

Book Reviews

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Construction History: Book Review Essay¹

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Building: 3000 Years of Design, Engineering and Construction, by Bill Addis. Phaidon Press, Regents Wharf, All Saints Street, London N1 9PA, UK, 2007. Hardback, 640 pp., illust., index. Price: £45.00.

This important book covers, as the title says, 3,000 years of building history. But there is also a history of building history, and a brief review will serve to put the book in context.

Interest in the building procedures of the past has existed from the beginnings of civilization. Every epoch has looked back for advice and experience. The evidence is present in the buildings themselves (particular building techniques that have lasted for centuries). Evidence is also explicit in the Roman treatise of Vitruvius who cited his Greek sources. In the Middle Ages, the classical methods of proportioning by simple fractions were at the heart of the lodge rules of architectural and structural design (see, for example, Lechler's treatise from ca. 1500). Brunelleschi, after losing the concours for the gates of the Florence Baptistry to Ghiberti, went to Rome to study Roman buildings and afterwards won the competition for the building of the great dome of Santa Maria del Fiore. Guarini studied and admired Gothic architecture. Even the engineers of the Enlightenment were interested in Gothic architecture, though they considered the pointed arches to be 'disagreeable'. The

first *Treatise of Bridges* by Gautier (1717) contained an important historical register of bridges since Roman times.

The second half of the 18th Century saw the birth of archaeological, scientific study of ruins. The monumental treatise of Rondelet published at the beginning of the 19th Century marked a model for successive building manuals, where a not minor part was dedicated to the analysis of important buildings of the past (the Pantheon, Hagia Sophia, the Gothic cathedrals, Santa Maria del Fiore, and so on). The reason for this interest was, of course, that the construction materials and structural types were basically the same: masonry arches and vaults pushing against massive buttresses. The solutions varied with the different epochs and styles, but the problem to be solved remained the same: a certain geometry and order of construction.

In the second half of the 19th Century, the emphasis began to shift towards a more academic approach: a desire to know the structure of the buildings, even if there was not a direct practical profit in it. Robert Willis in England and Viollet-le-Duc and Choisy in France showed an interest in understanding the building processes of previous epochs which went far beyond mere description. Others followed, including Josef Durm in Germany. Their work was gathered and enlarged by others and eventually incorporated in handbooks, encyclopedias, manuals, and other books. An enormous amount of material about traditional building methods in masonry and carpentry was accumulated by the end of the 19th Century.

Then, at the beginning of the 20th Century, all this work was, almost of a sudden, forgotten. The advent of 'modern architecture' (a consequence of the new materials, iron, reinforced concrete and steel, and the corresponding new structural types) which began circa 1800, accelerated in the early and mid-1900s and produced a kind of 'cataclism', a drastic change in the way of building as had never happened in history. The study of construction history became purely academical, restricted to archaeologists or nostalgics.

However, the monuments continued to be maintained and restored within the old tradition of masonry, and in the universities, the old professors continued to teach stonecutting and traditional carpentry, when reinforced concrete and steel had eradicated masonry from the usual building practice. Some books originated in this last phase, and are very valuable as a register of a lost tradition. The books of Goethals (1947) and, above all, that of the Dutch architect Thunnissen (1950), both on masonry vaulting, are good examples.

At the same time, a new interest in the history of building and civil engineering began to grow. It was no longer the end of a tradition or its 'death certificate', as it was the origin of a new, purely historical, approach. The German engineer, Hans Straub, wrote during the Second World War a *History of Civil Engineering (Geschichte der Bauingenieurkunst*, published in 1949, 4th ed., 1992). The success of that book, translated into English in 1952, was the sign of a growing interest in the history of building

¹ [ASR book reviews are normally in the range of 500-600 words. We are happy to accept, from time to time, more extensive Book Review Essays, with prior agreement with the Book Review Editor, and are pleased to publish this first Book Review Essay by Professor Santiago Huerta of the Polytechnic University of Madrid, Spain. The Editors]

and engineering. At about the same time, the patient work of some archaeologists began to crystallize in important books: on Roman building by Blake (1947, 1959) and Lugli (1957), on Greek building by Martin (1965) and Orlandos (1966), on Gothic building by Fitchen (1961), Condit (1968) on early American building, Davey (1961) on the history of building materials, and so on. An heterogeneous, not very numerous group, of scholars began to build the foundations of a new discipline: Construction History. But they were, apparently unaware of it, working isolated and publishing in a large range of different journals (archeological, architectural, engineering, medieval, and others).

