



THE INTERNATIONAL  
COMMITTEE FOR THE  
CONSERVATION  
OF THE INDUSTRIAL  
HERITAGE

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**The Segovia Mint complex on the Eresma River**

Photos: Glenn Murray

## number 27

Winter, 2004

### Inside:

The conference season ends with reports from around the world.

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MUSEU DE LA  
CIÈNCIA I DE LA  
TÈCNICA  
DE CATALUNYA

Founded by King Philip II and built by his personal architect, Juan de Herrera together with a team of technicians from Tyrol and Germany, the water-powered mint at Segovia (1583) has been recognized by TICCIH-Spain as the country's oldest still-standing departmentalised complex industrial manufacturing plant. The various buildings composing the complex, stripped today of all machinery, remain virtually intact and as they were designed 420 years ago, as do its dam and canals. The Segovia plant was designed and constructed specifically to house the rolling-mills and other equipment crafted as a gift for the Spanish King from his cousin, Ferdinand, Archduke of Tyrol, at the Hall Mint, 9 km. from Innsbruck (Austria). The convoy which brought the machinery to Spain in 1584 during an arduous 8-month endeavour, is thought to represent the most significant transfer of complex industrial technology ever undertaken up until then.

The Segovia Mint, which struck coins until 1868, was a frequently-visited attraction for the Spanish Royal family, which often brought guests such as Charles I, Prince of Wales, in 1623. The battery of fourteen giant water-wheels (3,75 m. diam.), as well as the movement of the complex wooden gear mechanisms inside the building became world famous. Many guests were rewarded with giant cincuentines (50 reales, silver) and centenes (100 escudos, gold). These extraordinary show-pieces (76 mm diam.) were produced exclusively at Segovia on the rolling-mills and are considered the largest coins ever struck, or better stated "rolled".

During the 16th century, the manufacturing methods employed at advanced mints could be considered the most complex industrial process in practice. Contrary to other more artisan-like industries such as paper, glass, textile, metallurgy, etc. the minting process required a diversified and highly specialized team of experts, with no one person being able to produce the final product single-handedly. What's more, precise product specifications and the exact methodology to be used were exclusive privileges of governments to issue and enforce.

With the mechanization of the procedure, as took place at Segovia (improvements made to thwart frauds like counterfeiting and edge clipping of coinage in circulation), we have the perfect example of a typical factory of the Industrial Revolution, but two-hundred years earlier. The water-powered machines at Segovia produced millions of identical pieces in series, by means of a complex chain-line departmentalised method, each piece carrying three symbols -or guarantees- which permitted instant identification of those responsible for its fabrication: the mint mark (an aqueduct for Segovia), the assayer's initials, and the year of manufacture. The product also carried the king's name and portrait as ultimate guarantor. Legislation and methods for its enforcement all point to coining as the most specialized and developed industry of those times.

Having established minting as perhaps THE cutting-edge industry of the 16th century, we need only consider other similar mints of previous construction. The Mint at Hall in Tyrol, first ever to roll coins on mills, was mechanized in 1567 and it subsequently transferred this technology to perhaps three or four other nearby locations before the transfer to Segovia in 1584. The grand tower of the Hall Mint still remains but other manufacturing parts of the plant have been altered over the years and its canal no longer exists. It is unknown whether original structures which housed similar water-powered mints previous to 1583 still exist in Germany, Hungary or France since this possibility has never been brought up for discussion by either numismatic experts or historians of industry. The chance that a previous and similar plant existed outside of Europe in the 16th century, and that it still exists, seems impossible.

The Royal Segovia Mint Foundation seeks recognition by TICCIH for the Segovia factory as the World's Oldest Architectural Example of a Mechanized Industrial Manufacturing Plant. Segovia is a World Heritage City, and the Mint, declared of Cultural Interest, is scheduled for rehabilitation beginning in 2005. The project calls for the reconstruction of ten water-wheels which will power the rolling-mills and other machinery forming part of the coining workshops where commemorative pieces will be struck and sold to visitors. The laminating mills are planned to be built by the master carpenter who reconstructed the life-size and functioning machines for the Hall Mint Museum in 2003, celebrating the identical technical collaboration which took place between the same two mints 420 years ago. As a tourist attraction capable of teaching the history of industry, this honorary title would greatly assist the Mint in standing out as a worthy destination. The topic is open for discussion.

*info@segoviamint.org. For more on the Mint and a full bibliography, see [www.SegoviaMint.org](http://www.SegoviaMint.org)*

## Opinion

**Dr. Glenn Murray**  
Technical Director,  
Royal Segovia Mill Mint

### The Royal Segovia Mill Mint (Spain). The world's oldest remaining industrial manufacturing plant?

# TICCIH news

## TICCIH Officers

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There is an on-line membership form on the web page.

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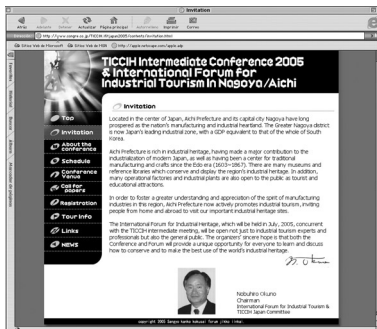
Opinions expressed in the Bulletin are the authors', and do not necessarily reflect those of TICCIH.

