

ROBERT CARVAIS  
ANDRÉ GUILLERME  
VALÉRIE NÈGRE  
JOËL SAKAROVITCH

NUTS & BOLTS  
OF CONSTRUCTION HISTORY

CULTURE, TECHNOLOGY AND SOCIETY

Volume 2

*P*  
Picard



### Organizing Committee

Robert CARVAIS, André GUILLERME,  
Valérie NEGRE, Joël SAKAROVITCH

### Academic Secretary

Tricia MEEHAN

### Honor Committee

Jean-Pierre ADAM [France], David ARADEON [Nigeria], James AYRES [United Kingdom], Antonio DE LAS CASAS GOMEZ [Spain], Richard GOLDTHWAITE [United Kingdom], Rainer GRAEFE [Austria], Pierre GROS [France], Ricardo Aroca HERNANDEZ ROS [Spain], Jacques HEYMAN [United Kingdom], Rowland MAINSTONE [United Kingdom], Pier Nicola PAGLIARA [Italy], Jean-Marie PEROUSE DE MONTCLOS [France], Sergio PORETTI [Italy], Jean-Pierre SOSSON [Belgium], James SUTHERLAND [United Kingdom]

### Scientific Committee

Bill ADDIS [United Kingdom], Waldemar AFFELT [Poland], Antonio ALMAGRO [Spain], Martin BACHMANN [Germany], Luis Alberto BARBA PINGARRON [Mexico], Dominique BARJOT [France], Antonio BECCHI [Italy], Philippe BERNARDI [France], Brian BOWEN [United States of America], Martin BRESSANI [Canada], Claes CALDENBY [Sweden], James CAMPBELL [United Kingdom], Robert CARVAIS [France], Bor-Shuenn CHIOU [Taiwan], Linda CLARKE [United Kingdom], Carlos Eduardo COMAS [Brazil], Margareth DA SILVA PEREIRA [Brazil], Krista DE JONGE [Belgium], Janet DE LAINE [United States

of America], Malcolm DUNKELD [United Kingdom], Daniela ESPOSITO [Italy], Sergej FEDOROV [Germany], Federico FOCE [Italy], Jorge Alberto GALINDO DIAZ [Columbia], Roberto GARGIANI [Italy], Piotr GERBER [Poland], Fouad GHOMARI [Algeria], Javier GIRON [Spain], Amparo GRACIANI [Spain], Franz GRAF [Switzerland], Alberto GRIMOLDI [Italy], André GUILLERME [France], Riccardo GULLI [Italy], Santiago HUERTA [Spain], Ichiro KOBAYASHI [Japan], Karl-Eugen KURRER [Germany], Pierre-Edouard LATOUCHE [Canada], Rejean LEGAULT [Canada], Thomas LESLIE [United States of America], Werner LORENZ [Germany], Valérie NEGRE [France], John OCHSENDORF [United States of America], Tom F. PETERS [United States of America], Antoine PICON [France], Enrique RABASA [Spain], Patricia RADELET [Belgium], Bruno REICHLIN [Switzerland], Joël SAKAROVITCH [France], Hermann SCHLIMME [Germany], Cristina SEGURA [Spain], Cyrille SIMONNET [Switzerland], Musa SROOR [Palestine], Jos TOMLOW [Germany], Hernando VARGAS CAICEDO [Colombia], Susan V. WEBSTER [United States of America], Chitra WEDDIKARA [Sri Lanka], David YEOMANS [United Kingdom], Teruhiko YODA [Japan], Chen ZHAO [China]

### National Support Group

Michela BARBOT, Basile BAUDEZ, Caroline BODOLEC, Antonio BRUCCULERI, Thierry CIBLAC, Michel COTTE, Hélène DESSALES, François FLEURY, Guillaume FONKENELL, Christel FRAPIER, Emmanuelle GALLO, Guy LAMBERT, André MALICOT, Nathalie MONTEL, Emilie d'ORGEIX, Matteo PORRINO, Hélène VACHER.

Cover image: Lieven Cruyl, A view of the construction of the Pont-Royal [1685-1689], black chalk, pen and brown ink, brown and blue wash, 1687, collection Destailleurs © BnF.

## Acknowledgments

The Fourth International Congress on Construction History, the source of this publication, took place in Paris 3-7 July 2012 and was organized by the Écoles nationales supérieures d'architecture de Paris-Malaquais [ENSAPM], Paris La-Villette [ENSAPLV] and Versailles [ENSAV], the laboratory Géométrie, Structure, Architecture [GSA] of the ENSAPM, the laboratory Histoire, Technique, Technologie, Patrimoine [HTTP-EA 3716] of the Conservatoire national des arts et métiers [Cnam] and the Association francophone d'histoire de la construction [AFHC].

This international event would not have been possible without the financial support of the Ministère de la culture et de la communication [Direction de l'architecture et du patrimoine, Bureau de la recherche architecturale, urbaine et paysagère, BRAUP], of the organizing schools, of the École nationale supérieure des Beaux-Arts [ENSBA], of the École nationale supérieure d'architecture de Strasbourg [ENSAS], of the Plan urbanisme construction et architecture [PUCA] and of the Conseil général de l'environnement et du développement durable [Comité d'histoire de l'environnement] of the Ministère de l'écologie, de l'énergie, du développement durable et de la mer, of the Centre scientifique et technique du bâtiment [CSTB], of the Centre national de la recherche scientifique [CNRS], of the laboratory MAP5 [CNRS-Université Paris Descartes] and of the City of Versailles. It was sponsored by Lafarge, Alto Ingénierie, the Groupe Alto, Khephen, the Fondation Palladio, the Construction History Society, the ICE journal and the Fondation du Patrimoine.

