Opinion

Preserving our Computer Heritage

Hans B Pufal ACONIT, Grenoble, France

The preservation of computer and information processing heritage has, for the most part, been neglected, and many important artefacts and much information has already been irretrievably lost. This loss will severely hamper any future historical studies.

The computer or information processing industry is one of the youngest, with two overlapping eras of approximately 60 years each: the mechanical, punched card era ushered in by Hollerith in the last decade of the 19th century; and the electronic computer era, with its earliest beginnings in the work of Konrad Zuse, amongst others, in the late 1930’s and early 1940’s.

The punched card era is, relatively speaking, quite well off in terms of the historical record. Many hundreds and thousands of machines were built and used over many decades, and representative examples exist in many museum and private collections. Further, the mechanical nature of the machines and the media used makes the interpretation of their use fairly apparent once the basic principles have been mastered.

The electronic computer industry, despite its relative youth, has lost much more of its heritage. It has passed through multiple technologies in its brief 50 year span: from electronic valves to large scale integrated circuits by way of transistors and small and medium scale integrated circuits. Many different generations of computers have seen their day: mainframes, minis, and micros. Software, the ephemeral component, has also seen a vast change in scale and complexity.

The youthfulness and ultra-rapid change in the industry has resulted in many historical artefacts being lost and/or destroyed due to lack of foresight on the part of the participants and their enthusiasm to “move forward”. Many of the earliest computers were built as one off special projects and were quickly dismantled when their successors were developed and built. In some cases, successor machines were built, in part, from the components of the previous generation. Even manufactured computers were often built in quantities of only a few tens or at most hundreds per model type; technological advancement made their continued manufacture uneconomical even while customers continued to use them, sometimes for many years. Software was continually upgraded and improved and the older versions discarded like the old rags that they had become.

Whereas physical artefacts have been preserved to some extent, the same cannot be said of the software, or programs used to make these machines live. Listings, paper tapes, punched card decks, mag tapes and system manuals are often the first things to be discarded. Disposing of a large mainframe computer is, by comparison, a significant effort.

Even where punched cards, tapes, or magnetic media have come down to us we are usually unable to read them, because the machines needed are either no longer available or do not function. But reading the data is not even enough! We must be able to decipher the bits and understand how they were used in their original form.
A small but passionate group of technicians are working to partially reverse this trend before it is too late. The Internet has allowed this effort to be loosely coordinated, despite the fact that the participants come from all parts of the world. For the most part, these projects are carried on by private individuals; very little of the preservation work is being done by any of the (few) institutions existing in the field.

One group member in California, USA scans thousands of pages of computer manuals he personally acquires, sometimes at great cost, and makes them available over the internet. Another, in Massachusetts uses that information to write emulators for the long gone machines which in turn allows another group member in France to actually restore to working state a 30 year old computer. That working computer now provides the means of recovering magnetic tape media, making possible the restoration of working copies of software thought to be long lost. Files recovered also provide valuable information supplementing the documentation archives. Running the recovered software on the emulator allows correction of discrepancies between the emulator and the real machine, making it a better tool for future research.

The network is fluid and fragile, depending on the personal interest of the participants and their generous donation of time, effort and real world resources. Any part can be potentially lost due to the changed circumstances of a participant. Sometimes valuable web sites simply disappear, occasionally to reappear at a later date and different form.

What is needed is institutional coordination and support of this effort. This must be provided in such a way as not to suffocate the efforts of the individual but to liberate and magnify them. Much remains to be done, vast areas of the historical record remain to be explored, and all the work must be catalogued and archived to ensure its permanent preservation.

A multi-disciplinary team is working on the definition of such an institution. Termed a “conservatoire” of information technology, visit their web site at http://www.citem.org to participate in its development.

[See also the web site www.aconit.org/index.htm. Ed.]

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**TICCIH News**

**Trustees meeting in Barcelona**

The TICCIH Trustees held their annual meeting over the weekend of the 8-9 February at the Museu del Ciènca i de la Tècnica de Catalunya, hosted by Eusebi Casanelles the TICCIH President, in Terrassa and Barcelona. The TICCIH Treasurer since Thessalonika, Hans Kania, has had to resign so until a new Treasurer is elected at the Moscow meeting the Secretary, Stuart Smith, will supervise the society’s finances.

