

Transnational Histories of Design Cultures and Production

Giaime Botti
Eugenio Mangi
Hiroyuki Shinohara *Editors*

Building Technology and Culture in the Asia-Pacific Region


Construction, Materials, Encounters



 Springer

Transnational Histories of Design Cultures and Production

Editor-in-Chief

Giaime Botti , University of Nottingham Ningbo China, Ningbo, China

This book series promotes original research addressing the question of globalisation in design culture. With a focus from the nineteenth century onwards but open to contributions that engage with earlier periods, the series aims at attracting book proposals that primarily focus on how a plurality of modernities and globalisations has affected and transformed design culture and the architectural profession worldwide. The Editorial Board especially welcomes studies that propose innovative research methodology and a cross-disciplinary approach and invites authors to submit monographic and collective contributions that aim at constructing transnational narratives on architecture, planning, and the broader design culture, with non-exclusive interest in the following topics:

- Transnational design production not only across North-South lines but also and especially East-West and South-South, with emphasis on the global and regional scale.
- The globalisation of the architectural profession and its modes of production, with interests in mapping professional networks and capital flows, patterns of knowledge exchange, and the multiplicity of actors involved in the design process (design firms, real estate developers, consultancies, governmental actors, NGOs, etc.) at a macro scale.
- The role of construction companies and contractors, material (export of construction materials, equipment, prefabricated elements) and immaterial (processes of technical knowledge exchange) flows shaping a global construction practice.
- The inherently global challenge of climate change and environmental sustainability and its impact on design culture.
- The transnational circulation of imaginaries, ideas, and technical knowledge on printed media, with a particular but not limited focus on architectural magazines.
- The historiography of architecture and globalisation.
- Transnational academic networks and the broader theme of architectural education and research.

The series aims to become a point of reference for scholars in the history of contemporary architecture and planning and, more in general, for researchers in the broader field of design, with the perspective of attracting proposals also from the fields of architectural theory and education, and the sociology and the ethnography of practice.

Giaime Botti · Eugenio Mangi · Hiroyuki Shinohara
Editors

Building Technology and Culture in the Asia-Pacific Region

Construction, Materials, Encounters

 Springer

Editors

Giaime Botti
Architecture and Built Environment
University of Nottingham Ningbo China
Ningbo, Zhejiang, China

Eugenio Mangi
Architecture and Built Environment
University of Nottingham Ningbo China
Ningbo, Zhejiang, China

Hiroyuki Shinohara
School of Architecture
Chinese University of Hong Kong
Hong Kong SAR, China

ISSN 3004-9075 ISSN 3004-9083 (electronic)
Transnational Histories of Design Cultures and Production
ISBN 978-981-97-1793-4 ISBN 978-981-97-1794-1 (eBook)
<https://doi.org/10.1007/978-981-97-1794-1>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Singapore Pte Ltd. The registered company address is: 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore

Paper in this product is recyclable.

Acknowledgements

This book collects a selection of the papers presented and discussed at the international Symposium *Building Technology and Culture in the Asia-Pacific Region: Histories and Projects* organized by the Chinese University of Hong Kong (CUHK) and the University of Nottingham Ningbo China (UNNC) and held online on 24–25th June 2022, when difficulties due to the COVID-19 pandemic made it impossible to meet in person. The editors are grateful to Peter W. Ferretto from CUHK, who chaired one of the sessions, all the participants in the Symposium, and the members of the Symposium Scientific Committee Tiziano Cattaneo (Tongji University and Università degli Studi di Pavia), Ali Cheshmehzangi (Qingdao City University and Hiroshima University), Wu Deng (UNNC), Jorge Galindo Díaz (Universidad Nacional de Colombia), Aya Al Kadi Jazaierly (University of Loughborough), Yat-Ming Loo (UNNC), Daniele Pisani (Politecnico di Milano), Peng Tang (Southeast University, Nanjing), and Jingxiang Zhu (CUHK), for their guidance and support. The Symposium fruitfully gathered architects and scholars based in Asia, Europe, and North America, who investigate, on the one hand, the connections between material culture and technology in architecture and, on the other hand, their relationship with the broader cultural context.