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■ **One of the elements to be included** in the redesigned TICCIH internet site is a database on which important historic industrial sites can be entered. There are various models available, but the Editor would be pleased to hear of any that would be particularly suitable for TICCIH, with its global scope. One example is the popular online database being developed by the Greater London Industrial Archaeology Society (GLIAS), which can receive new entries through the Internet, contains photographs and articles, and is searchable in a variety of ways. [www.glias.org.uk/database/abouttxt.html](http://www.glias.org.uk/database/abouttxt.html)  
Meanwhile, Anna Maria Stagira (stagira@culturadimpresa.org) in Italy is making a study of on-line heritage databases and would also be pleased to hear from colleagues working in this field.

■ **TICCIH Intermediate conference in Japan** The Second Circular has been published and can be downloaded from the conference site (see page 8 for more details). The programme includes the meeting of the TICCIH Board on Wednesday, July 6, followed by the Association Meeting together with TICCIH, JIAS and CSIH and a Welcome Lunch for members only hosted by the Japan Industrial Archaeology Society. Two full days of simultaneous sessions are followed by tours and a farewell party hosted by the JIAS on Saturday 9, but there are more optional tours on the following days.



■ **The Nizhny Tagil (TICCIH) Charter** for industrial heritage has now been translated into Spanish and is available on the TICCIH web site. The translation was paid for by TICCIH and the Board would consider paying for the text to be translated into other languages, too, as part of the promotion and diffusion of the document and its contents. Chinese and Arabic versions, for instance, as well as the major European

languages, would make the Charter available to a global audience.

■ **TICCIH 's first member in China**, Yiping Dong, has agreed to become the Correspondent for her country. She is studying for her doctorate in Tongji University, Shanghai, and her degree paper is about the Industrial Heritage of that town, especially along the waterfront area. She writes 'Shanghai is a metropolis whose history accompanied the Modernization in China. These years some artists began to reuse such areas, and the Government has also started to pay attention about such topics.'

■ **The 2006 Application Forms for the European Museum of the Year Award** and the Micheletti Prize for industrial museums are now available, and can be downloaded from the EMYA Internet site [www.europeanmuseumfourm.org](http://www.europeanmuseumfourm.org)

■ **Maria Teresa Maiullari Pontois** writes "TICCIH Bulletin readers will remember the announcement of the creation of the TICCIH European Agency, entitled Koinetwork e.g.e.i. – an independent European group of economic interest under European law, linked by a special agreement with TICCIH whose Board had approved that initiative.

Let us record what happened since its foundation (Fall 2002). Koinetwork has been in charge of several projects co-financed by the European Commission, from launching and preparing scientific application files mainly touching the field of cultural and scientific promotion of Industrial Heritage, to administrative management of the projects between partners and European Commission. As a result, the related networking noticeably enlarged the circle of TICCIH members or friends, at a level which may be viewed as complementary with respect to TICCIH Sections. The group is planning to extend its activity to some kind of publication.

The manager tells again that Koinetwork, as a network of competencies, is open to support any kind of individual or institutional project in TICCIH's field of interest, and asks TICCIH National Representatives to spread that information. Just contact her on [info@koinetwork.org](mailto:info@koinetwork.org), or see [www.koinetwork.org](http://www.koinetwork.org).

■ **New members welcomed** since October 2004: José Ignacio Rojas Sola, Claire Bennett, Yiping Dong and Krystyna Pytasz.

■ Le Creusot is world famous—at least to the readers of this Bulletin—both as one of the principal industrial centres of Europe from the last decades of the 18th century up to the second half of the 20th, and as one of the birthplaces of industrial archaeology in France. The pioneering Écomusée of Le Creusot-Monceau-les-Mines was founded in 1973, occupying the Château de la Verrerie, the former royal crystal glassworks of 1787. In 1979, the museum was one of the founder members of CILAC, the Comité d'information et de liaison pour l'archéologie, l'étude et la mise en valeur du patrimoine industriel, France's national industrial heritage association.

What better venue, then, for an anniversary conference celebrating thirty years of industrial archaeology in France and CILAC's own twenty-fifth birthday? Organised with the help of the municipality of Le Creusot, the community of Le Creusot-Montceau, the Écomusée, the University of Burgundy (Centre universitaire Condorcet), the ARC (scène nationale) and the Académie François Bourdon, and with financial support from the national Inventory service at the Direction de l'Architecture et du Patrimoine (Ministry of Culture and Communication), the conference mobilised about forty speakers and attracting two hundred and fifty participants. Of these, about 30% came from universities, 42% were heritage professionals working for museums or regional or departmental inventory services and 25% were members of local industrial archaeology associations or local authorities. The absence of representatives from the world of industry or from labour organisations was noted, and bemoaned, as usual. Amongst the participants, there were several figures whose careers and writings, since the 1970s, have been primarily devoted to the interpretation and promotion of France's industrial heritage, but, alongside these "old boys" and "old girls" and a few guest stars from outside the French hexagon (Sir Neil Cossons, chairman of English Heritage, Lorna Davidson from New Lanark, Rainer Slotta of the Deutsches Bergbau-Museum at Bochum, Giovanni Luigi Fontana from Schio in Italy, Freddy Joris of the Institute of Walloon Heritage and, briefly, TICCIH's own Eusebi Casanelles), the organisers were pleased to note the presence of a sizeable contingent of younger industrial archaeologists, many of them graduates of the various IA training programmes set up in France over the past few years.

