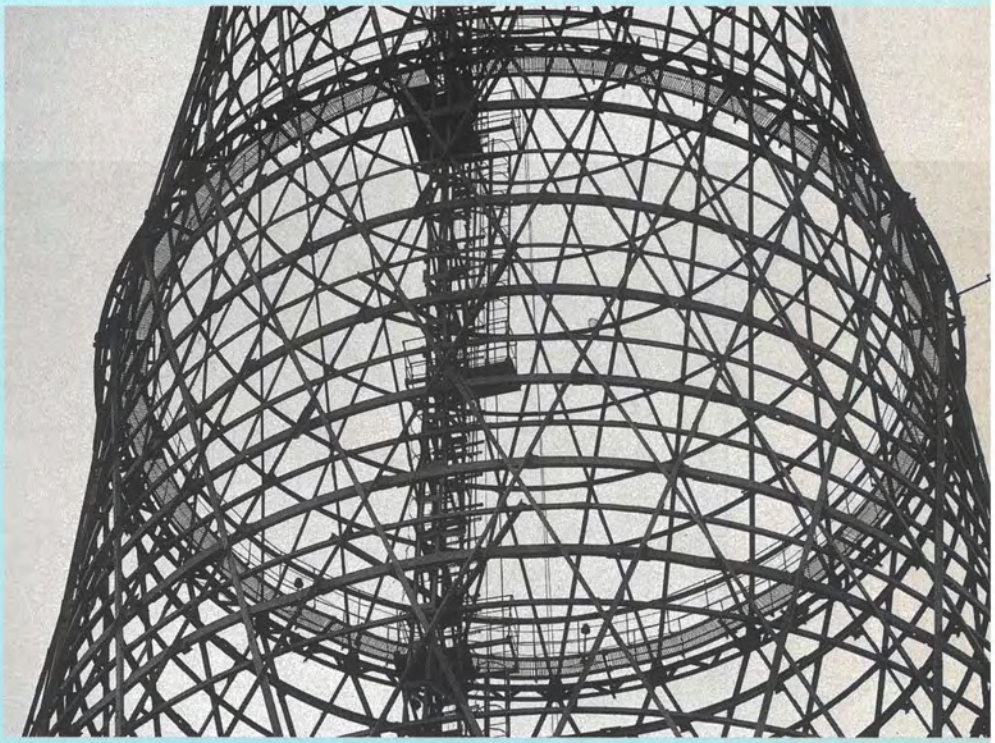
docomomo

international working party for
documentation and conservation
of buidings, sites and neighbourhoods of the
modern movement

Journal 26

Engineering the future



December 2001

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Hubert-Jan Henket

Journal 26

Engineering the future

On the cover: Wireless antenna of the Komintern station by Vladimir Shukhov, Moscow 1922. Photo: Jean Louis Cohen.

Top: Ninian Central Platform in operation, after removal of a redundant drilling rig and replacement by a new gas production module, 1991-1993. Photo: Courtesy of Chevron, UK.

Colophon

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Contents

Egineering the future

Over the past century, the relationship between architects and engineers went through some fundamental changes. Their creative energy concerted well in the late 19th Century until the heroic period of the Modern Movement, to diverge again in the post-war era. The history of engineering has come, even more since the 1997 *l'Art de l'Ingenieur* exhibition in Paris, under critical reassessment, as reflected in Jean Louis Cohen's contribution to this special edition on modern engineering. Sergio Poretti, in his essay, challenges the theoretical basis of such a historiography, questioning the historicity of engineering in relation to modern architecture. Where is it that engineering ends and architecture comes in – or: can it be separated at all? – is the leading question in David Witham's paper on the North Sea oil platforms.

In the post-war period, when in the Northern hemisphere the role of the engineer, in the context of architecture, was reduced to working out how to build a form that was devised by someone else, the cross-fertilisation between architecture and engineering remained to inspire some remarkable works in Latin America, conceived by such noted designers as José Luis Delpini in Argentina, Eladio Dieste in Uruguay, and Lelé in Brazil, who linked technology with a strong social commitment.

Today, after an industrious life, some of the products of their ingenious minds have gone obsolete, so that a second lifecycle must be considered. The case studies in this edition of the Journal – the Lingotto in Turin, the Van Nelle in Rotterdam, a series of industrial buildings in Buenos Aires and the Reykjavik Harbour Warehouse – demonstrate how delicate the relationship between the re-engineering of these mega-structures and present day market-ruled architecture actually is. Much of the success of these conversions again depend on an understanding between technology and cultural inspiration.

In his reflection on the prospect of revitalising the fruitful relationship between architecture and building engineering, Anthony Hunt demonstrates that, increasingly, these two aspects, that slowly drifted apart in the last decades of the 20th Century, are shared again by some engineers and architects in designing our common future.

Wessel de Jonge, editor

Contribute to the next Journal:

The history of DOCOMOMO

Journal 27 is scheduled for June 2002 and will be the last edition to be produced by the present International Secretariat in Delft. Therefore we have decided to dedicate our final issue to the history of DOCOMOMO itself.
We invite all Working parties to contribute with short essays, sketches, pictures, poems, cartoons, *collages*, pop-ups or pin-ups of favourite MoMo structures, reflecting on the role that DOCOMOMO has played in their own country or region, its successes and failures regarding modern heritage and preservation, and the development of the architectural discourse.

Contributors to Journal 27 are kindly requested to observe the following:

- Contributions are only accepted in a digital format (diskette, CD-Rom, or e-mail to docomomo@bk.tudelft.nl).
- Each Working party will be offered one double page for their contribution including all illustrations and texts, which is the equivalent of about 1400 words.
- News items are preferably inserted in the Working party's contribution.
- Single news items and book reviews will not be included this time, but handed over to the new International Secretariat for Journal 28.
- All texts and captions must be in English; if translated, the same text in the original language must be enclosed as well.
- A short resumé of the author(s) must always be included.
- Illustrations are preferably high-contrast black&white photos, submitted as prints, or preferably in a digital format as well (jpg or tif-file, minimum 300 dpi, or 600 dpi for large pictures); photocopies are not accepted; please notify the International Secretariat before sending illustrations.
- All illustrations must be cleared of copyrights; photographer and/or owner must be credited.
- All materials must be in by April 15, 2002.

The editors look forward to receive your Working party's contribution to Journal 27.

Conference update

Program for Paris

The Conference Office in Paris is pleased to announce that 242 proposals for conference contributions have been received, from 40 different countries. The postponement of the deadline to October 15 has allowed more participants to send in their abstract. Proposals have been received from South Africa (2), Algeria (1), Argentina (4), Australia (11), Austria (4), Belgium (3), Brazil (50), Bulgaria (2), Canada (4), Czechia (1), Denmark (1), Finland (6), France (52), Germany (1), Hungary (1), India (1), Israel (2), Italy (39), Japan (1), Latvia (1), Marocco (1), New Zealand (1), The Netherlands (2), Philippines (1), Poland (1), Portugal (6), Puerto Rico (1), Québec (4), Romania (1), Scotland (2), Slovakia (2), Spain (2), Sweden (3), Switzerland (1), Tunisia (1), Turkey (1), USA (9), UK (8), and Yugoslavia (1).
The Scientific Committee will consider these abstracts, and has planned a meeting on December 14 and 15, 2001, to make a selection of the proposals and to compose the program. We hope to inform all authors on the decisions made by mid-January.
As announced in the Call for Papers, the format of the Conference will involve round-table sessions and workshops. The workshops will deal with the subjects of the International Specialist Committees, on Registers, Technology, Urbanism and Landscape, Education, and Publications.
The Main Theme will be dealt with through round-table sessions with 4-6 participants in the form of debates led by a chairman. Therefore, participants selected for the round-tables will not have to present their paper in session, but they will have the possibility to explain their main thesis just prior to the debate. In advance, the summaries of their papers, in English and French, will be put on the website, printed and distributed to the participants and those attending.
The papers will also be included in the Conference Proceedings.
The official languages of the conference are French and English. The Conference will take place at the UNESCO Headquarters, designed by B. Zehrfuss, M. Breuer, P.L. Nervi, R. Burle Marx and others, centrally located at Place Fontenoy in Paris 7.
The Conference Office is now operational. The organising secretariat is headed by Ms. Diane De Ravel, while Ms. Aymone Nicolas is in charge of the scientific secretariat. Our office staff will be delighted to answer further questions through accueil.docomomo@ifa-chaillot.asso.fr or 7e.conf.docomomo@online.fr.
The Conference Office will appreciate if you complete and return your pre-registration form through http://docomomo.france.online.fr.
Final registration for the Conference must be confirmed by June 1, 2002, with the Registration Form that will be send with the Final Program in February 2002.

7th DOCOMOMO Conference Office
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To the editor...

Southern Africa
Dear Sir, Thank you for the information on DOCOMOMO. I have been in touch with Alta Steenkamp, Roger Fisher and Noelene Murray at UCT, all of whom are keen to see us constitute a Working party in South Africa. I have e-mailed members of the local network of academics and the heritage committee of the Institute of Architects encouraging them to join. I will be in touch when we have enough members.
You may be interested to know that Noelene Murray and some colleagues have applied to a local research foundation for funding to document South African modernism.
In addition, I am involved with Dr. Ola Uduku in recording the Modern Movement buildings designed by mainly British trained architects in Ghana and Nigeria in the 1950s and 1960s. We would appreciate contact with anyone who has similar interests.

Hannah le Roux, School of Architecture and Planning, University of the Witwatersrand

Rectification

6th DOCOMOMO Council Meeting

In Journal 25, the Report of the 2000 Council Meeting in Brasília on page 5 contained a disturbing error. In the list of the 22 participating countries under point 1.1, Norway has incorrectly been underlined, thereby denying the fact that Norway attended as an auditor without voting power. As explained under point 1.2, only the other 21 countries had voting rights in the 2000 Council Meeting.

The Secretary

Heritage at risk

Last September, the 17th CIPA Conference was held in Potsdam, about traditional and modern methods of documenting cultural heritage. At that occasion the international president of ICOMOS, Michael Petzet, confirmed that also the built heritage of the 20th Century needs special attention, while expressing his concern about the increasing problems to safeguard historic buildings and sites all over the world.
To give more insight in the trends, threats and risks, ICOMOS has published the *Global Report on Heritage at Risk* in 2000 (Munich, K.-G. Saur), containing 60 national reports, 3 regional reports and 8 ISC reports besides general analytical contributions (average 2-3 pages each, mostly with some illustrations). The reports of Andorra, Argentina, Australia, Brazil, Finland, Germany, Sweden and the United Kingdom mentioned explicitly the threats with regard to the modern heritage of the 20th Century, besides some successful actions of safeguarding. Among the reported issues were the demolition of the Bunge & Born Grain Elevator at Buenos Aires, the real estate speculations which attack the integrity of the Piano Piloto of Brasília and the radical plans to convert the Olympic Stadium in Munich into a soccer arena. For next year another publication is scheduled and DOCOMOMO is invited to contribute as well. As for The Netherlands, just to give some idea for possible case studies, the risks of postwar neighbourhoods (e.g. Pendrecht at Rotterdam) are enormous as well as of postwar buildings (e.g. the abandoned Resurrection church at Schiedam by Van den Broek & Bakema, the Second Citroën garage opposite the - restored and protected - Olympic Stadium at Amsterdam, both by Jan Wils but from different periods), due to the 50 years rule of the Dutch Historic Buildings and Monuments Act and a less supportive policy of local authorities. In spite of its protected status, the early broadcasting building of Radio Kootwijk, an expressionistic masterpiece in concrete by Jules Luthmann (1920-22), is at risk because the current owner KPN (the privatised successor of the original PTT, loaded with immense debts) wants to demolish its expensive property and no new use has been found yet.
Although inclusion in an international report will be no more than a 'cry in the street', it can help to raise public awareness and to find solutions to give the endangered legacy of the Modern Movement a better future. Therefore, the invitation to join forces can be very helpful.

All working parties are hereby requested to submit a short entry (up to 1 page, preferably with an image of the current state) to the Heritage@Risk Task Force, consisting of Sheridan Burke (Australia), Dinu Bumbaru (Canada) and Michael Petzet (Germany):
Heritage@Risk Task Force ,
c/o International Secretariat of ICOMOS:
Rue de la Fédération
75015 Paris, FRANCE
or send an email to secretariat@icomos.org, with a copy to the national ICOMOS committee and to Marieke Kuipers as Secretary of the ISC/R , m.kuipers@monumentenzorg.nl, c/o RDMZ, P.O.Box 1001, 3700 BA Zeist, The Netherlands.

More information can be found on the following websites: www.icomos.org and www.fpk.tu-berlin.de/cipa2001.

(Report by Marieke Kuipers, Secretary ISC/R)

Changes in French representation Working party and EC

This message is to confirm the recent change in both the board of DOCOMOMO France and the French representative in the Executive Committee of DOCOMOMO International:

- Concerning DOCOMOMO France, Fabienne Chevallier is now the new chair, secretary is Emmanuelle Galo, Alice Thomine is the treasurer, chair of the group of architects is Jacques Repiquet, and Gérard Monnier is chair of editions.
- Because of Fabienne Chevallier's new responsibilities she proposed that Jean Louis Cohen, who is in charge of the organisational aspect of the Conference of Paris, would replace her and join the Executive Committee in this capacity.

Annual ISC/Registers meeting in Budapest

Last July, the ISC/Registers held its annual meeting in Budapest, hosted by Andras Ferkai, one of the Committee members. The meeting took place at the University of Crafts and Design. Initially, we had the opportunity to congratulate personally our chair Maristella Casciato with her election as future chairperson of DOCOMOMO International. We also welcomed Anthony Merchell, who has re-entered the Committee. In brief our main conclusions are:

Review of the Brasília Conference

The ISC/R can look back to an interesting session on registering (and a good presence in general) and foremost on the positive reception of the book *Modern Movement in Architecture, Selections from the DOCOMOMO Registers*. Thusfar, the book received also a positive publicity in the press and professional magazines. Thanks to the efforts of the publishers the book is well spread - at least in Europe. Nevertheless, the ISC/R has mixed feelings about the reflected fragmentation of the Modern Movement, both by the diversity of the contributions (in approach and quality) and the lacking of a global, comprehensive essay. What is regarded as being very positive is the fact that the book is finally a reality and that it represents almost five years work as a collective effort of 32 Working parties. We also have to consider that the reception of history and historiography has changed, as well as the perception of modernity, over the past years. As far as the Committee is concerned the book will be a good starting point for future activities.

After the controversial Council Meeting, which ended the Brasília Conference, we are pleased with the final result and the very co-operative way that both the French Working party and the Finnish Working party have found to solve the problem of moving the headquarters of DOCOMOMO International from Delft to another hosting country. As a result the Cité de l'Architecture et du Patrimoine in Paris will become the new seat of DOCOMOMO International.

New chair and new member

Since Maristella Casciato has been elected the future chair of DOCOMOMO International, it is a rule that she will resign as the chair of the ISC/R by September 2002. Therefore, the ISC/R needs a new chair, to be approved in the next Council Meeting in Paris. We are happy to welcome Panayotis Tournikiotis (DOCOMOMO Greece) as the candidate unanimously nominated by all attending members to take over this position. During the period of transition he will be introduced as the candidate-chair.
Maristella Casciato has received many positive reactions on her future chairmanship, though all the Committee members addressed her plea to avoid 'bureaucracy' and 'centralism', and to continue the current openness of DOCOMOMO.
The Committee received the candidacy of Noni Boyd (DOCOMOMO Australia) for future membership. Taking into account her CV and referee letters, and the representation of both a new continent and a new generation, the Committee has welcomed her as a candidate-member of the ISC/R. Her membership needs the formal approval of Council in Paris, September 2002.

ISC/R at its annual meeting in front of the University of Design and Applied Arts in Budapest, July 2001. From left to right Tony Merchell, David Whitham, Marieke Kuipers, David Fixler, Maristella Casciato, Panayotis Tournikiotis, Andras Ferkas and France Vanlaethem.

Drafting a policy for the 2002-2004 period

The ISC/R still supports the idea to create a section 'Miscellaneous' within the International Selection, as a base for well-known MoMo items which deserve to be represented, but cannot be documented as long as no regional or national Working parties existsin the relevant countries (e.g. Chandigarh in India, Africa, Mexico, etc.). Scholars from those regions may be invited to complete the fiches.
We will also remind the Working parties to accomplish their previously mentioned national/regional projects and invite them to report a summary of their activities and to indicate their national/regional websites in the *Journal*, before April 1st, 2002 (to be sent to the editor).

The future policy will not focus on the enlargement of the International Selection with new items but mainly to open what we have to a larger public and to establish a full documentation in relation to the book.
All Working parties which have contributed to the book will be requested to complete the maximum fiches for those items which are published in the book but missing in there International Selection. Moreover, they will be asked to (re-)formulate the texts to small 'monographs' (more like captions and eventually bi-lingual, i.e. local language and English) for publication on the web (when the digital format is available) and to update the data if required; all private information collected will not be published. We also discussed some ideas about future publication projects, but did not make a final decision.

Internet and ict-possibilities
The ISC/R wishes to have a special website with register information, directly accessible via the general website of DOCOMOMO International. It is our intention to release a digital format during the next conference in Paris. Another idea is to produce a CD-Rom with examples, which could be transferred to the web, which will also be released in Paris. Although some portals have been offered to DOCOMOMO as an entrance to the web, the ISC/R prefers that DOCOMOMO will keep its autonomy, although it also wishes to avoid parallel work done by other institutes.

Future of the fiches
The fiches will stay at the NAi in Rotterdam (NL). The so-called new fiche for the New International Selection (NIS) has been promoted to all Working parties since January 2000, together with revised guidelines, but did not receive much response or lead to new documentation activity. Besides, some added fields need to be deleted, due to current legislation on privacy and the conclusion that it is not efficient to ask for data, which are difficult to trace and change every moment (e.g. opening hours and owners).
The NIS will be revised in this respect and all Working parties will receive a so-called 'homework-letter' with indications what to do for the next year, in order to receive the voting right in the Council Meeting.
The policy is that all items mentioned in the book will have a 'full documentation' according to the 'maximum' fiche, and that those Working parties who did not contribute to the book will be encouraged to start up with their documentation, first with a list of their New International Selection and the completed 'minimum fiches' and secondly with the 'maximum' fiches.
Besides, it is under consideration to organise an international seminar on documenting modern architecture, as well as to develop a strategy for approaching owners and authorities with regard to selected MoMo items.
We discussed at large the relation between documentation and conservation practice, a relation which is often a friction or non-existent, and concluded that the criteria have hardly been discussed since the release of the NIS, that their adoption with regard to the selection causes a great diversity and also that the attention paid to the present state of the documented buildings is very unequal.

(Report by Marieke Kuipers, Secretary of the ISC/R)

Converting to the € No cheques accepted!

We inform our members that, as per January 1, 2002, the International Secretariat will change to the Euro as the new currency for all financial transactions and membership fees. For the first time since the paid membership was introduced in January 1994, the fees have been slightly raised in order to arrive at round figures. In EURO, the respective annual membership fees will be:

Category	**100 %**	**40%**
Individual	€ 60,- for one year	€ 36,- for one year
	€ 120,- for two years	€ 72,- for two years
Students	€ 30,- for one year	€ 18,- for one year
	€ 60,- for two years	€ 36,- for two years
Institutional	€ 600,- for one year	€ 360,- for one year
	€ 1200,- for two years	€ 720,- for two years
Corporate	€ 1200,- for one year	€ 720,- for one year
	€ 2400,- for two years	€ 1440,- for two years

Discount
In Brasília, Council has decided to sustain the existing arrangements regarding the countries that are eligible to the 40% discount rate: Argentina, Brazil, Croatia, Czech Republic, Dominican Republic, Estonia, Hungary, Indonesia, Latvia, Lithuania, Mexico, Paraguay, Poland, Slovakia, Slovenia, Uruguay, Yugoslavia, and Venezuela. Upon request last August, the EC has decided to grant a similar status to South Africa. Exempted from the membership fee are: Bulgaria, Cuba, Romania, and Russia.

No individual payments
According to the Constitution, membership payment procedures require the Working parties to collect the moneys, and transfer these annually as one total sum to our bank account.
Although we have been very flexible so far, and still accepted individual cheques until last year, the amount of costs and work for cashing each of these cheques is prohibitive, and frustrates the essential activities of the Secretariat. Council has therefore decided last September in Brasília that personal cheques must be refused from now on. As a consequence, the Secretariat will no longer accept personal cheques or individual banktransfers. Membership fees must be paid collectively per Working party. In countries where no Working party exists as yet, individual members must pay by credit card (Eurocard, VISA or American Express).

For further inquiries please contact Mrs. Eva Lute-Hruzova of the International Secretariat through docomomo@bk.tudelft.nl.

Envisioning DOCOMOMOs aims in the Third Millennium

DOCOMOMO International in Paris, September 2002 — September 2008

Proposal submitted by DOCOMOMO France

DOCOMOMO International has finally established itself as a major player not only in the realm of preservation, but also in the broader field of architectural culture. The world-wide influence of such a relatively new organisation is due to many factors, such as the growing awareness of the present status of emergency relative to recent architectural heritage. Furthermore, the pluralist, interdisciplinary dimension of DOCOMOMO International, due to its ability to assemble historians, architects, town-planners, landscape architects, preservationists and public officials, has been a strong asset.

1. The legacy of the pioneering years

DOCOMOMO an acronym standing for **DO**cumentation and **CO**nservation of buildings, sites an neighbourhoods of the **MO**dern **MO**vement, was initiated in 1988 at the Technical University in Eindhoven by Hubert-Jan Henket, architect and professor at the School of Architecture, and Wessel de Jonge, architect and research fellow at the same School.
The First International Conference in Eindhoven (1990) launched the true foundation of DOCOMOMO International. The 'Eindhoven Statement' and the 'DOCOMOMO Constitution' were the results of that Conference. At the Eindhoven Conference Hubert-Jan Henket was elected chairman and Wessel de Jonge was elected secretary.
Since then DOCOMOMO International has witnessed a rapid growth. At present it includes forty-two Working parties, from Europe to Japan and Australia, to North and South America. Among numerous other activities DOCOMOMO International has held six International Conferences: Eindhoven (1990), Dessau (1992), Barcelona (1994), Bratislava –Sliac (1996), Stockholm (1998), and Brasília (2000). In 2002 the international conference will take place in Paris.
Since Barcelona (1994) an Executive Committee was created to side the chairman and the secretary, and accompanying them on the launching of strategic projects. The Executive Committee has four members: three elected members, including the chairman and the secretary, and an appointed member nominated by the Working party responsible for organising the international conference. Maristella Casciato, member of DOCOMOMO Italy was elected in Barcelona in the Executive Committee and has been renewed ever since.
To fulfil its goals DOCOMOMO International has established over the years five International Specialist Committees. The Committees have undertaken different projects. The results varied to such extent that some have readjusted their objectives in the course of the recent years. Two Committees have been quite successful, namely the Register Committee (ISC/R) and the Technology Committee (ISC/T).
About the history and goals of DOCOMOMO International see: the *Proceedings* of the International Conferences, the *Proceedings* of the Technology Seminars, the articles published in the *DOCOMOMO Journal*, the DOCOMOMO ISC/Register Recommendation to ICOMOS, and the leaflets produced as application form for membership. The publication *The Modern Movement in Architecture. Selections from the DOCOMOMO Registers* (010 Publishers, Rotterdam 2000) which includes about six hundred entries from the over thousand fiches that form the International Register deposited at NAI, Rotterdam, offers an overview of the themes discussed within DOCOMOMO International.

2. A new stage in the life of DOCOMOMO International

In 1998, at the Stockholm Council Meeting, Hubert-Jan Henket announced that by 2002 he would expect to put DOCOMOMO International in the hands of a new chairperson and of a renewed staff. At that moment and via further announcements he invited all DOCOMOMO. Working parties to consider their candidacy.
It is worth noticing that in the course of this process the Working party, which undertakes the project does act as instrumental for the submission of a proposal. Though any proposal would be the outcome of the experience developed by a group of people in a specific geographic and cultural context, it shouldn't retain any national/regional connotation being thought as chart for an international plan of actions. This implies that the final proposal must be *super partes*.
DOCOMOMO International will remain totally independent. It will only take initiatives approved by the Executive Committee, in tune with plans discussed by the Working parties during the Council Meetings.
The 'Eindhoven Statement' and the 'DOCOMOMO Constitution' form the points of departure of this proposal, which intends to integrate the themes explored by those documents with the observations elaborated by the Executive Committee after the 2000 Brasilia Council Meeting. These observations are summarised in two letters

sent to the Working parties by the chairman of DOCOMOMO International (17 November 2000 and 20 December 2000). In particular the 'analysis' and the 'conclusions' drawn by Hubert-Jan Henket and reported in his letter dated 20 December 2000, are fully kept in this proposal. The key concepts expressed in the 'Eindhoven Statement' remain the framework of our future thoughts and plan of actions:

- Explore and develop the knowledge of the Modern Movement
- Bring the significance of the Modern Movement to the attention of the public
- Operate towards the recording of the works of the Modern Movement
- Oppose destruction and disfigurement of significant works
- Foster the development of appropriate techniques and methods of conservation
- Introduce these issues in educational programs and disseminate them throughout the professional world.

The significance of the Modern Movement and its uniqueness has gone under deep scrutiny during the past ten years. Its complexity and world-wide diffusion has been the concern of many scholars and professionals who have put efforts in establishing the domain of DOCOMOMO International within the legacy of the Modern Movement. As stated in the introductory essay to the ICOMOS Report (see *DOCOMOMO Journal 18*, 1998) two definitions offer the full spectrum of meanings and interpretations of modernity, which we will foster in our strategic projects for the future.

- 'Modernity that gives root to the Modern Movement is a cultural mode, an attitude, a form of civilisation which permeated the world from the West, opposed to the idea of all earlier traditions'.
- 'The Modern Movement is the most significant product of architecture, urbanism, and cultural landscape in the twentieth century. It is distinguished by the value systems established in its name. Without entirely abandoning local priorities, the international movement emphasised functional efficiency over appearance, representative value judgements relying on technical innovation and formal experimentation. Given the fact that the Modern Movement achieved maximum impact in Europe during the Twenties and Thirties - regarded as the 'heroic' period - it should be remembered that its international manifestation awaited the unprecedented building starting in the Forties and continuing through the whole century'.

3. DOCOMOMO International at the Cité de l'Architecture et du Patrimoine in Paris

After long negotiations, a new proposal has been elaborated. The proposal is submitted by DOCOMOMO. France, but is by no means a purely 'French' proposal. This new proposal is based on a widening of the international base of the executive direction of DOCOMOMO. International as well as on a firm grounding of the organisation in Paris, in full autonomy in respect to the French public authorities.

3.1. A new working configuration

The proposed structure is composed of the chairperson, the secretary, the executive committee, and the advisory board.

Chair

The Chair will represent DOCOMOMO on the international stage and will watch over the work of the Specialists' Committees and Working parties. Maristella Casciato, Professor at the University of Rome Tor Vergata, Member of the Executive Committee and Chair of the ISC/R, is proposed to fulfil this role.

Secretary

The Secretary collaborates with the Chair and the Working parties and manages the organisation. He/she will be a person active in history and/or preservation, based in Paris and completely fluent in English. He/she will participate in the dealings of the Executive Committee. He/she will be editor of *DOCOMOMO Journal*.
A call for applications will be opened in the Winter 2001.

Executive Committee

The Executive Committee includes four members: the Chair, the Secretary, the elected Member, and the appointed Member representing the Working party in charge of organising the International Conference.

Advisory Board

The Advisory Board will second the Chair and will oversee the development of DOCOMOMOs activities in new domains, as well as its geographic extension. Its major goal will be to strengthen the circulation of ideas. Two to three meetings will be held yearly, in addition to continuous contact through other means (e-mail).

3.2. The Cité de l'Architecture et du Patrimoine in Chaillot, Paris

The Cité de l'Architecture et du Patrimoine in Chaillot is a new public institution devoted to architectural culture and history. It is based on the merger of the Musée des Monuments Français, initially created by Viollet-le-Duc in 1879 in the old Palais du Trocadéro and modernised in 1937, with the Institut Français d'Architecture (IFA), created in 1980. The Cité will house Europe's largest collection of architectural casts and models, featuring a narrative on architecture from the 11th Century to this day, and will present major architectural exhibitions. The theme of preservation is rooted in the identity of the Cité's, components, which also include the Centre des Hautes Études de Chaillot, a post-graduate program dealing with the architectural heritage.
In addition to its main departments – the Museum, the Institut Français d'Architecture, the Centre –, the Cité will create a new architectural library and will host independent

institutions and organisations dealing with architecture and the built heritage. The context of the Cité will be of extreme usefulness for the organisation of DOCOMOMO-related events and for the promotion of the organisation's programs.
The head of the planning team of the Cité de l'Architecture et du Patrimoine is Professor Jean Louis Cohen, who is also the director of the Institut Français d'Architecture.
Reconstruction work of Palais de Chaillot should begin in 2001, for a general opening planned in 2003.
A transformation of the Institut Français d'Architecture, currently a non-profit association, into an autonomous corporation ('Établissement public') will take place by 2002.

3.3. Nature of the agreement between the Cité de l'Architecture et du Patrimoine and DOCOMOMO

The Cité de l'Architecture et du Patrimoine will provide the logistics (physical space for accommodations of the offices and meetings, and administrative archives, equipment for communication, management, and editorial functions, human resources, etc) for the daily workings of DOCOMOMOs presidency and headquarters.
The French Ministry of Culture and Communication will allocate the necessary resources. The cabinet of the Ministry has accepted to give approx. €76,300.- per year to DOCOMOMO International.
A contract will be signed between DOCOMOMO International, the Cité and the French Ministry of Culture and Communication, guaranteeing for a given period of time (i.e September 2002 – September 2008) the full autonomy of DOCOMOMO International and establishing the rules for the operations.

3.4. Language(s) of operation

The Paris-based secretariat will operate in English and French for all official acts. English will continue to be the language used for the meetings of DOCOMOMO. International. The secretariat will have an excellent competence in English. According to the most efficient uses, communication with DOCOMOMOs Working parties will be made in the most widely used language locally.

4. Elements for a program

In the future DOCOMOMO International will carry on the above-mentioned issues with the aim of widening the scope including ideas, which will fruitfully influence the development of our built environment. DOCOMOMO International has a range of linked objectives, which are implicit in its *raison d'être*. Fundamentally, the members of DOCOMOMO International care for the destiny of modern heritage, both culturally and in practice. In its essence the association is an agency that helps to give resonance to this preoccupation as shared by the Working parties. In their variety of cultures and infrastructures the Working parties represent the true richness of DOCOMOMO International. No matter what the differences are, DOCOMOMO International should play no role of central control as far as a level of coherence is safeguarded.
Within DOCOMOMO International some projects have received priority. Until the present mapping buildings and sites whose significance is relevant to modernity has lead to the formation of an unprecedented 'International Register'. The next step, which is preservation, has been in some cases facilitated by this documentary level. In fact, even if unevenly achieved throughout the geographic areas covered by DOCOMOMO International, the Register represents a major tool for the improvement of preservation policy and subsequently for any restoration plan. Needless to repeat that DOCOMOMO International can serve as referee in case of conflicts, though any successful action towards preservation remains in the hands of the Working parties.

4. a. Extending DOCOMOMOs territories

DOCOMOMO. International will focus on extending its plan of actions to new cultural territories and towards new geographical areas. In both directions DOCOMOMO International has to formulate strategies, which will stimulate new subjects (Working parties or other institutions) to foster research projects and initiatives directed to strengthen the collective value of modern architecture as document and monument. This is the only means for launching an effective policy of conservation. Until now, only limited spectrums of regions have been only tangentially involved in projects elaborated by DOCOMOMO International. This is the result of the fact that the degree of awareness of the value of modern architecture shows major disparities in various areas of the planet. Differences in history and culture, in legislation and education have, in the year experience, proved that it is often extremely complex to reach a communality of opinions and intentions. Therefore DOCOMOMO International has taken no definitive position to endorse one single vision of modernity and of modern heritage. We all agree that there are many histories as equally many modernisms. This means that also the criteria to evaluate the role of modern monuments within the more general issue of historical heritage need to express the same multifaceted reality.
The presence of the Australian Working party at the 2000 Brasília Council Meeting among the members with voting rights and the official acceptance of Japan as full member can be seen as a relevant success. This shows the vitality of DOCOMOMO International and extends its field of activity to areas where modern architectural culture has played a significant role, too often dismissed by canonical literature. The opening towards new regions has to be among the priorities of DOCOMOMO International in the years 2002-2008. More specifically, given these most recent memberships, the world area that needs to come to light, is Africa. From the Mediterranean countries to Central and Southern African nations, the continent shows a paramount complexity of cultural approaches to modern architecture, not to mention issues related to colonialism, popular culture, gender and vernacular environment. Of great interest is also the fact that a handful of European 'masters'

moved to Africa after some pilgrimages in Europe and beyond; they played a seminal role in developing a modern language in architecture, very much integrated to local culture.
For this and much more Africa could become the paradigm of what DOCOMOMOs strategies may achieve in terms of protecting modern architecture as one of the determinant factor in the city of the future. Specific actions should be undertaken with plans involving local groups in universities and schools, and among professionals, who will initially serve as referees for the elaboration of research projects, case studies projects or small actions for protection.

4.b. Establishing new partnership
In parallel to the extension of DOCOMOMOs territories impulse has to be given to the establishment of new partnerships with institutions and organisations active in the area of modern architecture, town planning, and landscape heritage. As a non-governmental organisation, DOCOMOMO International should become a privileged partner in strategic projects, bridging issues of documentation and the conservation of modern buildings and cities.
One aspect would be to intensify the relationship with UNESCO. The recent changes within the direction of the World Heritage Centre and the direct interest in the broadening of the common understanding of the meaning of monuments will offer unprecedented means for debate and collaboration. In this regard DOCOMOMO International needs to strengthen the methodological aspects of the conservation discourse and to elaborate on its effects on the theory and practice of modern heritage. The presence of the International Union of Architects' headquarters in Paris will also enlarge the potential for co-operation in programs directed toward the architects' community.

4.c. Developing the International Register
The International Register would continue to be expanded, including post-war buildings, town-planning projects, and landscape architecture. The international register will remain at the Netherlands Institute of Architecture (NAI) in Rotterdam. A positive aspect of this policy is to maintain several centres under the umbrella of DOCOMOMO International.
In view of the considerable growth of the registers – either national or international –, the diffusion of knowledge should also be emphasised and developed. This is why it seems that DOCOMOMO International could take on the role of promoting research programmes on preservation of 20th Century architecture, which can be offered to different authorities and institutions.
In about ten years the ISC/R has been able to formulate a set of criteria for selecting and describing buildings and sites, which have been widely tested in various forms. In the future the task of the Committee shouldn't remain tied to mapping. It is truly essential that the theoretical foundation of the Register would be expanded through interdisciplinary confrontation, offering the modern heritage the opportunity to overcome the boundaries fixed by the canonical theory of restoration.

4.d. Research and documentation
DOCOMOMO International might extend its action in partnership with different institutions (universities, public and private foundations and organisations dealing with preservation) in the realm of research, documentation and education.
This project could cover two main aspects. On one hand it will deal with theory of preservation, history and cultural strategies designed to include 20th Century heritage. Among the results we could foresee the elaboration of documents such as guiding lines, in the form of a 'chart for the restoration of modern architecture', using the terminology elaborated for the ancient heritage (i.e. 'Venice Charter').
On the other hand, in collaboration with few educational programmes, it will deal with the creation of training curricula for professionals in the field. The interdisciplinary character of these programmes is especially significant, because it creates a link between theory of architecture and theory of preservation, as well as a link between architectural practice and conservation.
Closely related to this will be the improvement of the role of the International Specialists' Committee on Education (ISC/E), whose contribution has remained under shadow in the past years.
Among the research projects the studies developed within the Technology Committee (ISC/T) are very valuable. In fact, by means of several seminars (in total six in the past years) the Committee has collected quite large documentations on issues related to maintenance and conservation of modern materials. This is a unique skill, which needs to be addressed towards a larger scope. In the coming years the Committee, with the collaboration of experts could focus its attention on the elaboration of a 'handbook' for the restoration of modern architecture. This will be produced and distributed in print and on software. The team of authors will collect together recommendations, case studies examples, materials, their use and their characteristics, the weathering process and the maintenance, etc. with the objective to offer the professional world a practical tool in the field.
The production of the 'handbook' and the continuation of the Register project will be the two sides of the same coin. They are both essential to enlarge the base of DOCOMOMO International, to open the view in the professions variously connected to preservation, and to enlarge its audience. In the end the handbook can be a means to create within DOCOMOMO International an effective network among all these sectors, presently quite scarce.
DOCOMOMO International should also become an active partner in the development of exhibitions dealing with modern architecture, its interpretation and its preservation. The issue is less to be the direct and sole producer of exhibition than the creation of efficient networks of exchange for projects coming from museums and universities, insuring their wide circulation.

4.e. Creating new communication network
Considering the fact that DOCOMOMO International has achieved a good reputation and gained an international authority in the field of documenting modern architecture, any new initiative should be addressed to reinforce these

levels of performance. This is very much the case when we agree that the web is becoming a major tool of communications and education. The present skill of DOCOMOMO International in this field is quite minimal, even if Working parties have already expressed interest in this project. Some Working parties are quite well-advanced with their own websites.
DOCOMOMO International needs to direct much energy towards the configuration of a professional portal site specialised in modern heritage and related urban issues, with focus on history, conservation, technical matters, etc. Multilingual and interdisciplinary the DOCOMOMO portal will gather the contents of the national registers, of the journals and newsletters published by different Working parties, researches produced by members, along with related events, international competitions, etc. It will offer links to other webs on modern architecture, to manufacturing companies, which produce materials and technologies in the field of building restorations, and to distributors. The Ministry of Culture and Communication and the Cité de l'Architecture et du Patrimoine will be a powerful help in this regard.

4.f. DOCOMOMO Journal

The *DOCOMOMO Journal* will remain the official organ of DOCOMOMO International, at the side of the new portal. Many aspects of the present structure will be preserved, such as the publication of thematic issues. Otherwise, the website will give more space to the initiatives of the Working parties, which can be quickly updated.
The *DOCOMOMO Journal* will continue to be aimed at the professional public, as well as at scholars and educators.

5. Six answers to DOCOMOMO International

5.1. Host institution and its credentials

DOCOMOMO International will be located at the Cité de l'Architecture et du Patrimoine in the Palace of Chaillot, Paris. Professor Jean Louis Cohen, director of the Cité and of the Institut Français d'Architecture, has fully agreed in supporting the new organisation and its strategic plan of actions.

5.2. Possibilities for funding

The French Ministry of Culture and Communication will allocate the necessary resources.
A contract will be signed between DOCOMOMO International, the Cité and the French Ministry of Culture and Communication, guaranteeing for a given period of time (i.e. 2002-2008) the full autonomy of DOCOMOMO International and establishing the rules for the operations.

5.3. Chairperson and Secretary

DOCOMOMO France has proposed Maristella Casciato, Professor at the University of Rome Tor Vergata to fulfil the role of Chairwoman. The reason for this choice has to do with the long experience she has within the DOCOMOMO network.
DOCOMOMO France has defined the profile of the Secretary as a person active in history and/or preservation, based in Paris and fluent in French and English. He/she will be recruited after an open call for candidacies.
The Executive Committee will continue to include an appointed Member who represents the country which organises the Conference.
An Advisory Board will cooperate with the chair and will, oversee the developments of DOCOMOMOs activity in new domains, as well as its geographic extensions.

5.4. Organisation of the Secretariat

The Chairwoman and the Secretary will work in close contact. The Secretary will have a half-time position. The chairwoman will be in Paris monthly. Two to three meetings of the Advisory Board will be held yearly, in addition to continuous contact through other means (e-mail).
The *DOCOMOMO Journal* will remain the official organ of DOCOMOMO International, next to the new web portal.

5.5 Strategic and scientific ambitions

Under the heading 4., the main elements of the new program have been illustrated. The future of DOCOMOMO International will develop in relation with the following key-words: extending DOCOMOMOs territories, establishing new partnerships, developing the international register, research and documentation, creating new communication networks.

5.6. Language

The Paris-based secretariat will operate in English and French for all official acts. English will continue to be the language used for the meetings of DOCOMOMO International. According to the most efficient uses, communication with DOCOMOMOs national Working parties will be made in the most widely used language locally.

This French proposal is the result of the process begun in Brasília in September 21st, 2000 at the Sixth DOCOMOMO Council Meeting. It has been written by Maristella Casciato in this context in close cooperation with Fabienne Chevallier. It includes all the amendments which resulted from the e-mail debate organised in cooperation between DOCOMOMO International and DOCOMOMO France between September 21st 2000 and June 7th 2001.
The bureau of DOCOMOMO France and Maristella Casciato would like to thank all those who brought confidence and support to the process begun in Brasília. Our thanks go first to Hubert-Jan Henket and Wessel de Jonge. We would also like to thank Catherine Cooke, Marieke Kuipers, Theodore Prudon, Andrew Wolfram, Claes Caldenby, Ivan Nevzgodine, Hiroyasu Fujioka, Panayotis Tournikiotis, France Vanlaethem, Aimée de Back, Luc Verpoest and Anna Beatriz Galvão. Thanks go to Jean Louis Cohen for the assistance he gave to Maristella Casciato concerning the definition of the Cité de l'Architecture et du Patrimoine as host institution.

Job description for the position of Secretary of DOCOMOMO International - December 2001

In 2002, the headquarters of DOCOMOMO International (International Working party for the DOcumentation and COnservation of buildings, sites and neighbourhoods of the MOdern MOvement) will be moved from Delft, The Netherlands, to Paris, France. This move coincides with the vote for the proposal presented by DOCOMOMO France, which involved the nomination of a new Chair, Maristella Casciato from the Università di Roma - Tor Vergata, and the establishment of a new International Secretariat hosted by the IFA/Cité de l'Architecture et du Patrimoine in Paris. In view of these changes, DOCOMOMO France is currently soliciting applications for the position of Secretary, open to all nationalities. The selection procedure is organized by DOCOMOMO France. The nomination(s) by DOCOMOMO France will be submitted to DOCOMOMO International for approval, before Council will vote for a final decision.