The organizers wish to thank the members of the Honor Committee and the National Support Group; they would also like to express their profound gratitude to the members of the Scientific Committee who, by agreeing to make a clear and pertinent selection from among the submitted propositions, assured the academic quality of these proceedings.

The organizers wish to express their gratitude to Tricia Meehan, who acted as the Academic Secretary of the Congress with competence, dedication and efficiency, and who has translated numerous papers, to Joëlle Trouvé, in charge of the ENSAPM research department, who was responsible for the totality of the administrative coordination, to Matteo Porrino who was in charge of the creation and management of the website, to Bill Prendiville, who reread the papers by non-Anglophones, to Alicia LeBlanc, the project editor, who reread all the papers, prepared the 1254 illustrations and organized the vigilant re-reading of the proofs. Thanks also go out to Linnea Tilly who provided us with access to the exceptional iconographic images of the Pont-Royal construction site, as well as to Anne-Laure Carré, Emmanuelle Minault Richomme and Camille Mellin for their invaluable aid and support.

This text is published with the assistance of the Ministère de la culture et de la communication, [Direction de l'architecture et du patrimoine, Bureau de la recherche architecturale, urbaine et paysagère] and the Écoles nationales supérieures d'architecture Paris-Malaquais, Versailles and Paris La Villette.

ISBN : 978-2-7084-0929-3

© Éditions A. et J. Picard, 2012  
82, rue Bonaparte - 75006 Paris  
commercial@editions-picard.fr  
www.editions-picard.com

This collection presents a state of international research in the history of construction, like a palace organized through 240 independently constituted elements. It defends a history of construction open to all cultures, desiring to balance the engineering sciences with the humanities and social sciences. It seeks to update existing axes of research by taking into account the profound changes sweeping across our planet through the framework of sustainable development and cohabitation. Building is thus excavated by archaeologists, leafed through by archivists and construed by historians and practitioners. They are all there, men and women, both famous and forgotten: masons, carpenters, locksmiths, roofers, draftsmen, architects, engineers, contractors, developers, experts, economists and lawyers. Equally present are the forces that have shaped the constructive field: institutions that direct, companies that innovate, work forces that produce and controversies that emerge.

These essays bring to life centuries of a history built, recorded, lived and ruined according to the changing temporalities of cities and sensibilities of societies. After Madrid [2003], Cambridge [2006] and Cottbus [2009], Paris celebrates in 2012 the 4<sup>th</sup> International Congress of Construction History with this collection. The themes revolve around three pillars: knowledge, people and objects. Methods and tools are improving through the development of heritage restoration and digital technologies. New historical thematics are appearing such as energy, natural and technological risk prevention, material recycling, diffusion and transfer of knowledge in colonial situations, modern re-appropriation of old techniques, legal frameworks, economics and institutions, craftsmen's tasks, construction site organization, labor in construction, contractor responsibility and public authority involvement in building industries.

Two thousand pages in three volumes covering 12 millennia: a monumental challenge equal to a constructive venture.

120 €

Les 3 volumes ne peuvent être vendus séparément.  
ISBN : 978-2-7084-0029-3

*P.*

# Table of Contents

## Volume 2

[For the complete Table of Contents, see the end of volume 3]

### 3. PEOPLE & ORGANIZATIONS

#### – Craftsmanship & Technical Tasks

<i>Metropolitan Vernacular: On the History of Informal Construction in a Brazilian City</i> , Silke Kapp, Ana Paula Baltazar.....	3
<i>A Case Study of Local Builders' Carpentry Tools: Traditional Constructions of Ürünlii, Turkey</i> , Gülşah Çelik, Kemal Reha Kavas...	11
<i>Building Construction in Medieval Spain: The Female Perspective</i> , Shelley E. Roff.....	17
<i>Building Culture and Competence: Demonstrating Knowledge on Construction Sites in 18th-Century Virginia</i> , Elizabeth Cook.....	23
<i>Building Trades in Catalonia during the Modern Era: The Case of Immigration to Girona City</i> , Gemma Domènech Casadevall.....	31
<i>From Master Mason to Architect: James Smith's Construction Techniques at the End of 17th Century in Scotland</i> , Cristina González-Longo, Dimitris Theodossopoulos .....	37
<i>Barbetti Serafin: Builder of Vaulted Bridges in South-Western Colombia [c. XIX]</i> , Jorge Galindo Díaz.....	47

<i>Who Paints the House? Scotswomen as Housepainters and Decorators from 1820</i> , Nina Baker.....	53
<i>On the Construction Process of Government Buildings in Taiwan during the Japanese Colonial Period, 1895-1945</i> , Hsin-Yao Hsu .....	63

#### – Contractors & the Labor Market

<i>Private Archives of the 18th and 19th Centuries: Sources for the History of Marble-Working in Belgium</i> , Joëlle Petit..	73
<i>The Development of Belgian Ironworks in the 19th Century: Case Studies and Reflections on Sources and Historiography</i> , Koen Verswijver, Inge Bertels, Ine Wouters, Quentin Collette.....	81
<i>Architecture and Reinforced Concrete in Brazil: The Action of the Largest Construction Companies in Brazil, Christiani &amp; Nielsen and Wayss &amp; Freytag</i> , Maria Luiza de Freitas.....	91
<i>Building Modern Spain: Some Notes on Huarte y Cía</i> , Javier Martínez-González, Marra García-Alonso.....	99