TICCIH Trustees at their meeting in Terrassa in February. Left to right: Stuart B Smith, TICCIH Secretary, James Douet, Bulletin Editor, Professor Marie Nisser, Professor Ole Hylftoft, Dr Maria Teresa Maiullari Pontois, Membership Secretary, Dr Jose Manuel Lopes Cordeiro, Professor Louis Bergeron, Olga Traganou-Deligianni, Dr Eugene Logunov, Eusebi Casanelles, TICCIH President, Professor Patrick Martin, and Professor Rainer Wirtz.

These are in a healthy state although many national committees had not yet renewed their subscriptions. Invoices will be sent out shortly.

The Committee wants to strengthen its connections with ICOMOS, which since the General Assembly last December in Madrid has a new President, Mr Petzet.

Dr Logunov, the organiser of the XIII Congress, reported on the good progress preparing for the meeting in Moscow and the Urals, and praised the quality of the papers received so far. About a hundred delegates had registered at that time. There are not so far been any proposals to hold the XIV Congress – among the countries which might be interested, Italy, Norway and Portugal were floated as possibilities.

Of the current Trustees, the current President is willing to continue for another term unless an alternative candidate steps forward. A new Treasurer is going to be needed, and there will have to be elections in Moscow for a third of the Trust Directors. The Secretary would be delighted to hear from anyone who would like to stand as a Trustee, and especially anyone who could take on the Treasurer’s job.

**Industrial heritage charter**

A draft of the proposed TICCIH Charter for Industrial Heritage, to be presented at Moscow, was accepted at the Trustees’ meeting, and a revised version has by now been sent out to National Representatives and other industrial heritage experts so they can make any suggestions during April. Anyone who wants to see a copy of the draft charter and make comments or suggestions should contact their National Representatives.
The reconciliation of these two key factors lies at the core of an international campaign launched in The Netherlands in 1988, which initiated the founding of DOCOMOMO International. This acronym stands for the International Working party for the Documentation and Conservation of buildings and neighbourhoods of the Modern Movement. The objectives of this organization are to act as watchdog whenever important Modern Movement buildings anywhere are under threat; to exchange ideas relating to conservation technology, history and education; to foster interest in the ideas and heritage of the Modern Movement beyond their own circle; and to remind those in power of their responsibilities towards this recent architectural inheritance.

Recent heritage

As our name indicates, we concentrate only on the Modern Movement, whereas the architectural forum of the past century has been very versatile. It is all the more strange that no other parties have evolved so far to stand up for the products of these other architectural movements. Looking at the architecture and urban planning of the Modern Movement as historic heritage is controversial, as no other movement in architecture has been so dedicated to a total rupture with earlier traditions, to a complete revision of cultural values, as the Modern Movement has been. Some of our members assess the Modern Movement as a closed chapter in architectural history, while others are still inspired by the valuable ideas of the avant-garde. It is one of the great assets of DOCOMOMO International that both such visions are represented. As an interdisciplinary network – involving architects, art historians, urban planners, conservationists, consultants, teachers, and students – DOCOMOMO provides a forum for debate rather than establishing new doctrines for conservation.

Three dimensions of modernity

Modernity in culture, turned to material in modern architecture, has many faces. The concepts of the Modern Movement were developed almost simultaneously in different European places, such as the Bauhaus. These ideas spread around the world and emerged, sometimes unexpectedly, in different places, at different times, and for different reasons. In their own particular way, architects around the world have absorbed, adapted and refined the Modern Movement’s ideals of social, technological and aesthetic innovation for a better society for all.

For a movement that was once labelled the ‘International Style’, it appears impossible to establish a clear cut period. Was it the ‘Heroic Period’ that started with the Fagus Factory in 1911 and lasted until the mid-1930s? Was it the heyday of modern American architecture, initiated by the European refugees after that? Or the glorious 1950s and 1960s, when modern architecture came to bloom in Great Britain, Brazil, and Japan for instance.