A few had the intuition that construction history deserved, and needed, a distinct space to develop and grow. In this sense, it deserves to be mentioned the work of the late Professor Henry J. Cowan, who since the 1960s proposed the study of what he called 'architectural science', the amalgam of scientifically based technical knowledge to be used in the architectural design of buildings. In 1966, he published *An Historical Outline of Architectural Science* and ten years after, the *Master Builders* (1977) and *Science and Building* (1978), covering all the history of building in a very concise manner and, also, all the aspects of structure, but also, water supply, heating and ventilating, lighting, etc. The books and articles of Cowan were widely read around the world and afforded a good point of departure for new researchers and researches. At the end of the 1970s, some young postgraduates saw in them the proof of the existence of a new and promising field of research.

In the 1980s, the number of publications which could be ascribed to construction history began to grow visibly. The *Construction History Society* was founded in England (1985). In America, within the Society of History of Technology, an interest group on Building Technology and Civil Engineering History was established (1987), and within the Institution of Structural Engineers a History Group has been active since the late 1970s led by J.M.R. Sutherland. In Spain, the Sociedad Española de Historia de la Construcción (Spanish Society for

Construction History) was founded in 1997, beginning the organization of bi-annual National Congresses (Madrid 1996, Coruña 1998, Sevilla 2000, Cádiz 2004, Burgos 2007). The First International Congress was held in Madrid in 2003 and the Second in Cambridge in 2006 (the Third will be held in Cottbus, Germany, in 2009).

Dr Bill Addis, the author of this book, was well aware of the rebirth of the interest in construction history in the 1980s and presented a thesis in 1986 on the history and philosophy of engineering and, as he states in his new book, his interest can be traced back to the 1970s. In the 1990s he contributed another book and papers on the matter. This new book is written with, I believe, a new awareness, with the conscience to contribute to the definitive settlement of the discipline of Construction History (it is not useful to discuss about the names: History of Building, of Civil Engineering, of Construction Engineering, of Building Techniques, etc.). And, indeed, this is the main merit of this book: it is a handbook (though it contains much original research) to be used for reference by students and researchers of construction history. Dr. Addis does not state this concrete aim in the introduction of his book, where he speaks of his tremendous interest in the topic (modestly resumed as 'my wanderings around engineering history'), the structure of the research done and the difficulties inherent to the task. But the book is structured as a handbook. The nine chapters order very well the 3,000 years under scrutiny: Ancient times 1000 BC to AD 500; The Medieval Era 500-1400; The Renaissance 1400-1630; Engineering as Profession 1750-1800; Harmony of Theory and Practice 1800-1860; Modern Building 1860-1920; Architectural Engineering 1920-1960; and The Computer Age 1960-present. Every chapter is preceded by a two-page historical spread which covers: People and Events, Materials and Technology, Knowledge and Learning, Design Methods, Design Tools, Drawings and Calculations, and Buildings. In this way, the reader can have very quickly an idea of the main developments and buildings of the period under study. The book is very well edited and lavishly illustrated. The ca. 800 illustrations,

many in colour, constitute in themselves a pictorial history of building. They have been chosen with great care and even an expert in some area may be surprised to see some new images.

In summary, this book written by Dr. Addis, constitutes an excellent manual for the study of construction history. It is a reference book, not to be read from the first to the last page. The reader should locate the part or parts in which he or she is interested and there, will find a treasure of information and reflection on the subject. All people interested in seeing buildings, not only from the point of view of their external appearance, but also from the point of view of technical achievements, will find in this book an extraordinary guide and a source of inspiration.

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A Century of Change in Pictures

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Sydney Then and Now, by Caroline Mackaness and Caroline Butler-Bowdon. *Cameron House, an imprint of Bookwise International, 174 Cormack Road, Wingfield South Australia 5013, 2007. Produced by Salamander Books, an imprint of Anova Books Company Ltd., 151 Freston Road, London W10 6TH, UK. 144pp., ill., index. Price AU\$ 19.95.*

'Then and Now' photographs of cityscapes often leave the viewer hard-pressed to find the relationship between the two views, or to understand the significance of the changes. Not so this delightful little book — the authors have been diligent in choosing as nearly as possible the same viewpoint, and giving concise but pertinent comments on the developments and uses of the places at both ends of the time-scale.

Caroline Mackaness is a Senior Curator with the Historic Houses Trust of New South Wales, Australia, and Caroline Butler-Bowdon has been Curator at the Museum of Sydney. Both have curated a range of exhibitions on Sydney's architecture and urban and cultural history. In the preparation of exhibitions they have thoroughly researched the architectural and cultural history of the sites shown.