



北京大学中国考古学研究中心稽古系列丛书之四
建筑考古论丛 I

建筑考古学的体与用

Essence and Applications of Building Archaeology in China and Europe

北京大学中国考古学研究中心

北京大学考古文博学院

鲁汶大学工学院

徐怡涛 [比]高曼士 张剑葭 主编

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徐怡涛 [比]高曼士 张剑葳 杭 侃

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序

中、欧建筑考古的体与用

[比]高曼士 徐怡涛 张剑葳

在中国，研究历史建筑的学科包括建筑历史学与考古学。这两个学科有着不同的研究方法、问题和研究目标。一方面，建筑学院中的建筑历史与理论专业为新建筑设计和既有建筑更新提供学术支撑；另一方面，在考古学院中的教学科研，则基于田野发掘技术、方法与理论，以及对建筑遗产的调查记录、历史研究，文物分析与修复而展开。虽然考古学家与建筑史家都对历史建成环境有兴趣，但他们实际上缺乏合作。

我们需要一门学问来联结建筑历史与考古，对发掘所见的建筑遗存和地面以上的历史建筑都开展研究，以跨学科的视角来打破“地平线”的限制。建筑考古正是这样一门学问，因为它不仅是建筑历史学与考古学科的简单结合。

建筑考古的目标与方法

建筑考古的目标在于发现建筑的历史，其方法可以在即使没有考古发掘和文献信息的情况下，也能通过建筑本体的史料确定建筑年表，辨识与解读建筑的使用历程，从而通过建筑本体的物质性信息来理解人和社会。

建筑考古以考古学的方法来观察、分析现存建筑，尤其是要发现隐藏于建筑物质本体中的历史信息（图1）。建筑考古关注建筑的一切组成部分，包括建筑的材料、结构、构造技术、改建过程，以及建筑装饰、建筑设备、使用功能，等等。

建筑考古可综合运用测绘技术、科技考古、材料分析技术、科学测年等来自自然科学领域的各种分析技术，同时也从考古发掘和历史文献研究中获得支撑。

欧洲、中国建筑考古研究的源与流

建筑考古学在大多数欧洲国家已经是既有的学科，例如英国的“Building archaeology”，德国的“Bauforschung”，意大利的“archeologia dell’architettura”，法国的“archéologie du bâti”，西班牙的“arqueologia de la arquitectura”，荷兰的“bouwhistorie”，等等。建筑考古从业者有着不同的学术背景：考古学、建筑学、艺术史

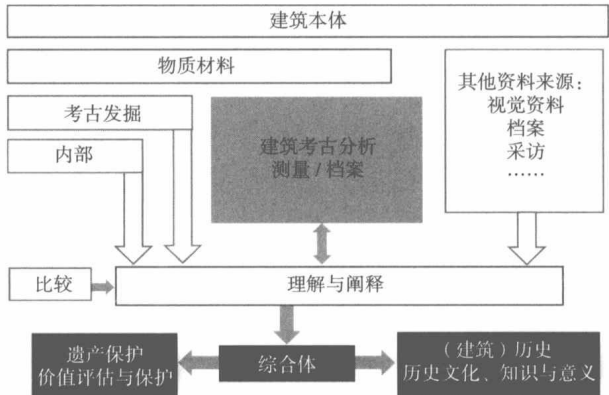


图1 建筑考古方法的技术路线图（高曼士）

学、历史学、工程学、地理学，等等。其中一部分是科研院所的学者，而大部分是专业实践者。从本质上说，建筑考古学具有跨学科的特征。建筑考古学家从实践和田野中不断获取经验，这是最好的教育。然而作为一个学科来说，建筑考古学也已建立了自身的理论、思辨、方法以及学术教育体系。

欧洲各国的建筑考古方法各有自身传统，意大利、法国、英国、德国、瑞士、荷兰各有自身特点。有些更多受到考古地层学的影响，以专门研究层累发展的历史建筑；有些则来自对于中世纪建筑修复的预研究。建筑考古的起源可上溯自 19 世纪中叶，受到考古学运动的古物学家和第一代理性主义中世纪建筑修复建筑师的影响，其代表人物是维奥莱·勒·杜克（1814—1879）。

第二次世界大战对历史城镇中心的大量破坏，引发了战后大规模考古和建筑考古研究，遗产保护方面的新知识和进展相应唤起了人们对于历史建筑的兴趣。近年来，建筑考古研究则受到历史学家关于社会经济领域，以及人类学家关于生产周期等新问题的影响。