Moreover, the concept of an international style is compromising the true spirit of the Modern Movement. Rather than style,
DOCOMOMO values the innovative character of the Modern Movement according to its social, technical and aesthetic dimensions. This approach has helped us to establish a framework for an Advisory Report on the inclusion of Modern Movement heritage in the UNESCO World Heritage List. This report, invited by ICOMOS, has been based on the DOCOMOMO International Register with the participation of most of our national working parties, and has been finished in November 1998.

One of the activities undertaken by the national and regional branches is the compilation of standardized National Registers of the most important buildings, urban areas and cultural landscapes of the Modern Movement in their respective countries. A first publication based on this large and ambitious project has been presented at our International Conference in Brazil in September 2000, celebrating the 40th Anniversary of the country’s modernist capital Brasília. The more than 700 documentation files included in the Register today involve sites from Buenos Aires to Tokyo, and between Vancouver and Rome. As soon as proper resources are available, the DOCOMOMO Register will be presented on the Internet, being one of the largest and most comprehensive architectural documentations in architectural history.

World-wide involvement

Since our founding conference in 1990, and the second meeting in 1992 at the famed Bauhaus at Dessau, DOCOMOMO has grown into a network of some 2,500 professionals, policy-makers, and researchers. Working parties in 45 countries and regions organize symposia and exhibitions, they make films and educational documentaries, publish books, and throw the occasional big party.

Apart from our work for the Register there are international committees for technology, for education and theory, for publications, and for urbanism, gardens and landscape. In all of these fields, specialists from various countries are exchanging their knowledge and experience raised by the study and conservation of modern architectural heritage. Many of their findings are published, such as the technology dossiers on the conservation and repair of modern windows, glazing and curtain walls, exposed concrete, stone cladding, modern wood constructions and colour technology.

DOCOMOMO International provides a communication network for all these activities and between the various national groups. To this end, the DOCOMOMO Journal is published with a particular theme every six months. National groups may publish their own bulletin. Campaigns have been organized to safeguard important modern buildings in several countries.


DOCOMOMO involves professional work and scientific research, but also a dedication to explore the spirit of the Modern Movement. Both the challenges and the dangers of globalisation, commercialisation and individualization in the 21st Century are enormous. In our search for sustainable solutions, respecting human dignity, local characteristics and cultural values, the ideals of the Modern Movement can be of great use. Research into both the positive and the negative effects of its results in the past are instrumental in designing our own future.

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Wessel de Jonge has been the founding Secretary of DOCOMOMO from 1990 until September 2002 and is today a member of the DOCOMOMO Advisory Board. He is also a practicing architect in Rotterdam, The Netherlands, engaged in the preservation of such noted 20th Century buildings as the 1925-31 Van Nelle Factories for tobacco, coffee and tea.


Worldwide

Erasmus Recognises Industrial Recording as Culture

Robert Carr

The pair of German photographers Bernd and Hilla Becher have been awarded the prestigious Erasmus Prize for European Culture this year - rather a surprising breakthrough. The financial value of the prize is 150,000€, a well-deserved award for a lifetime's dedication and for a couple who have spent their lives in relative poverty. Bernd Becher is a miner’s son and has hardly changed in the last twenty-five years. Hilla comes from eastern Germany. They are not young, Bernd Becher was born in 1931, Hilla in 1934. They married in 1961 and have now retired from teaching, although they are still active photographers.

At least in their earlier work they would first take snapshots with a Rolleiflex and when satisfied that a good image could be obtained made their final exposures using a large format camera. To obtain a good viewpoint ladders and scaffolding...
might be used. Hilla Becher made the superb prints for which they are famous. The Bechers have founded a new school of documentary photography, training a series of younger photographers in Düsseldorf.

They have (perhaps unwittingly) collected their work together for publication so as almost to construct typologies (in the industrial archaeological sense) and have been recording the industrial scene since 1959. Selected titles of books by Mr and Mrs Becher give an idea of the scope of their lifelong Odyssey: Framework Houses from the Siegen Industrial Region 1977, Mineheads 1985, Water Towers 1988, Blast Furnaces 1990, Typologies 1990, Pennsylvania Coal Mine Tipples 1991, Gas Tanks (gasholders) 1993, Grundformen 1993, Industrial Façades 1995, and Basic Forms 1999.