The first three sessions looked at the different territories of industrialisation and at the scales on which the industrial heritage may be analysed; then at the way, in France, local and regional authorities have come to supplant central government in the formulation of policies for this heritage; and thirdly at the vital role of research in accumulating the knowledge necessary to underpin these

## CILAC 2004, 30 ans de patrimoine industriel en France

23 - 26 September 2004

**Paul Smith**

Sous-direction Archéologie, Ethnologie, Inventaire et Système d'Information, Direction de l'Architecture et du Patrimoine, Ministère de la Culture et de la Communication



**The Lavoir de Chavannes coal washing plant. (Photo Denis Varloot)**

policies. A fourth session was devoted to the teaching of industrial heritage, particularly in secondary schools. The fifth and sixth sessions were concerned with sites after the disappearance of their industrial activities, with some of France's specialists in this field (Alexandre Chemetoff, Eric Castaldi, Philippe Robert...), on the conversion of industrial buildings. The next issue of CILAC's review, *L'Archéologie industrielle en France*, will publish the conference proceedings.

Consequently, it is perhaps more interesting here to give a brief account of the conference's other attractions, in particular the rich succession of site visits. The working sessions were held in the Centre universitaire Condorcet next to the former "Halle des grues et locomotives", one of the few remnants of the Schneider factories on the Plaine des Riaux, a workshop dating from about 1848, and recently re-opened as the university's library after its admirably sensitive rehabilitation by the architect Pierre Colboc. The end bays of this building have been left in their original, empty state where a lively

selection of French industrial archaeology associations and institutions was able to set up a forum for discussions, information desks, poster displays, leaflet distribution and petition signing.

On the Friday morning, visits were also organised to some of Le Creusot's living industrial sites, the Alstom factory (bogies for railway rolling stock), Industeel Creusot (specialised steel plating) and the SNECMA factory in the Plaine des Riaux, the high-tech plant of France's leading aerospace propulsion and equipment group. Saturday morning's visits took participants to Ciry-le-Noble, to the Vairet-Baudot brickworks of the 1860s and 1890s, which ceased production in 1967 and was purchased by the Ecomusée in 1995. The second visit on Saturday morning was to the Lavoir de Chavannes, the gigantic coal screening and washing plant built on the Canal du Centre from 1923 to 1927 and closed down at the end of 1999. This site might be familiar to those who have navigated their way around the TICCIH/Ecomusée DVD by Louis Bergeron and Maria Teresa Pontois on "dinosaurs" of the industrial age. To the question asked by that DVD, "can the gigantic and the cumbersome be re-used?", the answer, in this case, would appear to be no. The structure was protected as a historic monument in October 2000 but a recent international competition chose the most economic proposal, put forward by the Dutch agency of MVRDC, of accompanying the building in the accomplishment its inevitable ruin and in the controlled (?) progress of rust and vegetation. This is the first time in France that such a Volkingen-type solution has been seriously mooted and, in fifty or a hundred years' time, readers of TICCIH's bulletins might be interested in evaluating its merits.

On Sunday, for real fans, first, the Hottinguer pit at Épinac, France's only "Malakoff"-type masonry tower, constructed from the 1860s and using a pioneering but ultimately over-expensive atmospheric tube for bringing coal 600m to the surface. The tower itself was protected in 1992 but its state of dereliction and the vegetation apparently thriving inside the tower itself are not the result of any international competition or jury's choice. The second site visited, at Télots near Autun, developed for the production of lamp petrol from bituminous schist, is also an industrial wasteland lost in vegetation. Readers curious for more information on this site, now recognised, with its two slag heaps, as part of Autun's historic landscape, can look up Jean-Philippe Passaqui's article in *L'Archéologie industrielle en France* (June 2003). The last visit of the day was to the Saint-Claude pit, a coal mine active from 1857 to 1882 and today the Blanzay Musée de la Mine.

A word of thanks, to conclude, to all those who contributed to the success of this anniversary conference, and to Simone Jander in particular who acted as secretary.

The Shenandoah-Dives HAER/HSA (Historic Structure Assessment) Workshop took place this fall in beautiful Silverton, Colorado, at 9,000/12,400ft, [2740/3780m] in the heart of the San Juan Mountains in Southwestern Colorado. The area is famous for its Gilded Age hard-rock mining camps. The workshop was designed to bring together materials scientists, archaeologists, industrial archaeologists, geologists, CRM specialists, architectural historians, historians of technology and experts on HAER documentation from across the US. The focus for the workshop was the recently designated National Historic Landmark Shenandoah-Dives Mill complex located in Silverton at 9000ft [2740m]. The workshop was the result of a partnership between the San Juan County Historical Society and Silverton Restoration Consulting, and was held at the Mountain Studies Institute's (MSI) headquarters at the historic Avon Hotel in Silverton during the week of September 13-17. It is hoped that the workshop will become an annual event.