1970 年代以来，一些高校成立了专门的研究中心，开设了专门课程；遗产保护管理部门推动建筑考古与考古学的协同发展；建筑考古工作者则不断开展个人实践。今天，建筑考古已经有独立研究问题和方法的既有学科，涵盖了历史建筑的各个物质性层面。近二十年来科技考古

以及计算机辅助设计与数字记录等科技手段的快速发展，也大大促进了建筑考古的发展。

在中国，建筑考古研究至今也已开展了八十余年——沿着梁思成（1901—1972）和刘敦桢（1897—1968）的足迹，相关学者们常常自称为建筑史学家而没有意识到他们开展的工作实际上是建筑考古。诚然，建筑考古学在中国尚未被清晰地界定并形成共识的专门学科。

首届中欧建筑考古国际研讨会

2015 年，我们萌生了在北京组织一次建筑考古国际会议的想法。这一想法来自两个层面的观察：首先，建筑考古自梁思成、刘敦桢以来，在中国有着长久的优秀传统，但主要关注历史时期的古建筑，而对更早的（例如新石器时代）和更晚近的（例如近代）建筑关注有限；其次，建筑考古研究的成果常常未被保护与修复工作者充分了解吸收。这两点观察既面向历史建筑研究，也在于提高对古代建筑和近代建筑的保护水平。

建筑考古如何促进中国的建筑遗产保护？反映在 2014 年以来北京大学考古文博学院与鲁汶大学建筑系及雷蒙德·勒迈尔国际保护中心的一系列合作研究中，包括：为更好地理解建筑考古领域的不同经验与方法而组织的建筑考古国际会议；推动建筑考古作为一种跨学科研究方

法；在考古学者、建筑学者、工程师、建造史学者、历史学者和建筑史学者之间搭建沟通桥梁；以及探讨如何以建筑考古的、更深入的物质性研究来提升未来的保护与修复水平。

2016年5月13~15日，首届中欧建筑考古国际研讨会在北京成功举办。此次会议有三个主要目标：首先，邀请中国和欧洲考古、建筑史、艺术史、建造史、工程等方面的相关杰出学者，聚首于学科交叉的十字路口，以展现当前论题、方法和挑战的多样性；其次，讨论建筑考古本身作为一门学科的定义，或至少作为促进学科间合作的平台；再次，为未来的发展打下基础。

本次会议的主旨并不在于探讨测绘技术、建筑史、建造史、遗产保护、考古发掘、实验室分析、历史建筑结构鉴定分析、三维数字建模等具体问题。这些领域都已有系列会议，建立了成熟的学术网络。当然，在本次建筑考古的各个会议报告中，多少也涉及上述专业领域的少数内容。

本次会议由11场议程、37个报告组成，每个报告长20分钟（见附录2）。会议论文为中文或英文，现场同声传译。年轻学者是学科与事业的未来，我们认为吸纳年轻学者参与会议，以共享对于建筑遗产事业的热情尤为重要。因此我们专门在晚上设置了青年论坛，由8个平行论坛共33篇论文组成，每篇发表12分钟（见附录3）。青年论

坛用中文发表，在第二天由青年论坛主持人总结并向大会报告。

研讨会的第二天我们发布了两本新书。这是我们近年在中国开展建筑考古研究的实际成果，它们是：

- 高曼士，徐怡涛．舶来与本土——1926年法国传教士所撰中国北方教堂营造之研究[M]．北京：知识产权出版社，2016．
- 徐怡涛等．山西万荣稷王庙建筑考古研究[M]．南京：东南大学出版社，2016．

关于本书

本书遴选了14篇来自中国和欧洲学者的论文，经过作者修订，每篇自成一章。文章主题和研究对象丰富，且有一定的时空跨度，从11世纪到20世纪的中国、英国、意大利、德国、荷兰和比利时。

本书正文由三部分组成，各篇为中文或英文，摘要则均为中、英双语。

第一部分“理论与文化”的五篇，其中三篇分别为陵墓建筑（陈同滨、李敏、刘翔宇），城市形态（韦正），以及早期佛教构筑物（梅晨曦），它们作为物质性研究资料，其变迁都反映了中国文化的发展；另外两篇分别关于英国的建筑考古理论（Adam MENEUGE）和德国的建筑考古