<i>Significance of Building Labour in the Production of the Built Environment, da Clarke, Charlie McGuire, Christine Wall.....</i>	107
<i>Construction Work in Four German States: Pre, during and after the Cold War, Janssen, Ernst-Ludwig Laux.....</i>	115
<i>Concrete Constructors: Oral History Accounts of Building Work on a Large, Complex Site in the 1960s Britain, Christine Wall, da Clarke, Charlie McGuire.....</i>	125
<b>Organization of the Construction Site</b>	
<i>Construction Methods in Carolingian Rome (8th-Ninth Centuries), Lia Barelli.....</i>	135
<i>Building during the War of Granada: The Project of Reconstructing Fuengirola in 1485, Daniel Romero Medina, Manuel Romero Barano.....</i>	145
<i>Building the New Prisons of Venice and Their Age [1591-1604], Andrea Bonavita.....</i>	149
<i>Building of the Arsenal of Le Havre in the 17th and 18th Centuries, Mathieu Pinon.....</i>	157
<i>Old Construction Sites in 18th Century France: Labor and Administration in Action, Marie Conchon, Katherine McDonough....</i>	165
<i>Considering the "Considerable Expense" Involved in Building the Lavaur Bridge in Languedoc [1769-1791], Catherine Isaac....</i>	173
<i>Innovation and Tradition in the Reconstruction of the Basilica of St. Paul Outside the Walls in Rome [1825-1928]: Technologies, Procedures, Protagonists, Nicoletta Marconi.....</i>	181
<i>The Builder's Flying Squads: An Analysis of the Ministry of Works Special Repair Service Activities during WWII, Richard Burt.....</i>	191
<i>Analysis of the Construction Site as a Historical Document of Its Production Process, Carolina Heldt D'Almeida.....</i>	199
<i>Managing the Design and Construction of the Empire State Building: Are There Lessons for Today's Projects?, Kenneth F. Robson.....</i>	207
<i>The Avianca Tower: Practices Driving Technical Innovations in a Construction Firm in the 60s, Camilo Villate, Brando Tamayo.....</i>	217
<b>– Property &amp; the Real Estate Market</b>	
<i>The Role of the Islamic Pious Foundations [Waqf] in Building the Old City of Jerusalem during the Islamic Periods [637-1917], Musa Sroor.....</i>	229
<i>Between Market and Architecture: The College of Engineers, Architects and Land Surveyors in Real Estate Pricing in 16<sup>th</sup>-18<sup>th</sup> Century Milan, Michela Barbot.....</i>	
<i>Building Expropriation Process for the Construction of the New Dock at the Port of Cartagena [Spain] in the 18th Century, Gema Ramirez Pacheco, Federico Garcia Erviti, Maria Jesús Peñalver Martínez, Juan Francisco Maciá Sánchez.....</i>	245
<i>Changing Patterns in Residential Construction and the Real Estate Market: Spain, 1910-1960, Miguel Artola Blanco ...</i>	255
<i>Urban Dynamics and Horizontal Property: Case Study of the Boavista Axis, Porto, Portugal, Clara Pimenta do Vale, Vítor Trindade Abrantes.....</i>	265
<b>– Institutions</b>	
<i>The Great Hall of the Institution of Civil Engineers Headquarters Building, Malcolm Dunkeld.....</i>	273
<i>An Institution for Structural Innovation: Office for the Study and Design of Industrial Building Types [BISTYP] in Postwar Poland, Alicja Gzowska.....</i>	281
<i>Brazilian Construction Center: Initiative for Management of the Brazilian Housing Construction Industry [1969-1972], Ana Paula Koury.....</i>	289

<i>Construction Material Testing at MPA Stuttgart during the Third Reich, Christiane Weber.....</i>	297
---	-----

**– Politics & Policies**

<i>Construction Financing in Late Medieval Portuguese Towns [14th-16th Centuries], Arnaldo Melo, Maria do Carmo Ribeiro....</i>	305
<i>Research and Construction in the Late Colonial Settings: Institutions, Technology and Development Programs in Africa, 1948-1958, Hélène Vacher,.....</i>	313
<i>The Plot of Concrete in Brazil: A History of the Technology Diffusion of Reinforced Concrete, Roberto Eustaáquio dos Santos....</i>	323
<i>The Material Genesis of an Icon: The Construction of the Building of FAU USP [1961-1969], Felipe Contier, Renato L.S. Anelli.....</i>	329
<i>Conceiving the Industrialization of Construction in France in the 1950s, Christel Frapier.....</i>	337
<i>Construction of Railway Workshops in Colombia during the First Half of the 20th Century: A National Engineering Triumph, Ricardo Tolosa, Jorge Galindo Díaz.....</i>	345
<i>Three Key Aspects of the History of Brick Construction in Scotland, Moses Jenkins.....</i>	
<i>Marseilles Tile, Miles Lewis.....</i>	391
<i>Against Replication: Carved Brick at the Dawn of the Terracotta Age, Sara Wermiel.....</i>	401
<i>Structural Morphology Presented on Surface Cladding: From Structural Brick to Ornamental Tile in the Westernised Far East, Nan-Wei Wu.....</i>	409
<i>Load-Bearing Wall Structures in the Works of Lluís Nadal, Gemma Muñoz Soria.....</i>	417
<b>– Stone</b>	
<i>The Aeolian-Style Polygonal Masonry in Larisa [Buruncuk] and its Regional Context, Turgut Saner, Kaan Sağ.....</i>	427
<i>A Mining Engineer in Heritage Land: A.L.W.E. Van der Veen and Early Research on Natural Stone for the Netherlands State Commission on Conservation [1920-1936], Wido J. Quist, Timo G. Nijland.....</i>	435
<i>Stone Cladding Techniques in French Modern Architecture [1920-1940], Angelo Bertolazzi.....</i>	443
<b>– Reuse</b>	
<i>For a History of Deconstruction, Philippe Bernardi, Daniela Esposito.....</i>	453
<i>The Use of the "Already There": Reuse and Recycling for Monumental Building in the West in Late Antiquity and the Medieval Period, Stéphane Büttner,.....</i>	461
<i>The Use of Dating Methods for Studying Building Materials and Constructions: State of the Art and Current Challenges, Pierre Guibert, Sophie Blain, Armel Bouvier, Ian Bailiff, Maylis Baylé, Stéphane Büttner, Christian Sapin, Annick Chauvin, Philippe Dufresne, Anna Gueli, Philippe Lanos, Marco Martini, Emanuela Sibilia, Daniel Prigent, Giuseppe Stella, Olindo Troja.....</i>	469