Topics covered included HAER documentation -drawing topology, photogrammetry, laser scanning, total station laser mapping, large-format photography, process drawing and interpretation and, historical research. The second half of the program covered principals of building stabilization and preservation, understanding structure and the many failure mechanisms inherent in old industrial buildings, and seminars on the historic development of the mining and milling processes within a regional and national context - all for the purpose of conceptualizing a Historic Structure Assessment and fielding a HAER recording team in Silverton next summer.

Donated to the town of Silverton when mining operations ceased in 1992, the mill now is owned and operated as an interpretive museum by San Juan County Historical Society providing an extraordinary facility illustrating the development of ore processing in the first half of the 20th century. The mill's buildings, technology, and collection of equipment have scarcely changed since the

## Rocky Mountain High - Hard-Rock Mining Workshop

Hosted by Silverton, Colorado, United States

Eric Delony

mill discontinued operations in 1992, thus presenting a striking and rare example of the classic flotation process for separating gold and other precious metals from the ore. Constructed in 1929, the Shenandoah-Dives Mill was designed for milling metals from low-grade gold quartz. At the time of construction the mill was considered state-of-the-art, with the most modern mining and milling equipment available. Prominent features of the mill complex include the flotation mill, crushing plant, office/assay building, tailings ponds, tram terminal, and an aerial tramway that was the principal conveyance for both men and material up the face of the mountain to the Shenandoah-Dives Mine located at 12,400ft. On Wednesday, the transition day between the documentation and building forensics components of the workshop, the hearty and more adventuresome in the group hiked two miles and 2,000ft to the portal of the Shenandoah Mine and the miners' village in the Alpine meadow at Silver Lake. For those not acclimated to the extremes of high altitude climbing, the hike up narrow switch-back trails above the timber line to 12,400ft [3780m] was one of the most strenuous while at the same time most exhilarating experiences of a lifetime - a true Rocky Mountain High!

The week-long workshop was orchestrated by David Singer of Silverton Restoration Consulting, a firm specializing in historic building restoration, Julie Coleman, archaeologist for the Uncompahgre Field Office of the BLM, and Beverly Rich, Chairperson of the San Juan Historical Society. Participating students were just as impressive as the faculty, including the Architect for Mesa Verde National Park, stewards of other publicly owned cultural resources such as the San Juan Mountains Association, archaeologists and cultural resource specialists from Colorado, Wyoming and the Alaska Bureau of Land Management, US Forest Service personnel and, Alpine Archaeology, a Montrose-based CRM consulting firm.

Faculty consisted of Washington, DC-based HAER staff (photographer Jet Lowe and architect Dana Lockett), led by the current and former chiefs - Richard O'Connor and Eric DeLony - and NHL author, Dawn Bunyak, formerly historian, Rocky Mountain Region, NPS. The building forensics and historic structures assessment team consisted of Chris Koziol, director of the Architectural Preservation Institute at Colorado State University; Wood Conservator Ron Anthony; CO State Historical Fund representatives Jim Joy and James Stratis; Bruce Bartleson, retired head of the Geology Department at Western State College; and, CO mining expert, industrial archaeologist and author Eric Twitty. The workshop included an evening lecture series, featuring local historians and mining experts Scott Fetchenheir, Bill Jones, open to the public.

"We're trying to establish a community based educational experience, bringing the top consultants in the field of historic preservation to share their knowledge, and focus on the San Juan's incredible mining and architectural heritage," said organizer David Singer. Foreign industrial archaeologists will particularly appreciate the remote western setting, the spectacular scenery and the incredible mining ruins - some of the best in North America. Please come.

A well-organized and very successful International Seminar "Engineering Heritage for the Future. Tourist attractiveness of drawbridges" took place in Szczecin last October. Dr. Julian Kolodziej, President of TICCIH Poland, the Marshal of Western Pommerania, the Rector of Szczecin Technical University, Western Pommerania Regional Conservator, Regional Centre of Documentation Historic Monuments and Regional Tourist Organisation were engaged in this conference about the industrial heritage of historic movable and transporter bridges as an aspect of industrial tourism and further development in the region of Western

## Summary of the conference in Szczecin

Czech Republic  
October 18-20, 2004

Dr Dirk Peters

Pommerania. Two days of very good presentations, including one day of an interesting study-tour to the highlights of technical monuments in this region, gave the participants an overview and a cross-border exchange of ideas, experience, education and development in this special field of industrial archaeology. Prof. Dr. Michael Mende, the representative of TICCIH Germany, gave an interesting introduction about the history of movable bridges in northwest of Germany with international aspects. All participants agreed about the importance of education in order to create a better knowledge for historical works of engineering in the young generation.

At last year's international conference at Barentsburg in western Spitsbergen in the Svalbard archipelago (see TICCIH Bulletin No.23, Winter 2003, p.6), Professor Marie Nisser (TICCIH Honorary President) proposed that an international multi-disciplinary field school be organised to study the extraordinary industrial heritage of the islands. The idea was that it would focus on the remains of early 20th century mineral claims and associated mining activities initiated by explorers, scientists and entrepreneurs from several countries, notably, Great Britain, the Netherlands, Norway, Russia, Sweden and the USA.