理论 (Elke NAGEL and Manfred SCHULLER)。

第二部分“遗址与建筑”的六篇为建筑考古的代表性研究案例,包括:建筑基址(汪盈),屋顶结构与树轮测年的应用(Vincent DEBONNE),仿木构墓(俞莉娜、徐怡涛),木构斗拱(徐新云),城市住宅(Gabri VAN TUSSENBROEK),以及中国的哥特拱顶(高曼士)。

第三部分“保护研究”的三篇反映了建筑考古如何在遗产保护实践中发挥重要作用,例如对意大利的历代层叠型建筑演变研究的推动(Carolina DI BIASE),修缮工程过程中的勘察与研究(赵元祥、李林东、蔡宇琨),以及历史上石灰砌砖的方法研究(Koenraad VAN BALEN)。

本书附件包括三部分:

一、北京大学文物建筑专业与中国的建筑考古学

二、2016 中欧建筑考古国际学术研讨会议程·主论坛

三、2016 中欧建筑考古国际学术研讨会议程·青年论坛

致谢

首届中欧建筑考古国际研讨会于 2016 年 5 月 13~15 日在北京大学成功举办。比利时大使马怀宇(Michel MALHERBE)阁下、北京大学副校长李岩松教授、北京

大学考古文博学院杭侃教授、鲁汶大学建筑系主任 Krista DE JONGE 教授到会致开幕词。对此我们表示诚挚的谢意。

感谢所有参会嘉宾,以及促成本次会议成功举办的各位学者。北京大学中国考古学研究中心主任徐天进教授为本次会议提供了大力支持。北京大学考古文博学院魏正中(Giuseppe VIGNATO)教授为本次会议提供了帮助并赐稿。王书林博士从初始就参与组织了本次会议。本次会议的合办单位有:中国建筑设计研究院有限公司、成都博物院、故宫研究院古建筑研究所、清华大学建筑学院和中国社会科学院考古研究所等国内知名学术机构合办。谨此表示感谢。

最后,向所有参与会议组织、翻译和会务的学生志愿者和同声传译员表示诚挚的谢意。大型国际会议的会务工作十分繁杂,翻译工作时间紧、任务重,他们以出色的能力圆满完成了这项任务。志愿者包括:刘绎一、吴煜楠、杨兆凯、朱柠、陈彦运、梁源、黄青岩、李敏、卢亚辉等研究生,以及北京大学考古文博学院文物建筑专业 2012 级、2014 级本科生。担任同声传译工作的有:李光涵、左拉拉、张剑葳、王舜泽、陈豪、崔金泽、刘洋、陈昊迪、赵东旭、章亿安、吴筱、黄华、王音等青年学者与学生。2018 级研究生席雅卿、杨佳帆、高勇、马青龙协助翻译了本书英文论文的中文摘要。鲁汶大学舒畅雪博士,本书

责任编辑李鸽博士、陈海娇女士亦为本书的翻译和编辑提出了诸多宝贵意见，谨此一并致谢。

以上难免挂一漏万，谨此向所有为本书出版贡献力量同仁们表示衷心感谢。

延伸阅读

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Preface

Essence and Applications of Building Archaeology in China and Europe

Thomas COOMANS, XU Yitao, ZHANG Jianwei

In China, architectural history and archaeology currently share the field when it comes to the study of historic buildings. Both disciplines have different methods, research questions and aims. On the one hand, architectural history and theory depend on the schools of architecture and contribute to supporting both the design of new buildings and the renovation of existing buildings. On the other, teaching in the schools of archaeology is based on excavation techniques and methods, history and theory of excavations, architectural heritage investigations, architecture and art history, as well as the analysis and restoration of excavated relics. Despite a shared interest in the built environment from the past, archaeologists and architectural historians rarely work together.

There is a need for a specific discipline that would bridge architectural history and archaeology and be able to contribute, in an interdisciplinary sense, to the understanding of both excavated structures and those in elevation, instead of being limited to above or under 'level zero'. Building archaeology could be that discipline because it is more than an interface between architectural history and archaeology.

Aims and Methods of Building Archaeology

Building archaeology aims at reconstructing the history of buildings, defining chronologies, identifying transformations and interpreting evolving use. It contributes to an understanding of people and societies through material architectural evidence, even if there is no information from excavations or archives.

