

International Exhibition on Pier Luigi Nervi

This highlight of the ACI Convention – Fall 2016 will be shown next in Miami, FL

by *Cristiana Chiorino, Antonio Nanni, and Theodore J. Smulski*

Recognized as one of the greatest and most inventive structural engineers of the twentieth century, Pier Luigi Nervi (1891-1979) was part of a glorious period in structural architecture. His masterpieces are scattered the world over. Nikolaus Pevsner, the distinguished historian of architecture, described him as “the most brilliant artist in reinforced concrete of our time.”¹

Nervi shared the cultures of architects and engineers, operating at the intersection of art and the science and technology of building. He contributed significantly to create—with other eminent practitioners such as Spain’s Eduardo Torroja—a real “poetry of concrete” that strongly permeated the subsequent culture of the concrete design. It is not surprising that Nervi was nominated “Professor of Poetry” at Harvard, where he delivered the 1962 Charles Eliot Norton lectures titled “Aesthetics and Technology in Building.”² His influence is seen in recent works in Italy and worldwide, for example in the Palazzo Italia of Expo 2015 by architects Nemesi & Partners, which was awarded the ACI Overall Excellence in Concrete Construction Award in 2016.

A Multifaceted Visionary

Like many of his predecessors in the early years of development of reinforced concrete technology, Nervi’s personality comprised many facets, including designer, builder, researcher, and creator of new construction techniques. He was also a professor and lecturer at prestigious universities around the world and the author of books debating the conceptual and technological fundamentals of construction. He has been described as having an engineer’s audaciousness, an architect’s imagination, and a businessman’s practical realism. His use of the most advanced technical solutions was always accompanied not only by the pursuit of formal elegance, but also by an equally strong attention to the technical and economic aspects of the building process.

Some of his most important and iconic works were realized in Italy and Europe: the Exhibition Halls and the Palazzo del Lavoro in Turin, the Stadium in Florence, the

Sport Palaces for the Olympic Games of 1960 in Rome, and the UNESCO Headquarters in Paris (with Marcel Breuer and Bernard Zehrffuss), to name just a few. An important group of his works are in North America, the most famous being St. Mary’s Cathedral, San Francisco, CA (with Pietro Belluschi); George Washington Bus Terminal, New York City, NY; the hyper-umbrella roofs of Newark International Airport Terminal, Newark, NJ; the Scope Cultural and Convention Center, Norfolk, VA; the sport halls at Dartmouth College, Hanover, NH; and the Victoria Square Tower, Montreal, QC, Canada. In South America, he designed the Italian Embassy in Brasília, Brazil, and in Sydney, Australia, he collaborated in the design of Australia Square Tower and the M.L.C. Center, and conceived the unrealized project for the New Norcia Cathedral.

Nervi was an Honorary Member of ACI, American Institute of Architects, American Academy and Institute of Arts and Letters, Royal Academy of Fine Arts Stockholm, American Academy of Arts and Sciences, International Institute of Arts and Letters of Zurich, International Association for Shell Structures, Royal Netherlands Society of Engineers, College of Architecture of Peru, Royal Academy of Arts, and Franklin Institute.



The original exhibition of “Pier Luigi Nervi – Architecture as Challenge” displayed at the MAXXI Museum in Rome, 2010-2011 (photo courtesy of Cesare Querci and Fondazione Maxxi)



Opening of the Nervi Exhibition at the BME Budapest University of Technology and Economics, March 2016

(photo courtesy of János Philip and BME Faculty of Civil Engineering and Faculty of Architecture)

International Exhibition “Pier Luigi Nervi – Architecture as Challenge”

Promoted by the Pier Luigi Nervi Project Association (PLN Project), the foundation chaired by Nervi’s grandson Marco Nervi and devoted to the preservation and dissemination of Nervi’s cultural legacy, a broad research-educational program on Nervi’s life and work was started in 2009, marking the 30th anniversary of Nervi’s death. Politecnico di Torino, the Universities of Rome La Sapienza and Tor Vergata, and La Cambre Horta School of Architecture in Brussels provided scientific support.