Spitsbergen lies 600km north of the Norwegian mainland deep inside the Arctic Circle, and has been populated on a permanent basis for little more than 100 years. Its amazing landscape of steep-sided



**Substantial remains of the coal mine briefly operated by the Spitsbergen Coal and Trading Company at Advent City. The mine, which extracted poor-quality Cretaceous coal, was commenced in 1904 but had closed by 1908. On this occasion, a rapid GPS survey was interrupted by a polar bear.**

fjords and glaciers contains a wealth of minerals, but it is seams of coal that first attracted all-year settlement on a significant scale. Indeed, the extraordinary geology yields coal from three distinct geological ages – the Carboniferous, Cretaceous, and most recently, the Tertiary periods. It was high-quality coal from the latter period that encouraged the first significant exploitation of coal by the American industrialist, John Munro Longyear, who established the Arctic Coal Company, and the associated settlement of Longyearbyen, from 1906. Coal mining around Longyearbyen has continued since that time, having been sold to Norwegian interests in 1916, and No.7 mine remains in operation. Two other centres of coal mining activity also survive to the south at Barentsburg and Svea mine. Until it became part of Norway in 1925, Svalbard belonged to no country, and was therefore 'terra nullius (no-man's-land). The process of laying claims to mineral rights,

## Industrial Archaeology Field Course Svalbard, Norway

**Dr Miles Oglethorpe  
Professor Marie Nisser**



**The expedition comprised a multi-disciplinary team of graduate students from the USA, the Netherlands, Norway, Sweden and the UK.**

and associated mining activities, has created a wealth of physical evidence, much of which has been astonishingly well preserved both by the arctic climate, and by statutory protection from the Norwegian government. With the assistance of funding from the Bank of Sweden Tercentenary Foundation and some additional funding from the Netherlands and the USA, the field course was subsequently organised to take place in mid-August 2004 with the aim of recording and studying these remains, and was based around Longyearbyen, the principal town and seat of the Norwegian government in Svalbard. An international multi-disciplinary team was assembled, led by Professor Nisser and Dag Avango of the Royal Institute of Technology in Stockholm, Dr Urban Wråkberg of the Royal Swedish Academy of Sciences, Professor Patrick E. Martin of Michigan Technological University, Professor Louwrens Hacquebord of the University of Groningen in the Netherlands,

Gustav Rossnes of the Norwegian Directorate for Cultural Heritage and Dr Miles Oglethorpe of the Royal Commission on the Ancient and Historical Monuments of Scotland. Vitally important support on the ground was provided by the office of the Sysselmannen (the Governor of Svalbard). In addition, Russian interests were represented by Dr Vadim Starkov of Institute of Archaeology at the Russian Academy of Science in Moscow, and by his colleague, Eugene Bouzney. In addition to Larry Mishkar (Photographer), the team also comprised a group of graduate students from the USA, the Netherlands, Norway, Sweden and the UK. They brought with them a variety of skills, particularly in relation to field survey.

With the exception of a couple of grey and misty days, the weather was benign, averaging about 8°C, and was often sunny, enhancing the impact of the extraordinary landscape. The major priority was to record the remains of the original 'Longyear City' which had been destroyed by a German raid led by the pocket battleship Scharnorst in September 1943. Recording was achieved with two 'total stations', augmented by GPS survey. The opportunity was also taken to collaborate with local archaeologists working for the Sysselmannen.

There was, in addition, time to carry out reconnaissance of neighbouring areas by Zodiac (inflatable motor boats). These enabled an expedition to be taken to Advent City on the opposite side of the fjord, where a Sheffield-based British company had attempted unsuccessfully to establish a mine exploiting Cretaceous coal. The extensive remains at this site were recorded with the assistance of GPS units. A further expedition involved a trip to Coles Bay in search of an Arctic Coal Company claim hut. When the latter diverted to search for a Norwegian hut, the trip had to be aborted after a large polar bear was found lurking amongst some deserted Russian mine buildings. It was, however, possible to see the remains of Grumant City, another Russian mining centre, on the way back to Longyearbyen. A larger boat was made available for two separate longer trips, one exploring the Sassen Bay area, and the other Bruce City, an area claimed by the Scottish Spitsbergen Syndicate, close to the Russian mining settlement of Pyramiden. The results from the various survey activities will be written up, together with associated research based in archives in the USA, Great Britain, Norway, Russia, the Netherlands and Sweden. In addition to a number of publications, a report will be compiled, the aim of which will be to support an application for substantial funding to allow more extensive and detailed recording of Svalbard's unique industrial heritage in the coming years.

The 3rd of the TICCIH Latinamerican conferences, held in Santiago de Chile in September, 2001, chose Lima, the capital of Peru, as the site for the fourth meeting. This was duly held with the support of 'TICCIH Internacional', of TICCIH-Chile and of the Lima Museo de la Electricidad on the 12-14 July 2004 in the Centro Cultural de la Pontificia Universidad Católica del Perú, in Lima.

More than thirty specialists took part, the majority from Latin-America and Spain, who presented various research experiences, projects and the appreciation of different themes of world Industrial Heritage.