Building archaeology adapts methods of archaeology in order to observe and analyse structures in elevation and unravel the information hidden in the building itself, the 'material source' *par excellence* (Fig. 1).

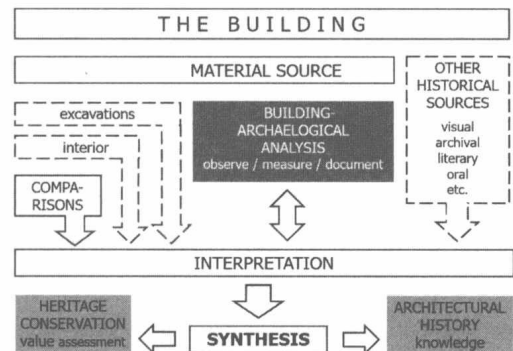


Fig. 1 Sources and steps of the building archaeological method (Thomas COOMANS)

Attention is paid to all components: from the building materials, structures, construction techniques and transformations to the decoration, equipment and use.

Building archaeology uses recording methods, archaeometry, material-technical analysis and other analysis from the field of natural sciences, including dating methods. It can benefit from the results of excavations as well as from historical research in archives.

Origins and Development of Building Archaeology in Europe and China

Building archaeology exists as a recognised discipline in most European countries: 'Building archaeology' (English), 'Bauforschung' (German), 'archeologia dell'architettura' (Italian), 'archéologie du bâti' (French), 'arqueologia de la arquitectura' (Spanish), 'bouwhistorie' (Dutch), etc. Building archaeologists have different backgrounds: archaeology, architecture, (art) history, engineering, geology, etc. Some are academics; most are not. This intrinsically gives building archaeology a multidisciplinary character. Build-

ing archaeologists, however, gain experience through fieldwork and practice, which is the best education. However, as a discipline, building archaeology has developed its own theory, debates, methodology and academic education.

Building archaeological approaches vary according to national traditions: Italian, French, British, German, Swiss, Dutch, etc. Some are more influenced by the archaeological stratigraphy of buildings transformed through the ages; others by preliminary studies of the restoration of medieval architecture. The origins of building archaeology date from the mid-19th century, with the antiquarians of the Archaeological Movement and the first generation of rationalist restoration architects of medieval buildings led by Eugène-Emmanuel Viollet-Le-Duc (1814-1879).

Massive damage to historical centres during World War II was at the origin of large-scale archaeological and building archaeological investigations, which contributed to reviving interest in historical architecture by generating new knowledge and new reflexions on conservation. More recently, building archaeological

research has been influenced by new questions from historians on social and economic contexts, as well as from anthropologists on production cycles.

From the 1970s, universities started specific courses and founded research centres, heritage administrations promoted building archaeology in synergy with archaeology, and individual building archaeologists developed private practice. Today, building archaeology is an established discipline with its own research questions and methods applied to all material aspects of historical building. It benefits from the technological evolutions of archaeometry, CAD and recording methods, two fields that have evolved considerably during the last twenty years.

When it comes to China, building archaeological investigations have also been carried out for more than eighty years now – in the footsteps of LIANG Sicheng (1901–1972) and LIU Dunzhen (1897–1968) – by scholars who often consider themselves architectural historians but do not realise that what they are doing is in fact building archaeology. Building archaeology has, indeed, never been clearly defined as a specific discipline in China.

The First International Forum on Sino-European Building Archaeology

In 2015, we had the idea of organising an international conference on building archaeology in Beijing. This idea resulted from two observations. Firstly, building archaeology has a long tradition of excellence in China, going back to LIANG Sicheng and LIU Dunzhen, but with a primary focus on Middle Ancient Chinese architecture rather than earlier (e.g. Neolithic) or more recent architecture (e.g. early modern). Secondly, the results of building archaeological research are often not fully understood or used by those carrying out the restorations. These two observations deal with the material knowledge of ancient buildings, as well as aiming for the better conservation of ancient and early modern architecture.

How could building archaeological knowledge improve conservation in China? Since 2014, this reflexion has formed part of the research collaboration on building archaeology between Peking University, School of Archaeology and Museology, and KU Leuven, Department of Architecture and Raymond Lemaire In-

ternational Centre for Conservation. This includes the organisation of international forums on building archaeology, with the aim of better understanding the different experiences and methods in the field of building archaeology; promoting building archaeology as a trans-disciplinary method; building a bridge between the disciplines of the archaeologists, architects, engineers, construction historians, historians and architectural historians; and seeing how better material knowledge based on building archaeology could improve conservation and restoration in the future.