The program culminated in the international traveling exhibition, “Pier Luigi Nervi – Architecture as Challenge” organized by PLN Project and the Centre International pour la Ville et l’Architecture (CIVA), Brussels, in cooperation with the Italian National Museum of the Arts of the 21st Century in Rome (MAXXI) and the Study Center and Communication Archive (CSAC) of the University of Parma, Italy, under the auspices of the President of the Italian Republic and other prominent institutions. ACI co-sponsored the exhibition in recognition of the ACI Honorary Membership awarded to Nervi in 1969, and in consideration of the significant number of his celebrated works in North America.

The interdisciplinary scientific committee of the exhibition was chaired by Carlo Olmo and comprised distinguished scholars of history of contemporary architecture, architectural engineering, and structural mechanics.

Accompanied by an extended catalogue (published in English, French, and Italian) curated by Carlo Olmo and Cristiana Chiorino and assembling the results of the research program, the exhibition presents an insightful profile of Nervi’s figure and art and a wide panorama of his major works.³

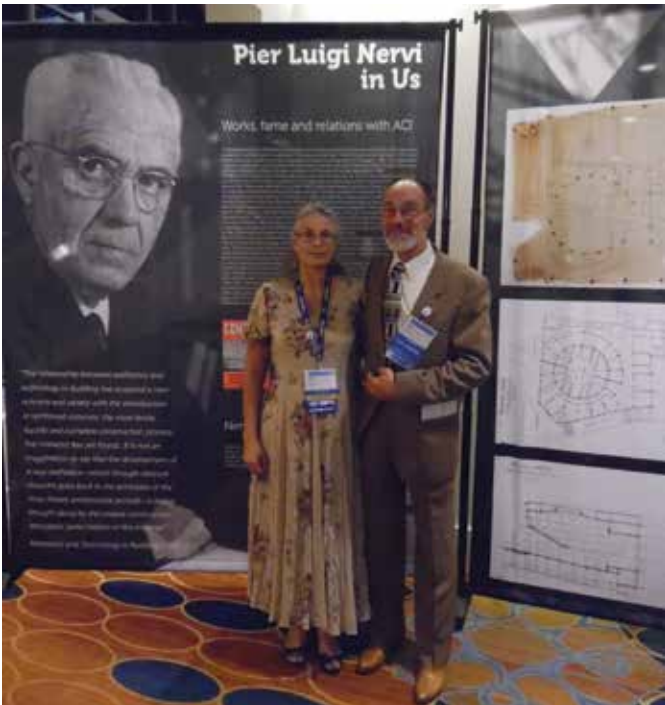
The exhibition started its successful tour in Brussels, Belgium, in 2010. The subsequent venues included the Venice Biennale of Architecture, Venice, Italy; MAXXI National Museum of 21st Century Arts, Rome, Italy, designed by Zaha Hadid (with 80,000 visitors); Turin Exhibition Hall (a fascinating building designed by Nervi), Turin, Italy; Danish Academy of Fine Arts School of Architecture, Copenhagen, Denmark; International Center for Art of Palazzo Te, Mantua, Italy; City and University of Salerno, Salerno, Italy; and École Polytechnique Fédérale, Lausanne, and the ETH Swiss Federal Institute of Technology, Zurich, Switzerland. At the Museum of Architecture in Wrocław, Poland, the exhibition coincided with the 2013 Annual Symposium of the International Association of Shell and Spatial Structures (IASS). A special session and issue of the *Journal of the IASS* dedicated to Nervi celebrated the 50th anniversary of his Honorary Membership with IASS.⁴

New Light Edition of the Exhibition

In 2015, a new, light version of the Exhibition, titled “Pier Luigi Nervi – Art and Science of Building,” was created for a more extended international and intercontinental tour. Presented by ComunicArch Associates in association with the



Two of the 20 display panels for “Pier Luigi Nervi – Art and Science of Building” Exhibition, in Philadelphia, PA



Debra and Ted Smulski, representatives of the Eastern Pennsylvania and Delaware Chapter – ACI Convention Committee and coordinators of the Nervi Exhibition

PLN Project and curated by Cristiana Chiorino, the new version is a file that can be electronically transmitted to the hosting institutions with:

- High-resolution reproductions of the original drawings of the Nervi projects that are exhibited, with photos and text to be printed on site; these materials may be either combined and pre-edited in a series of 20 panels, or they may be combined and edited in a more extended format by the hosting institutions;
- Videos on Nervi’s life and work; and
- Videos of high educational value on the exhibited works, presenting historical construction sequences for each one, with wide options of archival photographic documents, and very accurate three-dimensional virtual geometrical-structural models.