The editors are also in debt to several people who made this book possible, beginning with the authors of the chapters. In addition, the following institutions provided essential support: the School of Architecture (SoA) at CUHK, the Department of Architecture and Built Environment (ABE) at UNNC and the Sustainable Built Environment Research Group (SBE). We are therefore in debt to Hendrik Tieben, the Director of the SoA at CUHK, Ali Cheshmehzangi, Head of the ABE Department at UNNC at the time of the Symposium, and Wu Deng, current Head of the ABE Department and Head of the SBE Research Group, who supported the initiative. The event and this book have been made possible thanks to financial support from the Special Research Publication Fund of the SoA at CUHK and the patronage of the SBE at UNNC.

The editors are also thankful to the following people who reviewed both the initial book proposal and all the chapters: Caterina Barioglio, Peter W. Ferretto, Stanislaus Fung, Pedram Ghelichi, Daniele Pisani, Peng Tang, Jing Xie, and Su

Yimin. We also thank David Anstey, John Dourneen, Luke Errington, Holly Nelson, and Peter Sturman from the Centre for English Language Education of UNNC, who proofread all our texts, Weixuan Chen, who assisted with both the organization of the Symposium and the editorial process, and, finally, the Springer editorial team.

Ningbo, China
Ningbo, China
Hong Kong, China
October 2023

Giaime Botti
Eugenio Mangi
Hiroyuki Shinohara

Contents

| | | |
|---|--|------------|
| 1 | Introduction. Bridging Technology and Culture in Architecture | 1 |
| | Giaime Botti, Eugenio Mangi, and Hiroyuki Shinohara | |
| Part I Construction: The Poetry and the Theory | | |
| 2 | Patterns Redefinition in Beijing East Qianmen. Kengo Kuma Office in Damochang 220 Courtyard House | 15 |
| | Andrea Canclini | |
| 3 | Chinese Vaulted Avant-Garde Architecture: Materials and Tectonics as Design Tools for the Pursuit of Monumentality ... | 35 |
| | Alberto Bologna | |
| 4 | All That Glitters Is Not Gold: Laurie Baker’s Alchemy in Brick ... | 55 |
| | Babita Joy | |
| Part II Materials: Production and Execution | | |
| 5 | The Reciprocal Development of Craft and Industry in Twentieth-Century Japan Through the Lens of Plywood as a Material | 73 |
| | Kaon Ko | |
| 6 | Toyo Ito’s Wood Architecture Reimagined: A Critique of Modernist Ideology | 87 |
| | Aki Ishida | |
| 7 | Hyperboloid Structure, also Known as Reciprocal Tower, in Bamboo Architecture | 105 |
| | Mia Tedjosaputro | |

Part III Encounters: Misunderstandings and Innovations

8 The Cross-Border Spread and Modernization of Modern Treaty Ports Cities: The Jardine Matheson Warehouse of Tianjin 125
Ruoran Wang, Zhichen Lyu, and Subin Xu

9 The “Chinese Curved Roof” for a Christian University: Interactions Between Building Technology and Cultural Perception in the Case of the University of Nanking 137
Jiayao Jiang

10 Digging Cultures of Production Using Design Practice: Transforming the Main Oxygen Factory Workshop in Shougang, Beijing 163
Camilla Forina, Edoardo Bruno, and Michele Bonino

Editors and Contributors

About the Editors

Giaime Botti, Ph.D. in Architecture from Politecnico di Torino, is an Assistant Professor in Architecture at the University of Nottingham Ningbo China and the BEng Architecture Course Director. He has previously taught at the Pontificia Universidad Javeriana in Bogotá. His research focuses on the history of twentieth-century architecture and urbanism in Latin America, on contemporary China, and on the global practice of architecture. He has published several articles in renowned international journals and the monographs *Designing Emerging Markets: A Quantitative History of Architectural Globalisation* (Springer, 2023) and *Tra modernità e ricerca identitaria. Architettura e Città in Colombia, 1920–1970* (FrancoAngeli, 2021).

Eugenio Mangi is Assistant Professor (Lecturer) in architecture and urban design at the Department of Architecture and Built Environment, University of Nottingham Ningbo China. He has lectured for the Environmental Design Studio at Tongji University's College of Design and Innovation (adjunct professor) and at the Department of Environmental Art, China Academy of Art. His research activity focuses on design-based sustainable strategies for adaptive re-use, contemporary Chinese design culture, and rural/peri-urban urbanization.