Functions to be performed
Working under the supervision of the Chair of DOCOMOMO International, and in collaboration with the different components of the organization (the International Advisory Board, still to be nominated, the Specialist Committees, and the Working parties), the Secretary is in charge of the supervision and management of the International Secretariat in Paris.
As well as assisting the Chair in the accomplishment of her mandate, and participating as full Member in the Executive Committee, the position of Secretary includes the following responsibilities and tasks.

He/She
- Organizes the meetings of the Executive Committee and elaborates reports.
- Organizes the meetings of the International Advisory Board, including reports.
- Assists the Chair and the International Advisory Board in the development of new initiatives and activities.
- Participates in the conception and organization of DOCOMOMO International bi-annual conferences, other scholarly events and publications.
- Coordinates international campaigns for the protection of threatened buildings and sites.
- Represents, if requested, DOCOMOMO International at official meetings and events, including public lecturing.
- Assumes the editorship of the DOCOMOMO Journal (two issues/year), a journal published in English. This task involves soliciting articles, coordinating with authors, editing the texts, and supervising the final contents of each issue.
- Assumes the coordination of the website.
- Coordinates communication within the organization (the Committees, the Working Parties, the individual members).
- Coordinates communication with other institutions, such as UNESCO and ICOMOS.
- Coordinates with the host institution in France.
- Manages the administration of membership and annual budget with the assistance of the host institution.
- Manages the external contacts within France and abroad for sponsoring campaigns.
- Manages the processing of and replying to mail.
- Manages the working files and archives of DOCOMOMO International.
- Maintains lists of members and external contacts.
- Supervises the work of assistants.
- Manages the budget with the help of a bookkeeper.

General abilities
The position requires superior organizational and managerial skills, excellent writing, editorial, and communication skills, as well as an ability to lecture in public. Proficiency in the use of information technology is necessary.

Training and previous experience
The successful candidate holds a graduate degree in architecture, art history, urbanism or another related discipline. He/She has a publishing record and has participated in scholarly conferences. Previous involvement in DOCOMOMO activities is desirable. Teaching experience is a strength. Professional experience in architecture is also welcome.

Languages
Written and spoken English is a priority. Excellent working knowledge of French is a necessity. Working knowledge of other languages is a plus.

Date of appointment
The position starts 1 June 2002, and will include the assistance in the moving of DOCOMOMO International headquarters from Delft to Paris. The appointment is for a maximum of six years, corresponding to the mandate of the new Chair (2002-2008), and will be renewed every two years.

Compensation
The position of Secretary is half-time (15-18 hours/week). The salary is commensurate to that of a junior level academic appointment and may be adjusted based on previous experience.

Applications
Applications must include a resume, two letters of recommendation, and a letter of motivation, and should be sent to:

DOCOMOMO France, 3, rue Michelet, 75006 Paris, FRANCE
E: docomomo.france@online.fr

Applications must be postmarked by 15 February 2002.
A copy by e-mail will be appreciated. Interviews with selected candidates might be scheduled in March 2002. Results are scheduled to be announced before 15 April 2002 to all candidates through e-mail.

Stone of the modern
ISC/T Seminar in Rome

The use of natural stone in architecture could, in the perspective of the Modern Movement, be said to involve aspects of properties, balancing between structure and appearance. Indeed, stones of the modern do balance on these abstract facades, making *Das Princip der Bekleidung* (an essay by Adolf Loos, 1898) a major thread, connecting classic with modern principles of architecture. The lesson about the *Stones of Venice* (John Ruskin, 1851) does not only become a matter of truth of construction or cladding , but certainly a matter of aesthetics, technology and meaning, that can not be omitted while discussing the documentation and conservation of works of the Modern Movement.

Thus the theme of the Sixth DOCOMOMO Technology Seminar was 'Stone of the Modern. Principles of Cladding', held in Rome on November 30 and December 1, 2001, and chaired by Maristella Casciato. Approximately 100 people took part in the seminar. The first day was held in Sala Quaroni in the travertine-clad *Palazzo degli Uffici*, a building designed by Gaetano Minnucci in 1937–39 for the EUR (Esposizione Universale di Roma 1942).

Seminar delegates in the main lobby of the Palazzo degli Uffici at the EUR, Rome, during a tour of the building. Photo: DOCOMOMO Italia.

Abstract blocks

Thirteen papers were presented, ranging from general considerations of aesthetic and technical principles, over physical and chemical properties of stone, weathering, anchoring techniques, structure and cladding, to actual examples and case studies, such as the adjacent Palazzo Civiltà Italiana, the restoration of the Århus Town Hall, the Shell House in Berlin, the Naples' Post Office and Finlandia House in Helsinki. In addition to the papers, a range of posters documenting the restoration of stone claddings were presented.

As Sergio Poretti of the University of Rome – Tor Vergata stressed, the architecture of the Modern Movement generally contributed to the development in the use of stone, bringing about new techniques as well as aesthetic change. This point was not at least emphasized in the paper by Tullia Iori, showing the transformation of a classical proposal for the Naples Post Office by Giuseppe Vaccaro, into an abstraction in black and white stone. According to Maurizio Lucat, Turin Politechnic, the changes in the use of stone in the 1930s were empirically discovered, rather than a result of teaching. Drawing from period handbooks he elaborated for instance on contemporary anchoring techniques developed by the engineer Consiglio who, among others, worked with Giò Ponti. Rinaldo Capomolla, Tor Vergata, on the other hand showed how more traditional, self-carrying stone claddings were developed for the construction of Palazzo Civiltà Italiana at EUR.

Rinaldo Capomolla explaining the structure of the Palazzo Civiltà Italiana. Photo: DOCOMOMO Italia.

Abrahamsen demonstrating a special tool to refit the stone panels of Århus Town Hall. Photo: DOCOMOMO Italia.

Maristella Casciato, Seminar Chair, and Ola Wedebrunn, Chair of the ISC/T debating Abrahamsen's presentation. Photo: DOCOMOMO Italia.

Eleonoor Jap Sam and Wessel de Jonge represented the DOCOMOMO International Secretariat. Photo: DOCOMOMO Italia.

New technology

Papers presented by Angelica Frisa Morandini, Pier Giovanni Bardelli, Caterina Mele, Maurizio Gomez Serito and Martti Jokinen stressed the fact that not only the physical, mechanical consideration of stone cladding is of importance, but that the physiognomy of the stone in itself, its chemical properties and the context of climate as well as the geography are of utmost importance, more or less suggesting to consider stone as a living material.

Such researches are crucial experiences when considering possibilities for conservation, and the technology for advanced development of stone cladding. This latter point appeared obvious from the paper presented by Marco Antonio Ragone from the Assomarmi company, on recent and new stone-cladding technologies, such as precast slabs and stone veneers on aluminium honeycomb structures. What will be the lessons to be learned from this technology?

Trial and error

Pragmatic was the demonstration in video and slides of a tool, developed as a restoration technology solution by the Danish engineer Søren Abrahamsen for re-fastening the cladding of Norwegian marble on Arne Jacobsen's Town Hall in Århus. Instead of taking each marble slab off the facade piece by piece and re-anchoring them, with the help of Abrahamsen's technique the panels could be re-fastened in situ. This demonstrated that development does not only involve new technology but just as well experiences of documentation and conservation.

The situation of the Carrara marble cladding of Alvar Aalto's Finlandia House in Helsinki presents another kind of problem. Some years ago the facade got a new cladding, reducing the size of the marble slabs to avoid bending, as well as aimed at the improvement of the fixing system. Today, the new cladding already shows signs of bending, that is expected to lead to a new restoration within 10-15 years. Although an EU-financed research project produced evidence of chemical deterioration due to the climatic situation, so far no satisfying answer to the problem of bending has been found. Martti Jokinen, in charge of the recent restoration, claims the recent situation to be part of a trial-and-error development.

Debate

The long discussion following the presentation of the papers focused on the relation between structure and cladding. Pier Giovanni Bardelli, Torino, and Wessel de Jonge stressed the importance of considering the building as an integral whole, a strategy demonstrated by the thorough restoration of Emil Fahrenkamp's Shell House in Berlin, presented by Sibylle Schulz from the Berlin *Landesamt für Denkmalpflege*.

ISC/T members Mariël Polman and Wessel de Jonge also invited opinions on the issue of surface treatment of stones and the sometines devastating effects of cleaning agents. How are they cut, dressed or polished, and how is a weathered surface to be treated? These questions are intended to be addressed as well in the upcoming Technology Dossier 6, including the papers and posters presented at the seminar and edited by DOCOMOMO Italia Onlus.

Travertine

The second day of the seminar started with a visit to Adalberto Libera's Post Office at via Marmorata, guided by Sergio Poretti. A bus took the participants from this famed building to the very sources of travertine: the quarries, laboratories and workshops at Tivoli, where Fabrizio Mariotti showed the production and different technical and aesthetic possibilities for travertine. The Mariotti test site involves the mock-ups for such noted buildings as Richard Meier's Getty Center. Finally the seminar ended at Hadrian's Villa, a building deprived of its original stone cladding, but amazingly beautiful in the light of the late, sunny afternoon.

The seminar was organised by the DOCOMOMO ISC/Technology and DOCOMOMO Italia Onlus (Dipartimento di Ingegneria Civile, Università di Roma, Tor Vergata and Facoltà di Ingeneria, Facoltà di Architettura 1, Politecnico di Torino), and sponsored by EUR SpA, Mariotti SpA, and Assomarmi.

(Report by Ola Wedebrunn, Chairman of the DOCOMOMO ISC/Technology and a member of DOCOMOMO Denmark.)

The fuzzy future of historic airports

The European Raphaël Project *Europe de l'air* has set the spotlights on the phenomena of endangered airports of the 1930s, in particular Speke (Liverpool), Tempelhof (Berlin) and Le Bourget (Paris), during three international seminars for decision-makers, planners and preservationists. Thanks to this project, the terminal of Speke – a beautiful Art Deco building – has been converted into a luxury hotel and one airship hanger is re-used as an indoor sports hall. This is a better solution than the previously intended demolition. The megalomanic complex of Tempelhof, symbol of both the Third Reich and the postwar American Airbridge, is still in use for small aircrafts but will be closed down when the new airport at Schönefeld will be opened. Le Bourget is now only visited by historic aircrafts during the bi-annual flight shows. Also other airports have been discussed as a challenge of preservation, for instance the replaced terminal at Kastrup near Copenhagen (about which Ola Wedebrunn has reported), Budaörs near Budapest, Deurne near Antwerp, a great variety of civic and military airports around Toulouse and the various aviation buildings in The Netherlands, as well as the airport buildings around New York, including the endangered TWA terminal by Eero Saarinen. In response to the appeal launched by DOCOMOMO-US, most participants of the last seminar undersigned a common letter to the responsible representatives in the USA.
This Paris seminar was furthermore very fruitful while current trends in the aviation business were addressed from different points of view and because also terminals of the 1940s and 1950s were discussed. It was a very special attraction to share the experiences of the architect Paul Andreu, who is involved with both the original design of Orly-Sud and the current restyling of his and Jean Prouvé's terminal for a much larger number of visitors. In contrast to the current domination of commercial shopping chains in many airports, Andreu managed to 'clean' the terminal and to give passengers more overview and rest in stead of forcing them to pass all sorts of shops on their way to the gates. The result is very convincing and shows how a re-orientation on the original architectural intentions can help to find a suitable solution for current problems of transport and security, while still keeping the spirit of the original.

A surprising combination of aviation heritage and modern technology can be found at Chalais-Meudon, where already in 1793 the Military Balloon Research Centre had settled and in 1932-34 the expressive S1Ch wind tunnel had been constructed in reinforced concrete to enable the testing of a real aircraft with wingspans up to 12 m. This innovative structure is now partly out of use, but still very impressive (as are other examples near Toulouse and Berlin). Recently, the French aviation museum has been moved from Meudon to Le Bourget, where many historic aircrafts are exhibited for a large public and where every two year the 'early birds' can be watched in action. Yet, it could be regretted that many

details of the original interior are lost, although others, like the maritime railings of the staircases, the glass block in the curved rooftops and the oval control tower, are carefully kept.
Next year a publication of all contributions will be published by the *Éditions du Patrimoine*. An introductory book on this theme has been published already (in three languages), edited by Bernard Toulier and Paul Smith with the same publisher. Also a website can be consulted: www.culture.fr/europe-air.

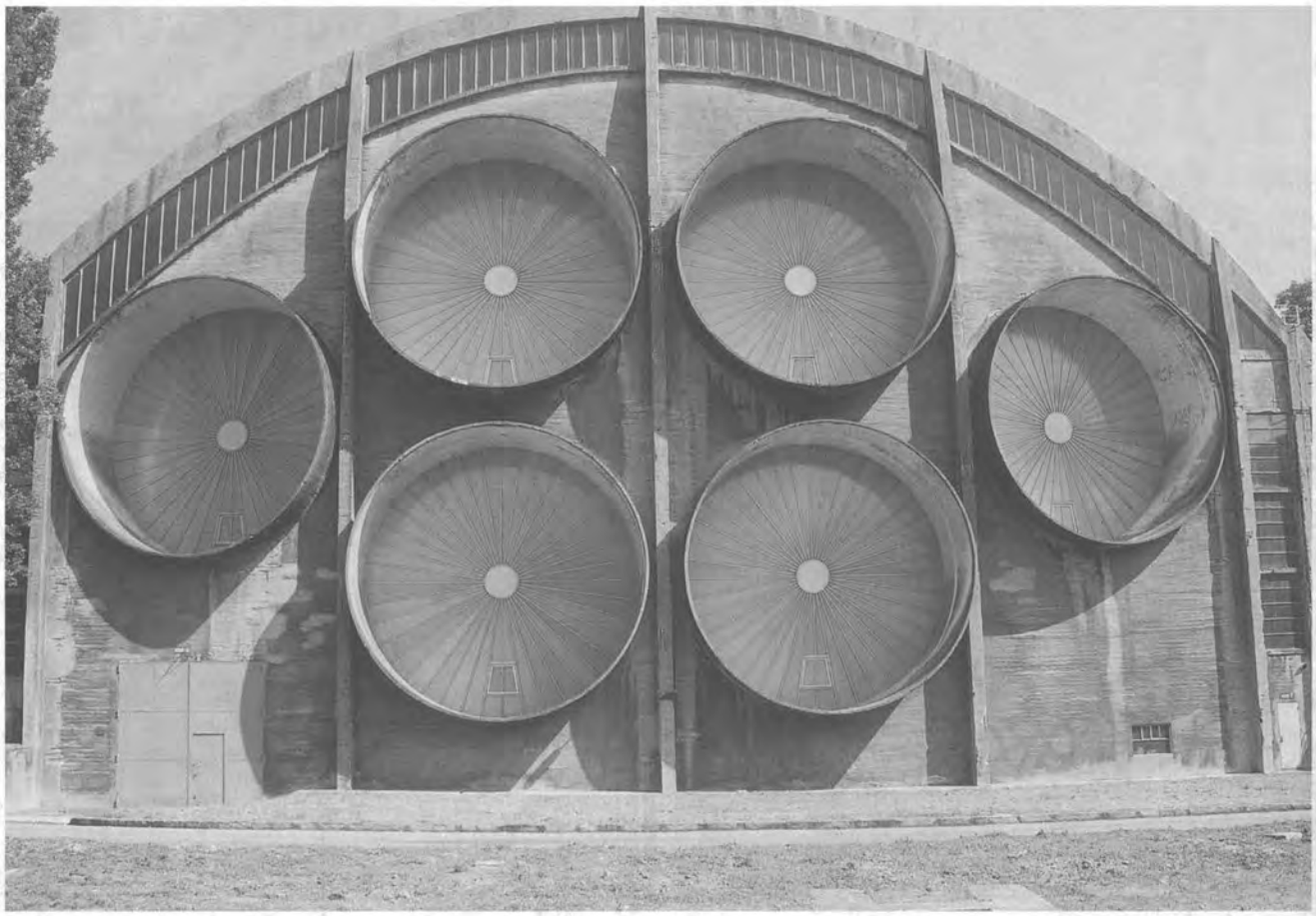
For the ISC/Registers the problems of preserving historic aviation buildings became more evident when visiting the Budaörs airport near Budapest after its annual meeting, thanks to our Hungarian DOCOMOMO members. The elegant circular terminal building was designed in 1936 by

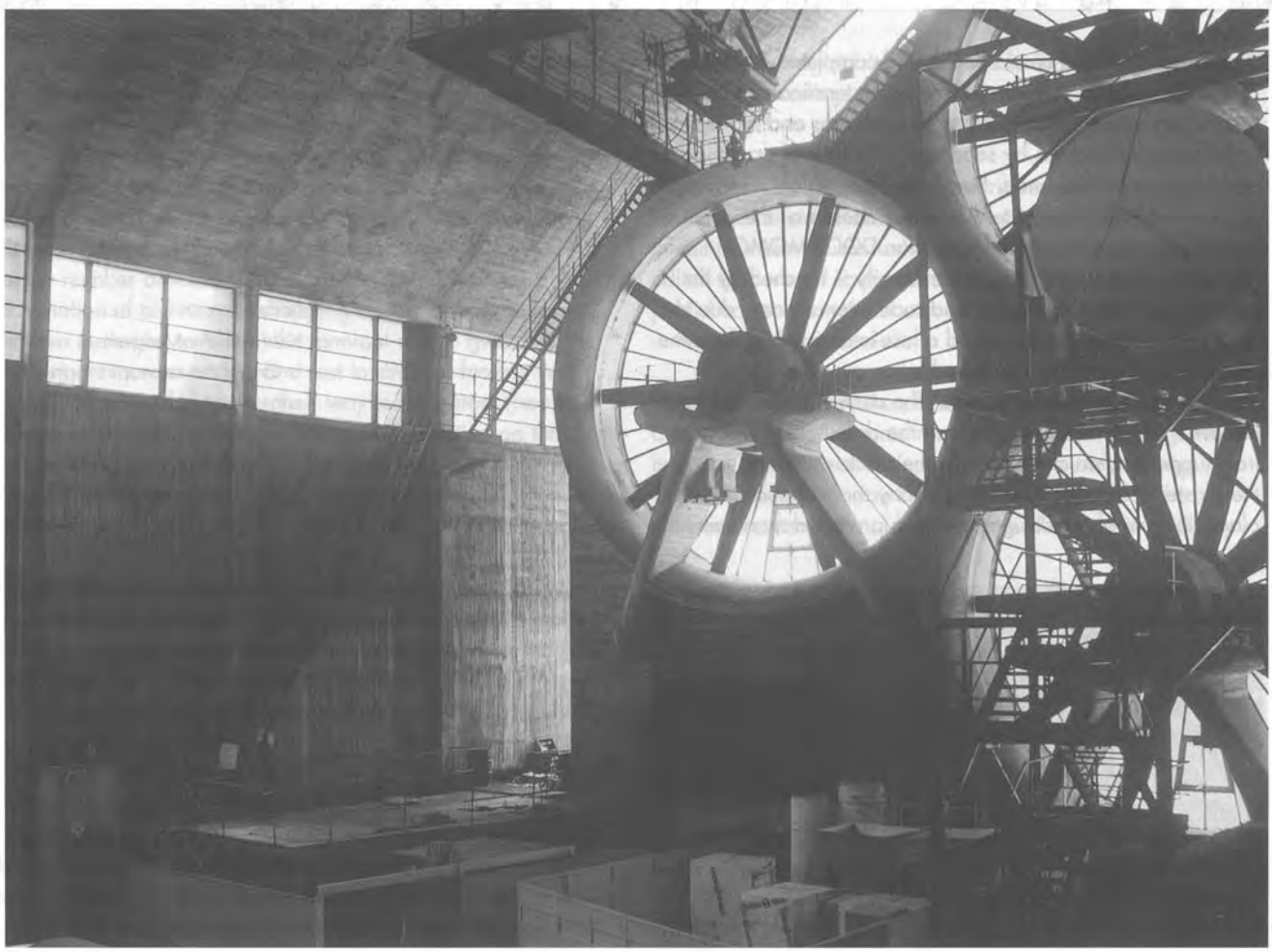
Virgil Bierbauer and László Králik and completed in 1937. By then it was one of the most innovative terminals of its time, using modern materials, modern shapes and modern organization principles by separating the flow of passengers and luggage on two levels. Because of its original architectural qualities the terminal was chosen as the cover image of the booklet of the Hungarian DOCOMOMO Register. Unfortunately, the former beauty is touched by the post-war problems of neglect and rude interventions, due to a permanent lack of money and a less intensive use, after the new airport East of Budapest had taken over the international function of Budaörs. The control tower had been removed and in the open space of the double high hall an iron supporting structure disturbs the subtle detailing. Today, the plaster is falling off and hardly any maintenance takes place, in spite of the designation as a protected monument.

Top:
View of Le Bourget's terminal facing the airfield, with the control tower in front and Henry Lossier's hangers at the far end, dating from the 1920s but enlarged in the 1930s, all built in reinforced concrete.

Bottom:
View of the restyled incheck counters at Orly, in the same spirit as the originals but with other materials (genuine wood) and in another disposition (three zones in stead of one).

Left:
View of the elongated terminal of Le Bourget, opened in 1937 and designed by the competition-winner Georges Labro. The sculptures in the middle, by Armand Martial, represent the airport's former destinations: Africa, the West and the Far East; they were added in the 1940s. All photos by M. Kuipers, June 2001.





Top left:
External view of the windtunnel at Chalais-Meudon (1932-34) in reinforced concrete, with bowed supporting structures at both sides.

Bottom left:
View of the interior of the windtunnel at Chalais-Meudon.

Top right:
View of the city facing facade of Orly-Sud, 1966, designed by Paul Andreu, with aluminium window frames (in collaboration with Jean Prouvé) as a superstructure over a highway.

Bottom right:
Circular terminal building of Budaör's airport near Budapest, 1936-37, designed by Virgil Bierbauer and László Králik.

All photos: M. Kuipers, June 2001.

Most spaces are empty, except for some office rooms. The nearby airship hanger is still in use by local amateurs who like to keep small old aircrafts flying. But a masterplan for a future use of the whole ensemble is lacking. Unlike the quick redevelopment of the abandoned historic airports in The Netherlands – which airfields are almost immediately being occupied by new buildings – there is not yet a clear policy to re-animate the Budaörs airfield, which is still a large green area Southwest of Budapest. So it provides a great challenge to give this amazing aviation site of the 1930s a second chance in the 21st Century. It is not only a question of careful restoration and finding funds to do so, but foremost a question of appropriate use and exploitation in the future, assuring good maintenance and respect to the original architectural qualities. Such a 'sleeping beauty' deserves international support to restart again.
Apart from the Budaörs terminal, which urgently needs restoration, more historic airports are at risk due to new competitors, such as Eerinen's terminal at Athens. Because of their beautiful architecture, many historic aiport buildings deserve a longer life than just two decades, even when dynamics is the key feature of aviation.

(Report by Marieke Kuipers, Senior Researcher with the Netherlands Department for Conservation and Secetary of the ISC/R)

Dymaxion House update

At the Henry Ford Museum, we are pleased to announce the completion of the conservation of Buckminster Fuller's 1946 Dymaxion House.
The radical aluminum prototype house opened at the Henry Ford Museum & Greenfield Village in Metro Detroit on October 24th, 2001. It took 3 years, a budget of $800.000,-, and a team of conservators, engineers, and scientist to conserve and re-assemble the collection of 3.600 parts (aluminum, stainless steel, plywood and plexiglas).
The New York Times featured the project in its 'Living Arts' section on the internet on November 8th 2001. The article by Michael Webb is called 'A House in the Round Comes Full Circle'.
More information about the project can be found on the re-designed website of the Museum at: http://www.hfmgv.org/dymaxion/. Those who are interested in visiting the Dymaxion House and getting a 'behind-the-scene' tour can contact James Ashby directly at: jashby@mnsi.net.

(Report by James Ashby, DOCOMOMO Ontario)

Zonnestraal's main building in its
pristine state of 1928.
Photo: DOCOMOMO International archive.

Restoration Zonnestraal started!

Last June 12th, the Dutch Secretary for Culture kicked off the restoration of the main building of former sanatorium Zonnestraal in Hilversum. This event has been the first actual result of a long struggle for the building's preservation (which marked the birth and establishment of DOCOMOMO, at our first International Conference in Eindhoven in 1990 – the editor).

June 12th is a memorable date for Zonnestraal as the building was officially opened on June 12th, 1928. Also, the National Department for Conservation commissioned a research on preservation strategies for modern buildings on June 12th, 1985, that took Zonnestraal as a test case.

After more than a decade of negotiations and preparations, now a start has been made with the main building, soon to be followed by the complex of workshop buildings and one of the patient pavilions. The servant's house had already been restored a few years back and today it serves as a visitors' centre featuring a permanent exhibition on Zonnestraal: a sanatorium for tubercular patients founded by the Amsterdam Diamond Workers Union, and designed by Jan Duiker, Bernard Bijvoet and Jan Gerko Wiebenga in 1926-28.

The new owner, a foundation established in 1997 as the heir of the initial owners, has the ambition to position the new Zonnestraal to provide particular types of health-care. The entire site is state-protected as the buildings are listed and the estate is a designated nature park.

All in all, these are not the most ideal circumstances for the foundation to establish a viable health-care centre. After the former user, a general hospital, moved out, a centre for orthopaedic revalidation and a clinic for aesthetic-medical treatment were housed in the annexes, in anticipation of their permanent accommodation to be finished late next year.

At that point the initiators hope to extend their activities. At present, their prime concern is to secure financial resources and to manage the refurbishment process.

Architects Hubert-Jan Henket and Wessel de Jonge, who were in charge of the 1985 research project, have been engaged as restoration architects. The works for the main building are estimated at approximately EUR 8.8 million ex.VAT. About half of the investments are covered by the revenues of the new use; the other half is funded by grants and subsidies.

The restoration itself poses an enormous challenge as well, as the building was never built for eternity - tuberculosis was expected to be extinguished within 30 years – and today, different standards for materials and constructions apply then in 1928.

(Report from the National Department for Conservation Newsletter, July 2001)

Call for Papers

Modernism in Washington DC

For its Fifth Biennial Symposium on the Development of Metropolitan Washington, D.C., which will be held in March 2003, the Latrobe Chapter of the Society of Architectural Historians is seeking papers on modernist architecture and urban design in the Washington area, its context, and its impact. The era of modernism has passed and many of its key buildings are approaching fifty years old. With the passage of time it should be possible to see the Modern Movement with some objectivity, looking beyond the controversies that surrounded its introduction and hastened its end, and the sometimes extravagant claims of its advocates and practitioners.

The Washington area is usually regarded as a stronghold of historicism. Nevertheless, many significant modern buildings and complexes were constructed between 1940 and 1970. We are looking for papers that discuss these structures within an appropriate context. Some of the issues that might be addressed include: What brought I. M. Pei, Marcel Breuer, Walter Gropius, Philip Johnson, William Lescaze, Richard Neutra, and other architects with national and international reputations to Washington? Who were the important local modern architects? Who were their patrons? What role did the Federal Government play in encouraging modern architecture in metropolitan Washington? How important was the Southwest Redevelopment Area, which the 1965 AIA Guide to the Architecture of Washington, D.C., suggested 'perhaps will in the future constitute an outdoor museum of the architectural clichés of the two decades following World War II'? How did we get from Lescaze's 1940 Longfellow Building to the K Street Corridor? What conditions created the few islands of modernity in the vast landscape of Washington's post-war suburbs and why were they so rare?

Papers must be analytical rather than descriptive in nature and will be grouped to provide substantive comparative discussion among the presenters, moderators, and the audience.

Please send a 400-word abstract and your curriculum vitae, no later than January 15, 2002, to:

Marilyn Harper
President, Latrobe Chapter, SAH
7400 Lakeview Drive, #408
Bethesda, MD 20817
USA
T 00 1 (0)301 365-3541
F 00 1 (0)301 365-0025

All applicants will be notified of the selection by February 28, 2002. December 15, 2002 is the firm deadline for the final draft to be sent to moderators, who will work with presenters to develop themes for discussion. For further information, contact Marilyn Harper by email: marilyn.harper@verizon.net or phone/fax. - *EJS*

Ontario news !

Binning Residence

On May 27, 2001, Parks Canada and the Historic Sites and Monuments Board of Canada hosted a ceremony to commemorate the designation of the Binning Residence, West Vancouver, British Columbia as a National Historic Site. It is the first modern residence in Canada to receive this honour. A report with photos of the house and the ceremony can be found at https://www.westvancouver.net/site/level3.asp?lid=708. This small, simple post and beam residence house, designed by B.C. and Jessie Binning with the assistance of architects Ned Pratt and Bob Berwick, is one of the first flat-roofed 'modern' residences to be constructed in British Columbia. B.C. Binning, a noted artist, teacher and advocate of modern design, adorned several walls with large murals, some of which remain today. The very influential house is in near original condition, and was recently designated a Municipal Heritage Site, thus ensuring its long term preservation.

West Vancouver, a residential suburb of the City of Vancouver, is home to a number of outstanding examples of 'West Coast' style modern architecture. These buildings are documented in the *West Vancouver Heritage Inventory* (1988), which includes buildings constructed prior to 1945 (such as the Binning Residence), and the *West Vancouver Survey of Significant Architecture*, 1945-1975. For further information on heritage buildings in West Vancouver, please contact Joel Lawson of the West Vancouver Planning Department, jlawson@westvancouver.net

Calgary modern architecture

The Calgary Modern Architecture Group (a sub-committee of the Calgary Civic Trust) is developing an inventory of modern structures built in Calgary between 1947-1977. The intent is to compile the inventory and produce a handbook with guidelines on evaluation criteria and a rating system for modern buildings, public art and structures in Calgary. It is expected that this inventory will serve as an aid to both provincial and municipal levels of government for the designation and protection of Modern Heritage Resources. The larger intent for this project is to make people aware of the major contribution modern architecture has made to Calgary. http://www.calgarycivictrust.org

Winnipeg oral history project

The Winnipeg Architecture Foundation is undertaking an oral history project with architects who practised during the 1940-75 period. The project will document the experiences of architects who shaped the urban environment in Winnipeg (and Manitoba) in an important era of innovation and expansion. This research will expand upon material gathered for the 'Recent Landmarks Inventory', which documented 190 of downtown Winnipeg's significant buildings constructed between 1940 and 1975. The Heritage Grants Programme, Province of Manitoba will provide funding to the project. For additional information, please contact: Susan Algie, salgie@escape.ca

America's most endangered
A widely publicized architectural icon that was once hailed as one of 'ten buildings in America's future' could soon be a thing of the past. When it was completed in 1957, the headquarters of the Connecticut General Life Insurance Company in Bloomfield, Conn, was immediately recognized as a milestone in the history of modern architecture. Five years later, similar praise was heaped on the headquarters of the Emhart Corporation, built just a short distance away. Now CIGNA Corporation, the owner of both buildings, wants to demolish them and turn the beautifully landscaped site into a sprawling complex of offices, stores and houses clustered around a golf course. 'Preserving our heritage is more than saving buildings that are very old,' said Richard Moe, president of the National Trust. 'The buildings on the CIGNA campus are less than half a century old, but they are internationally recognized as masterpieces - and they have plenty of use left in them. Now that we've begun to appreciate the importance of preserving the recent past, it would be a tragedy to lose two of America's most distinguished and influential examples of contemporary design.' http://www.nthp.org/11most/cigna.htm

(Report by James Ashby, DOCOMOMO Ontario)

DoCoMeMos

UNESCO modern heritage How do you identify and document the World Heritage of the 19th and 20th Century? Are new towns to be preserved? Where does the motorway fit in? These are just some of the questions a group of experts began considering at a World Heritage Centre brainstorming session in early February on the Identification and Documentation of Modern Heritage. Ron van Oers, consultant and project co-ordinator, says the Centre is the facilitator in this project for the States Parties' initiatives to preserve and nominate the heritage of the modern era to UNESCO's World Heritage List. 'We are in the middle of asking internationally renowned architects, town planners and historians to write position papers on several topics in order to develop a vision on how to look at our recent past and to define the categories of heritage worthy of protection,' Mr van Oers said.

Modernism reborn *Modernism Reborn: mid-century American houses* by Michael Webb, has just been published by Rizzoli. This publication features 35 houses, and discusses their owners and architects responsible for the conservation and restoration.

The new British town An Annotated Bibliography covering British town planning during and after the last war has been published in January 2001 by Inch's books, Pickering: Peter Larkham and Keith Lilley, *Planning the city of tomorrow: British Reconstruction Planning 1939-52*, Pickering 2001, pb 65pp. Available from Book Art and Architecture Bookshop, 12 Woburn Walk, London, WC1H OJL, T +44 (0)20 7387 5006 and F +44 (0)1707 875286, at £9.75 (plus s £2.00 postage). Its useful and well described entries references lead readers and researchers into the many proposed plans and their sources from this Utopian period. Highly recommended.

From the Bauhaus to Bloomsbury A remarkable exhibition is being held at The VOLUME Gallery, 12 Woburn Walk, London WC1, until March 9, 2001. The selection of paintings and drawings is based on the work of a relatively unknown Bauhaus painter who studied under Kandinsky, Klee and Schlemmer in Weimar. Many of his paintings came from Cornwall where he went to live after the war. Born as Von Frisch he was known for most of his life (he came to England in 1936) as G. Rene Halkett. He painted all his life producing a large body of drawn work including pen and ink sketches in a surrealist mode but often including architectural themes many of which are available for purchase at a modest cost.

Call for Papers

Universal versus Individual

The 'Universal versus Individual' Conference will take place from 30 August to-1 September 2002 in Jyväskylä, Finland, organised by Alvar Aalto Academy, to explore the architectural legacy of the 1960s both from the viewpoint of universally felt currents and dominating trends as well as illuminate counter-movements of individual and regional character.

The conference seeks to highlight and analyze a number of vital architectural strands and cases of the years from the late 1950s to the oil crisis of the early 1970s. The architecture of this period went through rapid technological and formal changes. The early 1960s witnessed the global spread of late modernism and the continuing presence of the canonized masters who had been instrumental in the shaping of modernism - International Style - itself. Simultaneously a drift towards anonymity through universally applicable structural and formal systems brought to the scene a new generation looking for an architecture less tied to a. personally expressive vocabulary. The overall picture, however, showed great diversity intensified by movements and individuals exploring alternatives to hegemonizing tendencies influential throughout the Western realm.

The architecture of the 1960s was also closely tied to the triumph of the consumer society, to the impact of information explosion brought by the mass media and to structural changes of societal character. A political aspect was brought by the Cold War and the uses of modernism as an ideological vehicle. Growing awareness of ecological issues, social injustice and the uneven division of wealth on the global scale led to radicalization reflected also in architecture.

From the rich web of the architecture of the 1960s, displayed by things and thoughts both universal and individual, we want to generate discussion around following key topics:

- transformations of Modernity both globally and regionally;
- the heritage of the Founding Fathers: heroes of modernism idolized and under attack;
- the impact of technological change;
- systems of administration, management and finance: the parameters of architecture in both public and corporate domain;
- theories and ideologies: the interplay of ideas and the artefact;
- politics: architecture as domination and as resistance;
- the realm of the fabricated: integrative factors in architecture and design.

Abstracts & papers

Proposals for papers should focus on the key issues indicated above. Conference proceedings will be refereed and published.

- Abstracts of 250 words are due **January 15, 2002**;
- Paper Format Guidelines will be sent upon request and upon receipt of abstract; Referee advice will be progressively circulated;
- Notification of acceptance by **February 1, 2002**, complete final papers due **March 15, 2002**.
- Accepted papers will be published in a pre-conference publication.
- Keynote speakers presentations and selected papers will be published and distributed after the Conference.

More information through: <www.alvaraalto.fi>

Modern conservation

Course in Finland

The Alvar Aalto Academy is now the main responsible organiser of the Modern Architecture Conservation Course 2002 in Finland, MARC 2002. This second course is planned to take place in Jyväskylä on Aalto's University Campus. The theme will be 'Practice and Principles for Conservation of Modern Architecture in the period 1950-1960'.

As in the previous course in 1999, ICCROM is a partner organiser and the City of Jyväskylä is the main sponsor. Further grants are expected from the Finnish Ministry of Education and the EU. The MARC 2002 programme is sponsored by the Finnisch National Board of Antiquities, the Helsinki University of Technology, the Royal University College of Fine Arts in Stockholm, ICOMOS, and DOCOMOMO International.

The course is scheduled for 21 August to 11 September, 2002. In the middle of this period the 'Universal versus Individual' Symposium will take place on 30 August until 1 September 2002, also in Jyväskylä and organised by Alvar Aalto Academy. The participants of the MARC2002 programme are invited to attend the Symposium.

Further information from Esa Laaksonen through <esa.laaksonen@alvaraalto.fi>.

Lina Bo Bardi's Pompeia cultural centre

The famed social and cultural club in the Pompeia quarter of down town São Paulo, Brazil, is part of the SESC network of similar facilities. After a proposal for adaptive re-use by Lina Bo Bardi, the main lobby (photo), a café, a library, and a theatre are accommodated in a series of former industrial halls. She has complemented the existing buildings with a remarkably designed concrete tower, housing the centre's sports facilities. The SESC Pompeia is a sophisticated and highly successful example of re-use of an old factory complex. - *WDJ*

Lina Bo Bardi's SESC Pompeia social and cultural club in down town São Paulo, Brazil, is a sophisticated and successful example of adaptive re-use of an old factory complex.

The historicity of structural engineering

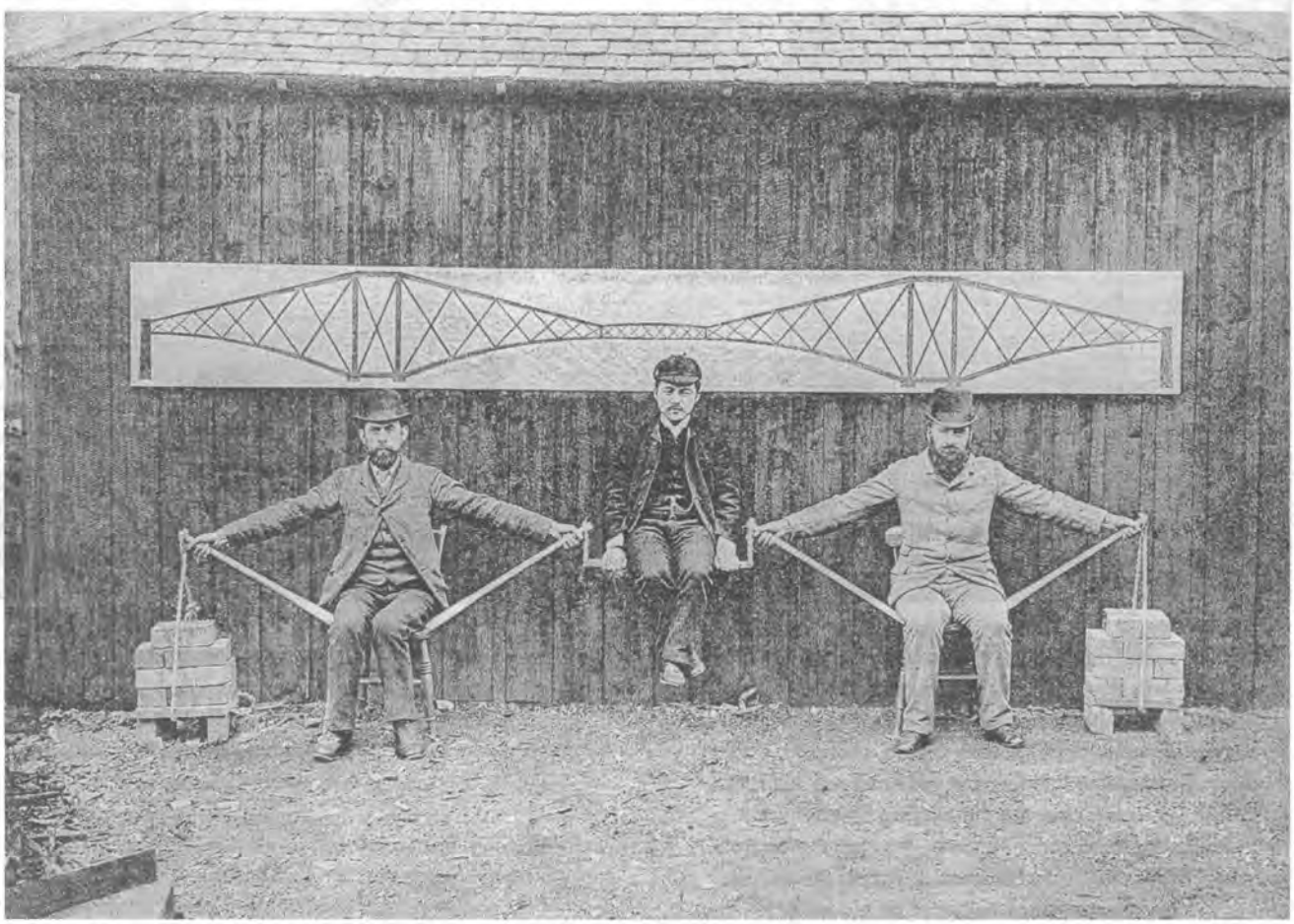
The inexhaustible and fascinating issue of the dialectics between science and art in design inspires a debate on the historiography of structural engineering. Can engineering works be regarded within the traditional reference frame of architectural history, or is an independent, specialised history of structural engineering required?

by Sergio Poretti

As in the mid 19th or early 20th Century, still today the interpretation of a work of high structural complexity prompts one to reconsider the relationship between engineering and architecture. It also inspires reflection on the dialectics between science and art in design. This inexhaustible and ever interesting issue primarily regards the theory of the project. But the need to place in a historical perspective the last stayed bridge or tensegrity, the work of David Geiger or that of Christian Menn, also poses a more banal problem of a historiographic nature, which may be condensed in the following question: can engineering works be entirely dealt with within the traditional reference frame of architectural history, or should one also think of an independent, specialised history of structural engineering?
As we know, in the first phase of the process of putting contemporary architecture into a historical context, which until the 1970s was effected through extensive critical summaries, structural engineering works were placed next to architectural works, without substantial differences, and with equal, if not greater attention given to them. This is demonstrated, for instance, by the space which Eiffel and Maillart's structures assume in Giedion. But in that phase, it was more about general historical reconstructions, based essentially on the evaluation of programmes, theories and tendencies.