**4. MATERIALS****– Earth, Bricks & Tiles**

<i>Earthen Building Techniques in the Humid Tropics: The Archaeological Site of La Joya, Veracruz, México, Annick Daneels, Luis Fernando Guerrero-Baca.....</i>	353
<i>Persistence of the Perishable; Wattle-and-Daub Architectures in the Roman Period: A Census of the Archaeological Findings in Gallia Cisalpina and the Case of Mediolanum, Anna Antonini.....</i>	361
<i>Efficiency in Form: Thomas Jefferson's Serpentine Walls at the University of Virginia, Jennifer Zessin, John Ochsendorf.....</i>	375

*The Reuse of Granite Columns in Rome, 15th-16th Centuries*, Emanuela Montelli .... 481

*The Revival of Classical Building Techniques in Late Ottoman Architecture in Bergamo, Turkey*, Martin Bachmann ..... 491

*A Study on Distribution and Reuse of Tram Line Paving Stones in Japan*, Sachiko Okada, Ichiro Kobayashi, Koichi Nakama ..... 501

**– Plaster & Mortar**

*Traditional Structures Made with Gypsum Pillars: A Reasoned Hypothesis*, Fernando Vegas, Camilla Mileto, Maria Diodato, José García Soriano, Carles Grau Giménez, ..... 509

*Geological Origin of the Reagents Constituting Roman Mortar, According to Vitruvius*, Frédéric Davidovits ..... 517

*The First Verifiable Application of Cast Mortar in Prefabricated Construction in the Coffered Ceiling of the Early Hellenistic Mausoleum of Belevi*, Reinhard Heinz ..... 523

*The Use of Mortar in Late Hellenistic Construction: The Case of the Octagon in Ephesus*, Barbara Thuswaldner ..... 531

*The Knowledge and the Development of Mortars between the 18th and 19th Centuries: The Case Study of the Verona Amphitheatre Restoration*, Marco Cofani ..... 539

*History and Technique of an Italian Wooden Floor System Based on Reeds and Gypsum Plaster Frames: The Case of Reggio Emilia*, Luca Boiardi, Maria Regina Tedeschini, Riccardo Gulli ..... 549

**– Metal**

*The Role of Iron Armatures in Gothic Constructions: Reinforcement, Consolidation or Commissioner's Choice*, Maxime L'Héritier, Philippe Dillmann, Arnaud Timbert, Philippe Bernardi, ..... 557

*A Victorian Ironworld: Cast Iron, Ornament and Brighton*, Paul Dobraszcyk .... 565

**– Reinforced Concrete**

*François Hennebique's Patents as Applied on the Building Site: The Mercato Orientale in Genoa [1896-1899] and the Creation of a Local Construction Network*, Hermann Schlimme ..... 573

*Concrete Piling: Major Developments in the Historical Practice of Pile Foundations*, Armande Hellebois, Yves Rammer, Jean-Claude Verbrugge, ..... 583

*Béton Armé in a Sinking City: Mexico 1902-1914*, Mónica Silva-Contreras ..... 593

*Technological Innovation and Traditional Building Methods in the First Application of Reinforced Concrete in L'Aquila: The "New Provincial Insane Asylum" [1903-1916]*, Alessandra Bellicoso ..... 601

*Auguste Perret: The Grenoble Orientation Tower – Architecture, Art and the Press*, Cédric Avenier, Anne Coste ..... 609

*Reinforced and Prestressed Concrete in High-Rise Construction in Spain, 1950-1975: Technique and Innovation*, Jesús Anaya Díaz ..... 619

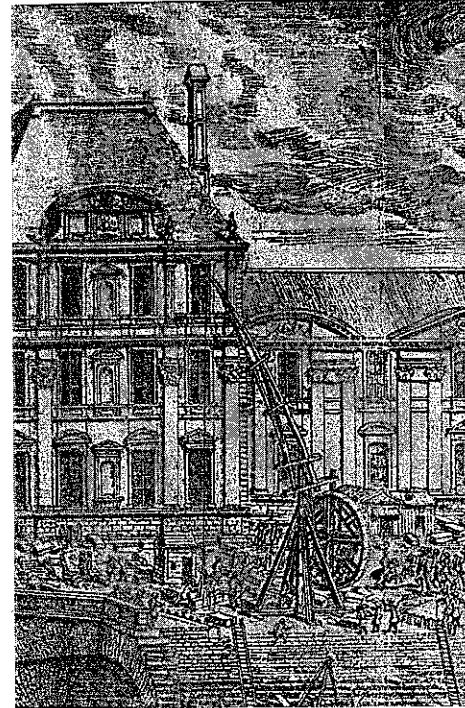
*The Transformation of Construction by Concrete*, Andrew Rabeneck, ..... 627

*The 'Scientification' of Reinforced Concrete in Belgium during the Interwar Period: Development and Dissemination of Scientific, Theoretical and Technical Knowledge*, Stephanie Van de Voorde, Rika Devos ..... 637