In addition to his role in academia, Eugenio is a licensed architect in Italy (1009 PR). He has collaborated with international practices and later founded his own firm, Draftarch. Throughout his career, Eugenio has worked on a variety of projects, ranging from interior design to urban planning and heritage renovation in Italy, Spain, and China.

Hiroyuki Shinohara is an Assistant Professor in the School of Architecture at the Chinese University in Hong Kong. Previously, he held the position of Assistant Professor in Architecture & Built Environment at the University of Nottingham Ningbo China. He obtained his Master of Architecture degree from Harvard University and his Ph.D. from Nagoya Institution of Technology in Japan. His research

centers around the notion of materiality and intersects with topics of material and language, building technology, and architectural pedagogy in the context of making. His current research focuses on the transfer of craft knowledge in contemporary architectural applications, with a recent project titled “Moving Bamboo” featured as the central courtyard piece in the Hong Kong Pavilion of the 18th Venice Architecture Biennale.

Contributors

Alberto Bologna Department of Architecture and Design (DiAP), Sapienza University of Rome, Rome, Italy

Michele Bonino Politecnico di Torino—Department of Architecture and Design (China Room), Turin, Italy

Giaime Botti University of Nottingham Ningbo China, Ningbo, China

Edoardo Bruno Politecnico di Torino—Department of Architecture and Design (China Room), Turin, Italy

Andrea Canclini School of Architecture, Lancaster University, Lancaster, UK

Camilla Forina Politecnico di Torino—Department of Architecture and Design (China Room), Turin, Italy

Aki Ishida Virginia Tech, Blacksburg, USA

Jiayao Jiang University of Cambridge, Cambridge, UK

Babita Joy University of Washington, Seattle, USA

Kaon Ko Tokyo University of Science, Tokyo, Japan

Zhichen Lyu School of Architecture, Tianjin University, Tianjin, China

Eugenio Mangi University of Nottingham Ningbo China, Ningbo, China

Hiroyuki Shinohara The Chinese University Hong Kong, Shatin, Hong Kong

Mia Tedjosaputro Department of Architecture, Xi’an Jiaotong–Liverpool University, Suzhou, China

Ruoran Wang School of Architecture, Tianjin University, Tianjin, China

Subin Xu School of Architecture, Tianjin University, Tianjin, China

Chapter 1

Introduction. Bridging Technology and Culture in Architecture



Giaime Botti, Eugenio Mangi, and Hiroyuki Shinohara

Abstract The chapter briefly discusses the current debate on architecture, technology and culture, highlighting the role of construction history as an emerging discipline able to help bridge the widening gap between techno-scientific and humanistic culture in design. It then introduces the three sections into which the book is divided and its chapters.

Keywords Architecture and technology · Construction history · Architecture in Asia–Pacific

1.1 Technology and Culture in Architecture

For many in the Global North, living standards have never improved as much as between the end of the nineteenth and the twentieth centuries. In the United States and, with slightly shifted chronologies, in Western Europe too, the period between 1870 and 1970 has seen the most transformative technological innovations continuously taking hold one after the other, making that century the one with the fastest economic growth in history and, above all, the most radical improvements in the quality of daily life. Robert Gordon explains the US “special century” emphasizing how “the economic revolution of 1870 to 1970 was unique in human history, unrepeatable because so many of its achievements could happen only once.”¹ To give an example of such revolution, the “networked house” and modern appliances “transformed the nature of housework” and granted all those essential comforts on which we rely today:

¹ Robert J. Gordon, *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War* (Princeton, NJ: Princeton University Press, 2017), 1.

G. Botti (✉) · E. Mangi
University of Nottingham Ningbo China, Ningbo, China
e-mail: giaime.botti@nottingham.edu.cn

H. Shinohara
The Chinese University Hong Kong, Shatin, Hong Kong

by 1940, nearly all US homes were wired for electricity and 94% had clean running piped water and sewer pipes. For urban homes, 80% had interior flush toilets, 73% had gas for heating and cooking, 58% had central heating, and 56% had a refrigerator. The percentage was zero in 1880.² In the second half of the twentieth century, however, the pace of innovation consistently slowed down. Only a few sectors kept growing, especially the ICTs, which significantly changed our daily lives and transformed our cultures.