Mechanics

The difficult historicity of structural engineering subsequently emerged, when the historical work became detailed, with more accurate and in-depth analyses. In fact, at this point, one should have observed how on one hand, traditional historical reading does not enable us to grasp particular characteristics of the works and the crux of structural design. On the other hand, specialised studies, however few, assume a purely theoretical and analytical tone, without any inclination towards historical analysis.



Living model showing the structural principle of the Forth bridge (1890). Photo: The Ironbridge Gorge Museum trust – Elton Collection.

The problem is that through closer observation, in the case of works of high structural complexity, for a critical understanding, it is not enough to analyse the formal results and make comparisons with other works. Without doubt, this external or architectural reading, inasmuch as it considers the work in the undivided picture of architecture, is fundamental. But in order to single out the intrinsic characteristics in these types of works, we must also consider the design choices in close relation with the historical developments of structural mechanics. How is it possible to explain, for instance, orientations towards determinate structural typologies, which characterise single phases of development, if not by relating them to events within the scientific field of mechanics? And not just evolutions within mechanical science assume importance, but above all the contested vicissitudes which mark its unpredictable application to building.

Schematisation

The detailed historical analysis of a structural work, in other words, cannot be set aside from the scientific nature of the relative design, which, furthermore, is implicit in the very notion of 'structure'. Introduced in the early 18th Century as schematisation able to remove obstacles that prevented the application of mechanics – a science, which had already reached a significant degree of perfection – to constructions (and also machines), the structure does not identify itself with the building or with its resistant part, but is a conventional, abstract model which substitutes the real constructional elements and which is conceived with the sole aim of quantifying by applying simple, quickly resolvable formulas, the values of stability and resistance.
From this schematisation, which permits the application of mechanics to constructions yet also limits the field of design action to the relationship between form and resistance, derives the specialised characteristic of structural design.
In fact, ever since then, the project of structure has been distinguishable from the project of building. From this point of view, it is of little importance that the development of structural design is effected through deductive calculation procedures, as in the works of Franz Dischinger or Ulrich Finsterwalder, or that it is formulated on a priori intuitive prefigurations of form and on the use of physical models, and therefore more closely resembles the architectural project, as in the experiences of Eduardo Torroja, Felix Candela and Pier Luigi Nervi.

Crossing territories

The specialised character of the structural project does not even appear to be weakened if the overall project strategy tends to maintain close interdependence of structural elements with the other parts of the building, as in the tradition of organic architecture or, in another way, as in some high-tech tendencies, like those represented in Santiago Calatrava's works. In any case, the structural project remains very distinct from the architectural project, owing to the importance of the mechanical paradigm assumed in it. The double scientific and architectural nature of the structure evidently leads us back to the theoretical problems of design. But going back to the historiographic problem, this duality appears to confirm the opportunity of supporting the external reading of structural works with other analyses, again of a historical nature, but more specifically oriented at reconstructing the lines of development within the world of structural engineering, in which the most studied evolution of technologies is placed in relation with scientific developments. If anything, the theory for which a further question is raised, in a picture of unitary but highly defined historicisation, where a specialised history of structural engineering can also find space.
Who is able to write this history, which necessitates crossing in both senses the territories of science and architecture? The architectural historian who has acquired knowledge with the theory of elasticity, which enables him to venture into the maze of mechanics, or the engineer who, in order to write his own, overcomes his physiological idiosyncrasy towards history? Or, in the inevitable auspice of collaboration between engineers and architects, from now on, should one not only refer to design but also to the historical work?

Sergio Poretti is a professor in architectural technology at the Faculty of Engineering, University of Rome – Tor Vergata, and the president of DOCOMOMO Italy. *Text previously published in Area 57, July / August 2001, pp. 2-3, and reprinted by kind permission of the author and the editor.*

Modern architecture and the rhetoric of engineering

Throughout the 20th Century, architects have been obsessed with the question of engineering. The challenge of the large structures invented in relation with the Industrial Revolution, such as railway stations, bridges and factories, remained intact, but new patterns of thinking emerged, relative to mechanical objects and systems, and also to the professional figure of the engineer, knight of the Industrial Age.

by Jean Louis Cohen

Insisting in Space, *Time, Architecture* on the 'conflict' between architects and engineers, Sigfried Giedion missed many aspects of a complex relationship that included both ideal and material components. In his 1928 *Bauen in Frankreich, bauen in Eisen, bauen in Eisenbeton*, he had insisted more correctly on their historical role in the French context, relying on statements by Anatole de Baudot and publicist César Daly, whose 'Toast to engineers' of 1877 remained a major reference point for him.
Celebrating the figure of the engineer would indeed be a frequent rhetorical strategy of modernism, a component of an attitude geared at subverting the legitimacy of 'academic' architects. Le Corbusier opens for instance his 1923 manifesto *Vers une architecture* with a chapter devoted to 'The Engineer's Aesthetic and Architecture', and illustrated by Gustave Eiffel's Garabit viaduct. According to him, 'the engineer, inspired by the law of economy and governed by mathematical calculation, puts us in accord with universal law'. He underlines that 'our engineers are healthy and virile, active and useful, balanced and happy in their work. Our architects are disillusioned and unemployed, boastful or peevish', and points to a 'clear diagnosis': 'Our engineers produce architecture, for they employ a mathematical calculation which derives from natural law, and their work give us the feeling of harmony'.

DES YEUX
QUI NE VOIENT PAS...
III : Les Autos

Par LE CORBUSIER-SAUGNIER

Le Corbusier, 'Des yeux qui ne voient pas... les autos', page of *Vers une architecture, 1923*.

World of technology

The contemporary founders of constructivism share Le Corbusier's views. For instance, in *From the Easel to the Machine*, a book published in the same year, Russian critic Nikolai Tarabukin affirms that 'the style of Modern times is not created by likes of Rembrandt, but by engineers'. Tarabukin underlines nonetheless the absence of self-consciousness on behalf of engineers, as 'the designers of ocean liners, airplanes and express trains do not suspect that they are shaping a new aesthetics'.
The new beauty made possible by the works of the engineers is in fact broadly discussed before the First World War in widely different contexts. *Ingenieurästhetik*, a slender book published in 1910 by Joseph A. Lux is, together with the *Jahrbücher* of the Deutscher Werkbund an early example of a celebrative discourse which extends simultaneously to Italy with the manifestoes of futurism. In this respect, the prose of artist Umberto Boccioni is more revealing than the slightly later one of architect Sant'Elia. In his *Architettura futurista Manifesto*, Boccioni considers in 1913: 'No naval or mechanical engineer, or inventor, would dream of sacrificing even a minimum part of his construction's functional potential for the sake of making it more decorative or meeting any cultural or esthetic requirement whatsoever. The splendid development of mechanical arts displays the exact opposite. Liners, automobiles and railway stations have gained in artistic expression precisely because their architecture was more conditioned by the needs they fulfilled'.

'Architect! Do not copy the shape of the machine, but learn the lesson of the *konstruktor*', slogan in *Sovremennaia arkhitektura*, n° 3, 1926.

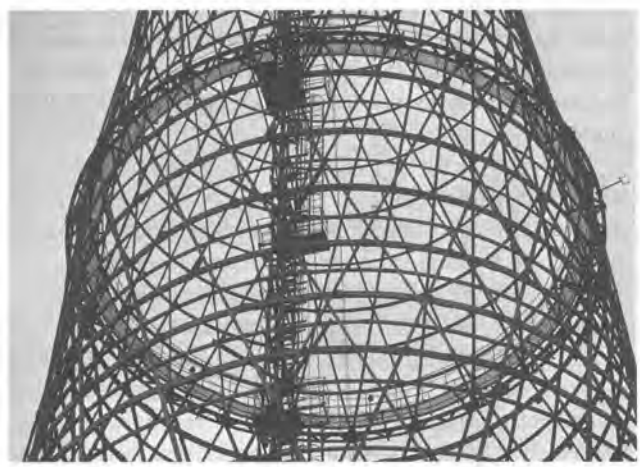
Boccioni deals in this text not only with the large buildings of the industrial era, but also with various technical objects produced by the culture of engineering. The observation of these objects is a key aspect of Russian constructivism, perhaps the first artistic and architectural movement that draws directly its name from the world of technology. The term 'constructivism' itself doesn't derive from building construction, but from *konstruktor*, that denotes the specialized engineer dealing with mechanical objects.

Russian avant-garde

Initially trained as an engineer, the 'founding father of constructivism' Alexander Vesnin writes in 1922 a 'credo' for the Institute of Artistic Culture, in which he stresses his aim of discovering an architectural equivalent to the experiments of his artist friend Lyubov Popova and of theater director Vsevolod Meyerhold aiming at creating on stage Taylorized 'biomechanics'. For Vesnin, the 'modern artist' must therefore create objects which 'match the vigor and intensity' of the 'brilliant objects' of the engineer – 'bridges, locomotives, airplanes, cranes'.
In 1924 Moisei Ginzburg gave such considerations broader expression with his book Style and Epoch, a manifesto whose form and presentation owed much to Le Corbusier's *Vers une Architecture*. Ginzburg's approach was based on readings of Wölfflin and other European historians: if every age is mirrored in a specific 'style' and follows a predetermined trajectory, the problem is for him to identify that of the present, which is necessarily inspired by the machine. Ginzburg went further than Vesnin in that he based the criteria for a new æsthetics on the machine's intrinsic articulation; he parodied Leone Battista Alberti in asserting that 'there is no part or element of the machine which does not occupy a precise position and whose role in the device as a whole is not the product of absolute necessity'.
Despite the retrospective perception that the Russian avant-garde had only a limited range of technical means and engineering resources at its disposal, a fruitful relationship developed between some architects and some engineers. The central figure is then Vladimir Shukhov, who could rightly be called the Russian Eiffel, and who had already erected innovative metallic structures before the Revolution, using in particular hyperboloids. Shukhov is the designer of the Komintern wireless antenna in Moscow in 1922 and of several advanced truss roof structures for buildings by Konstantin Melnikov. Not only did the constructivists establish the *konstruktor* as a role model, but they also shared the cult of the entire Soviet society for industrial production. This celebration of industry not only as a social necessity but also as an ethical construct had indeed many effects.

Taylorized production

But, far from being the only field in which systemic, structural and formal references are sought, building technology and purely structural issues remain here in a relatively distant background. I would thus leave aside the consistent pursuit of industrialization in the building process, a strategy characteristic of radical architects, and also quite often of traditionalist designers, to insist on the inspirational value taken by the productive process itself. With the rationalization policies implemented in America by Frederick Winslow Taylor and his partners such as Frank and Lillian Gilbreth, dealing with the rethinking of the workstation, and more global structural change in production and consumption introduced by Henry Ford, a new type of engineers appear. In the era of 'scientific management', the engineer is no longer a designer or a builder, but he takes control over the planning and the entire material organization of the productive task.



Vladimir Shukhov, wireless antenna of the Komintern station, Moscow, 1922. Photo: Jean Louis Cohen.

Nous observons *un des ouvriers de cette équipe, dès sa rentrée.*

Nous notons *à la suite les unes des autres, de la façon la plus détaillée possible et* avec les temps qu'elles prennent, *toutes les choses qu'il fait dans sa journée; travail, arrêts, attentes, etc.*

(*Voir annexe pages 14 à 16.*)

Nous cherchons *ensuite tout ce qui n'est pas du travail productif.*

Nous nous demandons *pour chaque chose :*

— Est-elle nécessaire?

Si non, nous la supprimons.

Si oui, nous essayons de diminuer le temps d'exécution par une meilleure organisation du travail.

Michelin, propaganda brochure for the teaching of Scientific Management, approx. 1925.

The fantasy of a total mastery of movement, space and their relationship is borrowed from the scene of production and governs architectural designs such as Grete Schütte-Lihotsky's Frankfurt kitchen or Barshch and Vladimirov communal housing schemes for Stroikom in Moscow. The 'functional design method' suggested by Ginzburg in 1927, perhaps the most complete statement of constructivism in this area, is based on taylorized production, less understood as a paradigm than as a syntagm, i.e. a principle for the sequential assembly of space and equipment.

In parallel to the observation of the modernised process taking place inside the factories, radical architects ground their reflection in the observation of the mechanical objects produced by industry. Contrasting with the 19th Century rationalists, preoccupied by issues emerging from the combined fields of history and biology, such as the skin/skeleton dilemma, architects consistently try after 1900 to extract technical objects from their original and prosaic environment, in order to bring them into their own world of fantasies. They try to learn and preach their 'lessons' or their 'laws'.

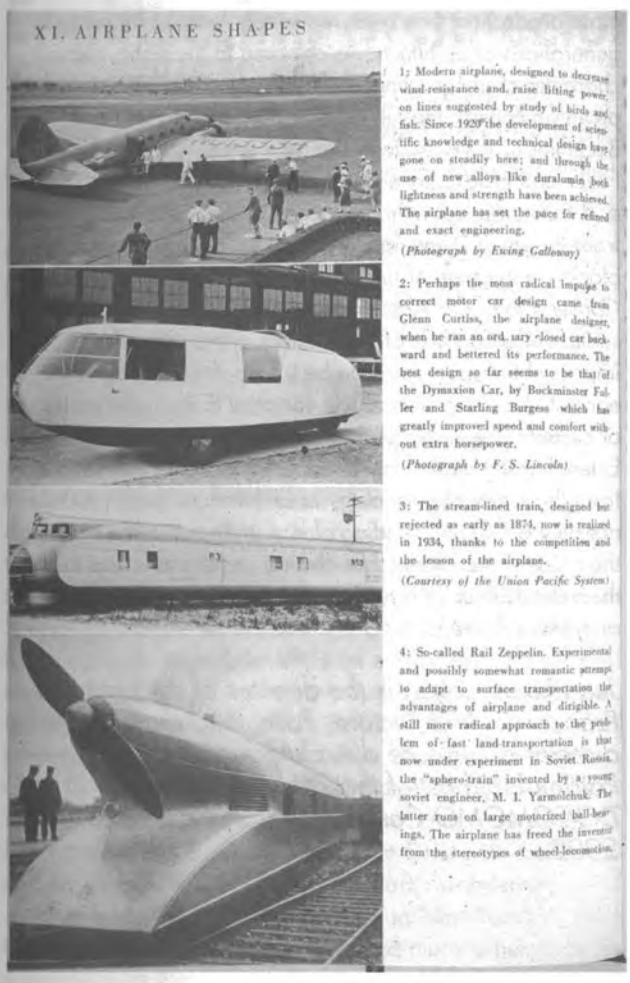
Visual identification

The displacement of specific technical objects, such as the automobile, the airplane or the ocean liner towards architecture is integral to the doctrine of the major avant-garde groups, and takes a new importance in the 1920s and 1930s, in relationship with the transition discussed in 1934 by Lewis Mumford in *Technics and Civilization* from what he defined, in accordance with Patrick Geddes terminology, the 'paleotechnic' to the 'neotechnic' phase. In the course of this transition, new objects take the lead inside the technological field itself, such as the aircraft. In the view of Mumford, the most radical designers of automobiles are for instance Glenn Curtiss and Richard Buckminster Fuller, who are deriving their projects from the calculation methods, the metallurgical alloys and the shapes used in aeronautics. He comments on the reproduction of an airliner: 'Modern airplane, designed to decrease wind resistance and raise lifting power, on lines suggested by the study of birds and fish. Since 1920 the development of scientific knowledge and technical design have gone on steadily here. [...] The airplane has set the pace for refined and exact engineering.'

The posture of modern architecture is less to celebrate the aesthetic value per se of objects that 'eyes do not see', to return to Le Corbusier's slogan, than to underline the sense of economy they embody, in relationship with the rationalisation of production management already mentioned or the requirements of wartime strategies, and to praise their performances. There is at the same time an undeniable process of visual identification. In the age of photographic reproduction, architects indulge in images of themselves in front of automobiles, in the pilot's seat of an airplane or on the deck of a liner, as if the virtues of the object could be magically transferred to its driver or its passenger through a metonymic operation.

Machine Age

One sees that the rhetoric modalities of the displacement from machine to building are manifold. The use of profiles and volumes borrowed from the ocean liner can convey the meaning of speed and efficiency, and belong to the order of metaphor. In a different perspective, the dismantling of the ship into fragments such as the porthole, the metallic handrail or the ventilating snorkel can carry on the displacement at a smaller scale, and belong to the order or



XI. AIRPLANE SHAPES

1: Modern airplane, designed to decrease wind-resistance and raise lifting power on lines suggested by study of birds and fish. Since 1920 the development of scientific knowledge and technical design have gone on steadily here; and through the use of new alloys like duralumin both lightness and strength have been achieved. The airplane has set the pace for refined and exact engineering.
(Photograph by Ewing Galloway)

2: Perhaps the most radical impulse to correct motor car design came from Glenn Curtiss, the airplane designer, when he ran an ordinary closed car backward and bettered its performance. The best design so far seems to be that of the Dymaxion Car, by Buckminster Fuller and Starling Burgess which has greatly improved speed and comfort without extra horsepower.
(Photograph by F. S. Lincoln)

3: The stream-lined train, designed but rejected as early as 1874, now is realized in 1934, thanks to the competition and the lesson of the airplane.
(Courtesy of the Union Pacific System)

4: So-called Rail Zeppelin. Experimental and possibly somewhat romantic attempt to adapt to surface transportation the advantages of airplane and dirigible. A still more radical approach to the problem of fast land-transportation is that now under experiment in Soviet Russia, the "sphero-train" invented by a young soviet engineer, M. I. Yarmolchuk. The latter runs on large motorized ball-bearings. The airplane has freed the inventor from the stereotypes of wheel-locomotion.

Top left:
Lewis Mumford, Technics and Civilization, 1934.

Bottom:
Robert Derrah, Coca-Cola factory, Los Angeles, 1937.
Photo: Jean Louis Cohen.

synecdoche. This strategy will remain a salient feature of high-tech aesthetics in last decades of the 20th Century. If the machine is in itself a fetish, that is an index of the Industrial Age, we are dealing here with another scale of fetishism, as the repetition of the detail points to an infatuation with the full technical object. The configurations according to which technical objects and their conditions of emergence are read and displaced towards architecture culture deserve a detailed reading. Interpretations can be grounded in a careful reading of projects and of buildings, where specific forms are recycled and used, as well as in many texts. From the early rationalist positions of Viollet-le-Duc and the adventurous prophecies of Horatio Greenough to the preaches of the avant-garde, that range from provocative statements such as the Swiss magazine *ABC's* request for a 'dictatorship of the machine' to the detailed analysis of specific objects, a broad spectrum of discourse deserves to be put under closer scrutiny.
Several methods are available to develop new analyses of an extremely interesting issue, beginning with the establishment of a usable historiographic framework. Fundamental interpretations of architectural ideologies and strategies remain in this perspective the quintessential and witty reflections of Reyner Banham in *Theory and Design in the First Machine Age* (1960) and *A Concrete Atlantis: U.S. Industrial Buildings and European Modern Architecture* (1986) and those of Adrian Forty in *Objects of Desire: Design and Society since 1750* (1986). I would also mention, besides Lewis Mumford's seminal writings, the genetic approach of French philosopher Gilbert Simondon in *Du mode d'existence des objets techniques* (1958), where the passage from 'abstract' objects, shaped with preexisting components, to 'concrete' objects integrating all the parts in a whole is discussed. The narratives of American technology historian Thomas P. Hughes in American Genesis; *A Century of Invention and Technological Enthusiasm* (1990) point out to specific features of the American material culture.

Theoretical status of invention

One could write a refreshing historical narrative discussing the significance of the naval model. This particular model has been discussed by Christian Girard *(L'architecture et ses concepts nomades, 1986)* or Gerd Kähler *(Architektur als Symbolverfall, der Dampfermotif in der Baukunst, 1981)*, or even by Hubert Damisch in his consideration of the article 'Ark' in Diderot's and d'Alembert's *Encyclopédie ('L'Arche de Noé', Critique, ° 476-477, 1987)*. Yet there are many overlooked issues in the translation to the realm of the building of the general organisation and the minute features of the big ship. The discussion of the major interpretations suggested in the field of the history of technological culture has to be crossed with the investigation of the changing patterns of form transfer.
If one takes the case of the automobile, the relationship is a complex and difficult one, in which architects' attempts at intervening in the design process of motor cars has been nothing but a series of failures, from Walter Gropius to Renzo Piano. On the other hand, the 'lesson' of the automobile in terms of interior compactness, of integration of mechanical and structural features and above all in terms of mass production, has been repeatedly learned by several generations of architects. As opposed to the static, massive, character of the building, the automobile has represented a powerful counter-model, promoted as such by Richard Buckminster Fuller or Jean Prouvé.
Fuller and Prouvé have also learned the lesson of the aircraft, and have applied their knowledge of airframes to buildings, from the small Dymaxion structures to the facades of large blocks, in the case of the Frenchman, whose lectures at the *Conservatoire des Arts et Métiers* in the 1960s reveal the subtle understanding of aeronautics. More recently, the impact of the spaceship can be traced, from Archigram's earliest 'Amazing stories' like cartoons to the more recent use of capsules by Jan Kaplicky.
Extending the inquiry on this series of parallel translations from the realm of technology to architecture could produce not only a different reading of key strategies in the history of the Modern Movement, but also an investigation into the theoretical status of invention and creativity in the process of architectural design.

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Engineering architecture – past and future

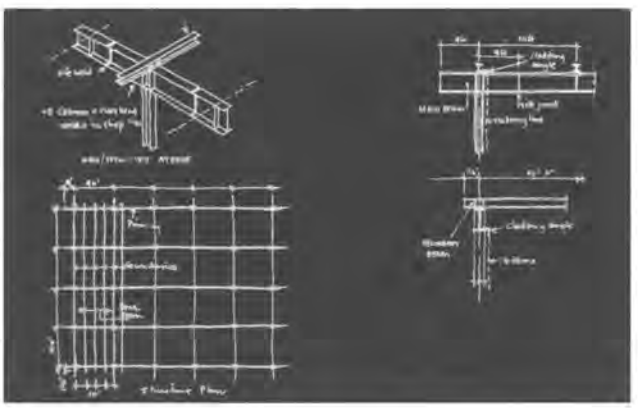
Anthony Hunt and his office have for nearly forty years been producing structural engineering that is celebrated for its visual quality and its technical elegance. However, one of Hunt's greatest achievements is the part that he has played in redefining the relationship between architects and engineers. Hunt has challenged the traditional role of the engineer by working with architects as part of the design team from the very conception of the project throughout the entire design and construction process.

by Anthony Hunt

In the 19th Century, in Britain, Europe and the United States of America, a number of the most important landmark buildings and structures were designed by engineers with no architect involvement. Out of the many that were built in Britain, almost all of which still exist, examples are: Paddington Station, London, by Brunel, and St Pancras Station, by Barlow and Ordish, the Saltash Bridge, also by Brunel, which is an extremely clever engineering design, numerous wrought iron conservatories including Bicton, and the Forth Rail Bridge. The scene had been set in 1851 by the construction, in only nine months, of the Crystal Palace in London's Hyde Park designed by Joseph Paxton, the Duke of Devonshire's head gardener.
In France there is the work of Gustave Eiffel with the Tower and the Garabit Bridge, Robert Maillart's wonderful concrete bridges in Switzerland and, in New York, Roebling's Brooklyn Bridge. These and many other examples from the 19th and very early 20th Century are 'Engineering Architecture'.
There was then a reaction in Britain against the so-called 'ugliness' of these structures which resulted in the separation of the two disciplines of engineering and architecture which lasted for some 50 years. The development of the Modern Movement in architecture saw the beginnings of structure becoming a part of architecture again although very often only in a superficial visual way. The 'White Architecture' of the 1920s and 1930s houses was sometimes not as structurally honest as it appeared to be, 'structural' walls actually being constructed in rendered block.
Three pioneering structural engineers in Britain saw things differently and became the forerunners of a very real collaboration between engineer and architect. These were Owen Williams (the Boots Factory), Ove Arup (High Point) and Felix Samuely (St.Clement Dane School). It was largely through these three engineers, each in their own way and through their interests in architecture and the whole building; that today, in many designs, it is difficult to determine 'who designed what'.

Prefabrication

It was in the late 1950s and early 1960s that other designers and visionaries were beginning to influence the few engineers who were already interested in the broader design picture. Interestingly, several of them were neither engineer nor architect. Konrad Wachsmann, originally from Germany, taught at UCLA in Los Angeles and was a specialist in jointing systems, prefabrication, and large scale structures, and was a cabinet maker by training. Buckminster Fuller, an American, was one of the great inventors of the 20th Century. He was a polymath and his two greatest contributions to engineering architecture were the Dymaxion House and the invention of Geodesic geometry leading to Geodesic domes. In the area of pure buildings, the architect Fritz Haller with his very precise repetitive structural systems was also an influence.
From this point on a number of the new generation of engineers came to the fore and were influenced by developments in concrete and timber shells, steel space frames and the membranes and cable nets being developed by architect Frei Otto at the IL Stuttgart.
Prefabrication became a fascination and a goal for some engineers around this time with some very interesting developments, which were followed, sadly, by some failures, one of which was catastrophic. Ronan Point, a block of flats in London, was constructed in a precast concrete large panel system.
A gas explosion in a flat caused the cascading collapse of one whole corner of the building, and this largely put and end to the development of prefabrication in the UK for many years.
Looking back into the 19th Century, a large number of 'engineering' structures were prefabricated, using repetitive elements in clever ways and with clever joints.
This long history of innovation has begun to be repeated in the last twenty or so years and has been developed as a philosophy amongst a number of engineers and architects working very closely together. Some examples of this from my own experience are mentioned below.



Reliance Controls Factory, 1965

Reliance Controls
The Reliance Controls Factory, Swindon, 1965, with Architects Team 4, is an essay into the design of a low cost structure for industry using the minimum number of elements and capable of extension. It consisted of just four elements – column/crosshead, primary beam, secondary beam and cross bracing. It was subsequently extended with no disruption to the work operation.

Zip-up House, 1966.

Zip-up House
The Zip-up House, 1966, with Architects Richard and Su Rogers, is an idea in advance of its time – a structural panel system consisting of an outer and inner skin of aluminium with a core of rigid eurethane foam. There was no structural armature, the panels were the structure forming a rigid 'hoop' with linking gaskets in neoprene.

IBM Portsmouth, 1971.

IBM Portsmouth
The structure for IBM Portsmouth, 1971, with Architect Foster Associates, what was to have been just a temporary building is the refinement of previous ideas. It consists of simple constant depth primary and secondary steel lattice girders on square steel columns. The frame system was designed and developed into a 'performance specification' which was sent out to ten manufacturers for bids. The resulting frame was erected by fork-lift truck in two weeks. To keep the structural frame as light as possible, air conditioning units were positioned over the columns thus avoiding bending in the girders. The perimeter has a total glazed envelope.

Patera System, 1983.

Patera System
The Patera System, 1983, with architects Michael and Patti Hopkins, was an idea for small scale buildings, with a minimum number of different factory-prefabricated elements, simple to assemble, capable of extension and with a variety o applications. It is a very lightweight structure. The roof and wall cladding panels are also factory produced and consist o double skin pressed steel profiled panels with an insulating core. The wall and roof panels are identical and are linked b 2-way neoprene gaskets. Design and development of larger scale units was put into practice by the design and constructio of a building at Broadley Terrace, the office for the Hopkins.

Dyson Appliances, 1997.

Dyson Appliances
The office, research and manufacturing facility Dyson Appliances, 1997, with Architect Wilkinson Eyre, is base on the thinking we used many years ago on the Reliance Controls building but brought up to date and built double height to accommodate first floor areas for offices and research. As with the Reliance Controls project, the budge was tight and we used our ingenuity to produce an elega economic solution, using recent advances in curved beam which are tension assisted and which support long span metal decks with no secondary structure. This building ha already been extended by 100% repeating the same desi

and we are at present inserting a further mezzanine into a part of the double height space.

Eden Project

The latest structure from the office of Anthony Hunt Associates is the Eden Project in Cornwall with architects Nicholas Grimshaw & partners. Here is repetition on a gigantic scale following the principles of Bucky Fuller to create what is believed to be the largest group of geodesic domes in the world.

Sustainable future

The aim in all the above projects was to minimise component types, provide adaptability for future use and to allow for extension or demountability for either re-siting or recycling. The current climate is seeing a serious revival of interest in the industrialisation of buildings coupled with research into alternative non-fossil energy forms – wind, solar and photovoltaic. Energy, both embodied and in use is coming to be understood to be of real importance and in Britain both the Institution of Structural Engineers and the Royal Institute of British Architects are promoting seminars and research into sustainability, and finance is being provided by the Government.

A number of 'container' type housing schemes have been erected recently in England, sponsored by Charitable Trusts, Fabricators, and the Building Research Establishment (BRE). This certainly seems to be a route to achieve fast-built, low energy buildings for certain market sectors, i.e. affordable housing, one example of which is CASPAR II (City-centre Appartments for Single People at Affordable Rents). One of the aims of ongoing research is aimed towards transforming energy systems in order to enable a 'zero carbon' building to become a cost effective option.

Exotic materials

A more sustainable future requires a number of things where the engineers have particularly relevant skills. These are not primarily to do with analytical design methods but are concerned with the exploration and utilisation of research into new materials which are being developed in other fields such as ship and car design and at a more extreme but eventually relevant example, the aerospace industry.

At present, the more 'exotic' materials, whilst lighter and stronger than current metals and plastics, are still too costly for use in buildings but prices are coming down and it is only a question of time before some of these materials come into more general use. The School of Aeronautics at Delft University has already successfully carried out research and prototyping for metal replacements using resin/carbon fibre composites for a number of applications and it is only a matter of time until some of these materials get into the mainstream of the building design and construction field.

The synergy between different fields of engineering, with visionary engineers combining with architects of a like mind will drive sustainable innovative solutions in building for the future. The time has come for the second generation of prefabrication.

Eden Project. All images: Anthony Hunt Association, used by kind permission.

Prof. Anthony Hunt and his office have for nearly forty years been producing structural engineering that is celebrated for its visual quality and its technical elegance.

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Welcoming the unexpected guest

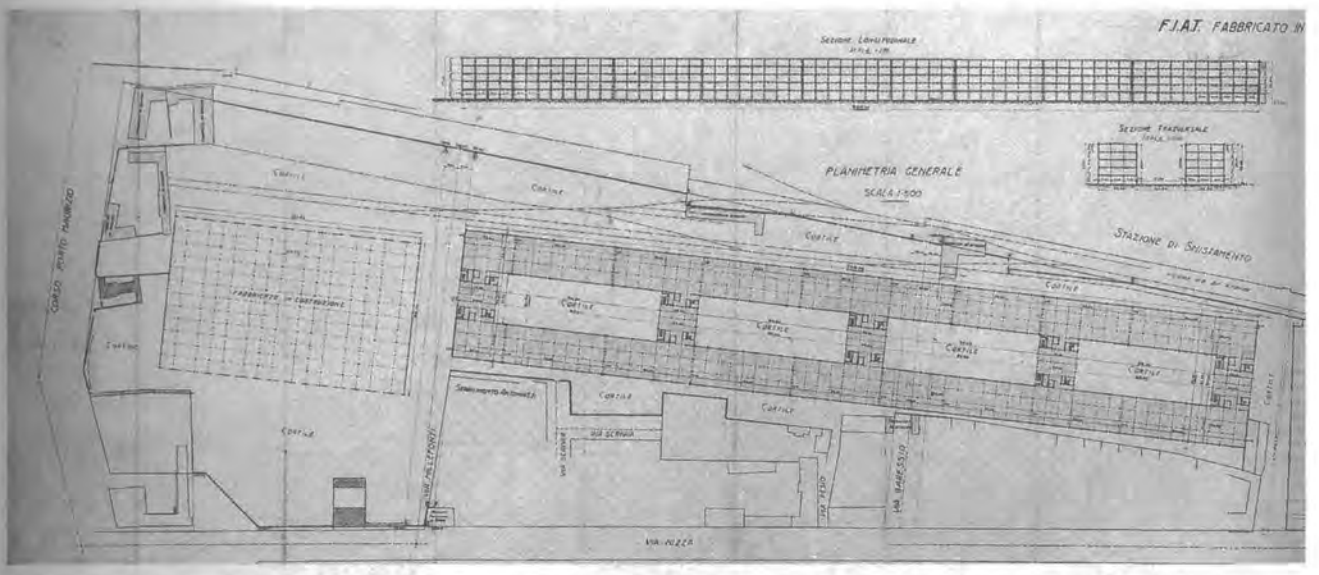
The Lingotto complex in Turin (Trucco, 1917-30/Piano, 1984-2001)

The Lingotto complex was Fiat's first large car manufacturing plant. Conceived and built under the sign of strict functionality, the production-based features of construction, space and organisation made the new plant a true symbol of modern industrial architecture. Despite the multi-purpose character of its new use, Renzo Piano's masterplan for the building left the architectural coherence of the outside essentially intact. Regarding the inside some critical questions emerge. But his project for the Lingotto has successfully suggested this immense structure to survive for our collective memory.

by Wessel de Jonge

The adaptive re-use of historically significant industrial buildings and complexes poses some typical challenges. Some of the issues that frequently emerge are their large scale, a remote location, multiple ownership, poor compatibility with contemporary workspaces, and the physical performance of the original envelope.
Some well known examples are the Van Nelle Factories in Rotterdam (Brinkman & Van der Vlugt, 1926-31), and the Boots Factory in Nottingham (Owen Williams, 1932). These proofs of industrious optimism, however encouraging their successful re-use may have been, are dwarfed by the extreme example of the refurbishment of the approx.180.000 m² Fiat Lingotto plant in Turin, that has been put to a new, multi-functional use. Over a period of about eleven years, the Lingotto complex has been transformed into a modern, multi-functional and international centre featuring a large auditorium, conference and exhibition facilities, hotels, education and research centres, offices, shopping galleries and underground parking facilities.

View of the West courtyard after Renzo Piano's intervention and before the glass roof was added, showing one transversal block and the test track on the roof. Photo: W. de Jonge.



The final plan and section of the Lingotto plant, September 1916, based on a 8x8 m grid, that has been used as a blueprint for the works. Original drawing from 'Il Lingotto 1915-1939', edited by Carlo Olmo, Turin 1994.

Scale

Salvaging a historic building often requires a persistent *aficionado* who relentlessly campaigns for its preservation and proper new use. Ideally, the new function involves an economically feasible initiative, to sustain a building's viability; a local museum or an architects studio are common 'escapes'. In contrast to new buildings, in this case the initiators take a building, and the socio-cultural assets represented by it, as a starting point, and functional and financial considerations are seen as the resulting questions to be responded. With something the size of a modern factory, with no other manufacturing purpose at hand, this may start to be a problem.

Firstly, their size may prevent a single-purpose solution, and multi-purpose strategies have to be explored. Then, to acquire and refurbish a building the size of the Lingotto or Van Nelle, the involved investments are prohibitive for the average developer, investor, or local government, and multiple ownership is mostly unavoidable. The Boots Factory, with its single ownership and single-purpose use, is a rare example of the opposite.

When buildings become obsolete unexpectedly and prompt action is required to salvage them, the circumstances are not the best to deliberate the participation in and structure of multiple ownership at great lengths, let alone to reach consensus regarding a redevelopment philosophy. In Europe, public money may seem a relatively easily accessible resource, but long-term financial commitment by local administrations is not easily sustained in election years. Remarkably, both in case of the Fiat and the Van Nelle, the former owners have been very aware of their socio-cultural responsibilities in ensuring good stewardship and appropriate redevelopment of their abandoned plants.

The above factors can have far reaching consequences for the efficiency of the redevelopment process as well as for managing the facility afterwards. Long-term planning and phasing of the redevelopment process are obvious next steps that may be seriously menacing conceptual continuity and control of architectural quality. The redevelopment of the entire Van Nelle site is expected to take at least six years. At the Lingotto, the first phase started in 1990, while the final phase is expected to be finished late this year. This 11-year period entailed some critical stages, but with the realisation of the third and final phase, for Turin University and Polytechnic, it seems that now things will turn out right just in time.

Le Corbusier's 1925 visit to the Lingotto buildings entailed their canonisation as modern architecture. In 1934, he returned and tried the test track on the roof. Period photo from Olmo, 1994.

The original assembly lines at the New Workshops of the Lingotto complex in Turin. Note the floor beams with indents for the driving gears of the machines. Period photo from: Olmo,1994.

Urban context

Although industrial heritage of the earlier phases of the Industrial Age may be found within the inner cities, this is rarely the case with the large scale 20th Century plants that were geared towards mass production. The proximity of railway tracks, harbours, canals, or motorways, which was instrumental for an efficient distribution of products, caused industrial plants to be founded at the outskirts of the urban centres. Aspects of urban and physical planning in such cases are inseparable from any redevelopment initiative, including lengthy procedures to change zoning plans and infrastructural decisions.

Although today often enclosed by urban extensions, these areas rarely stand out in terms of easy access and public transport, which means a serious limitation in feasible economic activity. The Lingotto is quite well connected with down town Turin, but here the question was when people would be ready to make the trip. Phasing of and unintended delay in the redevelopment process implied that the shopping gallery had to keep itself going with about half of its planned outlet for over two years – a period that not all of the shops survived.

It is therefore vital that the new function is not only compatible to the original structure, but just as well with the urban context, in economic, planning, social, and infrastructural terms

The Lingotto

The most important buildings of the Lingotto complex are the clearing workshops, the so-called New Workshops which accommodated the actual assembly lines, and the office building.

It was Fiat's first large car manufacturing plant, built between 1917 and 1930 after a project by Giacomo Mattè Trucco and structural engineer Bonadé Bottino. Conceived, designed and built under the sign of strict functionality, the structural and technological solutions of the Lingotto factory are in keeping with the state of the art in engineering of the time. The production-based features of construction, space and organisation made the new workshops a true symbol of modern industrial architecture.

The five-floor main workshop building is formed of two longitudinal volumes, joined together by five transversal blocks leaving four inner courts. The long volumes housed the various production lines for the manufacturing of automobiles, while the other services are concentrated in the transversal blocks.

The clearing workshops covered a rectangular area to the West of the main volume, comprising a multi-storey block for testing, maintenance and other services, and one-floor sheds for the actual processing of raw materials.

The office building to the South was built to accommodate management, administration and educational departments. The structure is strictly functional with a central corridor and rooms on either side.

The outer facing of the buildings is plastered, and enhanced with classical decorations typical for the period, such as columns, capitals and cornices. Together with the varied window designs these elements followed an architectural composition that emphasised – according to the architectural

language of the time - the rationality of the scheme.
In 1925, helicoidal ramps were added at both ends of the main building, in order to allow finished cars to be moved up to the roof. The workshop volume was topped by the famous test track, that forms a one kilometre circuit for testing cars as they leave the assembly lines. This feature completed the processing cycle within the factory and became a symbol for the rational character of the building's design. Soon, they assumed an international status as a symbol of the new spirit, recalling Le Corbusier's enthusiasm expressed in his book *Vers une architecture* in 1923.

Fair business

The adaptive re-use project was master planned by Renzo Piano and his studio, after winning an international competition in 1984. Since, he has been in charge of the outside refurbishment as well as the larger part of the inside conversions of the main building. The renovation plan for the office building was drawn up by Gabetti and Isola architects.
The Lingotto Conference Centre has been designed to accommodate many different events, providing small meeting rooms to large convention halls. The core of the conference facilities is a magnificent auditorium, that has been dug out in one of the courtyards. As its ceiling, stage and seats are variable to change seat capacity and acoustic properties in a matter of minutes, the auditorium doubles as one of Turin's best concert halls.
The conference facilities are linked to the exhibition centre *Lingotto Fiere* that is located in a series of 1970s low rise halls that have replaced the former clearing workshops. A special feature of the Conference Centre is *La Bolla*, a panoramic 25 seat VIP lounge on the roof. The Ø 14 m and 8 m high spherical volume is connected with a helicopter platform, joined together by a daring steel structure balancing on top of one of the transversal blocks. Its crystal and steel structure allows a splendid view of the nearby mountains and the test circuit on the roof.

Hotel

The hotel is arranged around a lush garden, described by Renzo Piano as 'one of the unexpected guests' of the building. The 240 guest rooms are on the second, third and fourth floors of the North-central part, separated from the ground floor entrance lobby, restaurant and bars by the shopping gallery. The facade of the hotel section features the same full size windows that characterize the entire main building. That many sets of two bays are actually subdivided into three rooms is concealed by clever details and appropriately applied colours. In contrast, the interior of the upper floors do not seem to have any relation at all with the original building. The internal central corridors are without daylight and could be in any other international business hotel. The design furniture and red wood wall panels indeed create an atmosphere of sophistication and warmth, appropriate to a modern hotel, but quite alien to the original character of the building.
The offices on the upper floors of the South-central part provide 40,000 m² of rational spaces for private companies and research institutions. With a clearance of 3.85 and a modular structure, they can be easily divided into smaller units.

The shopping gallery has been cut out behind the concrete-framed facade and runs over the full length of the building. Photo: W. de Jonge.