*Manual Abilities and Modern Constructive Techniques in a Building by Arturo Hoerner: The S. A. Supertessile Plant and the System Baroni-Lüling, Rieti-Italy, 1926*, Edoardo Currà ..... 647

*Air Raid Shelters in the United Kingdom 1939-1945: An Initial Investigation*, John McGuinness ..... 657

**3. PEOPLE & ORGANIZATIONS**



Craftsmanship & Technical Tasks

Contractors & the Labor Market

Organization of the Construction Site

Property & the Real Estate Market

Institutions

Politics & Policies

# The Role of the Islamic Pious Foundations [*Waqf*] in Building the Old City of Jerusalem during the Islamic Periods [637-1917]

Musa Sroor

*Department of History, Birzeit University, Palestine*

Muslim caliphs, sultans and princes paid special tribute to Jerusalem where many *waqf* establishments were erected. This charitable deed was not limited to the ruling class but it was also open to many other philanthropists. These *waqfs* buildings, supported by *waqf*, had played a significant role in determining the design of the inner city of Jerusalem. Moreover, buildings belonging to *waqf* included entire markets as well as schools and hospitals. The extensive presence of such establishments inside Jerusalem's walls not only determined the religious features of Jerusalem but also affected its residential and commercial landmarks.

This research proposes that establishments supported by *waqf* and their affiliated real estate played a crucial role in the building of Jerusalem and developing its architecture. Through knowing the dates when the *waqf* buildings were constructed, one can identify the periods of building in Jerusalem and the architectural development of the city. It should be noted that these establishments were not restricted to Muslims but they also included Christian and Jewish *waqf*. This research paper will rely on judicial documents such as those from the court records [*sijill*] of the Islamic Ottoman court of Jerusalem [*mahkama shar'iyya*] as well as from the Jerusalem *waqf* archive.

## The urban organization of the city

Jerusalem's Old City [intra-muros] is a small mountainous area that does not exceed one kilometer. It rises 2,500 ft above sea level and is surrounded by a wall dating back to 1800 B.C. (De

Saulcy 1866, 424). Up until the second half of the 19th century, construction in Old Jerusalem was limited to the geographical space within the walls. (Cuneo 2000, 2: 219). The intra-muros area was not able to respond to the demographic and cultural developments witnessed by the city during that period. Thus, extra-muros buildings and neighborhoods began to appear which resulted in the emergence of a new city with its unique architectural features and cultural identity. This shift had come as a result of developments in the city during the 19th century including population growth, shortage in areas suitable for building intra-muros and high rental prices. All these factors combined, as well as other factors, led towards extra-muros building, i.e. in the New Jerusalem (Sroor 2010a, 55-56).

Jerusalem's Old City is divided into four quarters according to religious and sectarian affiliation: Islamic, Christian, Armenian and Jewish. By studying the records [*sijill*] of the Islamic court of Jerusalem in the Ottoman period, one notes that the word "quarter" was not used to refer to the Islamic population in Jerusalem; instead, this sectarian and religious concept was used to refer to non-Muslim quarters (*sijill* 282, 1215/1800, 51). This refers to the differences between the Muslim and the *dhimmi* [non-Muslim] who lived in an Islamic state. For Muslims, the records [*sijill*] of Jerusalem's judge show that the sectarian concept of the quarter was not used. On the other hand, the quarter was characterized by a material aspect rather than religious implications, referring, for example, to a family such as the al-Sharaf quarter (*sijill* 288, 1221/1806, 89) or to a profession

such as al-Jawālda quarter [dyeing leather] (*sjill* 287, 1220/1805, 86) or to construction like Bāb al-'Amūd [Damascus Gate], one of the Jerusalem's intra-muros gates (*sjill* 281, 1214/1799, 12).

#### *The Muslim quarter*

The Muslim quarter constituted one of the largest quarters of Old Jerusalem where most of the demographic, architectural and economic activities pertaining to Muslims were concentrated. This quarter is located in the north-eastern and east-southern part of Old Jerusalem. This area is close to al-Aqsā Mosque where many religious and educational institutions were located as well as economic activities related to these institutions (Chouraqi 1996, 166).

#### *The Christian quarter*

The Christian quarter consisted of buildings, streets, markets and institutions operated by the Christians of Jerusalem, especially those centered around the Church of the Holy Sepulcher. That is why this area was called the Christian quarter as referred to in the Islamic court of Jerusalem (*sjill* 287, 1220/ 1805, 93). The participation of the Christians of Jerusalem in the campaign organized by the Fatimid rulers from 1033 to restore and fortify the walls of Jerusalem had given them the right to establish their own fortified quarter, which extends from Bāb al-Khalīl in the west to Bāb al-'Amūd in the north. This area later became known as the "Christian Quarter." Preceding the year 1033, we do not have any documents which mentioned any existence of a private quarter for the Christians or a quarter which bore their name (Sroor 2010b, 151). Therefore, the middle of the 11th century could be considered the date of the beginning of the Christian Quarter, which was officially recognized by the ruling Islamic authorities. At that time, it was known then as Patriarch [al-Barrak] Quarter. The material support by the Christians of Jerusalem which came from the Byzantine emperor led to the signing of an agreement between the Fatimid Caliph and the Byzantine Emperor Constantine. The Emperor pledged to fund the construction of the section of the wall adjacent to the Christian churches which corresponded to the area surrounding the Christian Quarter – provided that this quarter

would be limited to the Christians only. Non-Christians could not live with them. This quarter would be placed under the authority of the Patriarch. Before this agreement, Jerusalem residents of different religions lived in all the quarters side by side due to the absence of private quarters (Hiyari 1990, 133-134).