Looking at the built environment, over the centuries, gradual advancements and sudden breakthroughs in building technology have also transformed architecture, responding to a variety of novel human needs while simultaneously stimulating the emergence of new ones. After the great advancements of the nineteenth and early twentieth centuries in the construction sector, mainly embodied by the widespread use of cast iron and steel, reinforced concrete, and glass, it can be argued that innovations have stalled if we consider the scale and scope of such transformations. Certainly, as traced by Mark Jarzombek, since the mid-twentieth century, “the everyday economy of architecture-making” has become “more complex.” It was first a process of “plastification” (ubiquity of PVC water and sewage pipes), then “chemicalization of materials” (use of chemical additives in concrete, insulations, glues, laminates), “metallification” (widespread presence of rebars, siding, railings), and, finally, “computationalization of the design, production, and assembly,” without neglecting the influence of an increasingly global supply chain.³

“All architectural materials get conscripted into a grand machinery that is almost completely invisible—even to the architect,” insists Jarzombek.⁴ In this light, while the industry focuses on the efficiency and optimization of its processes, and the architect “maximizes the energies of this teleological system and brings them into clear, immediate, and shameless visibility,”⁵ the theoretical appreciation of these dimensions provides new disciplinary challenges. To investigate these matters further, in the last few decades construction history has emerged as a new discipline. Somehow a branch of the history of technology and of the history of architecture, it is “placed in a very strategic position between the history of technology and cultural history,” explains Antoine Picon.⁶ In the nineteenth century, the writings of Gottfried Semper, Emmanuele Viollet-le-Duc and Auguste Choisy made a fundamental contribution to construction history based on doctrinal and professional concerns, making it an operative discipline entangled with the practical and theoretical dimension of architecture and engineering.⁷ Even before this, Marc-Antoine Laugier’s image of the primitive

² *Ivi*, 5–6.

³ Mark Jarzombek, *Architecture Constructed. Notes on a Discipline* (London: Bloomsbury Visual Arts, 2023), 289.

⁴ *Ivi*, 286.

⁵ *Ibid*.

⁶ Antoine Picon, “Construction History: Between Technological and Cultural History,” in *Building Systems. Design Technology and Society*, ed. Kiel Moe, and Ryan E. Smith (Abingdon: Routledge, 2012), 26.

⁷ *Ibid*.

hut as a universal archetype of architecture based on a simple, rational, tectonic choice, in a way, had brought the construction at the core of the theoretical reflection.⁸ Indeed, during the twentieth century, the history of architecture has sometimes been connected to the history of technology, like in Sigfried Giedion's pioneering *Mechanization Takes Command*.⁹ Later on, the environment and the technologies that humanity developed to dominate it became for some authors a medium through which the history of architecture was read, from Reyner Banham's *The Architecture of the Well-Tempered Environment*,¹⁰ to recent books such as *Light, Air and Openness* by Paul Overy¹¹ and Eduardo Prieto's *Historia medioambiental de la arquitectura*.¹² As for construction, while Kenneth Frampton certainly brought it back to the center of the stage with his *Studies in Tectonic Culture*,¹³ others, like Giovanni Fanelli and Roberto Gargiani, have given it a space that exceeds what is commonly done in general narratives, whether in their history of contemporary architecture seen through the lenses of "space, structure, and envelope",¹⁴ or in monographs on individual architects like in the case of Gargiani's *Rem Koolhaas/OMA*.¹⁵ More recently, some texts focusing on Mies van der Rohe's Seagram Building have delved into the ecology of construction, the inextricable link existing between technology and environment, design choices and resource consumption,¹⁶ in a context of increasing scholarly attention towards the political ecology of architecture.¹⁷

Despite the growing literature dealing with the "social construction of technology"¹⁸ and the recent launch of a comprehensive and ambitious project like the New

⁸ Marc-Antoine Laugier, *Essai sur l'architecture* (Chez Duchesne, 1753).

⁹ Sigfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History* (New York: Oxford University Press, 1948).

¹⁰ Reyner Banham, *The Architecture of Well-Tempered Environment* (London: Architectural Press, 1969).

¹¹ Paul Overy, *Light, Air and Openness: Modern Architecture Between the Wars* (London: Thames & Hudson, 2008).