Public spaces

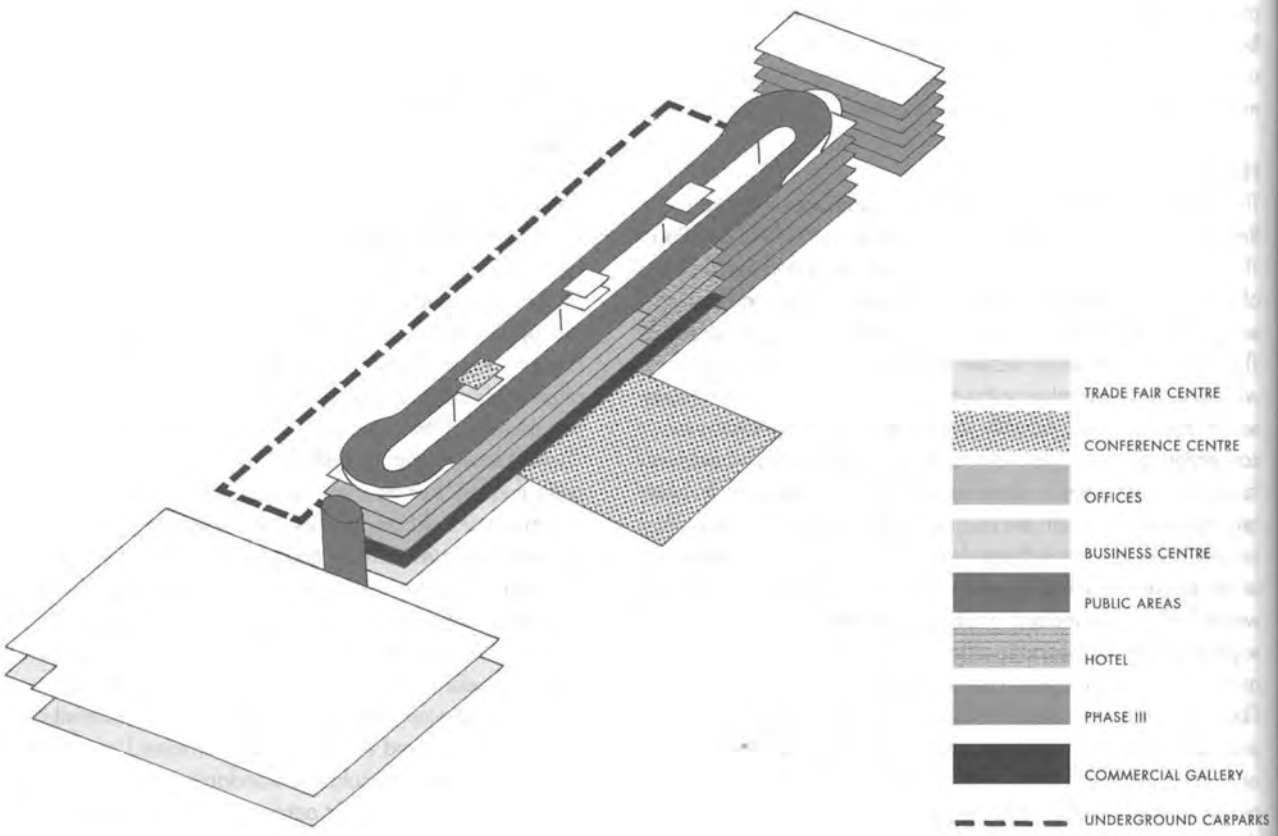
The main public spaces of the Lingotto complex are the shopping galleries on the first floor. Along the courtyards on top of the ground floor functions, the galleries are cut out behind the concrete facade structure of the workshop wings. The two most Westerly and the Eastern courtyards were designed as open spaces, paved with concrete tile, sculptures, outdoor stages, planters and trees. To counter the disappointing commercial results of the shopping galleries these courtyards have now been covered by a steel-and-glass roof, designed by a French architect specialised in commercial space, and paved with polished stone.
The outdoor shopping galleries as conceived by Renzo Piano were thereby transformed into an indoor shopping mall, and lost much of their original identity. The horizontal glass roofs met with critique, as they easily collect waste and dirt.
The fourth courtyard has been transformed into the garden. The green area between the buildings and the railway tracks, on top of the underground parking, has been planted with various trees. Like the plaza towards via Nizza, these gardens are accessible to the public. The substantial amount of public green and outdoor space remained insufficient to meet the planning regulation standards, which has been solved by allowing public acces as well to the ramps and circuit on the roof.

The spherical VIP-room, balanced by a helicopter platform, on one of the transversal blocks. Photo: W. de Jonge.

Coherence

One of the great merits of Piano's plan is that, from the outside, the Lingotto main building to a large extent kept its coherence, despite the multi-purpose character of its new use. The choice for a uniform type of window regardless of the functions behind it, has been instrumental as it lends the facades a quiet serenity, that suits the enormous scale of the building. One may regret that all the original steel-framed windows have been done away with, though Piano's newly designed elements are elegant, integral hi-tech solutions, that beautifully combine vision panels, vents and sunscreens. It is to be hoped that these one-off custom designed window elements can be easily remade whenever for some reason one needs to be replaced.

To maintain the architectural coherence inside has proven to be a harder job. The various atmospheres of the fairs and



The original steel framed windows as found in the existing building, featering 4x12 panels, were irreversibly lost. Photo: W. de Jonge.

convention centre, the hotel, the university areas and the standard offices, apparently made for different clients, are rather divergent. Despite the sophistication of Piano's interior design – the large auditorium must be mentioned in particular – not all of the adopted interior styles seem to match the architectural character of the original building so well. In that respect, the best 'spaces' were actually the open courtyards, that are now closed off.
The critical phase for preserving the architectural comprehensiveness of any project this size is arguably the mid and long-term development, after the initial stage of reconstruction and restoration is concluded. What comes next strongly depends on effective facility management procedures regarding the individualisation of rented space, including lighting, advertising and so on, and effective incentives for maintenance and upkeep. Though unfavourable, it may require longterm involvement of heritage authorities or even the architect to ensure architectural coherence. In the case of the Lingotto the decision was even made to include Piano's masterplan in the formal designation of the historic building as architectural heritage.

Climatisation
Upgrading a factory facade to suit the performance requirements of office spaces, hotels or meeting rooms is critical. The original envelope is essentially designed to shield people who perform physical labour from the outdoor climate. At the Van Nelle, the heat production of machines, artificial light and labour force was almost sufficient to heat the workshops, and energy loss through single glazing was not of primary concern.
New functions as well as the increased standards for energy consumption, climatisation and interior comfort call for a serious reassessment of such a building's physical performance. Then there are essentially two options: either you leave the envelope as it is, and add a secondary shield inside (Van Nelle) or outside (SVVA Building at Basel, Switzerland, 1988-93, by Herzog and De Meuron), or you start working on the original skin.
The latter choice has been made for the Lingotto, which explains the strategy to replace the original windows by double-glazed thermally insulated aluminium frames. Architecturally speaking the facades of the Lingotto, with the predominant presence of its frames of plastered concrete, can 'bear' this intervention much better than the Boots Factory for instance, where the delicate all-steel-and-glass envelope was easily spoiled by grey-tinted glazing.
The consequence of this strategy has been, however, that also the concrete parapets and columns had to be thermally insulated. False walls have been added on the inside around the concrete parts of the facade, increasing the width of columns by approx. 200 mm. Given the fact that also the outside of the concrete work was completely replastered after consultation of the heritage authorities, at this point the

Renzo Piano's beautiful design of the replacement windows, intelligently integrating vision panels, vents and sunscreens, but featuring 4x10 panels in a different proportion.
Photo: W. de Jonge.

Mock-up of third phase interiors, showing false ceilings, double floors, and glazed partitions. Left, one of the tested 'computer floor' systems. Photo: W. de Jonge.

question emerges how much of Trucco's authentic building we actually perceive.
Ventilation supplies are effectively concealed by false ceilings, and the air ducts are cleverly routed through the existing indents in the beams, that originally served the driving gears for the factory machines. Today's services rather involve electricity, communication and data networks, and the offices, meeting rooms and educational facilities on the upper floors are fitted with a double 'computer floor' so as to allow future changes in cabling. The combination of all these additions has a strong impact on the inner spaces, as the original proportions of window openings, parapets and ceiling heights are seriously compromised.

The adopted thermal insulation strategy implied all concrete parts in the facade to be covered by insulation foam and plastered heraklith, loosing the original texture and detailing of the structure. Photo: W. de Jonge.

Phase III

The restructuring of the 76,000 m² Northern section to complete the multi-functional centre is currently underway, again planned by Renzo Piano and studio. This section will include several new functions, involving education, research, a hostel and a large cinema theatre.
A training and research centre for automotive engineering will be managed by the Engineering Faculty of the Turin Polytechnic, supported by the Fiat company. This pilot project is aimed at education in industrial management, research and development for the car manufacturing industry. When fully operational, a total of 500 students is anticipated. Secondly, a centre of excellence in dentistry and facial surgery has been set up by the Faculty of Medicine of Turin University, expected to employ about 580 people.
In addition to these educational facilities, the last phase is to involve a 250 bed accommodation for social, cultural and youth tourism that will be managed by the city of Turin. Fit for long and short stays, the hostel involves both group accommodation and 2-4 bed units, and makes use of the conference rooms and catering facilities of the multi-functional centre.

Similar to the South-central courtyard with the auditorium, the Northern courtyard has been dug out to accommodate a multiplex cinema theatre with 11 screens and a total of 2,500 seats. The complex will be run by the French Pathé Group that owns similar multiplex facilities in France and Holland. The shopping gallery runs over the full length on the first floor, connecting the four inner courtyards and gardens. This combination of functions is expected to have mutual benefits and may prove to be the necessary impulse to boost the Lingotto's success.

Old and new

Drawing conclusions from this ambitious project to revitalise the Fiat plant leaves one with mixed feelings. At the level of design authenticity, spatial characteristics and integrity of the original materials, particularly on the inside, Piano's interventions have been quite radical. To various degrees, depending on which part of the building you are in, Piano's presence is predominant. It is thanks to his masterly skill that most of the interior spaces attained their own particular architectural and spatial quality, albeit quite independently from the original building, and his joy of design produced many remarkable and beautiful details, like light fixtures, glazed elevators and railing details.
The greatest merit of the Lingotto project however is the fact that it has successfully assisted in the very survival of this immense building complex. Although the Lingotto initiative went through some though times over the years, on balance the result has a positive effect on the building, the neighbourhood and the city as a whole. The confident way in which Piano deals with 'the unexpected guest' in architectural heritage – the jogging track on test circuit, *La Bolla* and the gardens – contributes greatly to enjoy his work on salvaging essential parts of the past for our collective memory.

Wessel de Jonge is a practicing architect in Rotterdam, The Netherlands, and a member of DOCOMOMO-NL and the Specialist Committee on Technology.

TICCIH

The International Committee for the Conservation of the Industrial Heritage

The International Committee for the Conservation of the Industrial Heritage was established in 1978, in Sweden, during the 'Third International Conference on the Conservation of Industrial Monuments', previous conferences having been held in Ironbridge (England) 1973 and Bochum (Germany) 1975.

TICCIH has national representatives and correspondents in 49 countries including Argentina, Australia, Austria, Belgium, Canada, Costa Rica, Czech Republic, Denmark, Egypt, Eire, Finland, France, Germany, Great Britain, Greece, Guyana, Hungary, India, Israel, Italy, Japan, Jordan, Kenya, Latvia, Luxembourg, Mexico, The Netherlands, New Zealand, Nigeria, Norway, Pakistan, Philippines, Poland, Portugal, Russia, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Tanzania, Thailand, Turkey, Uruguay, USA, West Indies, Zambia and Zimbabwe. TICCIH is endeavouring to establish contacts with other countries not mentioned above. TICCIH's aim is to promote international co-operation in the preservation, conservation, investigation, documentation, research and presentation of our industrial heritage, and to promote education in these matters. This includes the physical remains of the industrial past, such as landscapes, sites, structures, plant, equipment, products and other fixtures and fittings, as well as its documentation, consisting of both verbal and graphic material, and records of the memories and opinions of the men and women who have been involved. TICCIH organizes every three years, a general conference, during which policies and problems are discussed. In 1994 the conference was held in Canada and in 1997 the 'Seventh International Conference on the Conservation of the Industrial Heritage' was held in Greece. The conference in 2000 was held in the U.K. to commemorate 25 years of TICCIH. In between these general conferences TICCIH organizes interim working conferences on special subjects related to the industrial heritage. TICCIH publishes a quarterly newsletter, which includes news about meetings and conferences, announcements of coming events, reports, bibliographic information, abstracts and reviews. It also includes information about new museums, conservation and restoration initiatives, the results of recent research work, etc. TICCIH has links with other international bodies such as ICOMOS, ICCROM and the Council of Europe and seeks to strengthen this co-operation. TICCIH has individual members in some countries but where a strong national body already exists, it works through that organisation.

Further information can be obtained from The Secretary at Chygarth, Beacon Terrace. Camborne, Cornwall, UK, TR14 7BU. T/F: 00 44 (0)1209 612142.

From product to process

The Van Nelle Factories in Rotterdam (Brinkman & Van der Vlugt, 1928-31)

In the glorious epic of the *Neues Bauen*, Dutch-style, the Van Nelle Factory will stand as a manifesto of functional rationality and one of the finest architectural achievements. But the renovation and reuse of this complex also seem destined to establish a new milestone. On the one hand due to the vast critical clout mobilised to identify the monument's essential and crucial qualities, so as to avoid reducing the operation to its purely material level. On the other hand as a result of the 'managerial' strategies adopted to guide the future re-use of the buildings by a multitude of different prospective occupants whose requirements would seem, a priori, to have nothing to do with the Van Nelle's original function or with its socially violent surroundings.

by Bruno Reichlin

Although inherited in surprisingly good repair, the Van Nelle plant was not a perfectly circumscribed, easily convertible object. On the contrary, it is an immense complex occupying some 60,000 m² and, in terms of inhabitability, it had little to commend it. Yet, it certainly posed a true challenge in terms of development, in a country like Holland where zones still available for expansion have been rigidly defined, and where the big contractors and real estate developers are increasingly focussing on the recycling of existing industrial areas, obsolete harbours and rail yards.
The Koninklijke Volker Wessels Stevin (KVWS) in co-operation with Property Conversion - the consortium that emerged victorious from the laborious consultations piloted by, among others, the national and municipal Departments for Conservation of Architectural Heritage - acquired the entire complex in 1998 to convert it into the Van Nelle Design Factory. In other words, into a design and communication centre to house 75-100 small and medium spearhead businesses active in IT and ICT, design, graphics, new media, advertising, architecture, and so on.
Fortunately in The Netherlands the rehabilitation of modern architecture is perceived as a mission, the responsibility of

Van Nelle Design Factory. The match of the new lighting system with the historic lighting characteristics was convincing. To the left the office building, still fitted with the 1970s lighting fixtures. Photo: Sybolt Voeten architectuurfotografie.

both public and of private bodies, and is now widely accepted by the general public.
A series of workshops organised in 1997-98 called restoration experts, historians and architects from all over Holland to Van Nelle's bedside, to brainstorm about strategies for the building to survive, after the owner had announced - quite thoughtfully already in 1995 - that the company would abandon the premises by 1998.
As they realised that you cannot put a complex of this size under a glass dome, the National Department for Conservation decided to make their own diagnostic study, coined Culture-Historical Survey, as a next step. Their study provided exhaustive and precise documentation on the history, the program and, of course, the construction of the complex. More importantly, it identified 'risks' (for the cultural value) and 'chances' (for redevelopment) for the Van Nelle complex, and thus set a standard for the development of a plan which courageously designates and distinguishes, with a scale of values from I to IV, the monumental importance of the various buildings or parts of buildings.

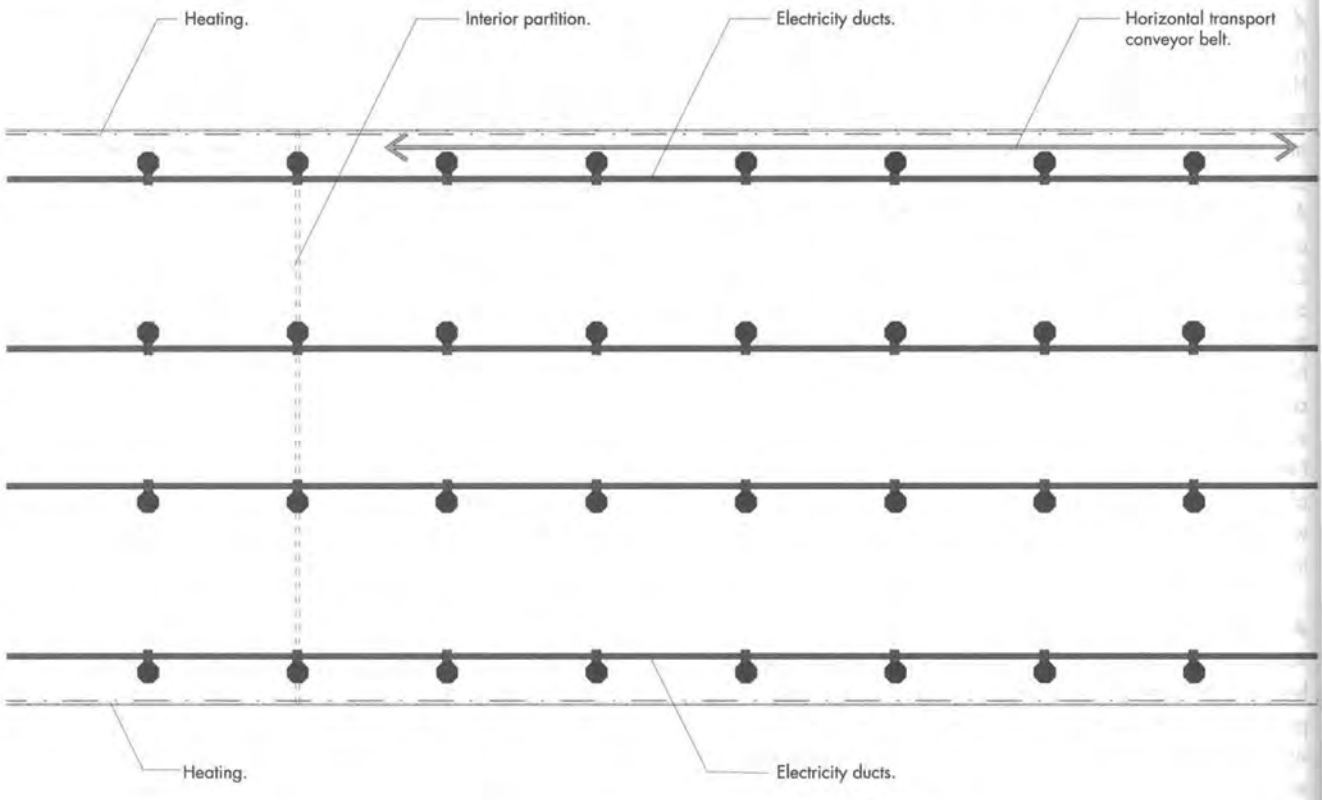
A model of rational organisation

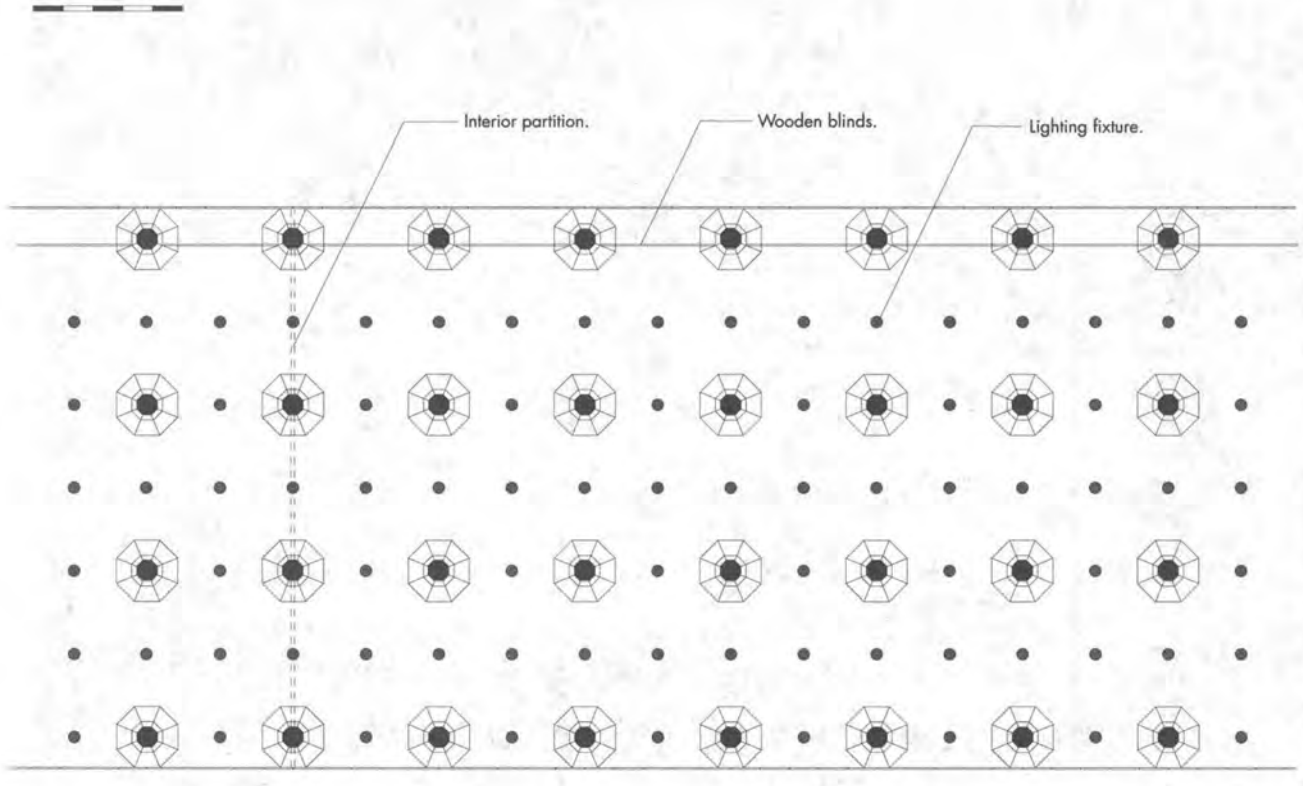
After its completion in 1931, the Van Nelle represented the height of functional quality. Kees van der Leeuw, the proprietor, and client of the architects Jan Brinkman (1902-49) and Leen van der Vlugt (1894-1936), was a labour-efficiency expert well-versed in the Taylorist and Fordist models, based on first-hand observation following his first trip to the United States in 1911. The vertical stacking of functions and the goods cycle (reception, quality control, processing, packing and shipping) based on the systematic use of elevators and conveyor belts, were inspired by American assembly line models.
During the design phase, two construction solutions were compared. That of the engineer called for longitudinal tie-beams over the shortest span, and hence also on the facade, which would have reduced by a beam's size the effective height of the ribbon windows, and thus also appreciably impeding the incidence of daylight. Precisely to avoid blocking the natural light, the architects defended the solution with tie-beams perpendicular to the elevations, which was less economic as it necessitated higher beams and more reinforcement steel. Moreover, in order to ensure the required clearance for fixed and mobile systems, the gross floor height had to increase, and thus the height of the entire building.
Jan Gerko Wiebenga (1886-1974), the engineer, came up with the mushroom-column solution. This was to guarantee optimal lighting of the at last continuous ceilings, and enabling the thickness of the floor slabs and the overall height and weight of the construction to be reduced, with favourable repercussions for the foundations and columns as well as the internal transport of personnel and goods.
The Van Nelle factory was an almost self-sufficient production facility, endowed with its own power plant, quay and internal road for shipments by rail or road. At night it glowed with a thousand lights. It is as if for Kees van der Leeuw, a Theosofist and philosopher, light and transparency were far more important than banal matters of production!

The empty space of the former coffee toasting department presented itself as a godsend, that will be used as a lunchroom with general services.
Photo: Fas Keuzekamp.

Master Plan

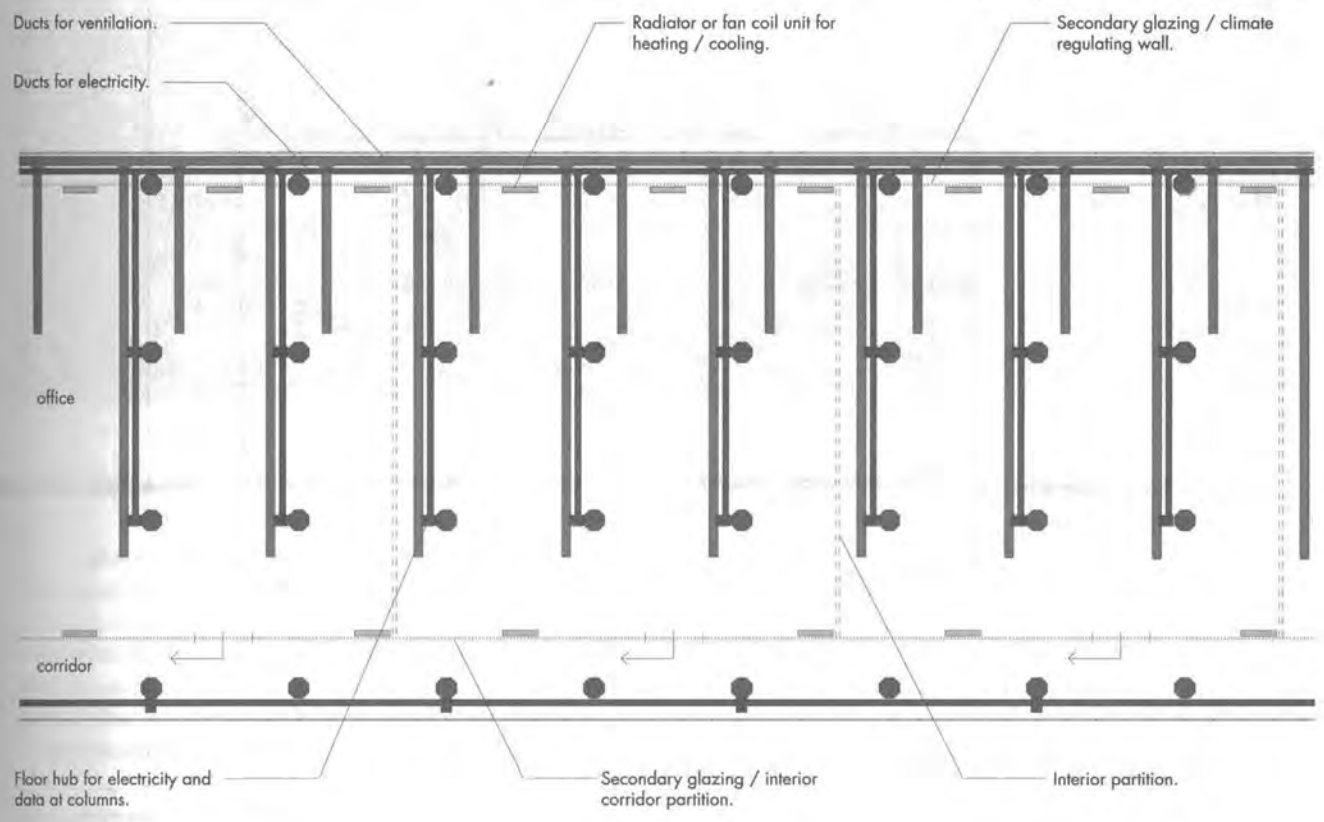
Original systems, floor plan as designed by Brinkman & Van der Vlugt.
Drawing: Claessens Erdmann Architects.

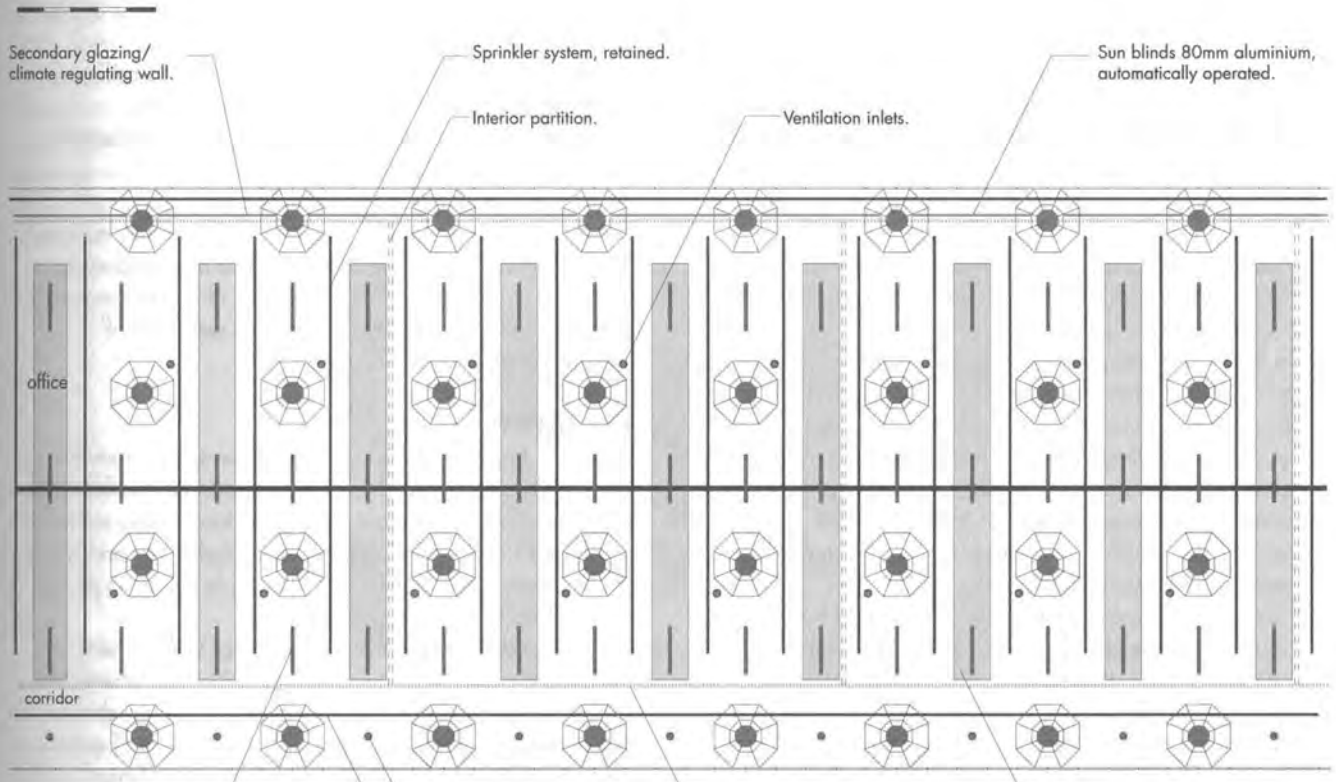




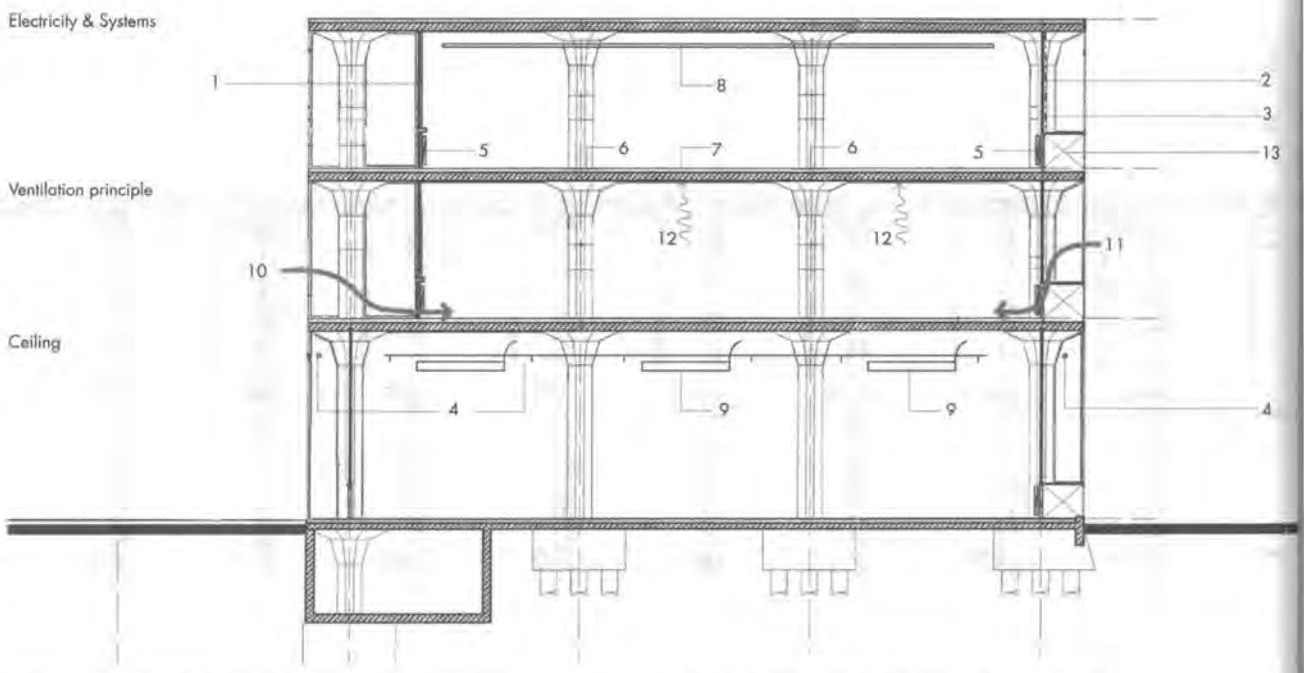
Original systems, ceiling plan as designed by Brinkman & Van der Vlugt.
Drawing: Claessens Erdmann Architects.

New systems, floor plan.
Drawing: Claessens Erdmann Architects.





New systems, ceiling plan.
Drawing: Claessens Erdmann Architects.



New systems, section with principle for installations, systems and climatizing principles as developed by Climatic Design Consult. Drawing: Cloessens Erdmann Architects.
Key:
1. Secondary glazing / interior corridor partition,
2. Secondary glazing / climate regulating wall,
3. Sun blinds 80 mm aluminium, automatically operated,
4. Sprinkler system, retained,
5. Radiator or fan coil unit for heating / cooling,
6. Floor hub for electricity and data at columns,
7. Ducts for ventilation and electricity in floor topping,
8. Acoustic panels (optional),
9. Fluorescent lighting fixtures,
10. Natural air supply in summer through manually operated windows, corridor and acoustic air inlet,
11. Natural air supply in winter through automatically operated windows, climate regulating wall and acoustic air inlets in secondary floor of the climate zone,
12. Ventilation exhaust through floor and flat ducts in floor topping,
13. Ventilation exhaust ducts to installations on roof.

Surveys, diagnoses of the material state of the buildings, historical knowledge and critical assessments, the needs of future occupants: all these data flowed into the 'Master Plan for the Van Nelle Design Factory' developed in 1999 by Wessel de Jonge Architects. This work was done in co-ordination with the other architects commissioned to rehabilitate the various lots, as well as with the landscape architect, the climatisation and restoration consultants, and, of course, the developers.
The finely tuned Master Plan includes a visitor's route through the complex, distinguishing between sensitive and 'loose' parts, between public and private areas, and so on.
It comprises a refined system of rules, of which, by way of example, I would mention how the safeguarding of one of the Van Nelle's essential features 'operates'. This characteristic, which is a synergetic combination of effects, consists of at least the following 'qualities':

- the effect of lightness and fragility produced by the building's envelope, as a result of its glass walls and slender window frames, and of its light metal infills painted aluminium;
- the brightness and reflections, white and cold – but not green – of the thin industrial sheet glass, with all the precious irregularities that the float glass procedure (developed in 1952 by the British company Pilkington) had banished forever;
- perception of the building 'in depth', thanks to the luminosity of a smooth and continuous, white ceiling;
- the nocturnal effect of transparency and depth, heightened by the pallor of the lit ceilings punctuated by ranks of lighting fixtures;
- the warm colour of the nocturnal lighting.

The Master Plan drafted for the Van Nelle carefully analysed these qualities, tracing the effects back to their respective 'material' causes, and drew up a series of recommendations and rules to preserve them. As we shall see, a bit of 'hardware' and lots of 'software'.

Transparency

Clearly, a first decision had already been to maintain the original facades intact. Wherever appropriate, the float glass is replaced with sheet glass panes, produced using industrial techniques developed during the First World War and which are still manufactured today, at affordable prices, in places like the Czech Republic and Hungary.
This choice entailed doubling the external walls, otherwise the interior would have been uninhabitable. But where? On the North-East side of the factory the renovation architects placed the secondary glazing inside the first row of columns, beyond the 'mushroom', thus generating a circulation corridor. This meant forgoing the traditional office layout with a central corridor and offices on either side. But the new passageway is an attractive space, with an open view of the offices, and this is important for companies that care about

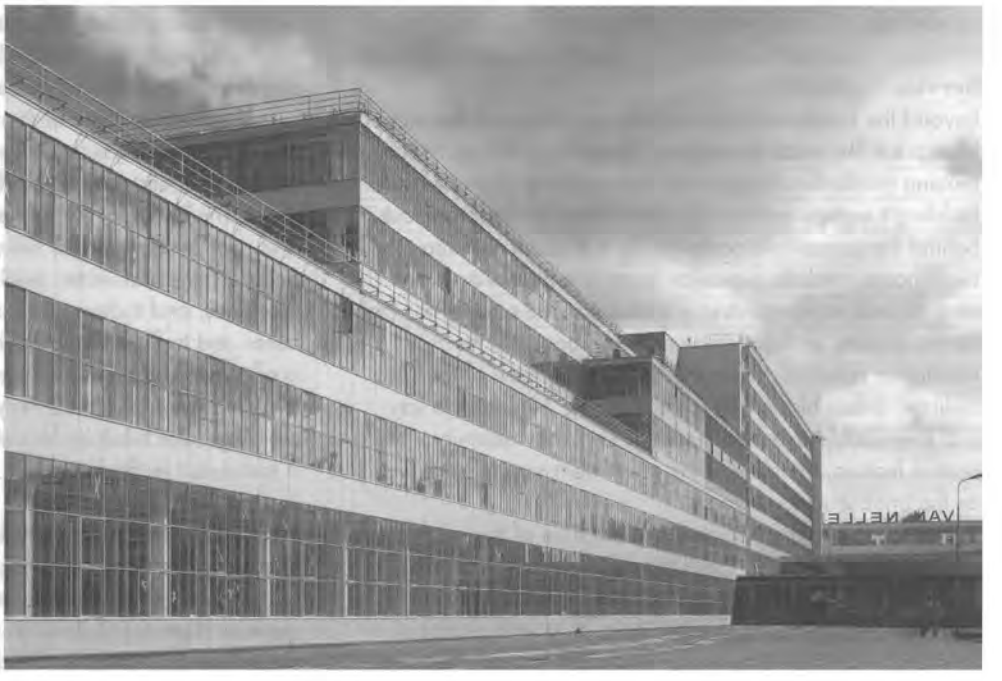
After the instalment of the flat ventilation and cable ducts, a new floor topping is applied. Photo: Fas Keuzekamp.

The secondary glazing at the shade side of the building is located at 2.25 m from the facade, creating a semi-climatised corridor. Note the spheric lamps. Photo: Fas Keuzekamp.

their 'visibility'.
On the opposite side, facing South-West, the secondary glazing is placed, instead, along the axis of the first row of columns, corresponding to the vertical guides of the original rolling shutter blinds in wood with aluminium finish. In a number of period photos of the building these American 'Aeroshade' shutters can be glimpsed and, fortunately, one specimen has been salvaged. At this side, the interspace between the double facade functions as a climate-regulating wall.
Again in order to guarantee transparency, the occupation of office space is subject to a sort of regulation. Furniture, partitions or opaque screens must not be higher than 2.25 m, to maintain the continuity of the ceiling, must be set back at least 5 m from the facade, and may not occupy more than 60% of the space between one column and the next. Lower furniture, bookcases and desks can be placed closer to the facade as well, although cabinets over 1.35 m high must preferably be placed perpendicular to the facades. Even between tenants, partitions are glazed above 2.25 m.
The transparency of the Van Nelle can be appreciated mainly on the top floors and from a certain distance, or from a position facing the buildings in front. For these reasons the developers have made sure that the larger companies occupy either the lower storeys or the upper levels, so as to reduce the number of partitions in these zones.

Lighting fixtures

The original spherical Siemens lamps that illuminated the production spaces had completely been destroyed, and would not comply with today's standards, amongst other things because the opaque glass spheres cast an irritating glare on computer screens. Defying exponents of 'material authenticity', here again the nocturnal image is not protected by reinstating the lamps as objects, but rather, by 'reconstructing' their luminous performance and image.
The new light fixtures, set in line, are a modified standard product, of the type Zumthobel XDA 58. They cast 1/3 of their light downward and 2/3 toward the ceiling, as did the original fixtures, reproducing their original number and alignment and emitting 200 Lux of light corresponding to



he visibility of the added secondary glazing depends on the weather conditions. At the this side, the new glazing is located just at 1.00 m from the original facade. Photo: Sybolt Voeten architectuurfotografie.

Inside the climate-regulating wall. At the left bottom one of the motors that act upon the vertical rods to operate the vents. Photo: Sybolt Voeten architectuurfotografie.

2800-3000 Kelvin, with a warm luminous spectrum similar to that of the original candescant lamps. Finally, to perfect the 'replica' of this image, the lamps along the corridor, or the front line of lighting with respect to the main elevation facing the internal street, were chosen for their spherical form. The result of this complex strategy, which combines technique and persuasion, trusting in the eye and wit, is convincing.

