that succeeded them. Fred W. Frailey, a longtime columnist for Trains, contributes a rather gushy introduction, commencing with an account of his encounter at the age of eleven with the early work of Lamb, then just twenty-two. He had only finished his undergraduate work at Auburn University the year before. At the end of Lamb's volume, Kevin P. Keefe, a former Trains editor, considers A Vision of the South in his thoughtful epilogue on the region that formed Lamb's railroad vision, and notes some of the photographers who influenced his work. Both volumes are similar in format, and contain a wealth of technical information about the trains and their geographical contexts (every image is captioned), as well as more formal characteristics the photographs reproduced (these sections are termed Elements of Style). For Furler, these are The Engine Picture, The Action Shot, The Big Picture (broad landscape views), and Streamlining featuring sleek Art Deco engines. Two geographical sections, Lehigh Gap and Catasauqua, represent The Art of Place. Lamb's sections are titled Geographic Scope, Bridges/Engineering, The Frame, and Signals. Super-Elevation conveyed the action of trains running at high speeds on a curve, whereas for a Panned Shot, he followed a moving train from a fixed position. Both volumes have an Index of Railroads that will enable readers to search for images shot of their favorite lines.

This pair of handsome books present a wealth of photographs stunningly reproduced, with extensive text, permitting a fascinating trip back in time.

NOTICES

MAURICE DAUMAS PRIZE

The International Committee for the History of Technology, ICOHTEC, welcomes submissions for the Maurice Daumas Prize, which aims to encourage innovative scholarship in the history of technology. The winner will receive a cash prize of Euro 500. The prize will be awarded to the author of the best article submitted which deals with the history of technology in any period of the past or in any part of the world and which was published in a journal

or edited volume in 2019 or 2020. Eligible for the prize are original articles published in (or later translated into) any of the official ICOHTEC languages (English, French, German, Russian or Spanish). Submissions are welcomed from scholars of any country who are currently in graduate school or have received their doctorate within the last seven years.

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