The International Forum on Sino-European Building Archaeology, held in Beijing on 13–15 May 2016, had three main aims. Firstly, to show the diversity of present issues, methods and challenges – at the cross-roads between different disciplines of archaeology, architectural history, art history, construction history, engineering, etc. – by bringing together outstanding scholars in all these fields from China and Europe. Secondly, to define building archaeology as a discipline in its own right, or at least as an interface between disciplines that could better collaborate. And thirdly, to set up future developments.

This forum was thus not about measurement techniques, architectural history, construction history, heritage conservation, excavations, laboratory analysis, stability and structural analysis of historic buildings, modelling and 3D reconstructions, etc. All these fields are well established and have outstanding networks and conferences. Building archaeology, however, includes a little from all these specialised fields, which were present, to a lesser or greater extent, in the forum's lectures.

The forum was structured as eleven plenary sessions with a total of thirty-seven papers of twenty minutes each (see Annex 2). The papers were in English and Chinese, with simultaneous translation. Because young scholars are the future of all our sciences and disciplines, we believed it to be of prime importance to involve them in the forum and to share our common enthusiasm for architectural heritage. Evening sessions were organised for young scholars, with a total of thirty-three papers of twelve minutes each, presented in eight parallel sessions of ten papers (see Annex 3). The evening sessions were in Chinese and reported to the conference assembly.

After the last evening session, two new books were presented. They are the tangible results of our recent building archaeological research in China:

- Thomas COOMANS, XU Yitao. *Building Churches in Northern China*[M]/IA 1926 *Handbook in Context*. Beijing: Intellectual Property Rights Publishing House, 2016: 449 .
- XU Yitao et al. *Building Archaeological Study of Wanrong Jiwang Temple in Shanxi Province*[M]. Nanjing: Southeast University Press, 2016: 208.

The Book

This publication is a selection of fourteen Chinese and European papers, which have been improved in order to become full book chapters. The editors based their selection on a diversity of research questions and objects, combined with a broad time-space scope that spans eras from the Song Dynasty to the 20th century in China, England, Italy, Germany, Holland and Belgium.

The book is structured in three parts and the chapters are in Chinese and English, with abstracts in both

languages:

- Part one: ‘Theory and culture’ contains three chapters on cultural changes in China that resulted in material shifts in funerary architecture (by CHEN Tongbin, LI Min and LIU Xiangyu), urban form (by WEI Zheng) and early Buddhist architecture (by Tracy MILLER), as well as two chapters on building archaeological theory in England (by Adam MENUGE) and Germany (by Elke NAGEL and Manfred SCHULLER).
- Part two: ‘Archaeological sites and buildings’ presents eight representative applications of research methodologies adapted to specific cases, such as foundations (by WANG Ying), roof structures and the use of dendrochronology (by Vincent DEBONNE), wood-imitating funerary architecture (by YU Lina and XU Yitao), wooden bracket sets (by XU Xinyun), urban houses (by Gabri VAN TUSSENBROEK) and Gothic vaults in China (by Thomas COOMANS).
- Part three: ‘Conservation studies’ reflects on how building archaeology can play an im-

portant role in conservation practices, as in the enhancement of the ‘palimpsest’ layering approach in Italy (by Carolina DI BIASE), the investigation and study during conservation projects (by ZHAO Yuanxiang, LI Lindong and CAI Yukun) and the historic use of lime mortar in brickwork (by Koenraad VAN BALEN).

Three appendixes complete the book with information on:

- The architectural heritage major at Peking University and building archaeology in China.
- The thirty-seven papers delivered at the main forum, May 2016.
- The eighty papers delivered at the youth forum, May 2016.

Acknowledgements

The International Forum on Sino-European Building Archaeology was held at Peking University on 13–15 May 2015. It was opened with a welcome from Prof. LI Yansong, Vice-President of Peking University; His Excellency Michel MALHERBE, Ambassador of

Belgium; Prof. HANG Kan, Dean of the School of Archaeology and Museology, Peking University; and Prof. Krista DE JONGE, President of the Department of Architecture, KU Leuven. We are very grateful to them.

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Last but not least, we would like to express our sincere thanks to all the students who helped us with translations and numerous other tasks – often decided at the last minute – as required by such an international conference.

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