Service systems

Beyond the functions described, the corridor and the interspace (between the original facade and the secondary glazing on the South-East side) are an integral part of the building's energy system. The lower third of the interspace, behind the parapet, is occupied by a sheath containing the air exhaust conduits, pipes for heating and cooling water, and cable ducts for electricity and data. The cabling for the lamps, sockets and data system and, above all, the ventilation conduits, threatened to ruin the view of the ceilings, unless hidden by a false ceiling. Needless to say that this would have meant sacrificing a key tectonic and spatial feature, the view of the mushroom structure, as well as the unobstructed daylight.

In this case, too, a scrupulous examination of the existent suggested the solution. The 'Dermas' woodchip-concrete finish of the original flooring together with a 'Bimsbeton' light concrete substrate, created a topping with a total height of 100 -120 mm, which originally housed the

A company that sells complimentary gifts made by artists, occupies one of the smaller units on 'Tobacco Two'. Photo: Fas Keuzekamp.

electrical cable ducts supplying the ceiling lamps on the floor below and the machinery on the floor itself. This principle of distribution has been taken up and generalised: two opposite and intersecting 'combs', one starting from a cable duct in the corridor floor, the other from the interspace, supply light fixtures, electrical equipment, the data system and, respectively, ventilation of the building. The electrical and data cabling laps the mushroom columns, as originally; whilst the extremely flat 70 x 450 mm ventilation ducts run through the intervals between them. This solution entailed sacrificing most of the original flooring, but it is perfectly consistent with the conservation strategy adopted: the undertaking to keep all ceilings uniformly white, not to obstruct the upper parts of the space, and permission for tenants to select 'personalised' flooring solutions. Also, of the original flooring on the work floors, less than 10% had survived.

Circulation of fresh air through the interspace is mechanically regulated by small motors that act on the vertical rods originally used to open the pivot casements by hand. It is curious to note that after searching high and low, it was found that the simplest motors to assemble and the most economical are those currently used in greenhouses!

We have mentioned that the Van Nelle had its own power and heating plant. And indeed the restoration includes the complete conservation of the interesting 'control rooms', with its dials and gauges perfectly positioned in precious slabs of marble wall and fully visible from the complex's internal street. The boiler house, in keeping with today's ecological and energy imperatives, still contains the plant which purifies the canal water, originally also used to cool the machines, and today used for the sprinkler system, fire hoses and to flush the toilets in some of the bathrooms. This is also the central location for all cooling condensers, thus avoiding excessive machinery on the roofs of other buildings. The main boiler room is planned to accommodate a restaurant in the future.

From product to process

In conclusion, those responsible for master planning the adaptive re-use of the Van Nelle complex see their work more as a process than as a product. In this sense, this project represents a new model for restoration.

Summer 2001, tenants move in to explore their new work space on 'Coffee Three'. The 1960s sprinkler-system retained the colour according to the original colour-code for systems throughout the factory complex. Photo: Sybolt Voeten architectuurfotografie.

The product, in a sense, is already there: as a 'brute' material datum passed down by history, an object of knowledge offered to our culture and sensibility. Therefore the project lies in a process whose goals are defined in the course of time, both because the object reveals itself as you work with it, and because the actors involved must be able to count on the encouraging and formative effects of the work in progress with declared or potential clients.
At times the architects may feel satisfied if the interventions proposed by the re-use project do not sacrifice the original material, and if the transformations respect the reversibility. But the undeniable managerial dimension connected with the realisation and implementation of the Master Plan also requires a great deal of 'persuasive' talent to allow 'corporate identity' to match the Van Nelle's materiality and its old and new image.

Bruno Reichlin is a professor and the head of the Post Graduate program for Architectural Conservation at the Institute of Architecture of the University of Geneva, Switzerland. He is an international critic and the present Chairman of DOCOMOMO Switzerland.

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Wessel de Jonge Architects	Master Plan and dispatch building
Claessens Erdmann Architects and Designers	interior factory buildings
Molenaar & Van Winden	main office building
DS Landschapsarchitecten	landscape design
Climatic Design Consult	climatising concept
IBB Kondor BV	main contractor
Homij Technische Installaties BV	service systems contractor

A warehouse for the arts

The new Reykjavík Art Museum (Studio Granda, 1998-2000)

The new Reykjavík Art Museum occupies part of a concrete warehouse built in the late 1930s. At the turn of the 20th Century the city's main pier, Iceland's former umbilical cord to the world, occupied the site and this link is reawakened in Studio Granda's design for the museum, which was inaugurated in April 2000. The design of the remodeling seeks to capture the direct, matter-of-fact quality of the existing structure in such a way that it is unclear where existing ends and new works begin.

by Steve Christer

The original warehouse was a three-storey concrete structure built around an open court. It was constructed in two phases between 1933-39. Goods were delivered and dispatched via the court with service openings set at the level of the ubiquitous Ford 8 flat-bed lorry. A fourth floor was added in 1957.
Although in principle the building is simple and elegant it is surprisingly convoluted. Externally the two halves built before and during the war are similar, but internally have different structural systems. The earlier half has an elegant mushroom column whereas a less efficient but simpler rectilinear column and beam system is used in the later part. Due to the war the lift machinery was imported first from Germany and later from Britain respectively. Stair cores are placed at each of the building's corners in an apparent symmetry, but each is unique to serve the many floor levels and warren-like office spaces. These peculiarities coupled with the piece-meal modifications, which have taken place over the intervening years, have yielded a building with the complexity of a small town.

Pier

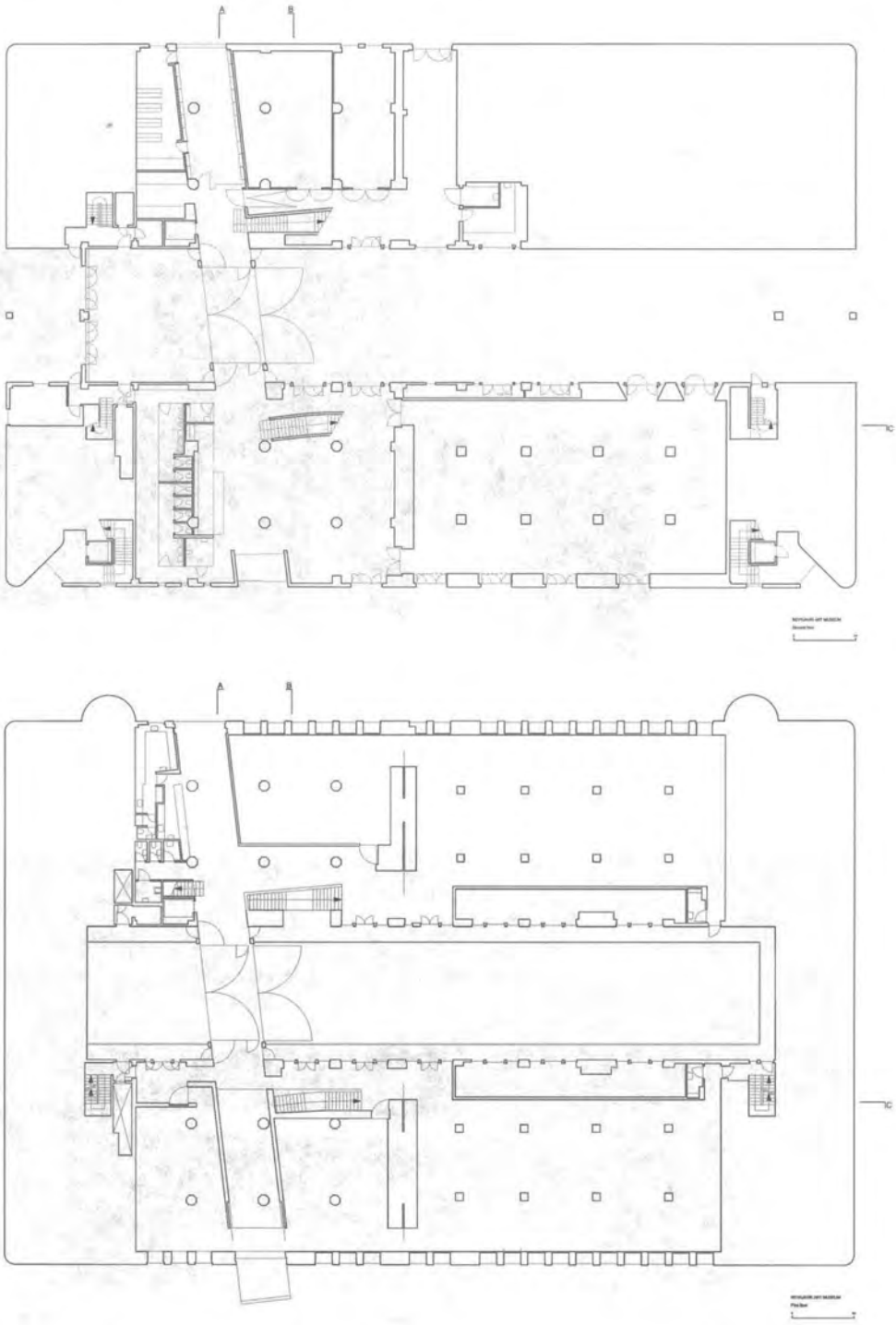
Externally the building is predominantly painted 'Fishery Protection Vessel' grey with the areas in the possession of the museum demarcated in white. The original doors to the street have been placed behind glazed panels and if opened one can glimpse into the South gallery. A soaring concrete canopy marks the gallery entrance and daylight reflected from its upper surface illuminates the double-height lobby. This volume is one of a series of spaces, lined with hot rolled steel sheets and black walnut floors, which collectively form the 'pier link'.
In 1997 the City of Reykjavík purchased two floors of the South warehouse wing and three floors of the North for the Art Museum. The two sets of spaces were separated by the court. This lack of a physical connection required an architectural intervention, which was found in the location of the former pier. By tracing the path of the pier through the building, in the form of a cut through the existing fabric and a two-storey link in the court, its former importance is recognized while simultaneously creating a route from one wing to the other.
Fortuitously the pier bisects the court unequally allowing the greater portion to be left in an apparently untouched state. The small remaining portion is then roofed to create a double-storey multi-purpose space. Two 7x4 m steel doors allow the pier to open to the court and two pairs of folding steel doors offer an array of opening possibilities to the multi-purpose space. By opening or closing these huge plates emphasis can be placed either on the historical pier, the court or a balance of the two.
Above the multi-purpose space is an external sky-gallery bounded by the upper levels of the court and a skylight box to the pier below. At night the glow from the skylight fills the court with a dream-like glow, removing the need for additional lighting.
By chance the former pier ended precisely at the Northern facade of the warehouse. Singular glass plates on the ground and first floors mark this event and provide the library and café respectively with magnificent framed views of the harbor and mountains beyond.

The South facade of the new Reykjavik Art Museum, as converted by Studio Granda. Photo: Kristján Pétur Gudnason and Christopher Lund.

Galleries

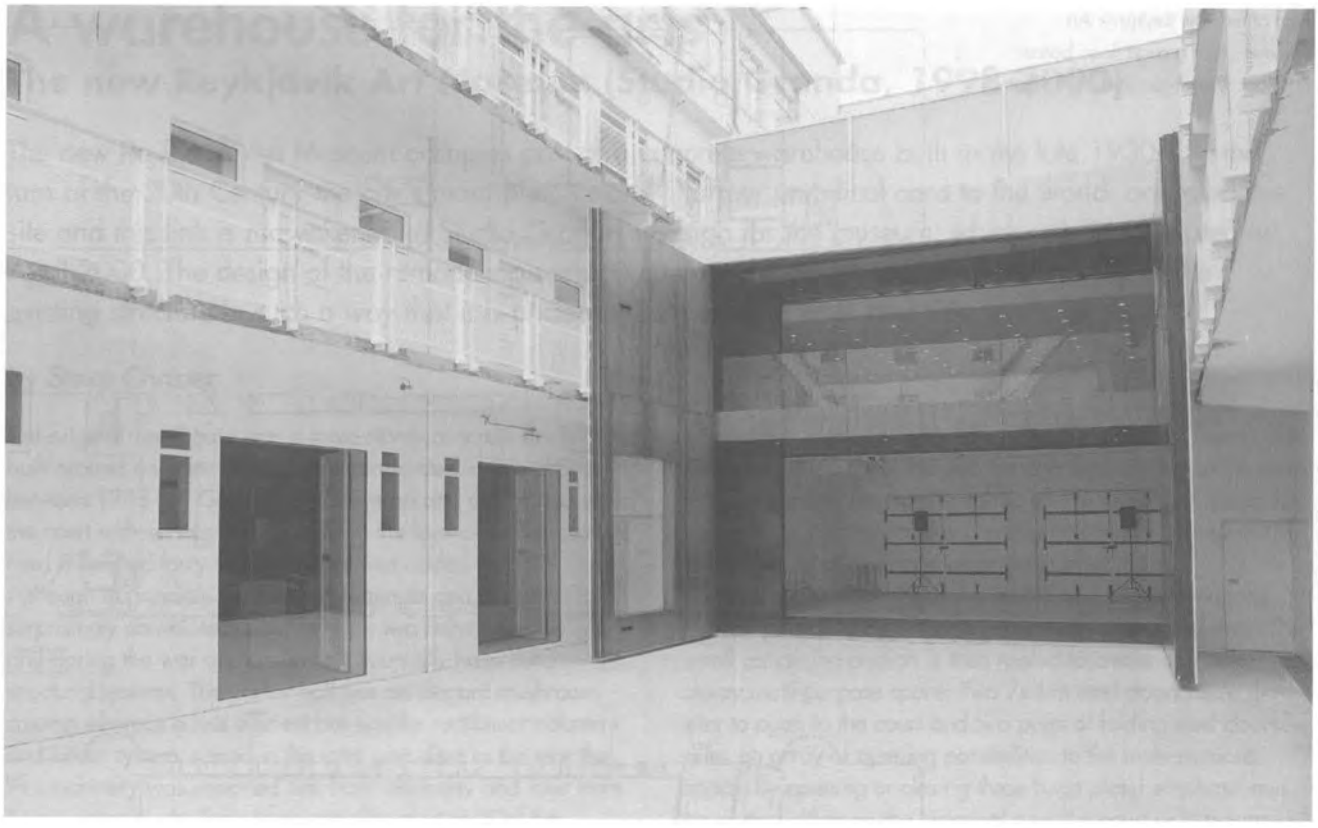
The new function of this building was to be a series of volumes for displaying art. But contrary to the prevailing norm of a clean white box with good ceiling height, and controlled top-light, here were relatively low, column-filled spaces with walls of doors.
For practical as well as theoretical reasons the galleries are considered as found spaces, complete with columns. Where the walls and/or ceilings were plastered they were painted white; otherwise the concrete was left exposed. Only where necessary were new room linings inserted to provide routes for the ducting and systems. The floors were all re-laid but appear as original. In this way any exhibition must find a suitable space for its art as the new museum doesn't offer a neutral gallery environment into which almost any piece will fit. In effect the building is considered as an art form and must be respected by the art that is placed within it.
With the absence of roof-lights, day lighting is admitted via existing windows, reflected onto the ceilings by moveable baffles. The effect is of lifting the ceiling and offering a sense of escape from the massiveness of the concrete shell. However if blackout is required the baffles are simply moved by hand.

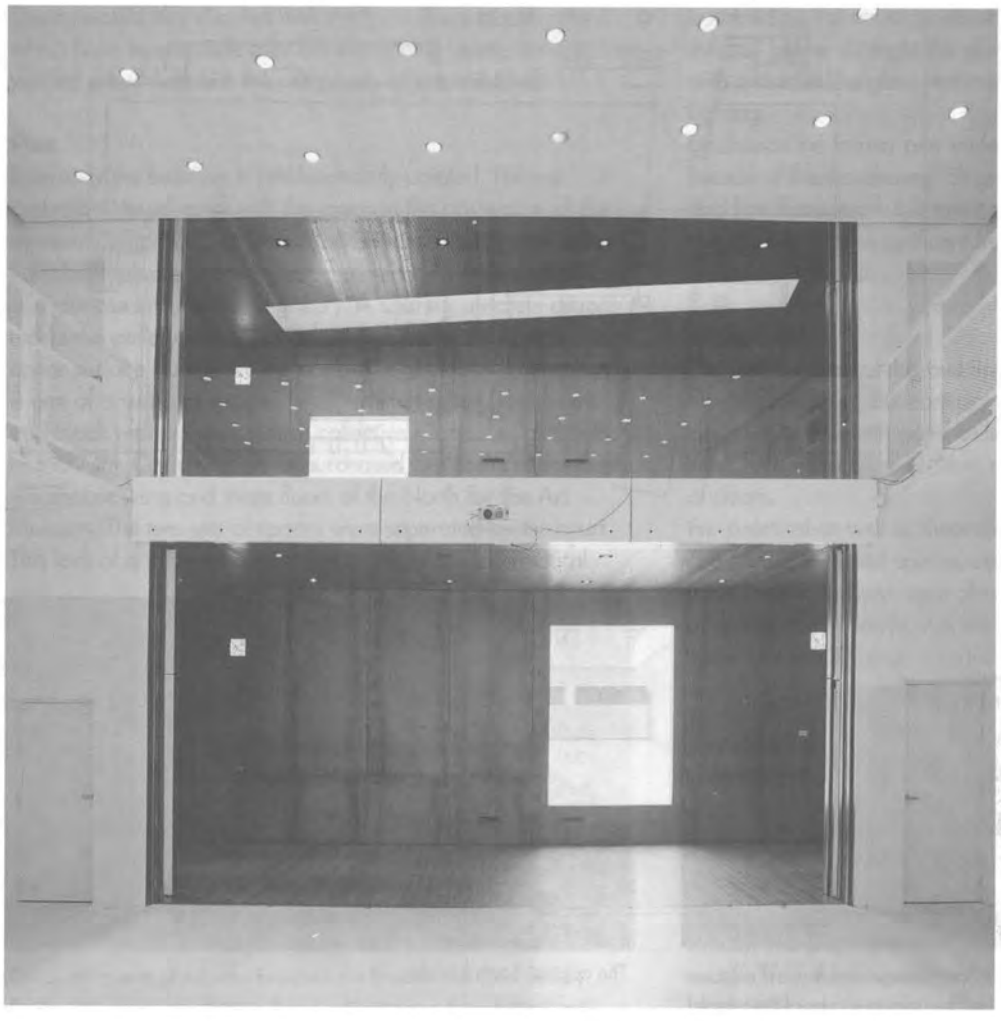
Plan of the new Reykjavik Art Museum. Top: ground floor, bottom: first floor. Drawings: Studio Granda.



The original warehouse before additional floors were added in 1957. The two construction phases are demarcated by the different shades of the facade.

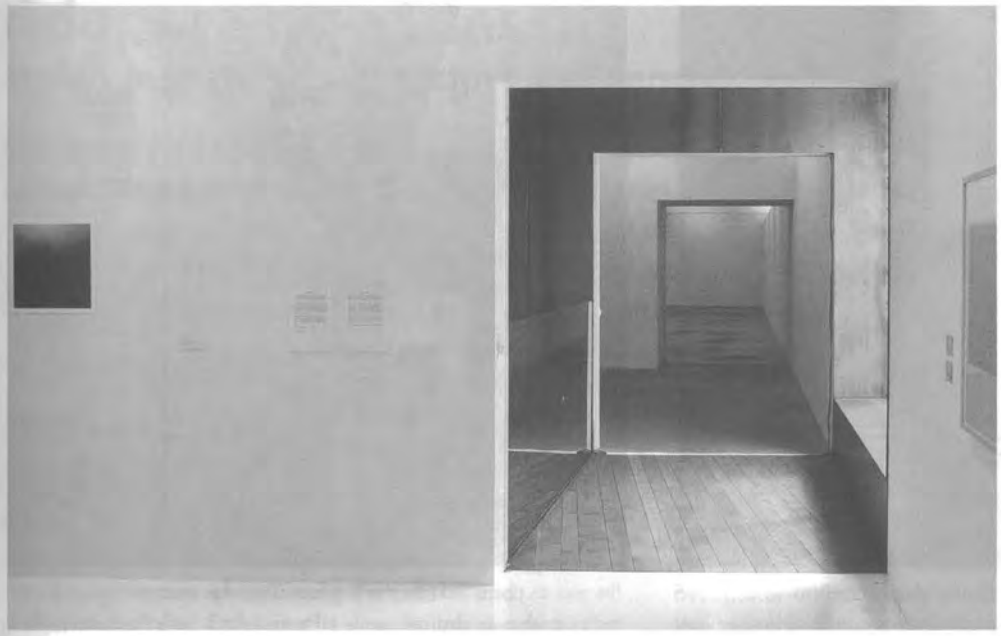
The original South facade.





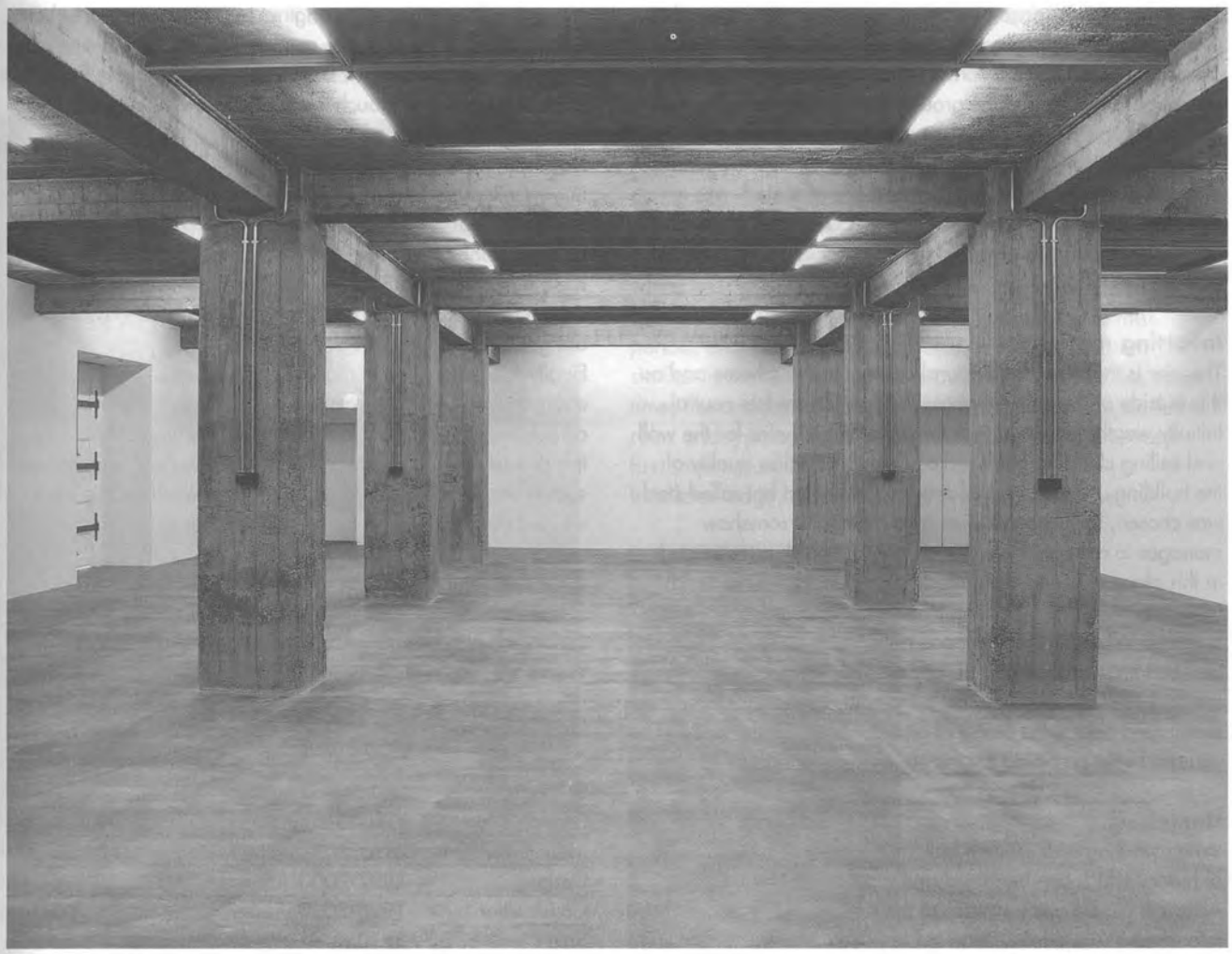
Top: The courtyard after Studio Granda's intervention. Two pairs of folding steel doors offer an array of opening possibilities to this multi-purpose space.
Photo: Kristján Pétur Gudnason and Christopher Lund.

Left: By opening or closing the huge doors emphasis can be placed either on the historical pier, the court or a balance of the two.
Photo: Kristján Pétur Gudnason and Christopher Lund.



Top: The intersection of the galleries by the pier is marked by the choice of finishes, which are less neutral.
Photo: Kristján Pétur Gudnason and Christopher Lund.

Bottom: A neutral gallery space in the 1939 wing.
Photo: Kristján Pétur Gudnason and Christopher Lund.



The path of the pier is traced through the building, in the form of a cut through the existing fabric, lined by specific materials, such as dark walnut floors and untreated steel sheets. Photo: Kristján Pétur Gudnason and Christopher Lund.

The pier as perceived from the first floor. The large doors to the multipurpose courtyard are opened. Photo: Kristján Pétur Gudnason and Christopher Lund.

Flexible

Naturally not all art can fit within the tight column grid and low ceilings of the original stores nor the controlled aesthetics of the remodeling architects. To provide for these needs one gallery is reserved for installations which require, say, a change of color. The multi-purpose space offers double-height and through the use of the folding-door system, spatial flexibility and a variety of viewing possibilities. External works are secure in the large court with direct links to the ground floor gallery and the sky gallery repeats this quality albeit at an intimate scale.
Technological services are minimized as time has shown that attempts to predict future requirements are almost always thwarted. Instead basic power, communication and physical connection points are provided for any special equipment that may be required.

Inverting materials

The pier is the main architectural element in the scheme and as it is outside of the gallery spaces the finishes are less neutral. Initially weathered wood was the material of choice for the wall and ceiling cladding but it lacked the workmanlike quality of the building. After months of research untreated hot rolled steel was chosen, for although alien as a material it somehow manages to recreate the sense of industry which once existed in this place. It is also dark which has the wonderful effect of 'inverting' the visitors position from observer to observed when entering: When on the street one observes the objects, people and buildings around you as they are illuminated. On entering the dark-walled lobby you, for a moment, become the only illuminated object, the centre of attention. Perhaps in this way you are better prepared for the observation of art.

Unnoticed

When working with existing buildings there is a deep treasure of history which can be mined and worked into the new works. Although almost every surface of the building has been retouched it was our intention to blur the line between new and old. Some devices are subtle and other less so, the least being the pier link. The most dramatic intervention was in the lobby where a major portion of the existing floor was removed to create a double-height space. We chose to be honest about this modification; carefully separating the columns from the remaining floor plates - the original builders would never have tolerated such frivolity. But to our surprise few people seem to think that there ever was a floor. What they do notice however is that the stairs don't touch the floor; 'That's the new bit' they say...
Industrial buildings of this type are simple, honest and lacking in any frills. They require a different treatment than more 'refined' structures. Luckily our office has been involved in a number of infrastructure projects which have exposed us to the scale and crudity of highway interchanges. Without that experience there would have probably been many more over-designed details.
Finally the bottom line in making architecture is that it is a team effort and the better the relationship between the client, consultants and contractors the stronger the work. Thankfully on this project we had a strong group which worked together in such a way that in the end almost no one would notice what we had done.

Together with Margrét Hardarsdottír (1959), Steve Christer (1960) is a founding partner of Studio Granda, Reykavík. More information through www.studiogranda.is.

Client	City of Reykjavík
Structure	Línuhönnun
Services	Vidsjá / Lagnatækni / Rafteikning
Main Contractor	Ístak
Design	1997-2000
Construction	1998-2000
Size	3710 m²

Adaptive new uses

MoMo industrial architecture in Buenos Aires

Founded in the 16th Century as a port city and developed as the country's main political, economic and cultural centre throughout the 19th and 20th Centuries, Buenos Aires has an important and remarkable industrial heritage, which mostly dates from the last decades of the 19th Century and the first ones of the 20th Century. It took its time for Modern Movement architecture in Buenos Aires to be fully accepted and recognised by public opinion, and even by many professionals.

by Stella Maris Casal

Paradigmatic buildings of our Modern Movement architectural heritage were built simultaneously with Academic, Art Deco and other stylistic expressions. Still, from the mid-1930s on, two magazines, *Revista de Arquitectura* and *Nuestra Arquitectura*, did a great job in introducing the new ideas among the cultural and professional circles. Following its slow though steady impact in the ordinary architectural programmes, and because of historical and political circumstances, it would become the expression for the new projects that progress made spring in the city (cinemas, automobile gas stations, etc.) and also for the industrial development of the country, deepened as a consequence of the impact of World War II. The high technical standards reached by the well trained construction companies, mostly of German origin, were going to assure the quality of the results and the good conditions in which this architecture still is, except when touched by further interventions. Modern Movement architecture in Buenos Aires has since then gone through many decades keeping an outstanding maintenance status - result of the building standards more than of the conservation work carried out - that has added to its image of modernity, comfort, and efficiency.
Because of all its values, but above all due to its efficiency to cope with changing comfort standards, little modification can be seen in most of these buildings today. However, in the last decade, following a rush of hectic renovation for new uses of many of the city's pre-existent buildings, some remarkable Modern Movement examples, mostly former industrial or functional ones, have been adapted to new uses. The criteria applied change from case to case, and it is interesting to analyse in them the different professional approaches to the intervention in a Modern Movement building as well as the impact of such adaptive re-use in society with regard to the image of its Modern Movement architectural heritage.

Novartis SA Laboratories, administrative building (formerly Ciba-Geigy laboratories, 1960). The original building, a project from a Swiss architect influenced by Le Corbusier. Photo Aslan & Ezcurra.

Industrial heritage

Founded in the 16th Century as a port city and developed as the country's main political, economic and cultural centre throughout the 19th and 20th Centuries, Buenos Aires has an important and remarkable industrial heritage, which mostly dates from the last decades of the 19th Century and the first ones of the 20th Century. In that period, and referring to a process of industrialisation similar to that of many cities around the world at the same time, the architectural result would also follow the same rules and typologies as in the rest of the world, the very first international style, indeed.[1]
In a later stage, even when still under the influence of

The glass connection, enlargement (1991/92) by Aslan & Ezcurra and Assoc. (Jorge Aslan, Lorenzo Gigli, Alejandro Madero, Oscar Carattini, Marta Aslan-Gigli, Juan Carlos Dendemian).
Photo: Aslan & Ezcurra.

British techniques and expression, there would be an important presence of German building companies, which were mainly in charge of the installation of factories. They would help very much in the success of modern architectural quality in Argentina in the future[2]. In between World War I and II, and mostly as a consequence of the last, the process of industrialisation had to accelerate and new factory and service programmes were developed. It was the time for Modern Movement architecture to profit from this chance and its contribution to industrial architecture was outstanding indeed. Worthwhile mentioning among other examples: Química Schering (A. Vilar, 1938), Johnson & Johnson Argentina laboratories (Lyman O. Dudley, 1938), YPF laboratories (C. de la María Prins and others, 1943), Philips Argentina (1944-45), and also the Mercado de Abasto (Del Pini, Sulcic & Bes, 1934) and Manufactura Algodonera Argentina (ca. 1940), the recent adaption of the last both to be persued.
Taking into account that the definition of industrial heritage does not only apply to buildings with a production activity but also those in which the technical/engineering aspects are remarkable[3], the list will necessary be enriched by the ACA, Automóvil Club Argentino, gas stations all along the country (A. Vilar & others, from 1940 on), the Boca Jrs. Soccer Stadium (J. L. Del Pini, 1932-34) and the River Plate Stadium (Aslan & Ezcurra, 1936), the National Grain Board silos at the basin D in Puerto Nuevo (new port, 1938-50) among other examples. Also from the last decades there are some interesting contributions to add to the list such as the SOMISA Building (M. R. Alvarez, 1966) and Química Hoesch (Aslan & Ezcurra, Assoc. 1990-91).

Adaptive re-use

The re-use of existent buildings has been a permanent attitude all along the history of architecture. Concerning industrial buildings, they suggest many possibilities for new uses. They usually have flexible large open spaces, are solidly built, supported by a structurally resistant grid of columns and beams, and, last but not least, have a strong character. In an attempt to summarise the general criteria carried out in Buenos Aires with regard to this field, some facts must be pointed out. Industrial buildings are re-used because:

- they are well placed, in strategic areas where performing their original activity is not allowed or profitable any more;
- they are 'old' for the city standards, the buildings themselves representing a well known and attractive architectural reference that, unlike their machinery, are not out of date;
- their re-use, is profitable in economic terms because of their technical and spatial conditions.

With regard to Modern Movement industrial buildings in particular, some other specific considerations must be added:

- many of them have kept their original function but have gone through adaptations to fit with new functional demands, the interventions ranging from little interior modifications to enlargement;
- the ones that have been adapted to new uses, apart

Telecom, Coghlan administrative centre (formerly Mansfield SA factory, SEPRA architects, 1959).

Virtual reconstruction of the blind brick wall and right, the current situation with the 'gap' for the main entrance.
Photos SMC (virtual reconstruction Gabriel Videla).

Telecom, Coghlan administrative centre, lateral facade kept intact. Photo SMC.

La Algodonera (formerly Manufactura Algodonera Argentina, textile factory, ca. 1940). Left: the previous situation.

Right, after the adaptation into a commercial ground floor (bank, supermarket, offices) and five levels for dwellings, by Dujovne-Hirsch & Assoc., architects, in 1999. Photos SMC.

from the general reasons mentioned above, are settled in areas that have drastically changed their character from industrial to commercial or residential;

- since the economic argument for rehabilitation or adaptive re-use is powerful, new environmental standards and services must be introduced. This usually demands, and obtains, more investments, cares and efforts than the enhancement of the architectural values and significance of the original buildings, although the rescue of their image and original architectural values is often used as a marketing tool. Their architecture is solidly built, with resistant materials and efficient building details, so no intensive work is needed to restore them. And that is enticing for both investors and architects in charge. For investors, because it means saving funds while for architects because they can devote their efforts to 'infill the new'.

Results are not a problem of major architecture or minor architecture, but plainly of good or bad architecture and the solution of technical details with little sensitivity is for far the most critical point in most of the adaptive re-use projects.

Modern Movement principles

Especially along the last ten years many adaptations were made, with different results. From all of them a lesson was left and hopefully each time the margin of error becomes smaller. The first lesson to learn from mistaken results is that professionals do appreciate Modern Movement industrial buildings but it is not that clear if they are eager to apply the right tools to solve details according to Modern Movement principles. The theoretical background with regard to preserving is, maybe, a little too flexible. A few examples may clarify some concepts.

It must be said that it is in the field of chemical laboratories where the best conservation examples will be found: buildings are well kept, with their original use and little modification, and when update or enlargement is required, the response is of high quality. In the case of Johnson & Johnson laboratories and factory (see *The Conference Proceedings of the 4th DOCOMOMO International Conference, Slovakia, 1996, page 242*), and now the Gador laboratories, that were both enlarged according to the original layouts, which considered already a future expansion by building a second floor.

Abasto Shopping (formerly Mercado de Abasto, supply market, first building from 1889-93 and MoMo wing by Del Pini, Sulcic & Bes, engineers & architects, 1934). Top, the building ca. 1940 and bottom, the building today. From the outside no fundamental changes can be seen. Photos: top Archivo General de la Nación, bottom SMC.

The adaptive re-use of the Abasto Market halls has compromised the original architectural character. Photo: SMC.

In the case of the administrative building of Novartis laboratories, formerly Ciba-Geigy, (a remarkable Swiss project from 1960 very much influenced by Le Corbusier's ideas), a new wing was built in 1991-92 by Aslan & Ezcurra architects. The authors, third generation of an office with a remarkable oeuvre over the last five decades, including the River Plate Soccer Stadium mentioned above, fully comprehended the values and character of the existing wing. The new building, parallel to the former one, established an interesting volumetric dialogue with it and a glass connection linked both, adding interesting inside-outside views. Preserving the original building and the park was a decision Novartis and architects took profit of to express the company's philosophical and cultural conception to society.

Concerning buildings that lost their original use, their fortune varied. Built in 1959 by one of the most well known and long lasting architectural offices in Argentina, SEPRA (Sánchez Elía, Peralta Ramos & Agostini) the Mansfield SA industries building was adapted in the beginning of the 1990s to host an administrative centre from Telecom. The challenge here was to give the employees and public a clearer and wider pedestrian access than that of the factory, and that was solved by 'cutting' a gap in a blind

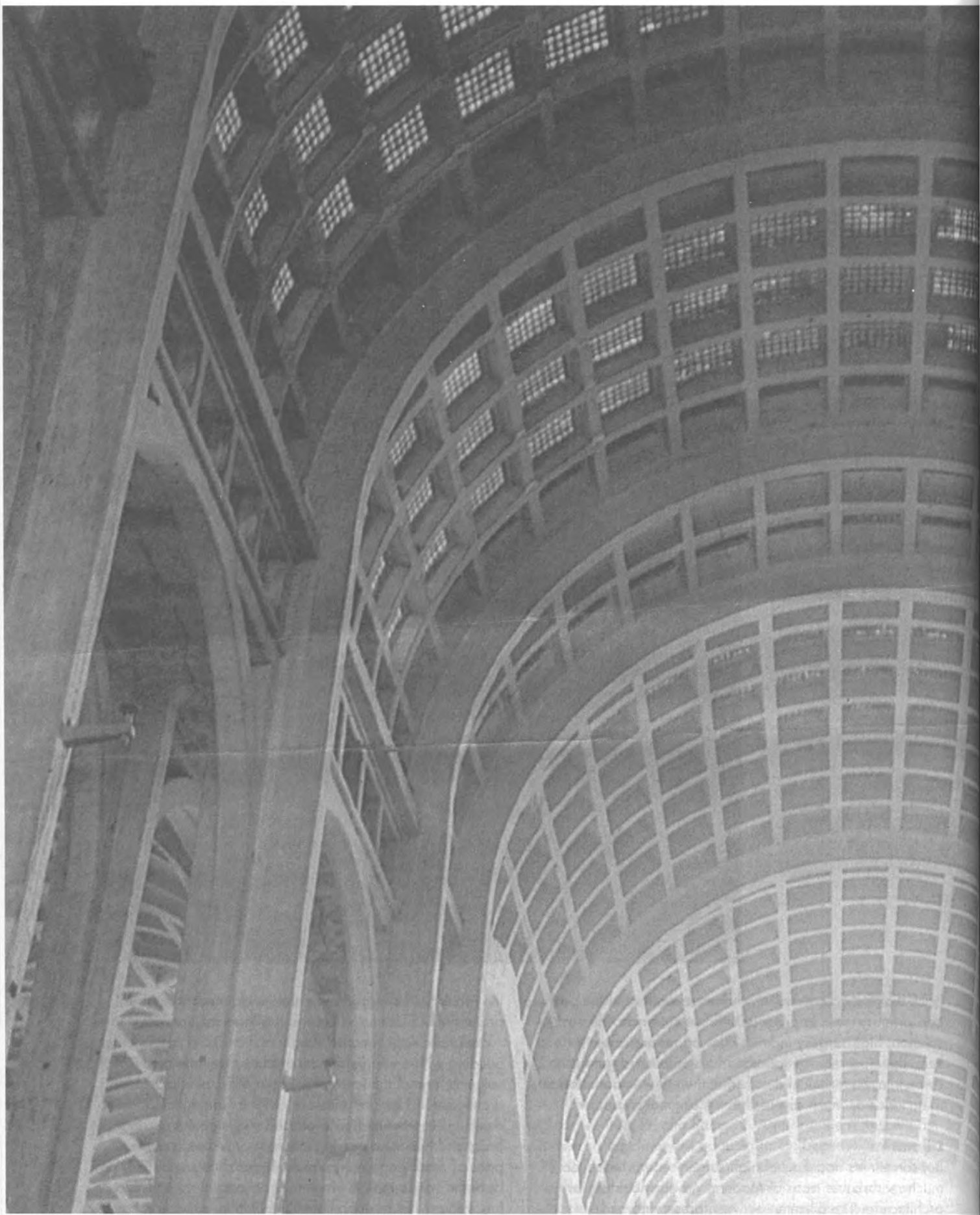
The Abasto Market halls converted into a shopping mall. Photo: SMC.

brick wall facing a street which was secondary in the past and primary now, to produce the new entrance. The solution, high surgery indeed, allowed, in any case, to keep the most representative facades untouched, and it is evident in the technical details that there it was an intention to enhance as much as possible the original character.

Dilemma

But sometimes decisions of high surgery compromise too much remarkable icons of Modern Movement industrial architecture. The dilemma between preserving and adapting to new uses is not easy to solve, especially when the rehabilitation programme differs too much from the original use. Such is the case of the Manufactura Algodonera Argentina Building (ca. 1940), an outstanding building with a unique structure of concrete capitaled columns, one of the icons of Modern Movement industrial architecture in Buenos Aires. In 1999 it was adapted for dwellings in the superior levels and shops on the ground floor, and that meant giving it a new cycle of life at the price of modifying drastically the facade scheme by moving back the windows.

It is evident that re-using a building within a conservation policy means keeping it alive as a whole, so considerations



Original glass block vaults of the Abasto Market hall. Photo: SMC.

must be done in order to choose the correct new programme that better fits into its character and architectural possibilities. But 'true conservation means not only converting old buildings to appropriate new uses, but also protecting their sitting'.[4], and that means also paying attention to the impact of the action in the relation with its environment. In that sense, the adaptive new use has no doubt been a positive decision for the building and its environment.

One year earlier, in 1998, the Mercado de Abasto (supply market), another icon of Buenos Aires Modern Movement architecture[5], was adapted to shopping mall, and even when the programme showed more affinity with the original use than the former example, the result is quite conflictive. While the facade, with a very sound presence, was kept almost untouched, the interior, strongly characterised by the concrete and glass vaults was renovated with little attention to its very qualities.