#### *The Armenian quarter*

The Armenian quarter was given this name in relation to the Armenians who lived in it; according to the records of the Islamic court of Jerusalem, the Armenians were Christians. This quarter is located in the southwestern part of the city (Ben-Arieh 1984, 243). Most of the Armenian properties are found in this quarter with other religious Armenian facilities outside this quarter, especially in the Christian quarter near the Church of the Holy Sepulcher such as the Church of St. John, which is located in the courtyard of the Church of the Holy Sepulcher. One should also note that other Christian communities had properties in the Armenian quarter. It should be also noted that some Islamic properties and *waqf* buildings existed in this quarter (Sroor 2010a, 78-79).

#### *The Jewish Quarter*

The Jewish Quarter is considered the smallest quarter in terms of area. According to Baedeker (Baedeker 1893, 22), this quarter is located in the southeast of the city, south of the al-Silsila gate and to the east of the Prophet David road. It is surrounded by some of the Islamic quarters from the east such as the al-Asali, al-Qarrīn and al-Sharaf quarters. From the south, it is surrounded by al-Maydān and al-Maslakh quarters (Baedeker 1893, 22). According to Finbert, this quarter was known by that name in the 13th century A.D. when the Jews settled in it. Up until the 15th century, their number did not exceed 500 persons (Finbert 1955, 352).

#### **Islamic pious foundations, construction space and power**

From the moment of the Islamic conquest of Palestine in the time of Caliph 'Umar in 637,

that is, five years after the death of the Prophet Muhammad, Jerusalem was the center of attention for the Muslim community. Control of Islamic Jerusalem passed through two ways. The first started with the Islamic conquest and went up until the Crusader occupation of the city in 1099. The second began with the Islamic reconquest of the city by Saladin in 1187 and ended when the Ottoman control came to an end in 1917 when the British occupied Jerusalem. During those periods, both Muslim and non-Muslim interest in the city was evident, which was represented by the establishment of *waqf* foundations there by individuals from both communities. The large amount of *waqf* foundations were largely a result of the absence of an official state role in many aspects of civil society structures in areas such as health, education, social services and religious affairs. Moreover, *waqf* played an important role being a form of charity and a means to become close to God (Deguilhem 1986, 53; al-'Arnā'ūt 2011, 76-77).

*Waqf* played an important role in building the city culturally, which entailed all aspects related to the process of development and construction not only in relation to the physical aspects of economic development and construction such as buildings, markets, caravanserais, etc. (Leeuwen 1999, 180-182; al-'Arnā'ūt 2011, 75-76) but also included the human and intellectual development of Jerusalem's community [education, schools, libraries, Sufism movements]. *Waqf* was also important in terms of supporting the poor and needy and providing food and housing for them, treating the sick, housing the travelers (Deguilhem 2004, 396).

If we follow the historical development of the emergence of the *waqf* foundations in Jerusalem, we note that it coincided with the formation of the Muslim community there. Sources indicate that the Caliph 'Umar built the first mosque in Jerusalem and it is this mosque which constitutes the foundations of the present al-Aqsā mosque. Due to the fact that Jerusalem is a mountainous city where water is not available, the third Caliph 'Uthmān endowed the Silwān spring for the benefit of Jerusalemites between 644 and 656 A.D. to ensure that water was free and continually available to the inhabitants of Jerusalem. The Silwān

spring was the first Islamic *waqf* in Jerusalem (Duri 1990, 108).

In the Umayyad period, the Caliph 'Abd al-Malik [685-705] established *waqf* properties to support magnificent buildings considered to be the most important in the cities of the Muslim world, for example, the Dome of the Rock and al-Aqsā mosque (Gil 1996, 11-13; Rosen-Ayalon 1996, 389). Caliph 'Abd al-Malik and his son al-Walīd constructed these facilities in the same place where 'Umar ibn al-Khattāb built the first mosque in Jerusalem. This place is known in Islamic history as al-Haram al-Sharīf (Neuwirth 2000, 1: 88). This term is used to denote the region which is located in the southeastern part of Jerusalem occupied by al-Aqsā mosque and the Dome of the Rock as well as everything in between and around these mosques, including the religious and cultural facilities. This covers an area that constitutes 17% of the surface of Jerusalem. This region is considered to be the most important facility of the Jerusalem *waqfs*, it formed the nucleus of the Jerusalem Islamic *waqf* as most of the *waqf* facilities centered around it. In order to ensure the performance of these facilities for their services, many of the princes and the city elite endowed a large portion of the commercial real estate including markets, shops, caravanserais, bathrooms and agricultural land which supported the *waqf* facilities.

The large and rapid development in the *waqf* facilities in Jerusalem coincided with Saladin's conquest of Jerusalem in 1187 after the expulsion of the Crusaders. During that period, Jerusalem had witnessed radical changes in some aspects of its development and in the composition of its population as well as changes in its administration and social life. Despite these changes, the public features in Jerusalem, especially the topographical ones, continued as before (Hiyari 1990, 166-167; Meshorer 1996, 413). After he had settled in Jerusalem, Saladin's work included not only establishing the foundations of his political and administrative rule but he also had erased the symbols of the Crusader presence in the city (Sroor 2010a, 153; Hillenbrand 2009, 7).