Their work is probably better known in photographic and architectural circles than by industrial archaeologists. This is an example of an activity parallel with industrial archaeology but not part of it. The engineers’ aesthetic illustrated in their work has had a considerable effect on the architectural profession and probably more widely.

Most books by Bernd & Hilla Becher are relatively expensive which is one reason the average industrial archaeologist is not familiar with them but a modestly priced volume is Grundformen (ISBN 3-88814-704-2), number 40 in the Schirmer’s Visuelle Bibliothek series. This contains an introductory selection of their work - 64 images. These were created in Germany, Belgium, Luxembourg, France, Great Britain, and the US during 1966-89 and cover cooling towers, Blast furnaces, mineheads, Cowper hot-blast stoves, gasholders, grain elevators, stone crushing plant and water towers.

The citation read at the award presentation ceremony on 23rd October, 2002 by Dr A H G Rinnooy Kan pointed out that through the work of the Bechers a great number of building complexes had been documented which are now long since demolished. Dr Rinnooy Kan mentioned that at the end of the 1950s, architectural historians did not dare show an interest in ‘engineers’ architecture’ and industrial archaeologists were mainly investigating technical processes. The last phrase will strike the British reader as odd. In West Germany was industrial archaeology different then?

Anyway, how many industrial archaeologists or historians of technology (or science) have been awarded the Erasmus Prize?
the Director of the Oil Shale Museum Arvo Aun, had a great influence on the success of this cluster of events. The first seminar discussed the locality having as Nordic guest lecturers Museum Director Eeva Bergdahl from Sweden and from Finland City planning Manager Olavi Mäkelä, Project Manager Elli Oinonen and Chief Intendant Mikko Härö. The second seminar harvested the IHP training and discussed the heritage management as guest lecturer Fred Taggart, Director of the Prince’s Foundation in Great Britain. Other speakers were teachers and specialists from the five IHP courses.

The secretariat of the IHP project has been situated at the National Board of Antiquities in Finland that has also coordinated the project. More information on the project can be found at http://www.ihp.lt.

AIA Annual Conference: Cardiff 2003

Pre-Conference Seminar, Cyncoed Campus, University of Wales Institute, Cardiff, Friday September 5th 2003

Industrial landscapes: research, recording and regeneration

The English Association for Industrial Archaeology (AIA) is continuing its pre-conference research seminars, the theme for 2003 for the conference based in South Wales is the research, recording and problems of the regeneration of industrial landscapes. De-industrialisation has left vacant huge areas of derelict and possibly contaminated land which have nevertheless vast archaeological potential. One of the major reasons for studying industrial landscapes is to transform a collection of individual sites and structures into a coherent whole with meaning in both technological and cultural terms. How far should we study and record these landscapes and let them go? Or should we make strong efforts to ensure their preservation?

We invite papers of 20 minutes so that adequate discussion time is possible. Potential contributors should send a title and short synopsis to the Professor Marilyn Palmer, School of Archaeology and Ancient History, University of Leicester, LE1 7RH or e-mail mai@le.ac.uk by 30 April 2003

Conference reports

SIA in the Lehigh Valley

Larry Mishkar

The Lehigh Valley region in east-central Pennsylvania, U.S.A. was the location of the US Society for Industrial Archaeology’s fall tour in October 2002. The valley has a long history as an industrial region dating from 1741 when the Moravians established a settlement, based on a communal economy, along the banks of Monocacy Creek. Here, water powered a tannery, gristmill, oil mill, dye works, bell foundry, and American’s first mechanically pumped municipal water system. At different times, the Lehigh Valley led America in the manufacturing of pig iron, slate products, silk textiles, and Portland cement. The four-day SIA tour included both preserved and interpreted historic sites and process tours of some remaining industries of the Lehigh Valley.

The highlight of the tour was the impressive Bethlehem Plant of Bethlehem Steel Corporation, known locally as “Beth Steel.” The 1,800-acre site stretches along the Lehigh River. It closed in 1995 due to the decline for its product, structural steel, and competition from foreign and domestic suppliers. SIA members saw the gas blowing engine house, where the engines remain in situ, the 330,000-sq.ft. Machine Shop No. 2 built in 1880, the 1873 combination steel making/rail rolling building which is slated for preservation, and a dry house where mill worker clothing baskets still hang from the ceiling. Plans call for the implementation of the National Museum of Industrial History, an affiliate of the Smithsonian Institution, to become part of the 163-acre Bethlehem Works, a mixed-use theme park that celebrates the steel plant’s industrial past. Phase 1 of Bethlehem Works is slated to open spring 2004. Check their web site for the latest updates (www.nmih.org).