Cycle of life

To this brief panorama about what is going on in Buenos Aires, I would like to add a remark about an interesting case in Rosario (Province of Santa Fe, Argentina) that might help to strengthen the idea that the critical point is the real comprehension of the building to be renovated, and that maybe small scale buildings concentrate more preservation cares than the bigger ones. There, the former Metalúrgica Chaina & Cía., by De Lorenzi, Otaola & Roca architects (1938), is being adapted (first stage currently being finished) for the Biblioteca Virtual (virtual library) of the Rosario National University. The attention put to comprehend what the building was and wanted to be produced a sensitive and sensible result in which the existing architecture and the new one improved their quality one to the other.

Through these sometimes critical actions, Modern Movement industrial buildings have been re-inserted in the public opinion as worth while preserving and rescuing cultural relicts. Their image came to be part of everyday life again. But there is still a long way ahead to improve results from the architectural point of view. Adapting to new uses implies a hard negotiation between original character and adaptation to new demands. The clearer professionals know and understand the better ways to operate on these buildings, the more satisfactory the result will be. To understand what the building is and what it can be is top priority. To find out what are the opportunity areas to include the seal of the present is also vital. Obvious though not easy.

How long will a building last? How long will the adaptation to the new use last? It is clear that renovation is operated on buildings of which the material and cultural existence proved to be longer than the function that caused their birth, and will hopefully last longer than the new use. For the time being, in Buenos Aires, in several cases the aim has been to give 'one' new life-cycle to a remarkable building, even if part of their character had to be sacrificed to make that possible. At the same time, such actions resulted in wider public awareness as these Modern Movement industrial buildings were increasingly considered as a precious part of the built heritage of Argentina. The fact that they could be successfully adapted for present functions posed the challenge to professionals to improve their performance. Now, the theoretical debate is open as well.

Stella Maria Casal is an architect in Buenos Aires, Argentina, and a founding member of DOCOMOMO International.

Notes:

1. 'The indivisible relation between port and railway system will be the first image of the Industrial Revolution in the country, produced by the transculturation of planning, technique and architectural style mostly from Great Britain' (Jorge O. Gazaneo/Mabel M. Scarone, *Arquitectura de la revolucion industrial*, IAA, Buenos Aires, 1966, page 23). This recognition was asserted as early as in the mid-1960s, and clearly steps out what kind of industrial architecture will be found in Buenos Aires. Thus, the waterfront (1889-1919) together with the railway system (1860 on) converging on it with three out of its five terminal stations, are the main focus and biggest scale example of industrial architecture, yet not the only one. As a result of this same structure, within the city boundaries many complementary programmes flourished concerning production -factories, storage houses-, commercial activities - markets, general stores-, and infrastructure nets for a city in continuous development -water pumping stations, electricity usines, drainage systems, etc.- and last but not least, the urban equipment such as pavilions, bandstands, metro station gates, shop windows and so on which would certainly not be considered paradigmatic work but small scale references of a remarkably enthusiastic newly-born industry.
2. Jorge O. Gazaneo/Mabel M. Scarone, *Revolucion industrial y equipamiento urbano*, IAA, Buenos Aires, 1967, pages 38, 57 and 58.
3. Fermin Rodriguez Gutierrez, *El partrimonio industrial historico como recurso para el desarrollo local*, Abaco #10, Asturias, España, 1991, page 73.
4. Sherban Cantacuzino, *Rearchitecture: old buildings/new uses*, Thames and Hudson, Spain, Journal 17, September 1997, pp. 38-43.
5. See: Juan Maria Cardoni, *José Luis Delpini*, Journal 17, July 1997, pp 38-43.

North Sea off-shore 1939-99

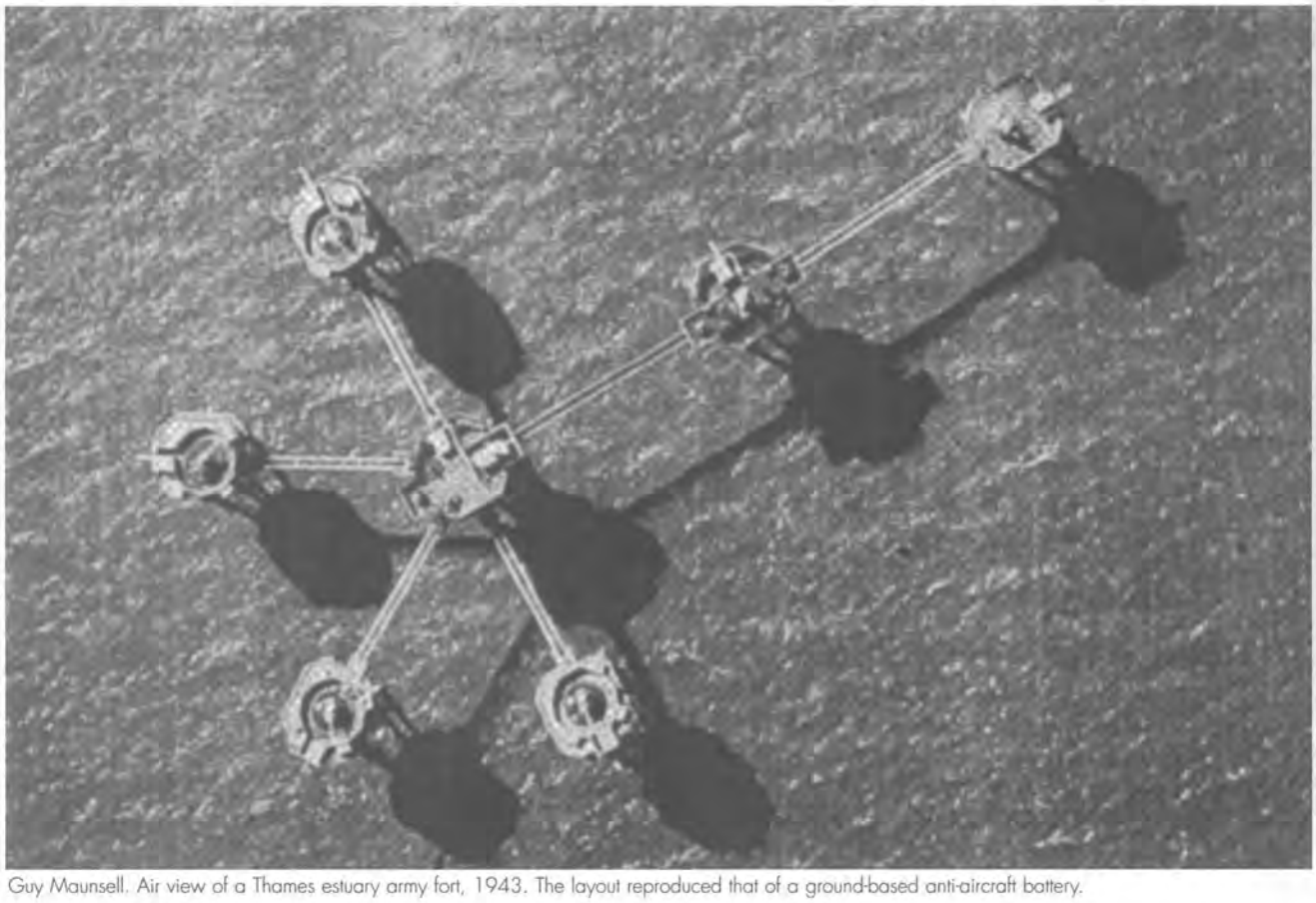
Exploitation of under-sea energy reserves has been an important field of engineering development in the past half-century, perhaps second only to the exploration of space, yet it has received little public attention and that has been mainly suspicious and critical. Suspicion and criticism have certainly been justified. Oil and gas extraction is dangerous and can be environmentally destructive but, like mining through its longer history, has been remarkably innovative and has generated a range of specialised and often heroic structures. This article discusses submersible structures, grounded on the seabed or stationed above it, as distinct from rock-based off-shore buildings such as forts or lighthouses.

by David Whitham

The origins of modern submersible design are found in military installations of the Second World War. In 1939 Guy Maunsell, an engineer experienced in bridge and pier design, offered the British Admiralty an idea for a submersible observation post, which though not adopted, was followed by a proposal for a reinforced concrete fortress to be floated out and sunk on the sea bed. This aroused official interest and in 1940, when the Germans began effective mining of the Thames estuary, Maunsell was asked to design a series of off-shore fortresses, four of which were built, each with a concrete pontoon base 56 m long by 29 m wide carrying two towers containing crew accommodation and stores and supporting a gun deck. The whole structure, over 30m high and weighing some 4,500 tonnes was designed to stand in up to 17 m of water.

Construction was designed and programmed in a series of dry docks and berths to save time, as were arrangements for towing and grounding on the chosen site by a sinking sequence which minimised disturbance to crew and installations. Maunsell thus faced and solved two major design problems crucial in later developments; speed of construction and structural integrity during transport and sinking. The successful completion of the four sea forts lead to the conception of the sectional harbours used in the 1944 Normandy landings.

While the forts were being built Maunsell was working on the separate problem of anti-aircraft defences in the Thames and Mersey estuaries, resulting in a different concept; clusters of seven towers on concrete legs, connected by walkways and reproducing the layout of a land-based anti-



Guy Maunsell. Air view of a Thames estuary army fort, 1943. The layout reproduced that of a ground-based anti-aircraft battery.
Photo courtesy of F.R. Turner.

Drilling rig: a Norwegian semi-submersible in North Sea weather. Photo courtesy of Ministry of Petroleum and Development, Norway.

aircraft battery. The towers were not self-buoyant and were carried out and lowered into position by specially adapted barges. Though abandoned by the army in the 1950s the forts had a brief era of fame between 1964 and 1967 as pirate radio stations. It seems also that the forts were known and admired by the future members of *Archigram*, a parallel which will be pursued later.

North Sea exploration

Off-shore oil exploration in the North Sea was preceded by investigation of coal reserves in Scottish waters. In 1955 the National Coal Board assembled a drilling rig at St David's harbour in Fife to test undersea reserves of the new Seafield colliery at Kirkcaldy. Designed and costed by Guy Maunsell and built by contractors who had worked on the anti-aircraft towers the 42m high rig was designed to drill to 700m below the sea bed and to withstand North Sea weather with winds up to 125 kph and 10 m waves. The steel structure, accommodating 25 men, carried between pontoons and towed to its working site, was moved seventeen times in the course of its explorations. Ten years later a more primitive drilling rig, *Sea Gem*, an adapted barge with extensible legs, struck natural gas off Norfolk, followed by other finds around the Humber. Such craft had been used in the relatively benign waters of the Caribbean and the Gulf of Mexico but proved unequal to North Sea conditions. Soon after its initial discoveries one of *Sea Gem's* hydraulic legs gave way and the rig keeled over and sank.

In the following decades a range of specialised installations and vehicles have been developed for exploration and production, largely from North Sea experience. Professor Christopher Harvie has commented on the lack of enthusiasm for, or even awareness of, the diversity and wonder of these developments comprising an achievement at least comparable to the construction of the 19th Century railway system. Yet no model oilfield kits have appeared and few small boys aspire to become directional drillers. To the public any large object out at sea with a derrick sticking out of it is an oil rig.

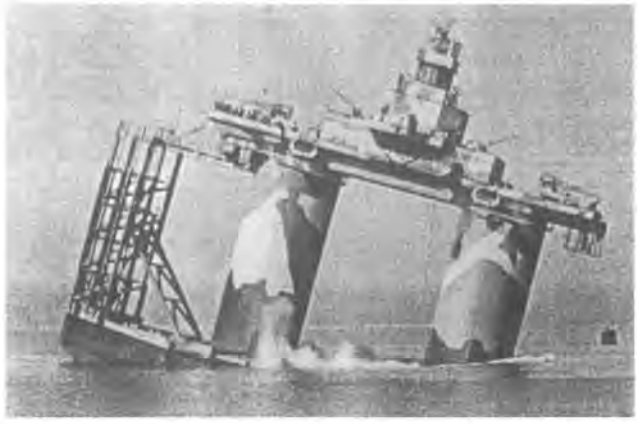
First, exploration equipment comprises three main forms, marine craft rather than structures, for successive stages of exploration.

1 *Seismic survey* forms a geological profile of potentially productive fields by towing 'streamers' containing sensitive survey equipment behind specially adapted vessels which can be supported by
2 *Sub sea vehicles*, often called ROVs (remotely operated vehicles), usually unmanned and controlled by umbilical cables. These mini-submarines can operate to depths of over 2,000 metres for detailed survey or construction on the seabed. Sites once identified and surveyed are evaluated by
3 *Drilling rigs* to assess the quality and quantity of the deposits. Rigs can be free standing on the seabed in shallow water or semi-submersible in deeper water. The semi-submersible rig is floated to its site on tall cylindrical caissons or pontoons and sunk to working level, its deep and now heavy substructure providing stability in rough water. Location is maintained by anchoring cables, or by the rig's motors, controlled by satellite positioning.

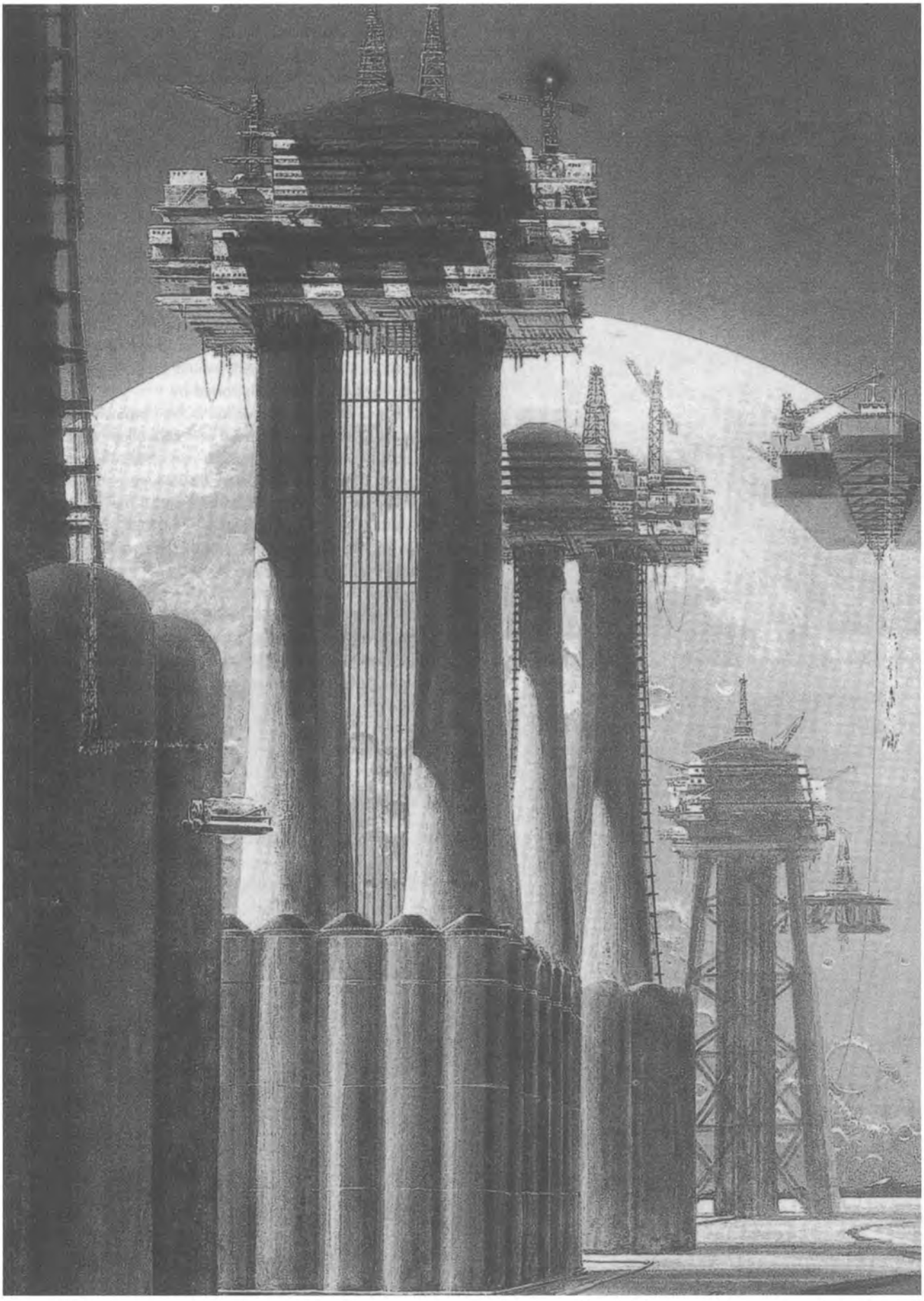
Essentially these devices, including the drilling rigs, are mobile, moved about the oilfield, to other oilfields or to other locations world-wide. Production from a proved field requires, literally, a change of gear.

Production: the platforms

Exploitation of a field requires static structures for drilling production wells, processing the products and delivering them to mainland terminals, calling for large and at least semi-permanent off-shore installations, virtually artificial islands. In the last four decades most of these platforms have been based on towers founded on the seabed, of three basic



Guy Maunsell's Knock John naval fort grounding. Photo taken as stern touches sea bed on 1 August 1942. Photo courtesy of F.R. Turner.



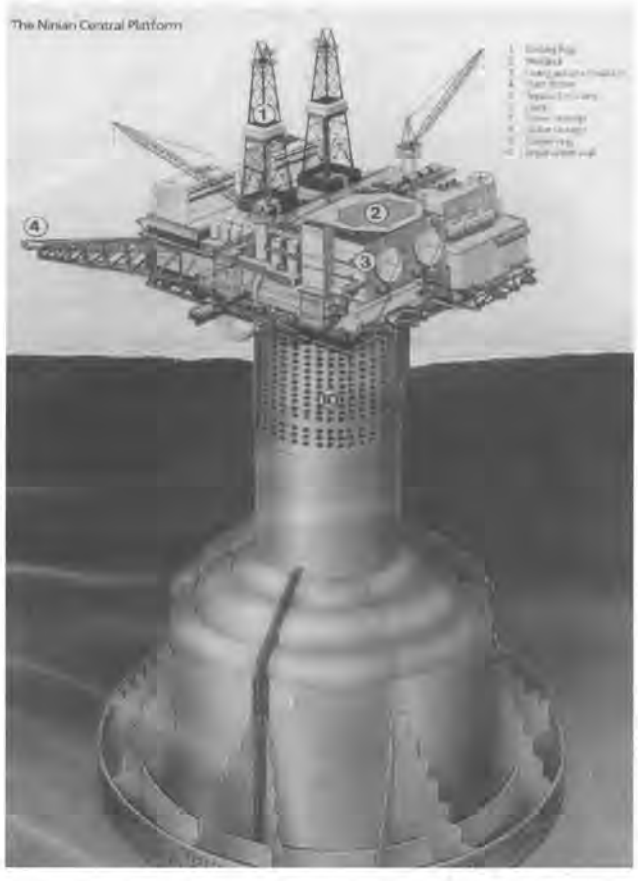
The Brent family. Three concrete based platforms, Brent D, C and B in foreground; steel-jacketed Brent Alpha behind. A semi-submersible drilling rig behind Brent A; a diving support vessel at right. Fantasy poster of 1995 by Freecard Aberdeen.

types; piled steel space-frame, concrete gravity based and extensible leg jack-up towers. The North Sea fixed platforms consist mainly of the first two of these: the jack-up platforms, movable and less substantial, are principally employed to supplement permanent installations in drilling or constructional stages. The tower, or 'jacket' supports a deck, usually a trussed steel structure, 20 to 30m above the water, on which drilling rigs, processing plant, power generators and pumping stations, accommodation, helideck and other requirements for a self sustaining petro-chemical plant are carried, clipped together in interlocking modules, all comprising the 'topside'.
Development of North Sea platforms is briefly, and necessarily superficially, described in four fields, two in Norwegian and two in Scottish waters.

Ekofisk
In 1970, after some years of exploration, Phillips Petroleum announced a 'giant discovery' just inside the Norwegian sector, signalling the start of the North Sea oil boom. Ekofisk, estimated at over 1 billion barrels, was followed by British discoveries at Forties and Brent and more Norwegian strikes. Phillips converted a jack-up drilling rig into the first production platform for Ekofisk and the Norwegian Prime Minister formally opened oil production in July 1971. At first oil was collected in storage buoys for transfer to tankers but weather conditions made continuous off-loading impossible, interrupting production. Constructing pipelines from the mid North Sea platforms was at that time impracticable: apart from distances from any shore, approach to Norway was obstructed by a deep trench in the seabed. Phillips commissioned a floating concrete tank, to hold a million barrels of oil; the first great concrete structure to be towed to location in the North Sea. Later a 350 km oil pipeline was laid from Ekofisk to Teesside in England, and a gas pipeline to Emden in Germany, at that time the longest under-sea pipelines on earth.
Water depth at Ekofisk was about 70 m, not great by later North Sea standards, but the oil lay at more than 1,600 m below the seabed. The large reservoir was tapped by directional drilling, a technique which eventually has enabled wells to be driven to 5,000 m horizontal distance from the platform.
The Ekofisk central complex consists of an array of platforms around the great storage tank, connected by gantries, like an enormous version of Maunsell's anti-aircraft fort. Norwegian off-shore installations were strictly regulated, restricting accommodation on platforms to 200 persons so that residential 'flotels' were attached to operational platforms.
Besides operational difficulties and accidents, including one of the most serious North Sea disasters, in March 1980, when the flotel *Alexander L Keilland* capsised claiming the lives of 123 people, Ekofisk suffered and uniquely solved a serious problem of subsidence. In 1987, with production in decline, the seabed sank about 2.5 metres. Phillips planned an audacious strategy to save its vast investment, first injecting water to repressurise the under-sea reservoir and at the same time to sweep more oil to the production wells, and to jack up six platforms by six metres and weld leg extensions into place, an unprecedented engineering feat. The million-barrel storage tank, too heavy to lift, was encircled by a full-height concrete sleeve to withstand the feared 100 year wave.

Brent
The four Brent platforms, pictured in a fantasy poster of 1995, include steel and concrete structures. Viewed as if from the seabed the base of Brent D is in the foreground, then C and B, all concrete structures or condeeps: Brent A, in the background, has a steel jacket. Also shown are a semi-submersible drilling rig behind A, a diving support vessel on the right and an ROV inspecting the base of Brent D.
Shell and Esso discovered the Brent field in 1971, 240 km east of Shetland and in about 140 m of water. The first platform was installed in 1974 and Brent B, built at Stavanger, in 1975 indicating the remarkable speed at which these structures were designed and built.
While steel-jacketed platforms are most commonly used world-wide, concrete has been particularly developed in the North Sea. Concrete platforms have several advantages: their great weight secures them on a suitable sea bottom whereas steel structures must be pinned down by piles; their wide bases can be used for oil or gas storage, and the towers enclose and protect drill strings and production pipes. They can be floated out with topside installations in position whereas steel jackets are normally floated on their sides to be completed on site, exposed to North Sea weather. Building and fitting out the great concrete towers requires deep and sheltered water. Norway's fjords provide such sites and the Norwegian government has encouraged the use of concrete to support and develop the national construction industry.
Absent here is the most famous Brent installation, the Brent Spar. The Spar was a storage tank, a 130 m high steel cylinder ballasted to float vertically and anchored to the bottom. Used to store oil from the platforms for transfer to tankers, Brent Spar became redundant after completion of a pipeline to Shetland and was decommissioned in 1991. Shell's plan to sink the Spar in deep water in the Atlantic was successfully opposed by environmental activists, led by Greenpeace, in 1995 and the Spar towed to Norway where it is finding honourable re-use, cut into slices to carry a new concrete quay at Makjarvik.

Ninian
The Ninian field was developed by Chevron UK from 1974. Its Central Platform was perhaps the first North Sea structure to touch popular imagination as 'the biggest movable thing on earth'.
Ninian Central platform stands in 133 m of water 160 km East of the Shetland Isles. A concrete tower incorporating well slots and storage tanks is mated to a steel deck 40 m above the water. Modules stacked on the deck contain production and service functions with accommodation, catering and recreational facilities for 340 workers, power units and water desalination plant, fuelled by oilfield gas. Designed and built between February 1974 and May 1979, Ninian Central was larger and more complex than any



Ninian Central platform, taken from overlay drawing: not all of the features listed are visible. Courtesy of Chevron UK.

previous offshore installation. Gas and oil from the three Ninian platforms, and from adjoining fields, are processed there and the products pumped by pipeline to terminals on Shetland and the Scottish mainland.
The concrete base and tower was constructed at Loch Kishorn on the North-West coast of Scotland, the lower part in a specially excavated dry dock, to be floated out for completion in deep water. The steel deck was meanwhile assembled on the East Coast and carried from there on lifting barges to be mated with the jacket in the Sound of Raasay. The entire assembly was then towed round the North Coast of Scotland to its North Sea site.
Ninian Central, designed and built by a British-French consortium, Howard-Doris, represented a new generation in platform design and Chevron-UK, its owners and operators, in contrast to the secrecy which normally encloses the oil industry, exploited the opportunity for publicity, producing glossy brochures and a video detailing its construction. Its aesthetic qualities were compared with the Pompidou Centre and Richard Roger's Lloyds building while the class of the 1960s perceived it as realising the neo-futurist projects of the *Archigram* group, expressed by Reyner Banham as, 'a new vision of the city of the future, a city of components on racks, components in stacks, components plugged into networks and grids, a city of components being swung into place by cranes.'

Ninian Central platform November 1977. The 160 m high concrete base is sunk in deep water with 13 m freeboard exposed, the steel deck floated over it and the base carefully lifted to mate with the deck. Photo courtesy of Chevron UK.

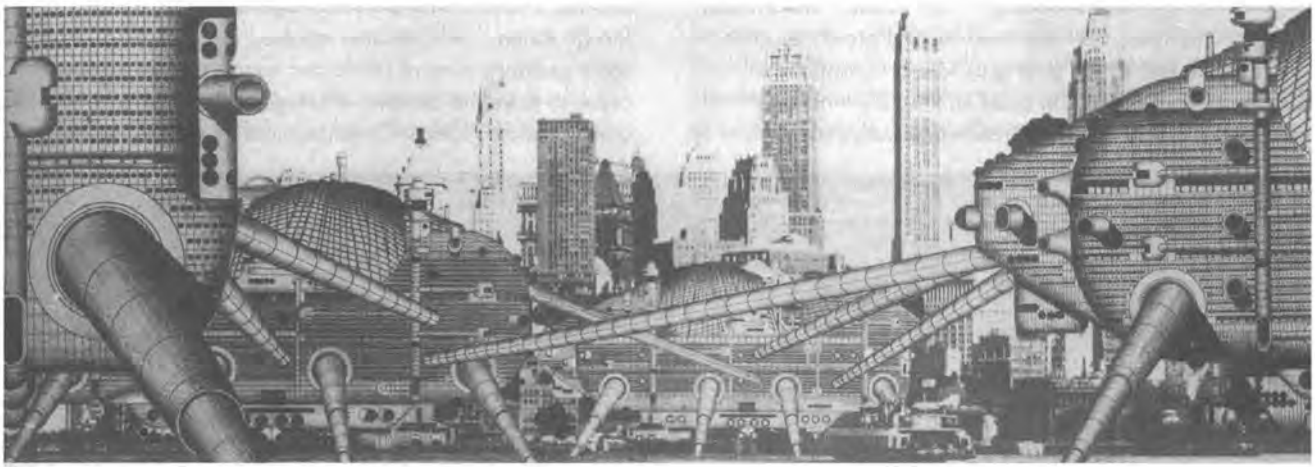
Troll

Records set by Ninian Central were eclipsed by the size, weight and astonishing appearance of the Troll A platform, 470 m high, built at Stavanger from July 1991 and towed to its location 125 km North-West of Bergen in May 1995.
The Troll oil and gas field, discovered by Norske Shell in 1979, is being developed in three phases. Phase 1 includes the Troll A platform and pipelines to an onshore plant at Kollnes. Phase 2, developed in parallel, has a floating concrete production unit and the developing phase 3 will also be served by a floating platform. Troll A probably marks the end of an era as the last of the great gravity-based concrete platforms.
Troll A has a broad caisson base consisting of 19 cells, four of which extend as shafts supporting the deck and topside at 370 m. The shafts are joined at 130 m by a deep web, 30 m high, a pre-stressed collar which stiffens the whole structure and which acted as a buoyancy chamber during the tow to field.

But is it architecture?

The editor of the DOCOMOMO anthology 2000 found 'some problems' with the inclusion of Ninian Central but recalled the 'indelible link between the Modern Movement and the experimental structures of the 19th Century engineers'. Constructed of building materials, designed for specific sites, the platforms are unquestionably buildings, of our period and innovative, some even iconic, as the criteria of the DOCOMOMO International Selection require; they are industrial artefacts, but so are many factory buildings listed by DOCOMOMO. The North Sea platforms include the tallest structures in Europe and rank among the greatest constructional achievements of the 20th Century.
As remarked above, Troll Alpha will probably be the last of the great gravity based platforms: its sister installations will be 'floaters'. This article has concentrated on the concrete platforms; architecturally the most interesting of the North Sea structures and certainly the most permanent, which raises the question of their future.
Discussions on decommissioning have concentrated on disposal of steel structures; for the foreseeable future the condeeps are there to stay. Although current Norwegian guidelines require that platforms should be removable there must be some doubts about ballast and flotation equipment operating sufficiently sensitively to carry them home them after 60 years or more.

Ninian Central platform in operation, after removal of a redundant drilling rig and replacement by a new gas production module; 1991-1993. Photo courtesy of Chevron UK.



The Walking City in New York; drawing by Ron Herron; Archigram, 1964.

'Can my city come visit your city?'

The final irony of this account of late 20th Century marine structures is that moves to deeper water, advanced drilling techniques and floating platforms bring us nearer to Archigram's most famous concept; the travelling city. It remains to be seen how DOCOMOMO's successors, dedicated to the documentation and, if they dare, conservation of ultra-modernism, will regard these iconic structures.

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Between art and technology
The humane architecture of Lelé

As an architect in whom art and technology met and merged, Lelé was the missing element to fill-in the serious gap in the development of Brazilian architecture in its most heroic era. After working with Oscar Niemeyer for a number of years, his best works are today found in Salvador and the North-East of the country – works that stand out by their humane and sophisticated character.

by Wessel de Jonge

João da Gama Filgueiras Lima – better known as *Lelé* – is one of Brazil's great architects who inspired many, both in Brazil and abroad, by his architectural ideas, his technical skill, and his social commitment. Surprisingly, a comprehensive publication on Lelé was so far lacking, until the Lina Bo and P.M. Bardi Institute, with Editorial Blau, recently published a first monograph on this remarkable architect in their Brazilian Architects Series.
In his introduction to the book, Lúcio Costa describes Lelé as a 'technician and artist, (who) emerged at the right time: he was the missing element to fill-in the serious gap in our architecture's development, (...) the architect in whom art and technology meet and merge – *the builder*.' Apart from being an architect, Lelé also worked as a project teacher and coordinator for the post-graduate program at the Central Science Institute in Brasília, the ICC, where he was responsible for the Building Technology Department.

'Whenever there was a need for somebody who knew more about technique, it was Lelé they called', he remembers, 'so I had to develop in this direction, there was no way out.' Born in 1932, Lelé built his first projects in Brasília around 1960, among them the Taguatinga Hospital, the Disbrave/Volkswagen Headquarters, the first Sarah Kubitschek hospital, and a series of well-planned housing blocks. These superblocks he still considers as examples of an architecture that is able to trigger social change, and even changing peoples way of thinking.
The military coup of 1964 came as an unexpected interruption, and the start of a period without much work for architects with a different social agenda. After moving to Rio de Janeiro, Lelé became involved in developing large scale prefabrication of reinforced concrete elements, in order to solve the pressing shortage of housing, schools and other public buildings. Commissioned by the Ministry of

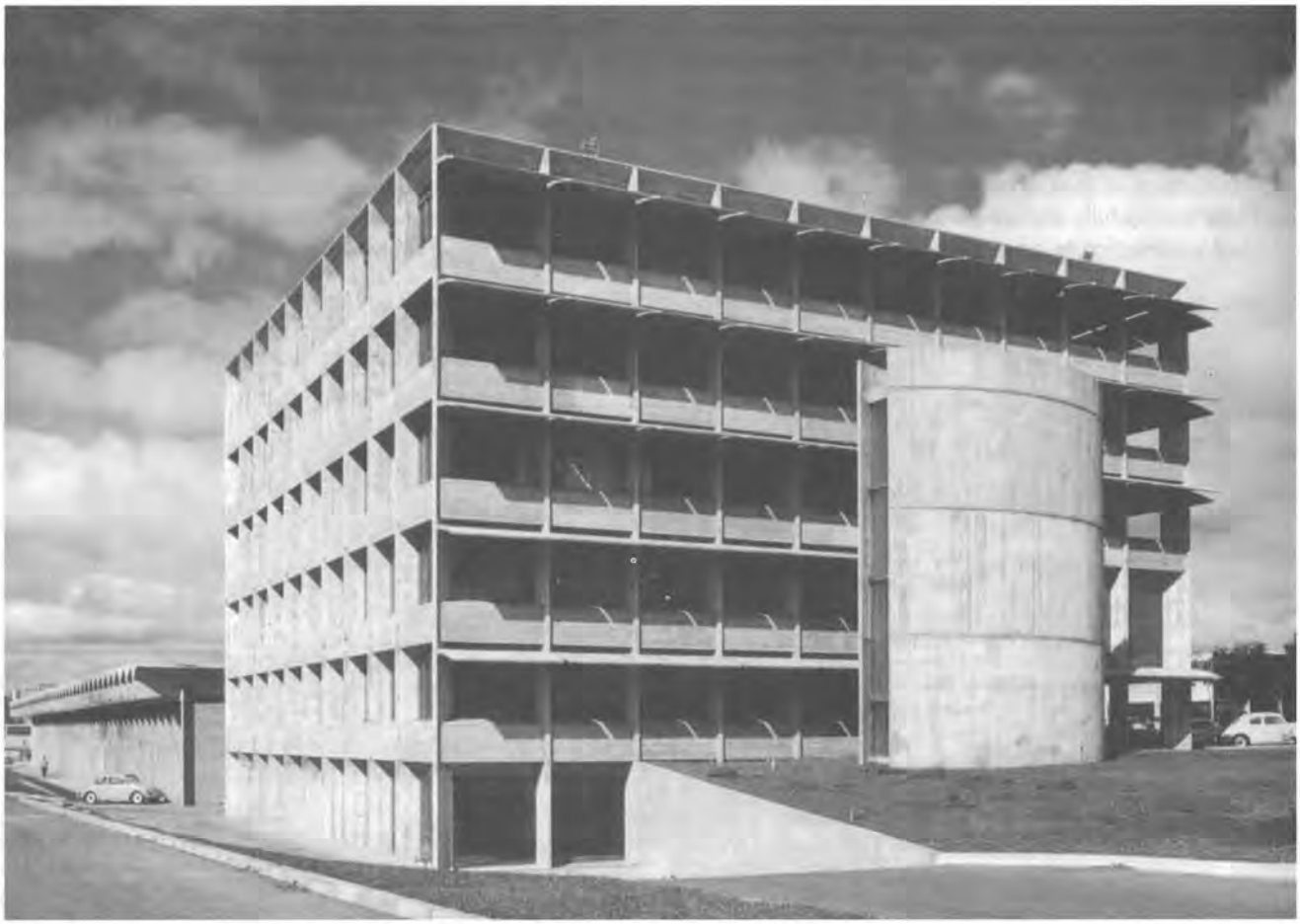
Interior of the Sarah Kubitschek Hospital in Salvador (1991). Photo: W. de Jonge.

Lelé (left) with Oscar Niemeyer in 1997. Photo from the reviewed book.

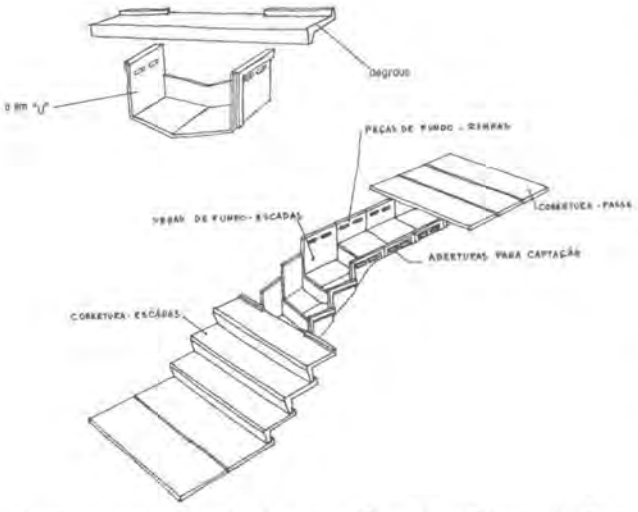
Education, a series of elegant and simple schools eventually emerged.
After settling in Salvador, the capitol of Bahía, he produced some of his best works: the city's Administrative Centre, the beautiful church that completes it, the Railway Terminal and a series of extraordinary, well-planned hospitals, scattered all over the Northeast of the country. The sensitive, humane qualities of these hospitals met with international acclaim. 'Today', writes Oscar Niemeyer in his contribution to the book, 'if somebody wants to plan an up-to-date hospital, he'll have to talk first with Lelé'.

Brasília

Brasília was born as a city at the same time as Lelé was born as an architect, as it was here that Lelé put his hands to work. At that time, in Brasília, there was not much difference between an engineer and an architect. As there were little facilities and everything had to be built up from scratch, the few trained people present got involved in every aspect of planning and construction. 'There I was, recently graduated, twenty-five years old, (...) left with the problem to build a superblock', he recalls. 'I took a lot of books with me. At night I used a lamp to study how the foundation had to be made. I was desperate. You could only talk to Rio once a week through a small radio. So, you were very much alone'.
Due to the conditions in Brasília, Lelé developed an interest in prefabrication. The city had to be built in only a little over two years. Even before that, an enormous quantity of barracks had to be made to house the engineers and the workmen. There was neither *time nor space* for architecture or academic debate, and things simply had to be put to work.
In Brasília, also the influence of Lúcio Costa has been instrumental. 'He was a person who had an enormous sense of opportunity. In spite of having a reserved temperament and having been very discrete in his professional life, when Brasília emerged he saw that his participation was fundamental, he knew how to design the right thing.
Dr. Lúcio's project was beautiful, logical and executable - it became sacred, untouchable, and it was this that gave Brasília its strength ... to the point of becoming World Heritage. It thought me that sensitivity is a fundamental fact of professional life, not mathematics.'



The Disbrave/Volkswagen plant in Brasilia (1965) was one of Lelé's first experiments with prefabricated concrete. Photo from the reviewed book.



Drainage system combined with steps and footpath, prefabricated in ferro cement, part of the 1980-85 sanitation campaign of Salvador's shanty towns. Drawing from the reviewed book.

Prefab

Oscar Niemeyer invited him repeatedly to elaborate his ideas on prefabricated concrete. The invitation to design the buildings for the ICC, where Lelé also worked as a teacher, brought the opportunity to try it. At that time, prefab constructions were almost completely unknown in Brazil. In 1962, the related technical problems were further examined during a trip to the Soviet Union, Poland, Eastern Germany and Czechoslovakia, where prefabricated building technology was widespread. Although this suggests a strong influence from Eastern Europe, Lelé's works have little to do with the monotonous prefab architecture produced there in the 1950s and 1960s.

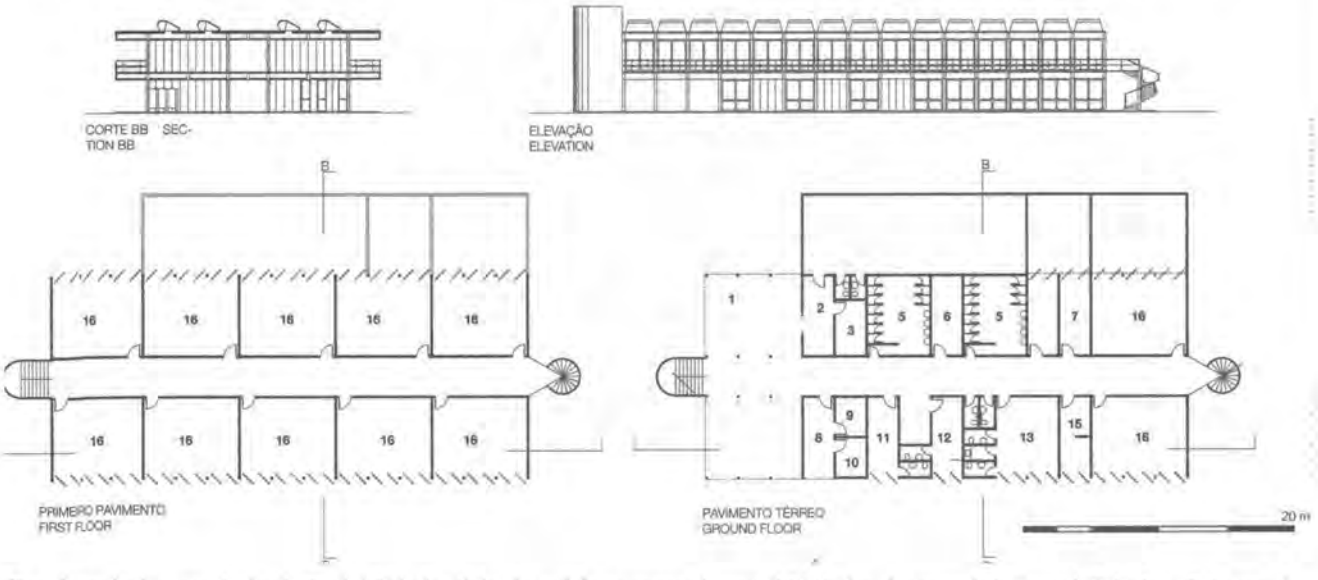
Back in Brasília, the idea was to set up a factory for prefab elements at the University site itself – an idea that was later successfully implemented for his hospital projects. The first construction to be made was the main building, that stretches on the undulating plains of the Planalto for over a kilometre, with a gentle bend in the middle. This *Minhocão*, or earthworm, is familiar to most DOCOMOMO members, as we celebrated our 6th International Conference here in 2000.