¹² Eduardo Prieto, *Historia medioambiental de la arquitectura* (Madrid: Ediciones Cátedra, 2019).

¹³ Kenneth Frampton, *Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: MIT Press, 1995).

¹⁴ Giovanni Fanelli and Roberto Gargiani, *Storia dell'architettura contemporanea: spazio, struttura, involucro* (Bari and Roma: Laterza, 1998).

¹⁵ Roberto Gargiani, *Rem Koolhaas/OMA: The Construction of Merveilles* (Bari and Roma: Laterza, 2006).

¹⁶ Kiel Moe, *Unless* (New York, NY: Actar Publishers, 2020); Barnabas Calder and Florian Urban, "It Is Time No Longer to Praise the Seagram Building, but to Bury It," *Architect's Journal*, November 10, 2022, <https://www.architectsjournal.co.uk/buildings/it-is-time-no-longer-to-praise-the-seagram-building-but-to-bury-it>.

¹⁷ Joan Ockman, "Toward a Political Ecology of Architecture," *Places Journal*, March 2022, <https://placesjournal.org/article/toward-a-political-ecology-of-architecture/?cn-reloaded=1#0>.

¹⁸ Wiebe E. Bijker, Thomas Parke Hughes and Trevor Pinch, eds., *The Social Construction of Technological Systems. New Directions in the Sociology and History of Technology* (Cambridge: The MIT Press, 2012).

European Bauhaus,¹⁹ the disciplinary debate on the relationship between technology and culture in architectural theory and practice appears to have languished. This interrelation is often neglected or, worse, seen in oppositional terms; for example, David Leatherbarrow and Mohsen Mostafavi describe current attitudes about the connection between architecture and technology as an “odd mixture of confidence and doubt”, recognizing how designers tend to take a position either “for or against technology.”²⁰ Katie Lloyd Thomas questions the stances that merely consider the problem of technology(ies) in technical terms and enhance the division between conceptual form-finding and its materialization: “The very method we use to develop architectural proposals—orthographic drawings—describes only form, and relegate material to the empty spaces between the lines.”²¹ However, this problem is not a novelty, as Bruno Zevi warned some decades ago about the growing divide between scientific and humanistic culture,²² with reference to Charles Percy Snow’s influential essay *The Two Cultures*.²³ Isaiah Berlin has also discussed the “divorce” between science and humanities.²⁴ For the architectural historiography of the “Modern Movement”, however, the problem was finally overcome. Sigfried Giedion’s *Bauen in Frankreich, Bauen in Eisen, Bauen in Eisenbeton*²⁵ firstly and *Space, Time and Architecture*²⁶ later, created the distraction. They did so by, in the case of the former, focusing the attention on exemplary, new constructions in steel and reinforced concrete in pre-World War II France, and, in the case of the latter, claiming the end, thanks to modernism, of that nineteenth-century schism between engineering and architecture that had begun a century before with the separation of architectural training between Polytechnique and Beaux-Arts schools. However, Reyner Banham soon called the bluff; his *Theory and Design in the First Machine Age* highlighted all the flaws in the “construction” of the Modern Movement.²⁷

Today, authors like Leatherbarrow and Mostafavi urge reaffirming the situatedness of technology within a specific cultural context through its interaction with the local environment as a counter-reaction to the tendencies of technological objects

¹⁹ European Commission, “Joint Research Centre. New European Bauhaus”, 2021, https://europa.eu/new-european-bauhaus/index_en.

²⁰ David Leatherbarrow and Mohsen Mostafavi, *Surface Architecture* (Cambridge: The MIT Press, 2002), 222–226.

²¹ Katie Lloyd Thomas, “Introduction: Architecture and Material Practice,” in *Material Matters: Architecture and Material Practice*, ed. Katie Lloyd Thomas (London: Routledge, 2007), 2.

²² Bruno Zevi. *Editoriali di architettura*. Torino: Einaudi, 1979.

²³ Charles Percy Snow, *The Two Cultures* (London: Cambridge University Press, 1959).

²⁴ Isaiah Berlin, *The Divorce Between the Science and the Humanities* (Urbana-Champaign: University of Illinois, 1974).

²⁵ Sigfried Giedion, *Bauen in Frankreich, Bauen in Eisen, Bauen in Eisenbeton* (Leipzig and Berlin: Klinkhardt und Biermann, 1928).