Lehigh Heavy Forge, one of the two remaining heavy forges in the United States, occupies a central portion of the once vast Beth Steel site. On the far eastern end of the site 1,600 acres are being cleared of WWII era-buildings and structures to make way for the Bethlehem Commerce Centre, a modern rail-served industrial park.

The Portland cement industry of the Lehigh Valley began in the late 19th century after experiments with the local “cement rock” allowed for the production of cement similar to the type made in England. One of the process tours featuring this local industry was at the Hercules Cement Company, which began production in 1917. SIA members toured the cement plant and viewed the red-hot interior of a kiln during firing. Providing machinery to the cement industry is the F.L. Smidth Allentown Manufacturing Facility, part of the Danish-owned F.L. Smidth Group. Large gears up to 40 feet in diameter and fifty-five inches thick are cut using machinery from MAAG-Gear, AG, of Switzerland. The large tubular kilns for the cement plants are also fabricated here using automated welders.
The anthracite mining region located northwest of Allentown, Pennsylvania, played a large role in the early industrial success of the Lehigh Valley. The No. 9 mine and Wash Shanty Museum showcases the technology of anthracite mining. The mine remained active until 1972. A battery-powered engine hauled members into the mine, where they viewed mule passages, abandoned tramcars, and the underground hospital. The Wash Shanty Museum is designed as a memorial to miners from the nearby communities, and includes displays of local mining memorabilia.

In order to attract married miners, the coal mines constructed company housing, known as ‘patches.’ At the Eckley Miner’s Village, about 50 houses, two churches, a doctor’s office and various out buildings are part of this interpretive site, operated by the Pennsylvania Historical and Museum Commission. A small number of the company houses are private residencies while most remain vacant. Associated with the miners was a large female labour pool which attracted the attention of the East Coast silk textile manufacturers who moved their mills to the Lehigh Valley. This unique labour story is one of many interpreted exhibits at the National Canal Museum.

Additional process tours included Martin Guitar and the Penn Big Bed Slate Quarry. Museum visits included the Mack Truck Museum, the Moravian Historical Society and the historic Moravian settlement, section 8 of the Lehigh Navigation System canal, the Haines water-powered mill, an Allis Chalmers municipal steam water pump and the 1895 single cord cantilever ‘Free Bridge’ at Phillipsburg, New Jersey, the Durham Furnace, and various local canals.

The Society for Industrial Archaeology organizes process tours and historic site visits twice each year. The annual conference combines three days of tours and a day-long paper session, while the fall session is only tours. Check the web site for up-to-date information: www.sia-web.org.

**Publications received**

L’Archéologie Industrielle en France, Patrimoine, Technique, Mémoire

The quarterly magazine of the French society for industrial heritage, CILAC, is a thick and glossy production that combines the weight of a scholarly journal with the news content of Bulletin. The current issue is a monographic one devoted to the port city of Nantes, and an examination of whether the study and conservation of its maritime industrial heritage constitutes a model for others to follow.

CILAC, BP 251 – 56007 Vannes Cedex, T&F +33 02971023, cilac@wanadoo.fr, www.cilac.com

**Events**

**TICCIH conferences**

**Russia**

TICCIH XII International Congress: ‘The transformation of old industrial centres and the role of industrial heritage.’


The next full TICCIH Conference will be an opportunity to see some of the most interesting as well as spectacular industrial heritage sites in the world. The official languages will be English and Russian, with simultaneous translation of plenary sessions. Study visits in Moscow and cultural programme include the Kremlin, the Bolshoi Theatre, and the Moscow river. Post-congress tour of the famous mining and metallurgical sites in the Urals, including a helicopter trip over the 1882 Ust-Borovsky salt works. For details, see www.ticcih2003. urru. Congress Secretariat Natalia Krasnogor, Institute of History of Material Culture, PO Box 65, Ekaterinburg, B-109, Russia 620109, tel: +7 3432 462352 fax: +7 3432 297731 ticcih2003@ural.ru

**Germany**


June, 2004

These two museums, both networks of historic sites in one of the most interesting areas of industrial archaeology and museology in the world are organising with TICCIH a special conference in 2004 dedicated to the interpretation of industrial history and archaeology. The three day meeting will also discuss the creation of the TICCIH industrial museums section. Further information in the Bulletin and TICCIH web page shortly.