The main ones were

## 4th TICCIH Latinoamerican meeting on the rescue and conservation of industrial heritage

Peru

Dr Jaime Migone

- I.- Rescue and conservation projects
  - II.- Re-use of industrial spaces
  - III.- Industrial heritage at risk
  - III.-Industrial archives, the basis for saving the industrial heritage
  - IV.-Industrial archaeology
  - V.- Industrial history and regional development
  - VI.-Legislation relevant to industrial heritage
- The meeting was organised by Luis Repetto, Director of the Museo de la Electricidad, and Carolina Varón, Executive Secretary of the Museum. On the 13 July and exhibition entitled Industrial Heritage of Chile at the Museo de la Electricidad was opened by Jaime Migone Rettig, President of TICCIH-Chile.

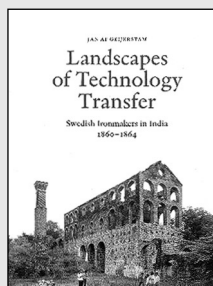
## Publications

### Landscapes of technology transfer: Swedish ironmakers in India 1860-1864

Jan af Geijerstam, Stockholm, J ernkontoret, the Swedish Steel Producers' Association, Box 1721, SE-111 87 Stockholm, 2004 ISBN 91-974131-5-1

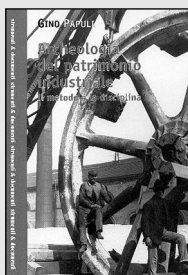
In the years immediately following the Indian Great Rebellion (1857-8), the British colonial authorities promoted two serious attempts to transfer the latest European iron-making technology to India. Three ironmasters were hired from Sweden, presumably because their experience of charcoal was more useful in Indian than that of their British coal-fired colleagues, and sent to the jungle of the Narmada valley and the slopes of the Himalayas to set up and run new, integrated ironworks. Both projects were cancelled by the British before they had a chance to be assessed, even though they had advanced as far as the first blow of the new blast furnaces.

The author describes his study as 'industrial heritage research', stressing



the combination of systematic field study with written and pictorial documentary evidence, though it is arguable if this is, as he suggests, in contrast to the 'object-oriented' tradition of Anglo-American industrial archaeology. Whatever the definition of the methodology, the result is a tour de force that brings to life the exhausting labours of the ironmakers in their struggle with the technical, environmental and human obstacles, (the last one proving insuperable). It also places the story in a wide range of interesting historical and technical contexts – did colonisation promote or impede industrial development; how do the mechanisms of technology transfer work in practice; how did iron-making evolve in different countries during the 19th century; and what were the social systems that structured the international iron industry.

The book's fine production, illustrations and writing all complement the tremendous research that lies behind it, and add to the enjoyment of a remarkable story.



### Archeologia del patrimonio industriale.

**Il metodo e la disciplina**  
Gino Papuli, Perugia  
CRACE, 2004  
ISBN 88-87288-37-2  
15.40 €

This is in one sense an atypical book and in another a novelty. It opens with a fierce indictment: 'This year, nearly 130,000 m3 of industrial buildings have been demolished and some 300,000 tons of machinery have gone to the scrap yard [in Italy]; if we consider that

5% of all this has an industrial archaeological value, it means that 6.500 m3 and 15.000 tons of buildings and machinery, respectively, are lost in a year'.

Despite what one might think, however, this is no diatribe about the lack of respect for the industrial heritage, but more precisely a theoretical treatment of the appropriate methodology for the subject; even if it is within the context of an outcry spanning the 179 pages.

The book starts by reminding us of the continuing existence in the world

of the two cultures, permitting the author to attribute an intrinsic value to Industrial Archaeology (IA), a subject that he defines with the greatest precision despite the difficulties that this entails. From the start he undertakes a conceptual history of the history of technology and/or of industry, this being the essence of IA.

A thorough study of machinery follows, though it is sad that this is considered as an accessory to the industrial building and not the other way round; in all a methodological error the consequence of which is to disparage the significance of the machine.

After an interesting chapter on the aesthetics of industry, one that should be read by all of those who talk about art without considering the industrial complexes of the 19th and 20th centuries, the book ends with two chapters that aim first to pose, and then give possible answers to, the crucial question of what to do with the industrial heritage.

Well written and with excellent illustrations, what particularly stands out is the title, the 'Archaeology of industrial heritage' – one that overcomes the contradiction that is expressed in the expression 'IA', and the imprecision of 'industrial heritage'. An important contribution both for students and teachers, and all those dedicated to 'the archaeology of the industrial heritage'.

Santiago Riera i Tuèbols

■ The New York-based World Monuments Watch identifies several industrial sites on its current list of 100 Most Endangered Sites ([wmf.org/html/programs/watchlist2004.html](http://wmf.org/html/programs/watchlist2004.html)). These include:

The Panama Canal, built between 1882 and 1914, where a proposal has been developed to preserve a network of identified sites, including architectural and engineering works, built and natural landscapes, industrial artefacts, and cultural monuments that define this unique cultural landscape. For more, visit: [www.sanlorenzo.org.pa/](http://www.sanlorenzo.org.pa/)

The Paraguay railway network. The last steam-powered train of the Paraguay Railway came to a halt in 1999. Paraguay's steam-powered railway system played a significant role in the development of the country and although no longer in service, the company has a unique collection of wood-fired and steam-operated locomotives, six of which date to 1910 and are still operational.