Culminating this policy, Saladin worked to dedicate and consolidate the Islamic presence in this quarter through the establishment of buildings dedicated to *waqf* institutions at the level of the



local community that worked to provide services to the residents of Jerusalem and those coming to the city. To achieve this purpose, an important hospital carrying his name was constructed to deliver therapeutic services to the population and to serve as an educational institution in the field of medicine. He brought doctors and secured the arrival of drugs to this hospital ('Isâ 1981, 230). This hospital is located in the Christian quarter on the south side of Church of the Holy Sepulcher at the place now known as al-Dabbâgha. Sûq al-Bazâr and the German Church [Church of the Redeemer] is now found at this place ('Arif 1992, 178; Eddé 2009, 195-197). In order to ensure the operation of this hospital, Saladin endowed dozens of pieces of real estate to take care of the hospital's expenses. These included houses, shops, markets and agricultural land mostly located within Jerusalem. These *waqf* also included 75% of the Bani Sa'd quarter and the entire farm located in al-'Ifranj quarter farm (Sroor 2010b, 154). In other words, an important part of the *waqf* real estate is located in the Christian quarter.

Sultan Saladin had also established in 1189 a large institution for Sufism that was known as al-Khânqâh al-Salâhiyya as a place of residence, worship and teaching for Sufis in Jerusalem (*Waqf* 2/27.3/927/13; Hawari 2007, 38-39). This *khânqâh*, established by Saladin in the Christian quarter, was the first institution for Sufism in Jerusalem; it was erected in the place known historically as Dâr al-Batrak [The House of the Patriarch]. This *khânqâh* is located between the Church of the Holy Sepulcher from the south, the street which borders it from the north is now known as Khânqâh Street. To ensure the continuity of the work of these institutions, Saladin had endowed a considerable amount of real estate in and outside Jerusalem (Sroor 2010c, 85). In 1192, Saladin also established al-Madrasa al-Salâhiyya [school or higher religious studies and Islamic law], in the place of the Church of St. Anne, which was considered to be the most famous in Jerusalem's history for teaching *Shafi'î fiqh* [jurists]. This school, in which Saladin endowed many pieces of real estate (Little 1990, 180; Eddé 2009, 197), derived its reputation as the headquarters of the prevailing school of thought in Jerusalem in both the Ayyubid and Mamluk periods. In Jerusalem, six

*madrasas* are known to have been founded by the Ayyubids, "one was founded by Saladin, one by Saladin's son al-'Afdal, one by his treasurer, two by his nephew al-Mu'azzam 'Isâ, and one by a Kurdish" émîr (Hawari 2009, 220).

Historical sources also indicate that many Islamic institutions were built in the Christian Quarter during this period. In the year 1216, the king al-Muthafar Shihab al-Dîn Ghâzi ibn al-Sultân al-Malik al-'Adil al-'Ayyûbî had converted a house located next to Saladin's hospital to function as a *zâwiya* [building used for Sufism], which was known as al-Darkâh, he endowed *waqf* for this *zâwiya*. A church near the castle was also converted to a *zâwiyah*, this was called Zâwiya al-Shaykh Ya'qûb al-'Ajami, according to Mujîr al-Dîn al-Hanbalî who said that this church was constructed by the Romans. Another *zâwiya* was established near the Khânqâh al-Salâhiyya known as al-Hamra' and a *madrasa* close to the Church of the Holy Sepulcher (al-'Ulaymî 1999, 1: 89-99).

Historical sources and archaeological evidence also indicate that a number of Ayyubid sultans [1187-1250] contributed towards the establishment of *waqf* buildings in Jerusalem such as mosques and schools. In 1194, Saladin's eldest son, al-Mâlik al-Afdal, endowed and built a *madrasa* carrying his name for teaching Maliki *fiqh*. This school was built in al-Maghâriba quarter where the Moroccan immigrants used to settle, most of Moroccan immigrants belonged to the Maliki *madhhab* (Little 1990, 180). al-Malik al-Afdal created many *waqfs* for this quarter for the benefit of the Moroccan immigrants and it was later named the Moroccan Quarter. The limits of this quarter as mentioned in the *waqf* document: the city wall from the south, al-Haram al-Sharif from the east, Bâb-al-Silsila leading to al-Haram al-Sharif from the north and al-Sharaf quarter from the west. This *waqf* was considered to be the first endowment granted to the Moroccans in Jerusalem (Tibawi 1978, 13). The records of the Islamic Court indicated that many of the *waqf* endowed by the Moroccans in their quarter were to subsidize mosques, *zâwiyas*, houses and shops like the ones endowed by Sheikh 'Umar al-Masmûdî. Until the year 1967, these numbered about 140 pieces of real estate (*Waqf* 13/1272/5.28/13).

Following the same strategy, the Mamluk sultans [1250-1516] competed in building *waqf* foundations in Jerusalem, especially educational ones. This not only contributed to the development of the scientific and cultural movement in Jerusalem, but it also participated in the architectural development represented in the buildings and markets which those sultans had constructed and which left us with an important architectural heritage. This development also included the economic sector through the construction of markets, caravanserais, public baths and other economic institutions but also by endowing many villages, farms and agricultural lands scattered in all regions of Palestine where their *waqf* revenues were allocated to spend on the sultans' *waqf* institutions in Jerusalem. The Mamluks created more than 64 establishments, which were supported by *waqf* foundations concentrated mostly in the west and north of al-Haram al-Sharif. To ensure the functioning of these institutions, the *waqf* revenues of hundreds of shops, houses, farmland – whether inside or outside Jerusalem – were dedicated towards these institutions (Burgoyne 1987, 103-244; Schaefer 1985, 282).

The Christian Quarter also experienced a boom thanks to an interest by the Mamluk sultans. This quarter was important for Jerusalem during that era: the Mamluks stationed the police in this quarter near the Saladin hospital. In addition, many markets were created in this quarter, namely Sûq al-Hubûb [the grain market] for which much land was allocated on the south side of the Saladin's *bimâristân* [hospital]. The main markets in Jerusalem were found to the east of this *bimâristân* where most of the economic activities were carried out (Sroor 2010b, 157-158). The Mamluk Sultan Qalâwûn built a mosque in the Christian quarter near the Church of the Holy Sepulcher. The records of the Islamic Court specify that the Muslim judge of Jerusalem had appointed the Custodian of the Noble Dome of the Rock with the help of the late Hajj Husayn Effendi al-Khâlidî in the job of administrating the mosque and its endowment (*Sijill* 282, 1215/1800, 120).