²⁶ Sigfried Giedion, *Space, Time and Architecture: The Growth of a New Tradition* (Cambridge: Harvard University Press, 1941).

²⁷ Reyner Banham, *Theory and Design in the First Machine Age* (London: The Architectural Press, 1960).

with their relative autonomy, free from “territorial obligations”.²⁸ It thus becomes an urgent task to investigate to what extent building technology, while inevitably shaping the design production, enhances, incorporates, and responds to, but also results from, cultural, social and economic conditions grounded in a specific context. To give a concrete example, the demolition of one of the Metabolist masterpieces, the Nakagin Capsule Tower (1970–72), designed by Kisho Kurokawa, offers multiple points for consideration. The case is remarkable for reminding us about the connections between culture and technology, as the Metabolists’ theoretical appraisal of technology was explicitly rooted in the local context of Japan with specific reference to the traditional construction system used in the Ise Grand Shrine. Kurokawa pointed out that Japanese culture has traditionally valued mobility and transience.²⁹ Historical structures like the Ise Shrine continue to exist thanks to a constant cycle of dismantling and rebuilding. To realize a new living space that corresponded to the fluid society of Japan during a period of strong economic growth, the Metabolists incorporated the concepts of movement and growth in their visions, and they imagined buildings and cities capable of adapting to the changing demand. The principle of assembling and disassembling thus became an architectural system embodied in the Nakagin Capsule Tower, a structure that prioritized mobility and flexibility through replaceable capsules. The innovative building technologies used in the design of the Nakagin Capsule Tower were influenced by and responsive to the historical architectural practices in Japan, particularly the belief in the impermanence of materials and structures and the value placed on mobility, transience, and adaptability. It could be seen as an application of innovative building technologies to respond to the local community’s needs in light of historical Japanese architecture.

The question of the situatedness of technology also emerged in Liu Jiakun’s early works in the Western part of the Sichuan Plain, specifically the He Duoling Studio and Xiyuan Leisure Camp (Chengdu, 1996), as discussed in his 1997 article “Narrative Discourse and Low-Technique Strategy.”³⁰ In this text, he highlighted the necessity of defining an operative strategy to find a subtle balance between optimizing the cultural and historical resources, financial conditions, technological means, and architecture production to build high-quality projects in contexts that can be underdeveloped from the economic and technological points of view, but are rich in culture and civilization. According to Liu Jiakun, the “low-technique strategy” elaborated in the late 1990s, evolved, through the realization of several works in western China, into a genuine methodology which he called “handling the reality.” This methodology highlights the fundamental links between local circumstances and architecture.³¹

²⁸ Leatherbarrow and Mostafavi, *Surface Architecture*.

²⁹ Kisho Kurokawa, *Metabolism in Architecture* (London: Studio Vista, 1977).

³⁰ Liu Jiakun 刘家琨, “Xushi Huayu yu Diji Celue” 叙事话语与低技策略 [“Narrative Discourse and Low-Technique Strategy”], *Jianzhushi 建筑师 (The Architect)* 78 (October 1997): 45–53.

³¹ Liu Jiakun, “¿Construyo en el oeste de China?” in *Universo China: una mirada desde dentro 华夏天地——中国营造内观记*, ed. Eugenio Mangi and Su Yimin (Barcelona: Ediciones Asimétricas, 2023) pp. 128–149.

1.2 The Book

To discuss the impact of social and cultural dimensions on building technology in twenty-century architecture as well as in contemporary architectural practice, this book attempts to reconcile technical exploration, on one side, and social dimension, on the other, in spatial imagination, recognizing that “technology is culture,” and “constructive choices” are always “historically determined.”³² While we acknowledge construction history as a discipline focusing on “how” projects are built,³³ we are interested in a broader perspective on the relationship between culture and technology. In this light, the present book collects a selection of the papers presented at the international symposium *Building Technology and Culture in the Asia–Pacific Region: Histories and Projects*, virtually held between Ningbo and Hong Kong in June 2022. The event fruitfully brought together architects and scholars based in Asia, Europe, and North America, whose research (and sometimes practice, too) has investigated, from different perspectives, the connection between material culture and technology in architecture, on the one hand, and the impact of the broader cultural context, on the other. The resulting book offers some original insights into different matters and experiences associated with this relationship, covering countries as diverse as China, India, Japan, and Indonesia, and considering developments spanning for more than a century. Given the richness of the topic and the multiplicity of inputs, the publication is structured in three sections, touching distinct but interdependent matters that can be summarized through three keywords: construction, materials, and encounters. Still, as the reader advances through this book, the difficulty in disentangling each of these words from the others will become clearer, as complicated as it would be to disentangle technology from culture.