The system includes several nineteenth-century railway stations, wooden box cars, turntables, and steam-powered maintenance

## World industrial Monuments Watch

workshops. Although the Asuncion Station was restored with the help of Spanish funds a few years ago, the rest of the system has been maintained by a skeleton crew. The rail line itself, however, has deteriorated due to neglect and vandalism. A proposal has been put forth to return the trains to service for the purposes of tourism, running groups from Asuncion to the Ypacarai Lake Resort and the Sapucay train yard, where an industrial museum may be developed. However, greater support for the initiative is needed if this witness of Paraguay's past is to be

preserved for future generations.

Windmills of the Balearic Islands of Spain. At one time, there were 894 flour and water-pumping windmills dotted around the islands, and though some 200 have been lost they are significant and highly characteristic elements in the islands of Mallorca, Menorca, Ibiza, and Formentera. Some still feature conical towers and giant sail supports, while others are ruinous truncated stone cylinders. An American Express grant of \$50,000 helped a local group restore a wind mill in Mallorca as a pilot project to encourage private owners to conserve -- rather than reconstruct -- their wind mills. Another pioneering project, based on the good conservation principle that keeping a building in use ensures that it is maintained, has worked out a simple way of converting them to wind generators. The report in the last AMCTAIC bulletin presented a low cost way of connecting the drive from the sail to a generator to produce electricity, so helping reduce the island's energy dependence on imported fossil fuel.

■ At the beginning of the XXth century the Belgian group Solvay decided to create a productive network in Spain. The headquarters of the project would be situated in Torrelavega (Cantabria) where a big chemical factory, aimed at the production of soda, was set up. Different coalfields were bought in order to provide it with raw material and power, the former from the soda mines in Suria (Cataluña), while for the latter their main acquisition was the coal mines in Lieres, the subject of our brief article.

In the 1990s, the Lieres mines were taken over by the biggest Asturian mining company, Hulleras del Norte S.A. (HUNOSA). In December 2001, this company had to close in the European context following the reduction in the mining subsector.

Since the mine was closed, announcements of reuse have followed one another, all involving pulling down the main buildings and facilities of the mine. Nevertheless, some of these proposed to keep some buildings or even to create an ecomuseum compatible with the reuse of the site. The core of the discussion about the mine of Lieres should be focused not just on their preservation but on what makes them different from the rest of Asturian Pits.

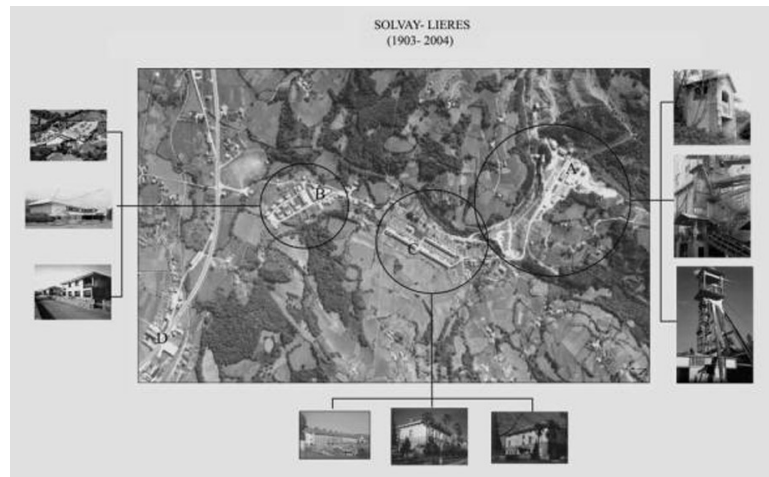
The former Solvay coal mines gather in a reduced space all the elements of a mining site, from those aimed at housing workers to those for production, the later including a rare element, the coal washery. Both the productive and the residential areas are

## report From production to protection: the invaluable legacy of the Solvay-Lieres coal mine in Asturias, Spain.

Faustino Suárez Antuña

completely independent from the rest of the countryside around them. Indeed, the primitive residential structures reproduce Central European patterns, all of which contrast sharply with the surrounding landscape of villages, meadows and the typical Asturian wooden barns.

The chosen models for the mine constructions reproduce patterns clearly imported from Central Europe which make Lieres an even more unusual site. Finally, Solvay at Lieres keeps two invaluable technological treasures at risk. First the magnificent extraction machine from 1947 with Koepe pulley, one copy of this machine



## TICCIH Conferences

More conference information at  
[www.mnactec.com/ticcih/news.htm](http://www.mnactec.com/ticcih/news.htm)

### Norway

#### Industrial Heritage – Contemporary Challenges: De-industrialisation. Approaches to Contemporary Industries

TICCIH Norway, Stavanger  
 21-24 April 2005

■ This conference addresses ways of interpreting large-scale

technological systems as industrial heritage. It focuses on the specific challenges of documentation and representation of complex structures. The issues raised will increasingly confront people working in academic and technological-industrial museums. The relevance for government bodies and businesses with stewardship over large technological infrastructures is evident. The event takes place at the Norwegian Petroleum Museum in the Norwegian oil capital, Stavanger. Excursions to some of the country's central processing plants for natural gas and aluminium, as well as older brewing and fish-canning establishments, are included. Conference language English. Number of participants is limited to 60.