The new light edition of the exhibition was presented at Architektur Forum Ostschweiz in St. Gallen, Switzerland; at BME Budapest University of Technology and Economics and the Budapest Center of Architecture in Budapest, Hungary; at the Jornadas Argentinas de Ingenieria Estructural in Buenos Aires, Argentina; and most recently at the Curtin University in Perth, Australia.

ACI Hosts the Nervi Exhibition in Philadelphia, PA

In recognition of the key role of Philadelphia as an American Revolutionary War site, the Eastern Pennsylvania and Delaware Chapter – ACI Convention Committee adopted the theme “Revolutionary Concrete” for The ACI Concrete Convention and Exposition – Fall 2016. The intent behind this theme was to focus on significant and potentially transformative developments in the composition and use of concrete.

Coincident with establishing the convention program, the new light edition of the exhibition on the life and works of Pier Luigi Nervi became available. This celebration of Nervi’s extraordinary contributions in pioneering concrete technology seemed to be the perfect complement to the “Revolutionary Concrete” convention. So, on October 22, 2016, the “Pier Luigi Nervi – Art and Science of Building” Exhibition was displayed for the first time in North America.

Members of ACI-ASCE Joint Committee 334, Concrete Shell Design and Construction, shared the vision of bringing the Nervi Exhibition to the ACI Convention in Philadelphia, and Committee Chair Michael Hunter was indispensable in securing support. The main sponsor of the exhibition was cement company Buzzi Unicem USA, in homage to the historical links between Nervi and the Cementi Marchino



Display panels for the “Pier Luigi Nervi – Art and Science of Building” Exhibition included text, photographs, and photos



The Nervi Exhibition hosted by Curtin University in Perth, Australia, May-June 2017 (photo courtesy of John Henry Nesbit)

company, later incorporated into Unicem. Other sponsors were Domtec International, Dome Technology, Engineering System Solutions, FabricSpan, South Industries, and ZZ Consulting. Theodore J. and Debra R. Smulski were the coordinators for the host Eastern Pennsylvania and Delaware Chapter – ACI. The Italian General Consulate of Philadelphia also provided support and included the event in the “Ciao Philadelphia” Italian Cultural Month program.

After some investigation and a few iterations, the appropriate means for displaying the Nervi Exhibition materials were identified. The cost of hosting this exhibition included printing and display of 20 large panels containing images and text, video player and screen equipment, and a licensing fee. With realistic costs for all exhibition components, a firm budget was set, sponsorships were secured, and the host chapter proceeded to finalize the arrangements for the Nervi Exhibition. This funding process was especially important because of the simultaneous Chapter Convention Committee fundraising effort to cover the chapter's share of the convention expenses. The additional cost of the Nervi Exhibition was funded by its own dedicated sponsors. Ultimately, this very successful display became an important progression in the worldwide celebration of the achievements of one of the greatest structural artists of all time.

Preparing the Display

Each of the 20 panels was prepared as a full size, 2 m (6.5 ft) wide by 2.5 m (8 ft) high, fabric display stand with images produced using the dye sublimation printing method. This process transfers ink digitally with heat, infusing dyes into the fabric at the molecular level. Using this process with digital files transmitted from exhibition curator Cristiana Chiorino

with ComunicArch Associates, the printed panels are full color, very high resolution, and extremely durable. Pole pockets were made using extra length fabric, and an adjustable steel pole display stand was provided for each panel. ARC Document Solutions supplied the printing and display materials, under the direction of Brian Bielawski in their Philadelphia office.

Because the exhibition could not fit inside the convention Exhibit Hall, the panels were placed in the foyer area just outside of that space. The arrangement plan developed by the host chapter coordinators was reviewed by ACI staff, the hotel staff, and the city fire marshal before the convention.

Delivery of the panel materials was delayed by a day to allow for reloading onto a smaller truck that could reach the center city location. Within 10 hours, the host coordinators had unpacked, assembled, and set the 20 panels in place, in time for the Saturday afternoon opening of the convention Exhibit Hall.

An excellent series of videos on Nervi's life and works accompanied the printed display panels to complete the exhibition. Video display options were limited by the hotel's requirement to contract all audio-visual services with their exclusive site provider. For this exhibition, the curator prepared a single video loop digital file consisting of all

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relevant video segments, with a duration of approximately 1 hour, set to play continuously on a flat screen display equipped with a digital source video drive. The video display screen was located near the ACI Exhibit Hall assembly area. This video arrangement was intended to keep the Nervi Exhibition expenses within budget and to offer increased exposure to the convention exhibitors.