**Romania**

The second international conference and workshop on industrial archaeology

September, 2003, Baile Herculane and Reşiţa

Contact Ioana Irina Iamandescu, Romanian Ministry of Culture and Religious Affairs, Directorate for Historic Monuments - Piata Presei Libere 1, sector 1, 73421 Bucharest, ROMANIA, T: +40 1 224 36 63 x1275, F: +40 1 223 31 57, irina.iamandescu@culturaru irina_iamandescu@yahoo.com
Canada

Montreal, a continental and trans-oceanic turntable, 1850-2000

29 May - 1 June 2003, Montreal (Quebec) Call for papers

The Association Quebecois pour le Patrimoine Industriel (AQPI) and the Canadian Railway Historical Association (ACHF/CRHA) are the co-organisers of the 32nd Annual Conference of the Society for Industrial Archaeology (SIA).

Montreal’s industrial infrastructure really began to flourish after the 1850s, but its origins date to the first decades of the 19th century, when its privileged location at the heart of a transportation network led to the establishment of several manufacturing sectors. The city’s industrial heritage includes railway and port installations, bridges, canals, power plants, engineering works, thoroughfares, tunnels, viaducts, and the metro, as well as a number of factories for the manufacture of textiles, food products, rolling stock, iron and steel products.

Guided tours of Old Montreal, the newly-opened Lachine Canal, the Port installations, as well as various residential, commercial, and industrial neighbourhoods, will emphasise the evolution and diversity of the city’s industrial heritage and its contribution to the cultural enrichment of the urban landscape through the recent recycling of several buildings and structures.

Presentations in French or English, as simultaneous translation will be offered in most sessions. General information will be updated regularly on the SIA web site (www.ss.mtu.edu/IA/sia.html), and James Bouchard - telephone: (514)251-5148 / fax: (514)251-5126 / e-mail: jamesb@aei.ca

Czech Republic

Prague. II international biennial: Vestiges of Industry

June 24 – 28, 2003

An international conference on the significance, scope, and possibilities involved in making new use of technical and industrial buildings and sites. The Research Centre for the Industrial Heritage of the Czech Technical University in Prague (VCPD CVUT) is preparing an agenda that includes a conference and open lectures, exhibitions including one of historical plans and models of industrial and technical buildings, theatrical and musical events, and visits and excursions, based at the former waste treatment plant of the National Technical Museum.


Contact Benjamin Fragner, Eco-technical museum, Papirenská 6, Prague 6, fragner@vc.cvut.cz

Japan

Sixth International Mining History Congress In Akabira, Hokkaido


See article in Worldwide. There will be a pre-congress tour that covers Japan’s representative tourist spots (e.g. Kyoto and Nara) and a post-congress tour visiting the nation’s representative mine-related historic sites (e.g. Kyushu and Tohoku region).

Secretariat for the 6th International Mining History Congress

Local Organising Committee


USA

21st Century Preservation - Conservation and Craftsmanship

Association for Preservation Technology International 2003

Portland, Maine, September 17 – 20 2003

With an ever-increasing global perspective, Preservation in the 21st Century must be applicable in local, regional, and international contexts. Historically, the confluence of locally abundant materials and the skills and craftsmanship which evolved to utilize them, shaped the maritime, agricultural and building trades, and altered the natural landscape. These forces have resulted in a sense of place that is distinct at the local, regional and international level.

Conference Topics: Maritime Preservation, Traditional Buildings and Landscape Preservation


Poland

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

Gdansk, 4-7 May, 2005

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.

Call for papers before December 31, 2003.

Waldemar Affestl, Secretary, Faculty of Engineering, Gdansk Technical University. affew@pg.gda.pl