### Information:

<http://www.museumnett.no/htm> or from Harald Tønnesen, [harald@norskolje.museum.no](mailto:harald@norskolje.museum.no)

### Japan

#### New Developments in Industrial Tourism

TICCIH Intermediate conference  
 6-8 July, 2005

#### Call for papers

■ The conference will coincide with the 2005 World Exposition in Aichi Prefecture. Nagoya, at the heart of the World Expo site, has long been one of the manufacturing heartlands of Japan, but since 1996 the city has turned its industrial

heritage into tourism products. The main sessions will be devoted to A.. Industrial Tourism and the role of NPO/NGOs, B. Technology Transfer from the West to the East (especially Japan) and its Impact on the Industrial Heritage, C. Industrial Heritage, D. The Preservation of Industrial Cultural Assets and their Use as a Tourism Resource, E. Revitalizing Communities through Industrial Tourism -- case studies in Japan, and F. Industrial Tourism in the world. Conference language English.

**Contact:** Akira Oita, National Representative of Japan, [oita@suac.ac.jp](mailto:oita@suac.ac.jp)  
[www.congre.co.jp/TICCIH.ifitjapan2005/index.html](http://www.congre.co.jp/TICCIH.ifitjapan2005/index.html)

## World Conferences

### Egypt

#### The modern heritage: International Seminar on management of the shared Mediterranean heritage (ISMARMED)

Alexandria  
 29 March, 2005

■ The identification, the documentation and the promotion of late nineteenth and early twentieth centuries buildings and sites. ISMARMED Seminar will discuss problems and new ideas, share knowledge, exchange management experiences, develop a strategic vision for the future, enhance international awareness and foster global Mediterranean networking.

**Information:**  
[www.ismarmed.com](http://www.ismarmed.com)  
[info@ismarmed.com](mailto:info@ismarmed.com)

### Spain

#### II International Conference on Maritime Heritage

Barcelona  
 18-20 April 2005

■ The meeting, at the Maritime Museum, is focused on the technology and latest discoveries to be applied to the preservation of our maritime heritage. It will discuss the future of historic harbours, dockyards and other similar maritime structures as well as the function of historic vessels and their heritage value, tourism and maritime heritage and the need to protect it by suitable legislation.

<http://www.wessex.ac.uk/conferences/2005/mh05/>

### Poland

International Scientific Student's Workshop

#### Heritage of technology - Gdansk Outlook 4 (HOT-GO 4)

Gdansk  
 4-7 May, 2005

Tentative Framework on web site.

■ Themes will include identity and

memory of the industrial society, storytelling of industrial heritage, success stories of industrial conservation, heritage of names, towards e-society and others. Language: English.

**Contact:** conference secretariat Ms. Bozena KLAWON Gdansk University of Technology Faculty of Mechanical Engineering ul. Narutowicza 11/12 80-952 Gdansk, Poland, T: + 48 58 347 2929 fax: + 48 58 347 2151 e: [hotgo4@mech.pg.gda.pl](mailto:hotgo4@mech.pg.gda.pl), but see <http://hotgo4.mech.pg.gda.pl/hotgo4.html>.

### Finland

#### 34th IATM conference International Association of Transport Museums conference "Technology and Customers - Man or Machine?"

Lahti and Helsinki  
 May 29-June 3, 2005

■ The conference agenda raises questions for transportation and communication museums. Advances in technology will pose a

challenge to the provision of exhibition and museum services, as well as to the upkeep of collections. Post conference tour to St Petersburg.

**Contact:** Tiina Jantunen T. +358 3 814 4513, [tiina.jantunen@lati.fi](mailto:tiina.jantunen@lati.fi)  
[www.lahti.fi/museot/konferenssi/in dex.html](http://www.lahti.fi/museot/konferenssi/in dex.html)

### United States

International Scientific Student's Workshop

34th Annual SIA Conference  
 Milwaukee, Wisconsin  
 June 2-5, 2005

■ This German-American city in the Midwest was once home to such industrial behemoths as Allis-Chalmers and still hosts much manufacturing, including Harley-Davidson motorcycles and Miller beer which we hope to visit. The city also boasts a large number of moveable bridges. Detailed information is available on the website, [www.sia-web.org](http://www.sia-web.org). Online registration begins approximately six weeks before each event.

## Report. Continued from p. 7

was installed in the mines in Suria; and second, the big American compressors from 1949-1953 which are key elements to understand coal production.

The development of the process leading to regional autonomy in Spain has enabled the different Spanish regions to assume, among other powers, responsibility for cultural matters. This way, Heritage Laws passed by the different regional parliaments such as Asturias coexist along with the State Heritage Laws. Even though the Asturian Heritage

Law gives invaluable meaning to industrial heritage and articles properly its protection, no element directed related to the industrialized process has definitively been protected, contrary to what has happened to the elements belonging to ecclesiastical and monumental heritage. The Asturian government has repeatedly refused to recognise the magnificent industrial mining legacy of Lieres as an 'Element of Cultural Interest', that is, the maximum level of protection given by the Law, and this legacy

has to put up with an insufficient inclusion on an inventory which does not incorporate all the buildings nor the machinery mentioned above. We claim that these mining constructions deserve recognition among the category of Historical Group so that, once for all, doubts about its survival disappear, and the industrial heritage is equal to the other heritage. Justice will therefore be done to all the women and men who, as a slogan from one Asturian mining company put it, lived producing coal for Spain.