The ACI Concrete Convention – Fall 2016 held in Philadelphia was generally considered very successful, with much positive feedback and the second highest attendance of any ACI convention. The Nervi Exhibition, located at the center of the convention activities, was seen and studied by almost 2000 convention attendees. This widely successful presentation was an important part of the celebration of “Revolutionary Concrete,” and it is expected to open the doors to a wider North American circuit. The hosting institution coordinators are most grateful to the producers and sponsors of this exhibition on the brilliant work of Pier Luigi Nervi, whose enduring contributions to concrete culture continue to influence the most inspiring works of our time.

Nervi Exhibition Scheduled for Miami, FL

The Nervi Exhibition will be hosted October 7-28, 2017, at the School of Architecture of the University of Miami, Miami, FL, coordinated by Antonio Nanni, Professor. The Italian General Consulate of Miami will be a sponsor. The exhibition setting will be like that created for Philadelphia.

Other Possible Venues Worldwide

Prospective future North American venues for the Nervi Exhibition include the Italian Academy for Advanced Studies at Columbia University, New York City, NY, and Cornell University, Ithaca, NY. Venues under consideration in Central and South America include the Museo Nacional de Arquitectura in Mexico City, Mexico; Mackenzie University in São Paulo, the Italian Embassy in Brasilia (a building designed by Nervi), and Belo Horizonte (in conjunction with the 12th International Ferrocement Symposium) in Brazil; and Santiago, Chile. Preliminary discussions are under way for possible presentations in Japan, China, India, and other locations.

Contact ComunicArch Associates (www.comunicarch.it, cristiana.chiorino@comunicarch.it) regarding future displays. The Exhibition materials sent over the Internet will be printed by the hosting institutions; the transmitted materials also include the associated videos. As an alternative for North American venues, the same exhibition panels displayed at the ACI Convention in Philadelphia may be reused by permission from ComunicArch Associates.

References

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3. *Pier Luigi Nervi: Architecture as Challenge*, C. Olmo and C. Chiorino, Eds., Silvana Editoriale, 2010-2011, 240 pp. (Italian, French and English editions).

4. “Pier Luigi Nervi: Art and Technology in Building,” *Journal of the IASS*, special double issue, V. 54, No. 2 and 3, Sept. 2013.

Selected for reader interest by the editors



Cristiana Chiorino is an Architect with a PhD in conservation of modern architectural heritage and in history of architecture. She is a Partner of ComunicArch Associates, specializing in communication on architecture. Chiorino is a scientific consultant for heritage conservation to the Pier Luigi Nervi Project Association (PLN Project). She coedited the first extended edition of the international Exhibition “Pier Luigi Nervi – Architecture as Challenge” and its catalogue, and is the curator of the new light edition of the exhibition. She is a member of the Historical Spatial Structures Working Group of the International Association for Shell and Spatial Structures and the Italian section of the Council Board of Docomomo, which is devoted to the documentation and conservation of building sites of the modern movement.



Antonio Nanni, FACI, Professor and Chair, University of Miami, Department of Civil, Architecture, and Environmental Engineering, Miami, FL. He is Chair of ACI Committee 549, Thin Reinforced Cementitious Products and Ferrocement, and Subcommittee 562-E, Coordination. He also is a member of the ACI Financial Advisory Committee and ACI Committees 437, Strength Evaluation of Existing Concrete Structures; 440, Fiber-Reinforced Polymer Reinforcement; and 562, Evaluation, Repair, and Rehabilitation of Concrete Buildings.



ACI member **Theodore J. Smulski** is the Senior Structural Engineer at DEDC, Newark, DE, with over 30 years of design experience. He is a member of Joint ACI-ASCE Committee 334, Concrete Shell Design and Construction, and has been active in the Eastern Pennsylvania and Delaware Chapter – ACI, serving as President in 2007-2008 and as Co-Chair

of the 2016 Chapter Convention Committee. Smulski is also a member of the American Society of Civil Engineers and the Structural Engineering Institute. He received his BCE and MCE from the University of Delaware, Newark, DE, and is a licensed professional engineer in five states.