Compromising the original project, that featured a building intended to float on the plains, classrooms were squeezed in the large pits excavated under the building for its foundations. By that time, Niemeyer and Lelé were no longer very much involved with the planning of the works. Also, the original idea was to create a completely prefabricated building, with precast panels also for the walls. The use of brick was another unplanned adaptation. Since then, Lelé worked often with light, small prefab elements that could be carried uphill on a man's shoulder, to find a proper use in Brazil's shanty towns. His projects are characterised by their versatility, strongly attuned to local circumstances, and a remarkable quality of finishes.

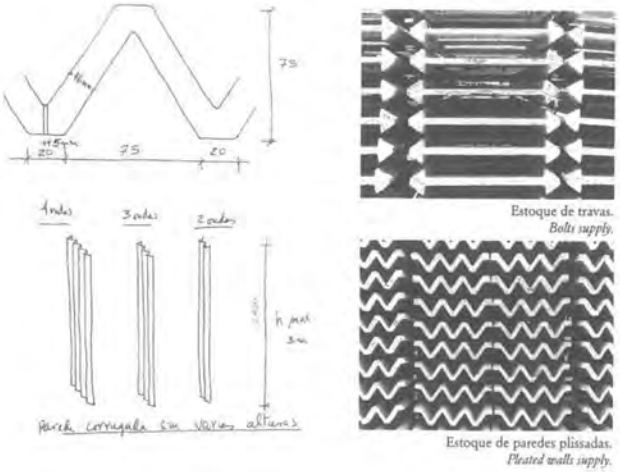
The city

A second professional opportunity came when moving to Salvador. Due to its relatively progressive political climate this city had attracted several young architects, like Lina Bo Bardi, who shared a social ambition. The projects in Salvador were challenging as they involved a range of issues related to the city as a whole. 'It made me preoccupied with the universe of things that are important to the city's life: transport, garbage, sewage, colour ... practically everything was seen from a cultural point of view.'

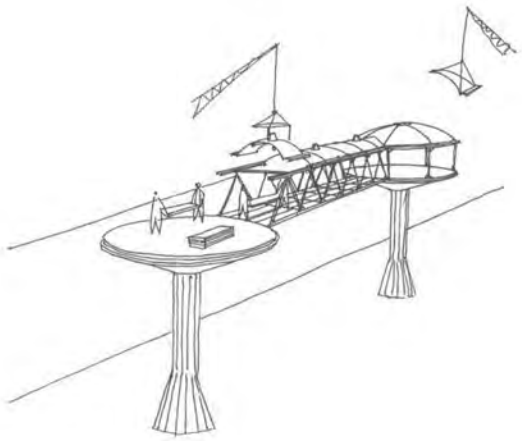
One of the outstanding works here is the restructuring of the Ladeira da Misericórdia, a socially deprived neighbourhood in the city's historic centre, where he, together with Lina Bo Bardi, developed a low-cost construction system with undulating hollow concrete element that could be filled with earth. Also involving high-ways, footbridges and bus shelters, the Salvador projects provided an opportunity to participate on all levels of



Plan of one the forty standardised schools Lelé built in Salvador with ferro cement elements (1988). Key: 1. covered playground, 2. kitchen, 3. buttery, 4. bathrooms, 5. students bathrooms, 6. storage, 7. coordination, 8. office, 9. archive, 10. mechanography, 11. vice director, 12. director, 13. teacher's room, 14. pantry, 15. medical/dental office, 16. classrooms. Drawing from the reviewed book.



Prefab panels for the 1988 Ladeira da Misericórdia project in Salvador. After assembly into hollow elements and filled with earth, they served as facades and retaining walls along the steep slopes. Drawing from the reviewed book.



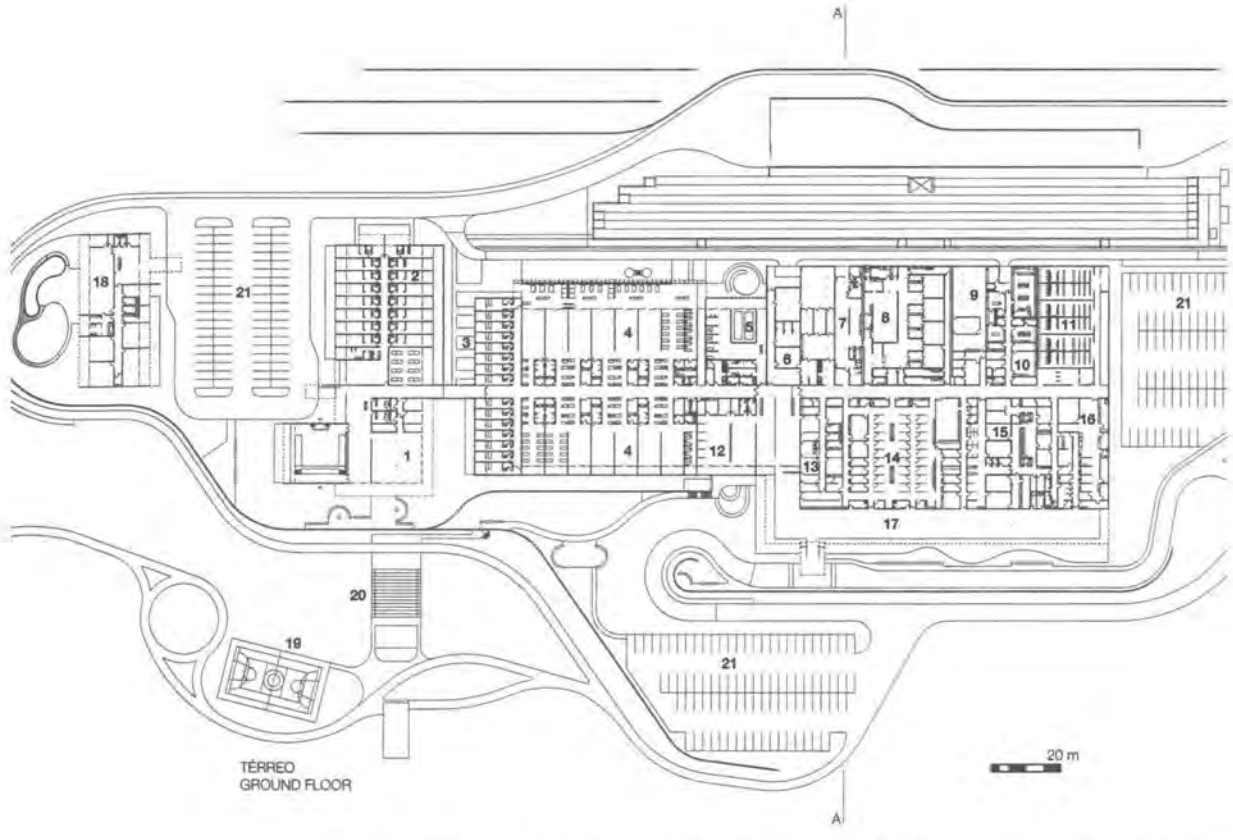
Sketch of standardised footbridges in Salvador, designed between 1986-88. Drawing from the reviewed book.

planning.
Lelé understood very well that in Salvador – Brazil's oldest and, culturally speaking, wealthiest city – the city itself was the administration's fundamental cultural object. 'The city as a great cultural document had to go on evolving without losing its identity' he says. 'It was necessary to use available technology and always keep in mind something much more important: the city with its cultural identity and position, and all its problems. It is to put technology to serve and not the opposite.'

Interview

The ambition of this first international publication on Lelé has been to offer the public a deeper knowledge of his works, presented in a chronological order to illustrate the development of his career. The first part features an interview that shows a little of the man behind this remarkable architecture. The choice for an interview rather than an introductory essay has allowed to elaborate quite freely on Lelé's ideas about education and architecture in general. This has added a lively perspective to the lavishly illustrated presentation of his remarkable works. On the other hand, the books lacks a certain level of methodology – for instance omitting such essential information as his date of birth and other biographical notes. The book further includes lists of works, project credits and a bibliography.
Talking about his career, Lelé balances between fate – 'coincidences' and 'chances' – and determination. He stresses the necessity for architects to remain curious: 'Evidently, you have to act without waiting for destiny to solve your problems. The whales have also made a great effort to keep their noses on top of their heads. And not without cause; they had to adjust themselves to another situation.' Overlooking his works, it is obvious that this guideline has assisted him throughout his career. 'When

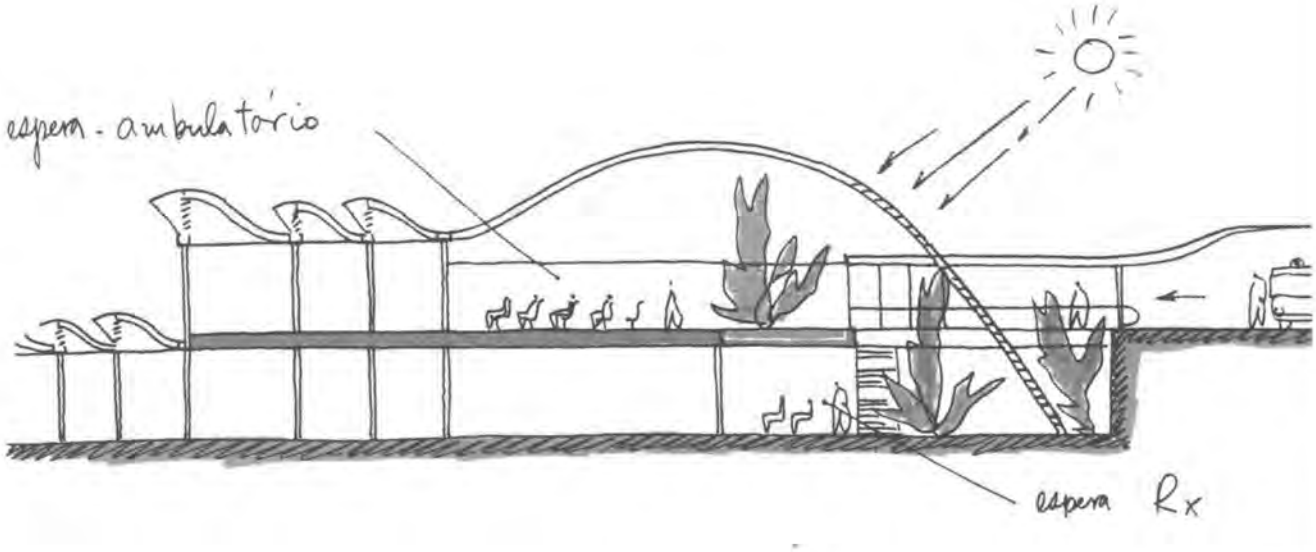
One of the fifteen footbridges in Salvador (1986). Photo from the reviewed book.



Plan of the Sarah Kubitschek Hospital in Salvador (1991). Key: 1. studies centre, 2. medical residence, 3. infirmary apartments, 4. infirmaries, 5. hydrotherapy, 6. reception, 7. first stage, 8. surgical centre, 9. medical archive, 10. laboratory, 11. dressing room, 12. physiotherapy, 13. administration, 14. ambulatory, 15. radiology, 16. orthopaedic workshop, 17. waiting room, 18. cerebral paralysis' children, 19. yard, 20. acoustic shells, 21. parking. Drawing from the reviewed book.

an architect specializes – as a hospital planner, for example – he sees the hospital space as a technological one. This space starts to lack a human function, which is the architects primordial duty, (...) but it is of fundamental importance to create a space where the patient will feel at ease and be really prepared psychologically to be healed, because, on the contrary, he will not be cured.'

Nervi is mentioned as another great inspiration: 'An engineer, with a great preoccupation with the question of economy, (who) ended up by doing the best quality architecture, full of beauty and of the rigorous spirit of an engineer who had to economise.' It proved to him that the path to beauty does not always require to be imbued by the wish to make something beautiful.



Climatisation diagram for the Sarah Kubitschek Hospital in Belo Horizonte (1993), that shows Lelé's increasing interest in sustainable solutions, drawing from nature. Drawing from the reviewed book.

The Sarah Kubitschek Hospital in Salvador (1991). Photo: W. de Jonge.

Contemporary architecture

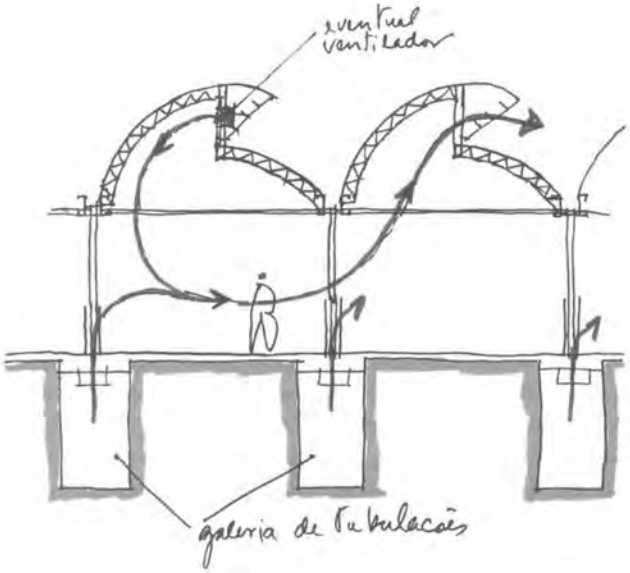
'In Brasília we were full of hope, we believed a little more in mankind's success than they do at present', he claims. 'Today I am little more sceptical in relation to contemporary architecture, but at that time we believed that everything was beautiful.' He looks at post-modernism as an architectural concept that contains an air of decadence. 'It is something led by marketing, in a competitive market in the area of architecture. That time was more idealistic (...) and we were not subordinated to market problems.' This fundamentally changed the way that architecture used to be absorbed by the cities in a disorderly fashion.

'Today, when everything is so transitory, (...) each one wants to have a different gimmick in order to please the market. I think this gives the architect a lack of perspective, he becomes insecure in relation to what will happen. I didn't follow any gimmick, because I am of another generation.'

Confronted with Lelé's works, every architect is tempted to dream, create and idealise something useful for society. In a country with the size and the needs of Brazil, Lelé shows solutions of the highest technology along with the most sophisticated simplicity, by means of which a higher level in quality of life and comfort in the cities may be attained. As Marcelo Ferraz notes in his introduction, he is probably the present day architect who undertakes to the most the proposals of the Modern Movement for developing an architecture that may change the world for the better.

Wessel de Jonge is a practicing architect in Rotterdam, The Netherlands, and a member of DOCOMOMO-NL and the International Specialist Committee on Technology.

'João Filgueiras Lima – Lelé', edited by Marcelo Carvalho Ferraz and Giancarlo Latorraca, Lisbon 2000, 264 pages in Portuguese and English, 675 bw and colour illustrations, paperback, ISBN 972 8311 49 4.



Climatisation diagram for the Sarah Kubitschek Hospital in Fortaleza (1991), with a similar ventilation principle as the Salvador hospital. Drawing from the reviewed book.

Modern technology
Research in Italy

As compared to other European countries - the Americans are still ahead of us in this respect - researchers in Italy are very active in exploring the history of 20th Century building materials and constructions, their impact on the development of modern architecture, and their conservation. The two main centers of research are the Civil Engineering Faculty of Tor Vergata University in Rome, with a research team chaired by Sergio Poretti, and the Turin Politechnic, where the Faculty of Architecture as well as the Department for Engineering of Systems and Environment of the Engineering Faculty, headed by Pier Giovanni Bardelli, are important contributors.
Rather than on materials as such, the group in Rome focuses on the application of materials and construction methods, such as early concrete systems and innovative technologies like ferrocement. The results of these studies have contributed significantly to the series of publications 'Il Modo di Costruire' (The Way of Constructing), edited, amongst others, by Maristella Casciato. This year marks the tenth edition in these series, which is coordinated by the Tor Vergata team, but brings together research material from twelve other institutions, from Rome (La Sapienza), Turin, Naples, Florence, and other cities.
The Turin branch, on the other hand, tends to concentrate on the materials themselves, resulting in studies on ancient and modern plasters (Terra Nova), linoleum, glass products (Fontanit, Securit, glass block), metal alloys (Duralluminio) and so on. These studies involve badly needed information on celebrated 20th Century materials but just as well provide keys to some experimental materials that have been produced just briefly before they sank into oblivion - a real conservationist's nightmare.
Quite successfully, both centres are more and more operating complementary to each other as they are increasingly exchanging their know-how, sharing publications, and co-organizing seminars - most notably the DOCOMOMO Technology Seminar on Stone on November 30/December 1 in Rome. Over the last year, several books have been published that illustrate the industrious character of Italian research in this field. Given the expertise recorded in these publications, it is regrettable that none of them involves an English summary.

Buxus

'Il Buxus. Storia di un materiale autarchico fra arte e tecnologia', by Emilia Garda, Venice 2000, 109 pages in Italian, 51 fc and 57 b/w illustrations, ISBN 88 317 7664 9.

The development of Italian Modern Movement architecture has partly been ruled by a particular phenomenon in the country's history, the period of economic autarchy. Mussolini proclaimed this campaign for self-sufficiency in 1936, after the economic sanctions following the colonial war in Ethiopia and, in a way, made it part of his fascist ideology. The Italian industry responded by developing new products that could be produced from raw materials that were available from Italian territories, as an alternative to imported goods.
Emilia Garda's book, with an introduction by Pier Giovanni Bardelli, deals with Buxus, one of these substitute materials of the interwar period. Buxus is elastic, solid, veined like marble, and mottled with color like walnut, but made of cellulose by a still mysterious process referred to in period literature as 'oxification'. It was produced by the Turin-based firm Cartiere Giacomo Bosso and promoted by the artist Fortunato Depero. Buxus came in various finishes - natural, polished or varnished - and varied in thickness to allow its use in making and veneering furniture, as wall covering, tapestry, book covers and even trunks and bags. After the presentation of the material at the 1928 Turin Fair, it became one of the most widespread substitutes for wood before the war, though mainly in the North of Italy.
Based on an extensive analysis of various archival sources - largely unedited before - the author describes the history of the material as well of the industry that produced it. She presents Buxus as an industrial product that doubled as a material with a great expression in architecture and furniture design throughout the 1930s. This is well demonstrated by the many illustrations in the book, as the story of Buxus is told for a considerable part by the large amount of images, reproductions of advertisements and pages of period magazines, many of them in color. The book is complemented by an 'autarchic dictionary', and an extensive bibliography of Italian literature.
Emilia Garda, an architect and doctor in engineering, is engaged as a researcher at the Turin school, and the merit of

her book is that it goes beyond the description of Buxus as a material per se. Her subject - one of the many aspects in the historiography of Italian dwelling culture and furniture design between the wars - has become a pretext to explore new strands in the analysis of meaning and contradiction, and to investigate a way of thinking that has been characteristic for this period in architectural history in Italy. Her reflections extend to the use of these materials within the rationalist' poetics of the era, to find that these 'new', 'autarchic', and 'experimental' discoveries have often been more related to aesthetic, symbolic, and evocative choices than to the assumed, high-spirited principles of the Modern Movement.

Reinforced concrete

'Il cemento armato in Italia. Dalle origini alla seconda guerra mondiale', by Tullia Iori, 'Il Modo di Costruire' vol. 9, Rome 2001, 266 pages in Italian, 136 b/w illustrations.

In his introduction to Tullia Iori's book 'Reinforced concrete in Italy. From its origin to the Second World War', Sergio Poretti identifies two different histories of reinforced concrete: one that deals with the influence it has had on the renewal of architecture in the 20th Century, and another one that regards the acceptance of these new inventions in different countries and their actual application. The first created an image - one of the most abused - of reinforced concrete as a symbol of modernity. The other one, he argues, is still largely unknown in most countries.
Indeed, some key questions in the historic development of reinforced concrete in Italy have, like in most other countries, not yet been adequately answered. This regards the diffusion of concrete technology after it started in the late19th Century; the extent to which it has been a phenomenon imported from abroad, and in how far these foreign systems have gone through a local development; the influence of Italian scholars on the international debate regarding the application of classical calculation theory to a non-homogeneous material; the effect of the limited availability of steel during the 1930s period of autarchy on the development of reinforced concrete in Italy; and the contemporary development of experimental technologies for large structures, like pre-stressed concrete, while concrete technology spread in ordinary construction practice.
Tullia Iori, a building engineer engaged as a researcher at the Department of Civil Engineering at Tor Vergata University in Rome addresses these issues in her book, which is the result of her doctorate thesis. Drawing from sources at the archives of the Italian patent office (Ufficio Brevetti), that remained almost completely unexplored until now, and professional engineer's magazines, the author reconstructs, from the beginning until the Second World War, the winding road by which the new technology of reinforced concrete construction could be established in Italy. She re-examines the sequence of over a thousand inventions, Italian and foreign patents, that have determined the first calculation formulas and the uninterrupted process of perfection that followed. The ample debate on construction theories and calculation that, also in Italy, has continuously accompanied the development of reinforced concrete is unraveled in another chapter. Again, the period of autarchy triggered innovations such as timber and bambu reinforcement patents, and the development of countless floor systems based on hollow ceramic elements, still widely used in Italy today. The book is complemented with a who-is-who in Italian concrete engineering and an extensive bibliography.
The result of Iori's dedication is a publication that involves material that has largely remained unpublished so far, and that features, apart from the well known protagonists in structural engineering, a large number of engineers, theorists and entrepreneurs, that contributed to the development of reinforced concrete but were so far unknown. It is a specialist's history of reinforced concrete, that offers new, circumstantial evidence for a reinterpretation of modern architecture of the 1930s in Italy. Moreover, it adds an essential chapter to the still relatively unknown historiography of engineering in the 20th Century, not only in Italy but just as well in an international context.

Modern construction

'La costruzione moderna in Italia. Indagine sui caratteri e sul degrado di alcuni edifici', by various authors, 'Il Modo di Costruire' vol. 10, 345 pages in Italian, approx. 450 b/w illustrations, Rome 2001.

'Modern construction in Italy. Investigations on its original character and on the degradation of some buildings' is the first result of a scientific national research program on the history and technology of modern construction in the first half of the 20th Century in Italy. The project has been commissioned by the Ministry for Universities and Research for 1998 – 2000, with thirteen participating working groups coordinated by Sergio Poretti. This volume presents a synthesis of their studies in a largely standardized format, that appears to be partly modeled after Poretti's work on the famous Roman post offices of the 1933 competition, produced by his team and presented at our 1992 Conference in Dessau. To this end, the contributions have been expertly edited by Rinaldo Capomolla, Stefania Mornati and Rosalia Vittorini of the Roman group.
The book is a collection of research reports on Italian MoMo buildings. Each investigation has been focused on one building as a whole, and has been set up to match the agreed format, determining the constructional solutions in depth, in close relation to the detail in its architectural context. The next step is to identify a segment of the building in which its typical constructions and architectural language are best represented. On the basis of archival research and further investigation of the building in its actual state, a careful reconstruction of the original elements is recorded by means of a descriptive text and a coherent set of reconstruction drawings in plans, sections and facades.
The second part of each chapter reports on a more challenging part of the analysis, as it concerns a reconstruction of the process of transformation and degradation for each

building. In a much more experimental way, these aspects allow to identify the main causes of loss of original character of a building's architecture. This stage of research takes various factors into account, like functional change, the effect of atmospheric agents, and even the solutions proposed by the original architect that were never made.
The 24 works presented in the book involve such noted buildings as the 1932-36 Rafaello Sanzio elementary school by Adalberto Libera in Trento, the original drawings of which were on show at the recent exhibition on Libera's drawings archive at Beaubourg in Paris. The key to each analysis is a worm-eye axonometrical drawing that allows for an instant understanding of a building's entire set up. The sections and plans of the representative segment clarify how the building is technically put together. Unfortunately, only for some of the examined building's the sections are presented at a scale that allows for a thorough reproduction of details. The amount of photographs – particularly those that illustrate the present degradation of the building under scrutiny – is overwhelming, though their sometimes limited size and quality does not always permit to grasp the essence of what is shown. Each chapter is concluded by bibliographic notes for those whose interest has been aroused.
The whole set up of the book is comprehensive and careful but some chapters stand out as they go beyond just descriptive information, like the work on the Control Room and Boiler House of the Santa Maria Novella railway station presented by the Florence team, coordinated by Carlo Biagini, that lively explains how the operations within the building defined its architecture.
The result of this combined effort is a record of typical structural and architectural solutions and some of the most common degradation processes. Together, these data provide an analytic contribution to the knowledge of the intrinsic characteristics of 20th Century Italian architecture. It has become a book that is very accessible and useful, particularly when defining a project for conservation or adaptive re-use of a Modern Movement building. - *WdJ*

Industrial Buildings

Industrial Buildings. Conservation and Regeneration, edited by Michael Stratton, published by E & FN SPON/Taylor & Francis Group, London, UK, 2000, hardback, 248 pages, size 276 X 219 mm, text in English, illustrated with 60 line drawings and 160 b/w photos and 16 fc sections, ISBN 0-419-23630-9, £ 45,-.

This publication *Industrial Buildings. Conservation and Regeneration* contains contributions by industrial archaeologists, architects, and experts in regeneration and community planning. It draws closely on the work of Regeneration Through Heritage established in 1996 and the research undertaken whilst setting up its website – www.bitc.org.uk/rth. *Industrial Buildings* includes an introduction by HRH, The Prince of Wales. The chapters progress from an overview of British policies to industrial conservation and regeneration to explore the nature and potential of multi-storey buildings, specialist works such as potteries and even steelworks. Experts in development and regeneration draw on a range of projects both in Britain and overseas and present, for the first time, the achievements and lessons from recent work with major mill complexes, the regeneration of docklands by development corporations, Lottery-funded projects and commercial schemes, typically, loft conversions or workshops. The conservation and regeneration of industrial buildings is highly topical and on the current political agenda, which is committed to the revival of the traditional city and to the brownfield development. It is an international subject and the contributors analyse initiatives in Europe, North America and beyond, many of which are radical and controversial than the safer conservation-orientated projects in Britain. The exemplars presented highlight how industrial conservation and regeneration can go hand in hand with the most unlikely of buildings and landscapes, coalmines, gasworks and even chemical plants. - *EJS*

Industrial culture

Fagus. Industrial Culture from Werkbund to Bauhaus, by Annemarie Jaeggi, New York 2000, 152 pages in English, ISBN 1 56898 175 9.

This is the report of a research on the Fagus shoe last factory in Alfeld. Designed by Walter Gropius and Alfred Meyer in 1911, it is one of the canonical works of the Modern Movement. The book describes the history of the factory from the construction period up to the late 1920s taking as a starting point the concept of industrial culture, that was aimed at blending the various aspects of architecture, industrial and graphic design, and photography into a corporate identity. Published by Princeton Architectural Press.

Vocabulary

Words and buildings. A vocabulary of modern architecture, by Adrian Forty, London 2000, 335 pages in English, ISBN 0 500 34172 9.

This is an inspiring study on the interrelation between architecture and language regarding modern architecture. Six introductory essays deal with such issues as the language of modernism, metaphors, 'masculine' and 'feminine' architecture, architecture and science. The second part of the book is a vocabularium of key issues such as character, form, function, design and structure, seen within their historic and theoretic framework. Published by Thames and Hudson.

Architecture diary 2002

Architecture diary 2002. Reconstruction, architecture in the Netherlands 1940-1960, NAi Publishers, Rotterdam 2001, graphic design VandeJong, ring binder, 132 pages, illustrations fc and b/w, size 19 x 20.5 cm, text in English and Dutch, ISBN 90-5662-226-9, NLG 45/EURO 20.42.

The new Architecture Diary for the year 2002 features the phenomenon of Dutch post-war reconstruction architecture and planning, particularly that of the period 1940-1960. An introductory text looks at the genesis of reconstruction architecture. It examines in brief the situation after the war, the traditionalists and moderns, the regional differences, the limitations imposed by government and the bodies set up to carry out the reconstruction work.
Aaron Betsky, the new director of the Netherlands Architectural Institute refers to these buildings as 'The Madeleines of Postwar Reconstruction': 'Not everything was new. The dream that the devastation wreaked by the Second World War would at least serve as some kind of catharsis, and that the whole of Europe would be a *tabula rasa* from which people could build a better world, turned out to be naïve. Construction was a necessity but how, where and what was to a large extent determined by aesthetic prejudices rooted in the same kind of social and economic relationships that had already defined the built image of the Netherlands for decades.'
Lonneke Bakkeren, curator of the Netherlands Architecture Institute emphasises the calm and clear character of the architecture and urban design in the postwar reconstruction period: 'Level-headedness, clarity and balance were the leading characteristics of architecture and urban planning in the Netherlands during the postwar reconstruction period. A functional beauty rose like a phoenix from the ashes, carefully kept in line by new regulations and directives. Unfortunately, the public today does not share this view of the built environment from the 1950s and 1960s. The architecture of the period is generally considered sober, spartan, boring and monotonous. Since the early 1990s a torrent of archive material from the reconstruction period has flown into the Netherlands Architecture Institute collection. Many of the acquisitions have now been examined, making it possible to present a balanced overview of this period based on the textual and visual information available. This diary strives to propagate a greater appreciation for the architectonic and urban planning qualities of the reconstruction period.
The illustrations and photographs have been selected for the quality of the design or the informational value. Much of this material has been taken from the recently opened archives and has sometimes never yet been seen by the public. These wonderful drawings, photographs and maquettes offer an insight into a period, marked by an innovative and dynamic spirit. With a few exceptions, the focus is on the period from 1940 to 1960. In the course of the 1960s the welfare state came into being, and the true reconstruction period was coming to an end, but the architectural style that had evolved was still employed in the ensuing years.'
The diary is larded with illustrative material from the NAI collection, with captions that embroider slightly on the introductory text. Perspective drawings seek to bring out the architecture's spatiality. The photographic documentation is of the highest quality, and includes work by such lensmen as Jan Versnel, Gerrit Burg, Jaap d'Oliveira, J.A. Vrijhof, C. Geljon and H. Spies. Most of the drawings, photographs and models come from archives acquired in recent years by the NAI. Much of the material has never been published before. - *WDJ*

Perret brothers

Les frères Perret. L'oeuvre complet, by Maurice Culot, David Peyceré and Gilles Ragot, Paris 2000, 510 pages in French, ISBN 2-9092283-33-X.

A magnificent catalogue of the Perret brothers' complete works. The brothers Auguste (1874-1854) and Gustave Perret (1876-1952) were architect-entrepeneurs and noted pioneers of reinforced concrete construction, in such structures as the Champs Elysées Theatre in Paris, the Notre Dame du Raincy, the Musée des Travaux Publics and the reconstruction of Le Havre. The book provides an overview of their works, lushly illustrated by archival material, followed by an inventory of the brother's professional legacy, kept in the archives of the Institut d'architecture de France in Paris. Published by Norma Editions.

Housing for the millions

Housing for the Millions. John Habraken and the SAR 1960-2000, by Koos Bosma (ed.), Dorine van Hoogstraten, Martijn Vos, Graphic design by Piet Gerards, NAi publishers, Rotterdam 2001, with support of the Netherlands Architecture Fund, illustrations b/w, hardcover, 376 pages, text in English, size 24 X 17 cm, ISBN 90-5662-178-5, NLG 102.50/EURO 46.52.

The Foundation for Architectural Research (SAR) was established in 1965 as a research institute and active until the beginning of the 1990s. Its innumerable research reports, policy recommendations and practical experiments have profoundly influenced the image of Dutch and international architecture and building practice, most especially in the 1960s and 1970s.
The contents of this book are primarily concerned with the philosophy of the SAR's founding John Habraken (b. 1923), and in particular his new approach to the self-image, professional and social status of the designer, and the consequences for the role and input of the resident. This is the first time that the intellectual heritage of the SAR has been brought together in book form and considered within a broader international perspective. This publication *Housing for the Millions* is especially important given the renewed interest evident today among investors, governments, building companies and industry in a building methodology based on bilateral decision-making, flexibility and industrialisation. - *EJS*

CIAM urbanism

The CIAM discourse on urbanism, 1928-1960, by Eric Mumford, Cambridge Mass. 2000, 375 pages in English, ISBN 0 262 13364 4.

A detailed survey of the history of CIAM - the Congrès Internationaux d'Architecture Moderne - the main vanguard movement of the architectural forerunners, aimed at the advancement of modern architecture and planning in the perspective of social and cultural change. CIAM was established in 1928 in Sarraz, Switzerland, and abolished in 1959 in Otterlo, the Netherlands. The book reflects on the mission, the proceedings and the effects of each of the eleven CIAM-conferences. Published by The MIT Press.

The modern historic city

The Modern historic city. Projects for renewal and preservation 1883-1940 by Paul Meurs, published by NAi Publishers, Rotterdam 2000, paperback, illustrations fc and b/w, 532 pages, text in Dutch, summary in English, ISBN 90-5662-176-9, NLG 75,-/EURO 34.50.

This book deals with the area of tension between renewal and preservation such as existed in the historical cities of the Netherlands between 1883 and 1940. As a consequence of urban expansion, the advent of new modes the major old cities (Amsterdam, The Hague, Rotterdam) evolved into modern urban centres without having been specifically designed for such a task. The result was numerous adaptations and interventions that included wholesale demolition, the carving out of traffic corridors, an increase in the scale of buildings, the development of new infrastructure and the reconfiguration of the public realm. Despite such far-reaching modernisation, the cities retained a measure of their historical form. This book examines the transformation of old cities into modern urban centres, paying special attention to the way the local historical legacy was assimilated into the planning of the new city. The book's second concern is with the way architects regarded the past. The third theme is the preservation of monuments and historic buildings, particularly at the local level. This publication *The Modern historic city. Projects for renewal and preservation 1883-1940* is divided into seven chapters: introduction, coalitions for urban beauty, the city of the future, the traffic problem, core formation, buildings for civil administration and creative preservation.
The author Paul Meurs is the chair of the DOCOMOMO International Specialist Committee on Urbanism and Landscape (ISC/U+L). With this remarkable publication Paul Meurs obtained his doctor's degree at the Vrije Universiteit in Amsterdam, The Netherlands. - *EJS*

Cahiers thématique

N°1 Cahiers thématique – Architecture, histoire /conception, published by Lille School of Architecture and supervised by both the research teams CEC and AVH, France 2001; co-ordination & organisation Frank Vermandel; ISSN 1625-9505; 150 ff/EURO 22.86.

'The gap between what is known and what is used widens every day'. This lamentation from a long-ago medical paper coincided with a period when a predominant educational preoccupation in the UK architecture schools concerned the divorce of research from pedagogy and practice. The aspiration to 'justify' research by adjusting its territory to 'feed' pedagogic programmes and reform the customary habits of practice, prompted as much by political as ideological necessity, was not then (mercifully!) accompanied by fundamental questioning of architecture as a 'discipline'. It was recognised, however, that design is not a subject but an activity and the practice of architecture follows neither scientific method or the expressive liberties of the fine arts; consequently the academic expectations upon which educational institutions legitimise their arcane practices being absent, architecture fell outside recognised categorisations as a 'pariah' subject. It lacked critical method, a 'magpie' subject feeding off other disciplines but lacking its own central intellectual paradigm.
And now, to further frustrate pedagogy, the 'heroes' who provided stable references are no more (and those there are declare the end of architecture) and the programme/brief, a 20th Century invention which generated synthetic reaction (a device at the heart of Modern Movement methodology), has joined those 'heroes' in the ether. 'What architecture?' has been replaced by 'Why architecture?'. No surprise therefore that within some schools research is questioning architecture as a 'discipline' - to be displaced by an 'indiscipline'? - not quite what those distant UK academics foresaw in their quest to legitimise research through its enrichment of pedagogic programmes!

This, then, is the intellectual territory within which the *N°1, Cahiers Thématiques - Architecture Histoire / Conception* assembled and published by the Ecole d'Architecture de Lille et des Régions Nord, supported by Le Ministère de la Culture et Communication, offers its contribution. The Introduction by Frank Vermandel and Gérard Engrand outlines the thematic intention. Twenty three papers under the umbrella title *Discipline and disciplinary intentions* are categorised into four sections: 1 - Concerning discipline - epistemological questions; 2 - Discipline and the creative dialectic; 3 - Contemporary design practices and disciplinary intentions; and 4 - Interviews.
The speculative spirit ranges from those stabilising the pedagogy, usually linking it to a particular mode of practice or teaching method, to those advocating its destabilisation in the interests of its future potency. Most authors are teachers and/or researchers of architecture based in Lille, Louvan-la-Neuve, Paris, Montreal, Nantes, Genève, Lausanne, Versailles, Gand, Grenoble, Sherbrooke (Canada) with a musician, sociologist, engineer, philosopher and art historian for good measure.

The book is in French, abstracts in English being included perhaps to entice those not having French to get it! The energy and commitment of those in the CEC (Conception et Enseignment de la Conception) Equipe de Recherche in the Lille School is to be applauded and the expectation that the other research arm, *'Architecture, Ville et Histoire'*, will assemble the second volume in the Cahiers Thématiques is a prospect to note. Lille's contribution to close that 'gap', to expose research and render it accessible, deserves wide dissemination as an invitation to others to join an extended discourse. I assume the texts are available on the internet through libraries, although this has not been so indicated.

'The criticism of architecture has been confused in its process; it has built up strangely diverse theories of art, and the verdicts it has pronounced have been contradictory in the extreme. Of all the causes this has been the chief; that it has sought to force on architecture an unreality of aim'. It might provide comfort for those seeking instant enlightenment that the author of these words, despite his best endeavours oriented around a liberal application of personal prejudice, was unable to formulate a theory of architecture even though the Modern Movement was not yet a twinkle in anyone's eye, let alone a practice to excite, disrupt, antagonise and confuse. Geoffrey Scott in 1914 sought clarity; but that intention no longer motivates the theoretical discourse. Forget answers... just keep thinking.

Review by Allen Cunningham, retired Head of Architecture - University of Westminster, Editor of The Journal of Architecture, and member of DOCOMOMO International

Lille School of Architecture, Paris, France, provides the distribution and diffusion of this publication. Lille School of Architecture, Quartier de l'Hôtel de Ville – 2 rue Verte – 59650 Villeneuve d'Ascq, France T +33 (0)3 20 61 95 78, F +33 (0)3 20 61 95 51, E sec-CEC@lille.archi.fr

J.J.P. Oud, a poetic functionalist

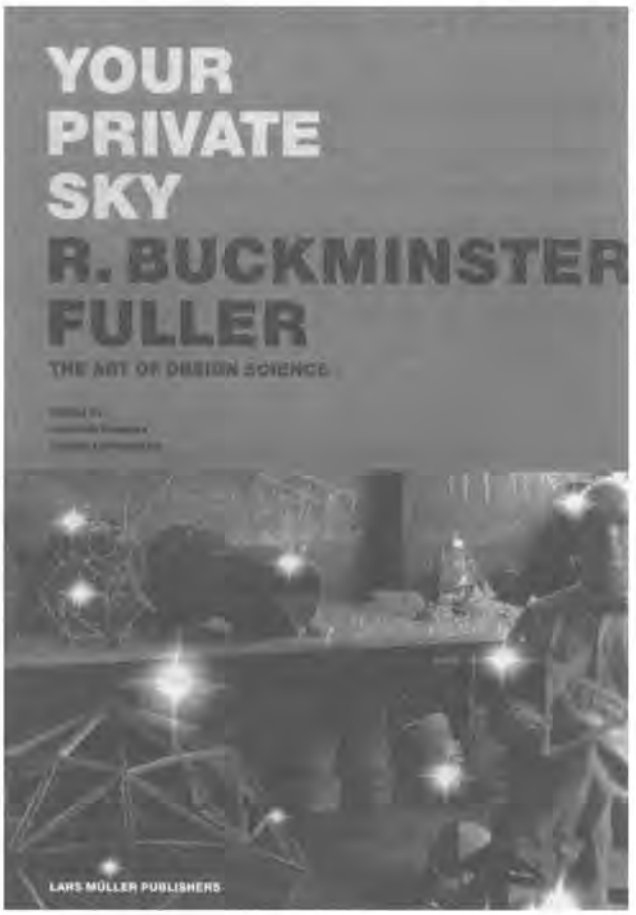
J.J.P. Oud, Poetic Functionalist, 1890-1963 / The complete works, by Ed Taverne, Dolf Broekhuizen, Martien de Vletter & Cor Wagenaar, NAi publishers Rotterdam 2001, hardcover, 576 pages, size 28 x 22 cn, text in English, illustrations 200 fc & 400 b/w, ISBN 90-5662-199-8, NLG 175,-/EURO 79.50.