With these premises, we can start from the book’s first section: “Construction: The Poetry and the Theory.” This focuses on three cases, the first involving a renowned Japanese designer with a successful track record of projects in China, the second examining several contemporary Chinese architects, and the third focusing on one of the most interesting figures in Indian twentieth-century architecture. Before discussing more in detail the relevance and rationale of these contributions, we believe it to be necessary to explain the title of this first section. With it, we intend to highlight how technical, material, and tectonic choices, beyond inner economic and technological constraints, can be culturally motivated by and become statements of a theoretical positioning as well as expressions of the architect’s poetic. Poetry being, first of all, an act of creation, as its Greek etymology (*poiesis*) reveals, as is construction. Indeed, notions of technique and art are both rooted in the Greek word *techne*: “[...] the name not only for the activities and skills of the craftsman but also for the arts of the

³² Picon, “Construction History,” 24.

³³ Santiago Huerta Fernández, “Historia de la construcción: la fundación de una disciplina,” in *A História da Construção em Portugal. Alinhamentos e Fundações*, ed. João Mascarenhas Mateus (Coimbra: Almedina, 2011).

mind and the fine arts. *Techné* belongs to bringing-forth, to *poiesis*; it is something poetic.”³⁴

In different fashions, therefore, the three chapters of this section address theoretical aspects behind construction choices that can be interpreted as a poetic act instead of mere technical solutions. By analyzing the case of Kengo Kuma’s “Damochang 220” in Beijing, Andrea Canclini reveals the cautious and sophisticated theoretical reflections behind the project of a Japanese architect working in the core of what remains of the old Beijing and dealing with the traditional typology of the courtyard building. Such reflections could be extended in the future and enriched by studying several more projects of Kuma, who had designed hundreds of thousands of square meters of gross floor area across China. Kuma’s Folk Art Museum at the China Academy of Arts in Hangzhou, for instance, faces some of the most famous buildings designed by the Chinese Pritzker-laureate Wang Shu, engaging with similar poetic means in a (respectful) dialogue with them and the tectonic culture they represent. On China also lies the focus of Alberto Bologna, who explains, through the analysis of some vaulted buildings designed by contemporary avant-garde architects like Atelier Deshaus and Vector Architects, how construction choices, apparently distant from local traditions and hardly based on considerations of economic convenience, can be motivated by a theoretical positioning. According to Bologna, the poetic of brick and concrete vaults emerged for several architects as a statement about their belonging to a professional elite working for a niche clientele as opposed to larger and more commercialized practices—an elite whose work remains undoubtedly Chinese but integrated into the global discourse of contemporary architecture. To some extent, similar problems are also considered by the third contribution, which brings us back to post-independence India, when a significant but sometimes underestimated figure emerged: Laurie Baker. With this chapter, Babita Joy explores the architecture of Baker, who was able to produce a unique “alchemy” with the simplest, oldest, and cheapest among construction manufactured materials: air-dried bricks. Baker’s low-tech but sophisticated construction techniques engender more reflection about the role of the architect as creator, almost poet, but without losing contact with the architecture’s social and material dimension in its historicity. The meaning of building with bricks in the context of post-independence India, whose new symbols were erected in reinforced concrete as epitomized by Le Corbusier’s new monumentality of Chandigarh, was nothing less than a powerful statement about the architects’ social role. An architect who, not devoid of artistry, could understand and exploit the specific material conditions of the place. Such studies, today, can help us look at other experiences, distant in space but perhaps parallel in the ethos, like the work of Solano Benítez in Paraguay.

The second section of this book, titled “Materials: Production and Execution,” also organized into three chapters, focuses on materials, their development, and their application. Specifically, it considers different products and variations of timber

³⁴ Martin Heidegger, *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York and London: Garland Publishing, 1977), 13.