As co-founder of the Stijl, together with Theo van Doesburg, and as one of the pioneers of the Modern Movement, J.J.P. Oud (1890 - 1963) has known wide international acclaim, as well as strong condemnation from his previous friends and admirers. This was due to his independent critical and often lonely explorations in the various stages of his development, until his death in 1963. Yet, however ambivalent this development might have been, the constant factor in his work is the devotion to the dilemmas of architecture: to find equilibrium between the communal and the individual, between utility and poetry and between tradition and innovation, in the context of the culture of the moment. The most telling example is his rise to international stardom and the subsequent self-inflicted fall into disgrace.
Philip Johnson, curator at the Museum of Modern Art in New York, was so fascinated by Oud's social housing schemes like the Kiefhoek and the Weissenhofsiedlung, that when he organised the 'International Style Architecture since 1922 exhibition' together with H.R. Hitchcock in 1932, he selected Le Corbusier, Gropius, Mies van der Rohe and Oud to represent Europe. The design by Oud for a villa for Johnson's mother featured prominently in the exhibition. Johnson also promoted Oud to become the dean of the faculty of architecture at Harvard. Oud declined because he rather devoted his time to practice. However, when Oud, in the late 1930s, started to experiment with ornamentation, axiality and mass as opposed to volume, as for example shown in the Shell building in the Hague, he fell into disgrace particularly in the English and American magazines. In the 1940s and 1950s Oud, in return, condemned the renewed ideas of modernism as expressed in the International Style, for its devotion to teamwork and scientific research to the detriment of the personal poetic contribution of the architect. In the last period of his life he returned to the ideas of the Stijl, for him the true service of the Modern Movement.
Oud's search for architectural truth and his lonely struggle are well exposed in the book *J.J.P. Oud, poetic functionalist, 1890 – 1963*, the result of a joint research project by Ed Taverne and his team from the University of Groningen and the Netherlands Architecture Institute (NAI). Thousands of letters, drawings, photographs and articles formed the sources of information for this comprehensive publication, collected from the archives of the NAI, the Getty Centre and the Centre Canadien d'Architecture. A chronological description of all his projects, showing a great wealth of material, several essays introducing the various episodes in his work and many articles, letters, and so on either by Oud or by his contemporaries, provide a multi-layered and well designed experience. The English translation however, creates a false tone every now and than, in this otherwise important and beautiful publication. – *HJH*

Portrait J.J.P. Oud, approx. 1918, Source NAI Archives, Rotterdam

Your private sky

Your private sky, R. Buckminster Fuller; The art of design science, edited by Joachim Krausse and Claude Lichtenstein, Lars Müller Publishers Baden 1999, Switzerland, cloth, 528 pages, illustrations 600 fc & b/w, text in English, ISBN 3-907044-88-6, NLG 144,50 /EURO 65.57



'How to make the world', was the task Buckminster Fuller dedicated his life to: as a sailor, a comprehensive generalist, a student of trends, a verb, an inventor, an engineer, an architect, a cartographer, a philosopher, a poet, a scientist, a maverick thinker, an amiable lunatic, a prophet and many things more.
As the authors of the book *Your Private Sky, R. Buckminster Fuller, the art of design science* argue: 'Fullers greatest significance lay in the combination of various disciplines with an eye to solving a concrete application. Thanks to this correlative interest he brought things to light that would otherwise have remained hidden'. Contrary to main stream 20th Century thinking he was convinced that specialists usually create more problems than they solve. Fuller developed his concepts for a vision of the whole, and he did this in his unique way. He subjected himself to an experiment and made himself an object of observation. He saw himself as 'Guinea Pig B.' Many famous aphorisms and one-liners are demonstrations of his clear and independent mind. 'Don't fight forces, use them'. 'Winds are drafted, not blown', 'Think global, act local', 'Children are born true scientists', 'Do more with less', 'In architecture, form is a noun, in industry form is a verb', 'Spaceship earth', 'Reshape environment, don't try to reshape man', etc. etc.

Many books and articles devoted to Bucky, have been published over the years but the beauty of this book is that in a multifaceted way it gives an insight into his unconventional way of thinking. It is the result of a collaborative project of the *Museum für Gestaltung* in Zürich, *Stiftung Bauhaus Dessau* and various other museums and institutions, such as the Buckminster Fuller Institute.
Many of Bucky's ideas of 'how to make the world work' are as relevant today as they were decades ago. For example, the triumph over feudal structures was in his eye the political prerequisite for the welfare of society. But it was just a first step that would bring the emancipation of modern societies and industrial nations. The second step, the emancipation of society from the feudal relationship among countries and the elimination of the unbelievable inequities, in the standards of development, still had to be taken. And looking at today, this second step has not been set as yet.
This publication regenerates the valuable ideas of Buckminster Fuller, in an up to date and appropriate way for a new generation. – *HJH*

Pierre Vago

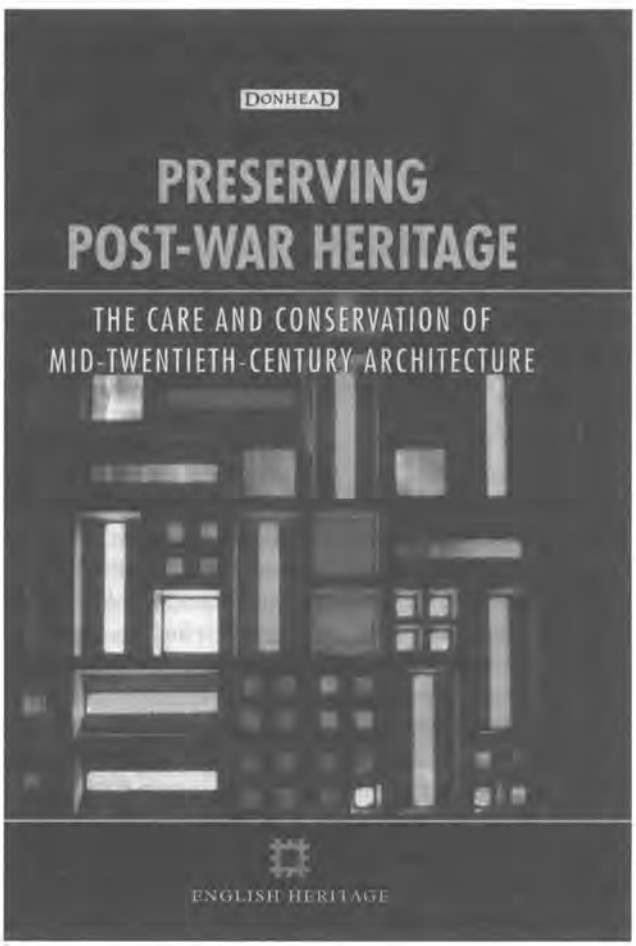
Pierre Vago. Une vie intense, by Pierre Vago, Brussels 2000, 488 pages in French, ISBN 2-87143 110 8.

Whoever attended the first international DOCOMOMO Conference in 1990 in Eindhoven, the Netherlands, will remember that Pierre Vago's memories are substantial, lively and inspiring, and this book, his autobiography, has similar qualities. Vago, born 1910, was an editor and the later editor in chief of l'Architecture d'Aujourd'hui between 1932 and 1947, he was the co-founder and a long-term secretary general of the International Union of Architects UIA (1946). After the War he became very active in the reconstruction of France, in North Africa and in the rejuvenation of religious architecture. This book brings together three quarters of a century in architecture, including memories of his meetings with Le Corbusier, Sauvage, Perret, Bloc, Chareau, Poelzig and Wright. Published by AAM Editions.

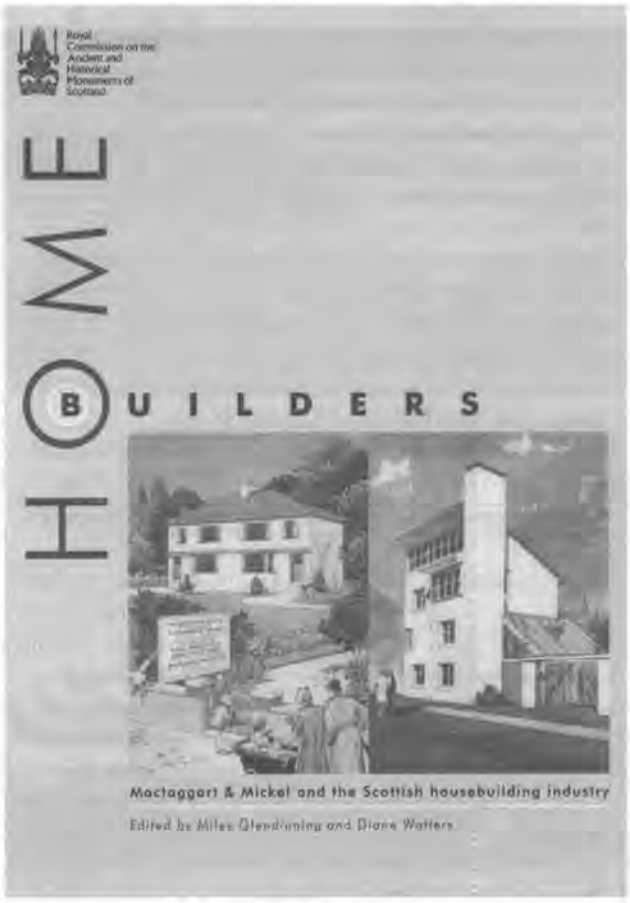
Post-war heritage

Preserving Post-war Heritage. The care and conservation of mid-twentieth-century architecture, edited by Susan MacDonald, Donhead Publishing Ltd, produced in association with English Heritage, The Historic Buildings and Monuments Commission for England, United Kingdom 2001, 272 pages, ill. in b/w, hardback, ISBN1-873394-35-7, £ 37.50.

Over the last decade more than 300 post-war buildings and outdoor sculptures have been added to the statutory list of buildings of special architectural or historic interest in Britain. The debate continues as to whether the design rationale, construction techniques or materials used to make these buildings places them outside the scope of normal conservation principles. *Preserving Post-war Heritage* examines the specific management and practical issues posed by our post-war heritage. The volume is the proceedings of the English Heritage's Preserving Post-war heritage conference held in London, on June 3rd and 4th in 1998, and it consists of the edited papers given at this conference.
Contributions from local and international practitioners carrying out pioneering work in their respective areas of expertise cover the most urgent practical problems commonly encountered by conservation professionals who have to deal with post-war construction.
Part I deals with the historical context and the framework for protection of post-war architecture in Britain. Part II covers structural issues, materials and services, with particular emphasis on diagnosis and assessment of problems, and the options for repair. The topics covered include reinforced concrete, plastics, services, clad frame construction and curtain walling. The papers in this book are supported by case studies illustrating recent, successful conservation and repair projects, a summary of the proceedings, sources of information and bibliography.
Preserving Post-war Heritage is published by Donhead Publishing Limited in the UK in association with the English Heritage, and The Historic Buildings and Monuments Commission for England. English Heritage is the principal organisation statutorily responsible for the care and conservation of the built heritage in England. It is the Government's official advisor on all matters concerning the conservation of the historic built environment and a major source of public funding for archaeology, conservation areas, and repairs to historic buildings and ancient monuments. English Heritage is also responsible for the management and presentation of some 400 historic properties in the care of the nation.
The editor Susan Macdonald is the Principal Heritage Officer of the Local Government Heritage Management of the New South Wales Heritage Office, in Sydney, Australia, and formerly Senior Architectural Conservator of the Building Conservation & Research Team, Department of Conservation Management of English Heritage in London, UK. Furthermore Susan Macdonald is a member of the DOCOMOMO International Specialist Committee for Technology (ISC/T).
– EJS



The book Preserving Post-war Heritage can be obtained from all good bookshops, or directly writing to Donhead Publishing Ltd, E: sales@donhead.com or I: www.donhead.com



Home builders

Home Builders. Mactaggart & Mickel and the Scottish Industry, edited by Miles Glendinning and Diane Wattters, RCAHMS, Scotland, 320 pages, 307 b/w ill., A4 format, ISBN 1-902419-08-1, £ 15.00.

The social history of modern Scotland has been shaped by the contest between pressures for individual freedom and collective order. This struggle, during the 20th Century, was focused especially on the issue of the housing of the people. The state set out to promote a sense of national community by making it possible for all citizens to live in self-contained modern homes rather than overcrowded slums, and to fulfil their individual life potential rather than being condemned to drudgery. Yet this aim of emancipation led governments to make revolutionary interventions in housing demand and supply, building 'council housing' on a scale unparalleled in the Western World. The diversity and drama of modern Scottish house-building are highlighted by the arrangement of this major publication which contains parallel histories of the Mactaggart & Mickel business, and the wider Scottish house-building industry during the 19th and 20th Centuries.

The editors of *Home Builders*, Miles Glendinning and Diane Watters are active members of DOCOMOMO-Scotland. Glendinning is head of the Threatened Buildings and Topographical Surveys at the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS). He has co-authored and edited a number of books on architecture and the city, including Tower Blocks (1994, with Stefan Muthesius), History of Scottish Architecture (1996, with Aonghus MacKechnie and Ranald MacInnes), Rebuilding Scotland (1997), and Clone City (1999, with David Page). Watters works as a Threatened Buildings Survey Liaison Officer at RCAHMS. The book furthermore includes contributions by Scottish leading architectural, social and economic historians as Kenneth Gibb, Annette O'Carroll and Richard Rodger.

The book *Home Builders* traces varied responses of the building industry to the call to 'give the people homes'. The book shows firms at work both as contractors for state rental dwellings and as speculative builders of houses for private rent or sale. It focuses above all on the experience of one of Scotland's foremost house-builders, Mactaggart & Mickel, and its predecessors firms since the late 19th Century – a story dominated by commitment to individual home ownership, yet also closely bound up with state initiatives in housing.
Mactaggart & Mickel were responsible for building a number of substantial inter- and post-war housing estates in Scotland's central belt. Among these were the Glasgow suburbs of King's Park; Merrylee Park, Broom Estate and Carolside Park, and the Edinburgh areas of Silverknowes and Hillpark.
The wider context is covered in five essays by the authors mentioned above. The parallel histories are supported by copious illustrations, statistical information and other documentary evidence, including a summary guide to the Mactaggart & Mickel architectural archive which forms part for the National Monuments Record of Scotland. – *EJS.*

The book Home Builders *can be obtained from all good bookshops, or directly writing to RCHMS at the following address: John Sinclair House, 16 Bernard Terrace, Edinburgh EH8 9NX, Scotland, enclosing cheques payable to RCHAMS for £ 18.50 (including UK postage and packing), or £ 20.00 (including European postage and packing). More information can be obtained at the RCHAMS, T 00 44 (0)131 662 1456 or 00 44 (0)131 662 1477.*

Engineering architecture

The Engineers contribution to contemporary Architecture. Anthony Hunt, Eladio Dieste, Heinz Isler, Peter Rice, by A.J. Macdonald, R. Pedreschi, J. Chilton and A. Brown, London 2000, approx. 170 pages in English, approx. 130 b/w illustrations, paperback, ISBN 07277 2769 9/2772 9/2878 4/2770 2.

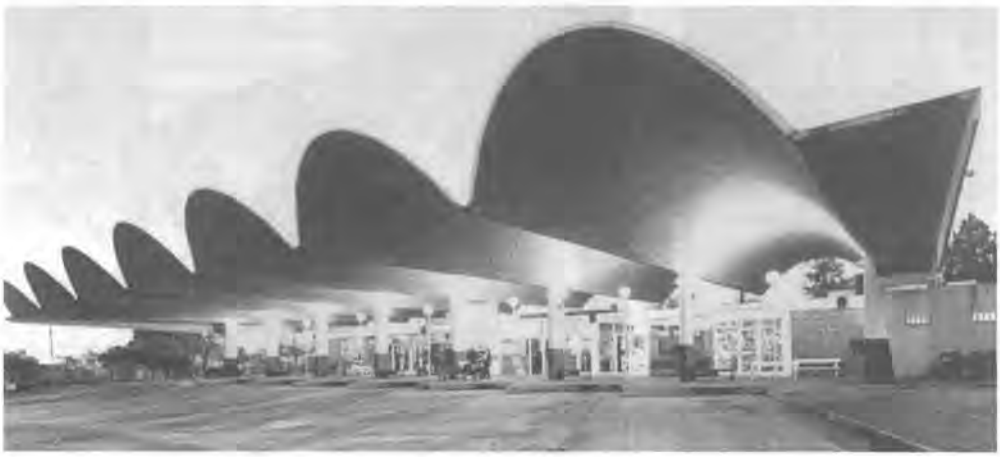
The Engineer's Contribution to Contemporary Architecture is a series of books which provides an informed and well-illustrated study of a wide range of important modern buildings and which reveals the strong influence and significant role of the structural engineer on both the concept and the details of their design.
The series features four volumes, each dealing with a distinctive master-engineer of the last decades: Peter Rice, Heinz Isler, Eladio Dieste and Anthony Hunt. It provides some essential biographical data, extensive information on the main works of each engineer – often arranged in a thematical order – complemented by a list of works and a bibliography.
Although the graphic quality of these books is modest – some of the photographs in particular are poorly printed – the very fact that a series of publications on this fascinating theme has now seen the light is a great achievement in its own right. The publisher, Thomas Telford Books from London, informed us that more volumes are in preparation, amongst others on Owen Williams.

Hunt
A book which deals with the work of Tony Hunt and his office might be thought to be principally about engineering. This book is mainly concerned, however, with the contribution which he made to the development of British architecture in the second half of the 20th Century. For nearly 40 years his office has been producing structural engineering that is celebrated for its visual quality and its technical elegance. The firm has worked, and continues to work, with most leading British architects, on a considerable number of seminal buildings and has been the recipient of numerous architectural awards. Perhaps his greatest achievement, however, has been the part that he has played in redefining the relationship between architects and engineers. For most of the 20th Century the role of the structural engineer, in the context of architecture, was that of the person who worked out how to build a form that was devised by someone else. The rare exceptions to this were engineers who worked *as* architects rather than *with* architects, for example, the early masters of reinforced concrete vaulting, such as Eugène Freyssinet, or architect-engineers like Felix Candela, Pier Luigi Nervi and Eduardo Torroja.
This is not therefore a comprehensive account of the work of Tony Hunt and his office. Rather it is an exploration of the nature and significance of the relationship that he has been able to establish with leading architects. It deals with his contribution to the development of specific strands of modern architecture and to the re-establishment of the engineer as an active participant in the creation of architectural form. For this reason the book concentrates on Hunt's work with four of Britain's most prominent architects, namely Norman Foster, Richard Rogers, Michael Hopkins and Nicholas Grimshaw, and is concerned principally with work carried out in the 1960s, 70s and 80s - the period in which the particular style associated with these architects was first realised in built form.

Isler
Best known for his amazing free-form shell structures, Heinz Isler has inspired both architect and engineers with his dazzling creations. His work transcends the definition of mere structural engineering to the extent of becoming structural art. This book considers the unique work of this exceptional engineer. Isler´s primary medium of expression is the reinforced concrete shell. Rejecting the use of mathematical formulae, he approaches the challenges of each new structure by using physical modelling to determine the form and subsequently to investigate its stability. Harmonious, natural and inspiring structures are the result. Isler´s sensitivity for the natural world is expressed in the quiet beauty of the shell forms that he has designed, which merge more easily into the landscape than most modern buildings. He creates structures of high efficiency with the lowest possible environmental impact. The author takes a

Waterloo International Railway Terminal, London, designed by Nicolas Grimshaw and Anthony Hunt in 1992. Photo from the reviewed book.

The free-form shell of the Wyss Garden Centre, designed by Heinz Isler 1962. Photo from the reviewed book.



The free-standing brick vaults of the Salto bus station designed by Eladio Dieste. Photo from the reviewed book.

look at Isler´s major works, at the philosophy behind these works and at Isler´s methods. This fascinating look at the work of a pioneer in his field will prove exhilarating.
There are two principal ways approaching the general theme of this book series, the Engineer's Contribution to Contemporary Architecture. Perhaps the first direction that springs to mind is to contemplate how the efforts of a particularly innovative engineer have influenced and enhanced the work of nationally or internationally renowned architect. The second approach is to consider the unique work of an exceptional engineer whose work transcends the definition of mere structural engineering to the extent of becoming structural art. In this sense the engineer accomplishments contribute to contemporary architecture by their inspirational qualities, which appeal to both architects and engineers. This volume describing the work of Heinz Isler falls into this second category.

Dieste

The third book in the present series is about the Uruguayan engineer Eladio Dieste, an innovator, designing soaring structures, which appear to defy gravity. His works demonstrate such technical skill that they blur the boundary between architecture and engineering - aesthetics no longer tempered by pragmatism. Going through the book one becomes enthralled by the ideas and works of this structural designer and architect. Increasingly acknowledged as one of the great engineers of the 20th Century, the publication of this first introduction to his work in English met with great enthusiasm.
Dieste believed that technological innovation should be guided by a moral imperative, that the only justifiable position for development is the betterment of mankind, especially the more humble in society, whom Dieste felt deserved to be treated with great respect. This attitude can be traced throughout his original and innovative work. At present Dieste is best known for the primarily architectural qualities of his buildings, however, his designs demonstrate consummate technical skill and confidence and remove the boundary between architecture and engineering, between aesthetics and pragmatism. For Dieste these boundaries don't exist.
At the heart of his work lies the expression of structural resistance through form, thus the architectural form and the structure become inseparable. Furthermore he believed that architecture, form and expression are also inseparable from economics, construction and structural efficiency and this has lead him to develop a language of building using brickwork that broke away from the traditional expressions of materiality and its structural use, of heaviness and solidity.
This book is not intended to be a biography, but simply an introduction to the work of Dieste. It provides a broad overview of his work, it considers the structural forms he has developed and describes selected key projects, complemented by a list of works, a bibliography and an index. The author also includes a chapter describing projects throughout Europe in which Dieste's ideas and techniques have been adapted and applied.
About Dieste, who died last July 19 after a sustained period of illness, there is more to be said than is covered in this book. During his career he built many other projects not described here and he has made a significant contribution to mathematical analysis of shell structures. It is hoped that this first book in English will stimulate further research into his life and work. – *WDJ*

Einstein Tower

Einsteinturm. E. Mendelsohn, by Christine Hoh-Slodczyk and Jürgen Staude, Berlin 1999, 32 pages in German, 14 b/w and 10 fc illustrations, paperback.

After decades of hidden existence behind the Iron Curtain, *aficionados* of Mendelsohn's architecture can again visit one of the most remarkable landmarks of 20th Century cultural history in Germany: the Einstein Tower. And not just that, there is now also a lovely catalogue on the building, that explains the original building, the sequence of defects and damage, and the recent careful restoration. It gives pictures and graphs - and even a little map how to get there by S-bahn. At last we now that we just have to exit Potsdam Stadt station, follow Brauhaus Berg south just a few steps uphill, to find Einsteinstrasse with the entrance to the Astro-physical Institute Potsdam to our left. The tower is at the south end of the premises, on top of the *Babelsberg*, formerly also known as *Telegraphenberg*.

Although the present catalogue appears quite modest, the explanatory texts are based on more elaborate papers that have been produced for a future publication on the preservation project and history of the tower. That publication will extensively cover the preparation and execution of the works in terms of building physics, static performance and restoration details. Given the quality of this prelude, with its careful documentation, the professional approach of those involved and the excellent photography by Wolfgang Reuss, the upcoming publication will certainly be something to look for.

Designed in 1920 and finished in 1922 as a milestone in new architecture as well as modern physics, Mendelsohn's building survived invasive technical interventions in 1927-28 (when the notorious metal flashing was added on the window sills), severe war damage in 1945, questionable repairs in the 1970s and 80s during the DDR-epoch, and a fire in 1998 – all briefly explained in this booklet. But it wasn't just due to poor stewardship that it ended up in the danger zone, as the building in this book is described as a 'constructed building defect'. The apparently irrational blend of brick, concrete and steel structures entailed untamed thermal stresses, which has been the prime reason for damage, and will remain to do so.

The restoration has been initiated in 1997 by the Astro-physical Institute in co-operation with the Wüstenrot Foundation. This foundation was established in 1990 to promote and initiate projects in planning, housing and environment, mainly in the former DDR. With the restoration of the Einstein Tower, they set a standard for careful restoration and proper management.

A survey of the building history and the recording of damage was conducted between 1995-96, and resulted in an outline for the preservation works. The restoration itself was consequently planned by Pitz & Hoh. Workshop for Architecture and Preservation from Berlin – Helge Pitz being well known for his excellent work at the Berlin housing

The Einstein Tower after restoration. Photo from the reviewed book. Photo: Wolfgang Ruess.

estates, presented at the 1990 DOCOMOMO Conference. The team was assisted by a Scientific Council consisting of Norbert Huse, August Gebeßler, and Berthold Burkhardt, present chairman of DOCOMOMO Germany.

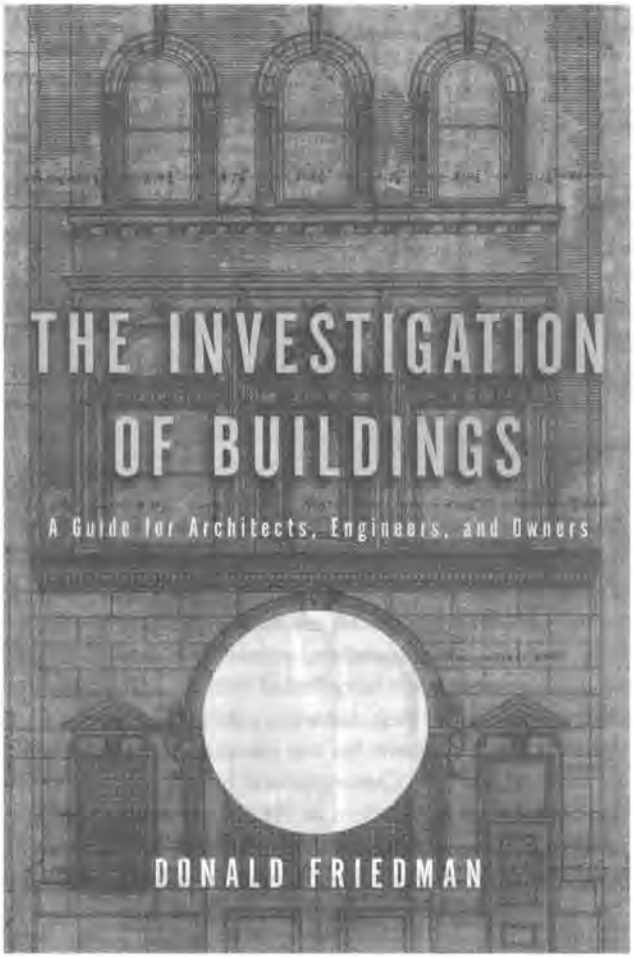
This charming booklet involves detailed reports on the applied renderings and plasters – that have been carefully examined as they are decisive for the building's form as well – metal flashings, concrete, as well as the exterior and the interior colour scheme. A big surprise was to find that also this canonical modern building was not white, but was originally sprayed with a bright ochre plaster.

Years of research and hard work have revived this outstanding building. Yet most remarkable is that this little structure did not only survive as an architectural landmark, but is again in good use by the original client, the Astro-physical Institute, and open to the public. – *WDJ.*

Visits to the Einstein Tower can be made by arranged tours only, advance appointments are recommended through the Astrophysikalisches Institut Potsdam, P + 49 – 331 74 990 or F + 49 – 331 74 99209.

Investigating buildings

The investigation of buildings. A guide for architects, engineers and owners, by Donald Friedman, New York 2000, 179 pages in English, 71 illustration in b/w, hardcover, ISBN 0-393-73054-9, US $ 35.00.



Ordinary buildings resist easy definition as man-made objects. Even the most sophisticated are essentially handmade on site, even the most similar contain differences, even the most obvious contain hidden surprises. No one investigates a chair before purchase, but hiring a professional to inspect a house is accepted as a given. Unlike a chair, a house cannot be judged adequate on the basis of how it looks or how comfortable it is. This is Donald Friedman's opening statement in his latest book *The Investigation of Buildings*.

Architects and engineers ordinarily learn investigation ad hoc, on the job. As a result, there has been little discussion of investigation theory and practice. It is obvious to anyone who has ever attempted to explain how to conduct investigations that there is more to the topic than a simple list of information to be found. Investigation is complicated because it ordinarily requires a good working knowledge of actual building construction, some familiarity with the appearance of deterioration of ordinary building materials and assemblies, and the ability to systematically examine and draw conclusions from incomplete information. The first two requirements demand more extensive building knowledge than is taught in college; the third requires organizational technique that is difficult to apply without such building knowledge. This book explains what is ordinarily possible and how it is achieved, and it does so in a clear and methodological way.

Friedman is a structural engineer and Director of Preservation at LZA Technology in New York City. His work centers in renovation, restoration, and historic preservation, and he is also known for his excellent professional publications. He is the author of *Historical Building Construction*, the co-author of *The Design of Renovations*, and he contributed *A Story a Day: Engineering the Work* to *Building the Empire State*.

His latest book allows professionals and owners to learn from an experienced investigator why buildings should be inspected, what to look for, how to do it, when you need to hire an expert, and how to understand the findings once a survey has been carried out. The scope includes ordinary wood-frame houses and small commercial structures as well as larger buildings. This practical guide explains the principles of investigation and shows how to identify building types and mechanical systems; determine their condition; document the investigation through field work and other research; and decide whether probing or other testing is needed. A helpful checklist of items for investigators to consider is also provided.

Despite its slight North American bias, the systematic approach adopted in this publication makes it as well valuable for building professionals elsewhere: no glossy book, but rather a very useful reference for architects, engineers, owners, managers, and others who plan to purchase, repair, or renovate a building. – *WDJ*

Peter Behrens

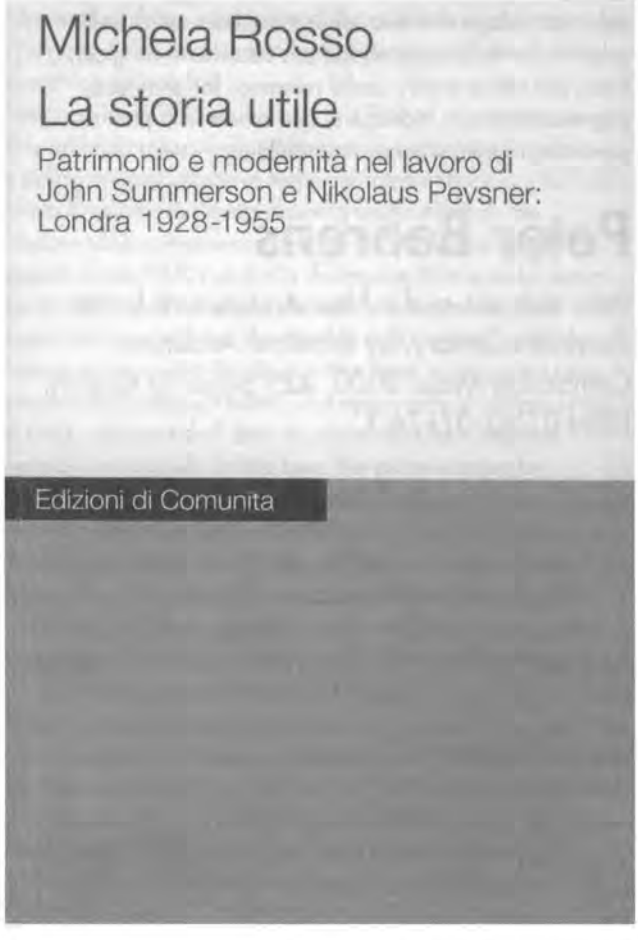
Peter Behrens and a New Architecture for the Twentieth Century, by Stanford Anderson, Cambridge Mass. 2000, 429 pages in English, ISBN 0 262 01176 X.

When a book is aimed at comprehensiveness and completeness, the risk that it will all end up as a dull publication is ever present. This book is the written proof of it, although its lack of excitement must be largely attributed to its sober graphic design, quite in contrast to the subject of the book, Peter Behrens ((1868-1940), who was one of the pioneers of modern design. As an industrial designer for AEG, he contributed significantly to industrial culture in pre-war Europe. The author addresses the architectural and cultural context, his early career, the interrelation between his own house in Darmstadt and his ideal of a society in which life and art would merge. The book contains a list of works and a comprehensive bibliography. Published by The MIT Press. – *WDJ*

New perspectives for MoMo historiography

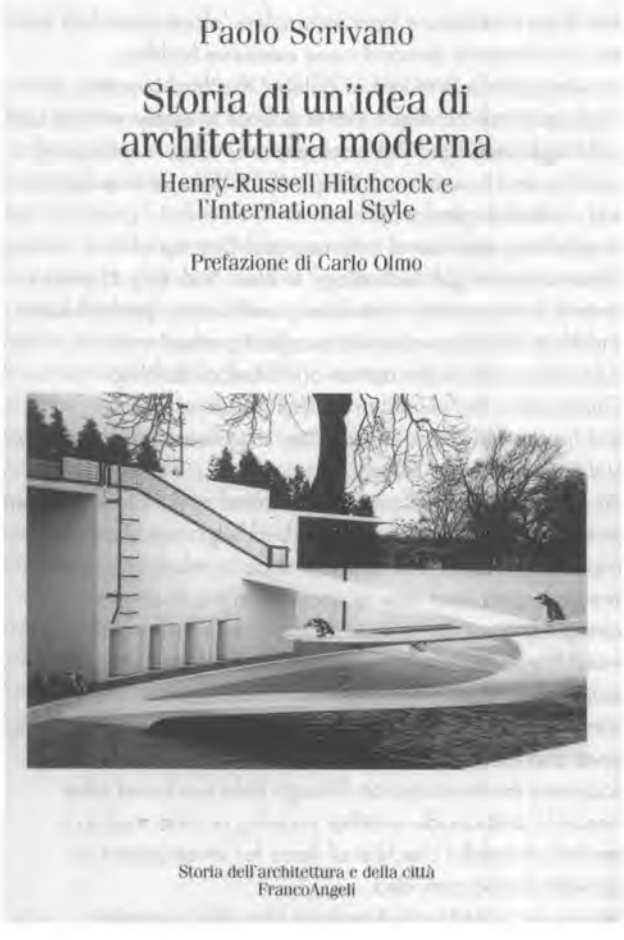
La storia utile. Patrimonio e modernità nel lavoro di John Summerson e Nikolaus Pevsner: Londra 1928-1955, by Michela Rosso, Edizioni di Comunità, Torino 2001, and *Storia di un 'idea di architettura moderna. Henry-Russell Hitchcock e l'International Style,* by Paolo Scrivano, Edizioni Franco Angeli, Milano 2001.

Two young Italian scholars, Michela Rosso and Paolo Scrivano, scrutinize the work of the architectural historian. It is not an easy task, made even more challenging when the historians under examination are three protagonists of modern thinking in architecture, such as John Summerson, Nikolaus Pevsner, and Henry-Russell Hitchcock. The calibre and the influence of their numerous publications have crowned them to become the true interpreters of the search for modernity in 20th Century cultural history.
Summerson was British. Born in 1904, he graduated at the Bartlett School of Architecture of the University College in London in 1927. In the following year he made his debut on the scene of architectural journalism with an article on a small English country house designed by women architects.



Writer, historian, critic, editor, teacher, member of institutional committees and director of an important museum, broadcaster, Summerson has been one of the key figures within the British architectural *milieu*. His books, *John Nash* (1933) and *Georgian London* (1946), to mention only two out of a very long list, show the urge for a historiografic methodology based on the accumulation *in fieri* of events upon a selected subject.
Nikolaus Pevsner (1902), who had studied art history in Leipzig with Wilhelm Pinder, left nazi-Germany and came to England in the early 1930s. He belonged to that contingent of illustrious *émigrés* - Warburg, Saxl, Gombrich, and Wittkower, among others - who found their new home on the other side of the Channel. He showed his political and intellectual commitment to his new country and to modern architecture with no hesitation. The year after his official appointment as professor at the University of Birmingham, Pevsner published *Pioneers of the Modern Movement* (1936), an investigation on the development of ideas and materials in European *Baukunst* under the banner of two champions, William Morris and Walter Gropius. It is a truism that Pevsner's pamphlet has become one of the most influential books of 20th Century history of architecture. It has opened to a new interpretation on the origins of modern architecture. It has canonized a slogan that has received worldwide attention, though it has also been heavily critized.

Notorious misunderstanding
The third protagonist is Henry-Russell Hitchcock. Born in Boston (Mass.) in 1903, he was educated at Harvard, where



in 1927 he received his Master of Arts from the Graduate School of Arts and Sciences. By 1920 the Harvard College had become the cradle of an elite in the field of arts and architecture. Helen Searing has written of the 'crimson connection', a circle of young intellectuals, who in the following decades would play a crucial role in the spreading of modern art and architecture in the USA. Among them is worth mentioning Henry Francis, Peter van der Meulen Smith, Philip Johnson, and Alfred Barr. The last two became closely involved with Hitchcock in organizing the show 'Modern Architecture. International Exhibition' at New York MoMA, inaugurated on 10 February 1932. Then, Alfred Barr was the director of the Museum and the young architect Philip Johnson was co-curator with Hitchcock of the exhibition. At the occasion, a catalogue under the same title was published; but the event that made the MoMA show so sensational was the arrival in the museum bookstore of another book, *The International Style: Architecture Since 1922*, which had appeared shortly before the opening of the exhibition and paralleled it. Authors of *The International Style* were Hitchcock and Johnson; Barr contributed the 'Preface' to the book, also sponsored by MoMA. The show (and its catalogue) and The International Style were intended to be two well distinct episodes within a growing debate on the aesthetic and social components of architecture in Europe and the USA, but the fact that they occurred simultaneously has produced an identification between them and generated a notorious misunderstanding.
All in all the American architectural *milieu* needed a confrontation with the European 'masters', while European architecture needed a critical assessment of its multifaceted achievements. As a consequence, the expression 'International Style' was at the same time used and abused. Often introduced as synonym of modern architecture and associated to 'rationalism', or 'Modern Movement', 'International Style' finally acquired a negative connotation and eventually became an empty formula.

Multi-layered

Michela Rosso and Paolo Scrivano weave the threads of these multi-layered stories and in doing so, they show a deep and unique awareness of the profession of the historian. More directly Michela Rosso discloses the perspective of a diverse concept of history, intended to be useful to the production of analytical strategies (directed to policies of recording and conservation) rather than to the elaboration of ethic or aesthetic prescriptions. Her book moves from the interpretation of the history of cultures; she follows the traces of those cultures, intertwining two intellectual narratives.
Though Summerson and Pevsner had few opportunities of personal exchanges, the objectives of their work show some amazing analogies. It is no coincidence that a full chapter of the book is dedicated to the most impressive projects that occupied the two historians immediately before and after the Second World War. Summerson began his research for the National Building Records in 1939. After April 1941 and the disastrous bombing of London, the surveying of the most important buildings under threat became a moral imperative. The importance of the National Building Records

Henry-Russell Hitchcock (at the right) and Philip Johnson, 1979.
All photos: DOCOMOMO International archives.

lies in its being the first methodological attempt to the foundation of the culture of the national heritage. On a similar basis, Pevsner contributed to a genuine re-assessment of Englishness with the series called 'Buildings of England', almost fifty volumes published by Penguin between 1951 and 1974. Both achievements need to receive larger international recognition, and deeper attention from historians.

Changed perspective

Scrivano's book focuses on the analysis of the contribution of Henry-Russell Hitchcock to the idea of 'modern architecture'. In his fine and passionate writing Scrivano takes the reader through the paths of a history still to be disclosed. In particular, some issues have captured my attention. Listing them with no priorities, I would recall those that have changed my perspective in understanding Hitchcock's contribution to modernity: the meaning of art history education and the importance of the European grand tour; the close relationship between *Modern Architecture. Romanticism and Reinterpretation* (New York 1929) and *The International Style;* the presence of Lewis Mumford, with Hitchcock and Johnson on the background of the famous MoMA show; the role of the architectural historian and critic versus the architect, i.e. Hitchcock's leadership vs. Johnson. The latter wrote of his colleague and friend: He is an 'eye' scholar.
A final remark on the scholarly quality of these books. Michela Rosso and Paolo Scrivano root their works on scrupulous archival research and on the surveying of many and diverse sources. The footnotes clearly show the richness of these sources, also useful for further research. Michela Rosso and Paolo Scrivano also show a methodology in making architectural history, which is based on the teaching of Carlo Olmo and on his interest in investigation the cultural processes. Rosso and Scrivano's books are based on Ph.D. dissertations elaborated under Olmo's tutorship at the School of Architecture in Turin.
The themes introduced in this review will form the core of an essay planned to appear in *The Challenge of the Modern Movement*, the publication forthcoming by 010 Publishers of Rotterdam, under the auspices of DOCOMOMO International.

(Review by Maristella Casciato, Chair of the ISC/R).

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SOLICITATION OF INTEREST

JFK International Airport - Building #60 Landmark Structure

(Formerly known as the TWA Flight Center at Terminal 5)

The Port Authority of NY&NJ hereby invites expressions of interest in the adaptive re-use of Building #60, also known as the TWA Flight Center at Terminal 5, a landmark structure designed by Eero Saarinen, located at John F. Kennedy International Airport in New York City.

Parties wishing to receive a Solicitation of Interest must send a written request identifying the individual or firm name, address, type of business and telephone number to the address or fax below. The Solicitation of Interest package will be available on or about ***January 2***, 2002. Interested parties must submit the Expression of Interest form that will be provided in the Solicitation of Interest package no later than ***January 31***, 2002.

JFK Redevelopment Program
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In the 20th Century Architecture, Urban Planning and Landscape during a brief, exhilarating, unique period were transformed in parallel with the Theory of Relativity, Cubism, Twelve Tone Music, Scientific Method, Rational Philosophy, Economic and Social Theory, Medical Science and Industrialisation.
Modern architecture was, consequently, a cultural imperative, which expressed innovative ideas, the early buildings retaining their potency to this day, and it is as much the spirit which generated these forms as the forms themselves which represent a crucial part of our intellectual heritage.
The built inheritance, which glorifies the dynamic spirit of the 20th Century, employed advanced technology which has not always endured long term stresses, and the functions which the buildings originally met have changed substantially.
The preservation of significant buildings, as works of art, presents a demanding economic and physical problem.
The continued life of both the icon and the ordinary as elements in an economically driven world depends first, upon a shared recognition of their cultural and social value and second, upon their continuing economic viability. The reconciliation of these two key factors lies at the core of an international crusade launched in Eindhoven in 1988 which initiated the founding of DOCOMOMO, an acronym standing for the **Do**cumentation and **Co**nservation of buildings, sites and neighbourhoods of the **Mo**dern **Mo**vement. The aim is to evolve and sustain a network for exchange of experience, public attention to this rich period of 20th Century cultural history, and create a register of the most important Modern Movement buildings.
This initiative is directed towards:

- those who are involved in policy-making, legislation, financing and management;
- those who are professionally interested in the protection of Modern Movement buildings, sites and neighbourhoods including architects, urban and landscape designers, art-historians and critics;
- researchers, technical specialists and consultants who are actively engaged on restoration projects;
- teachers and students studying the Modern Movement.

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