The Mamluk era is considered a golden one for the *waqf* institutions in Jerusalem, compared with other periods especially during the Ottoman period [1516-1917], which was marked by the

establishment of limited *waqf* institutions except for the period of Sultan Suleiman the Magnificent [1520-1566]. Jerusalem had received much attention from this sultan who rebuilt the walls of Jerusalem in their current form, after it was in a state of destruction for more than 300 years after it was destroyed by king 'Isâ al-'Ayyûbî in 1219 (Asali 1990, 201).

In 1557, Roxelane, the wife of Sultan Suleiman the Magnificent, established the greatest and most important *waqf* institution not only in Jerusalem but in of all Palestine (Heyd 1960, 139). This institution was known as Khâsîkî Sultan: the imperial public kitchen located in the Islamic quarter near al-Aqsa Mosque. It is situated "on the southern side of a lane climbing up the hill, from the Bâb en-Nâzir of the Haram Enclosure to the Street called after the Khân ez-Zeit. This lane is known by several names, such as 'Aqabet at-tkiyye." (Stephan 1944, 172-173). From the *waqfiyya* [endowment deed] for this institution, which was registered in the *sijills*, it is clear that this endowment formed a huge urban complex and included a mosque, a caravanserai, a school and 55 rooms for a residence for Sufis. Moreover, it included a kitchen that provided daily meals to the poor and travelers and those who lived close to al-Aqsa Mosque. What is more, it contained an oven which produced 2000 *fadûlas* [loaves of bread] daily. In order to allocate enough financial revenues, the *waqf* founder, Roxelane, endowed 34 villages and farms to cover the expenses of this endowment (*Sijill* 270, 1557/964, 18-27).

All the *waqf* institutions mentioned above are classified as charitable *waqfs*. In addition to these, there are also hundreds of family *waqfs*. A question arises here: "what is the size and nature of the *waqf* properties in Jerusalem, whether family or charitable endowments?" It is not easy to precisely answer this question for several reasons: The first is the difficulty of separating the *waqf* properties in the Old City of Jerusalem from those outside it due to the close interrelationship between the center and the outskirts since they were the main suppliers that channeled their revenues to the *waqf* institutions of the center, and the difficulty of determining these properties in the surrounding areas. The second reason is the absence of precise and official statistics dealing

with the *waqf* properties not only in Jerusalem but in Palestine in general. The available statistics in the published sources are not reliable and cannot be trusted because they depend on estimation and speculation. For example, Dumper provides statistics for the proportion of the family and *waqf* charitable properties in Jerusalem based on the estimates of the former officials in the Jordanian government and in the *Waqf* Administration in Jerusalem as well as on interviews conducted in 1986 with six *mutawalli* [*waqf* administrators] of the major family endowments in Jerusalem.

Based on these peoples' estimations, Dumper came to the following conclusion: *waqf* real estate in Old Jerusalem was estimated at 45-50% with the exception of the area of al-Haram al-Sharif. If we add the area of al-Haram al-Sharif, which is 17% of the Old City, the sum total of the *waqf* property in the Old City would become 67% (Dumper 1992, 190-191).

Through the analysis of the various documents and archives concerning the *waqf*, the following statistics may be cited: 27 mosques as well as al-Haram al-Sharif, 70 *madrasas* [religious schools], two *khānqāhs*, 16 *zāwiyas*, seven *ribāts*. It should be noted that the following *waqf* real estate were endowed to spend on the aforesaid institutions: 11 bathrooms, 14 caravanserais, all the shops in al-Qattānīn, and in al-Husur markets, 580 shops and stores located in the rest of the markets of Jerusalem. This is in addition to all the houses located in al-Qattānīn and in al-Husur markets as well as 330 houses located in different quarters of Jerusalem. Besides this, the following should be added: dozens of olive oil presses and wheat mills, farms and orchards located within the walls of Jerusalem. Furthermore, 150 villages and farms inside and outside Palestine were endowed either wholly or partially to spend on Jerusalem's *waqf*. It should also be noted that there were more than 400 properties [shops, houses, mills, presses] were endowed to family *waqf* (Stoor 2010a, 377).

The presence of this important amount of Islamic *waqf* in Jerusalem in a small area which is less than one km<sup>2</sup>, along with property and al estate with private ownership, as well as the *waqf* and institutions of non-Muslims indicate the

essential role of these *waqf* institutions in determining the features of construction and property ownership in Jerusalem and in determining the functions and tasks of these *waqf* establishments. The Jerusalemite historian and the former mayor of Jerusalem 'Arif al-'Arif [1892-1973] tells us that in 1876, Jerusalem had 1,320 shops which employed 1,920 people working in various crafts, trades and professions, representing many religious communities that lived in Jerusalem as follows: 501 Jews, 807 Muslims, 357 Roman Catholics, 146 Latins, 40 Protestant, 69 Armenians ('Arif 1992, 348-350). Hence, we see that most of the shops in the Old City were *waqf*.

The radical changes caused by Muslims since the year 637 through the building of *waqf* institutions in the city included the eastern part of the city where there was no construction or building on the ruins of ancient buildings. Sources indicate that this part was neglected before the Islamic conquest of the city (Duri 1990, 108). The building of al-Haram al-Sharif, which occupies an important part of the city, contributed to a new overall urban planning for Jerusalem, especially after the construction of walls and tens of schools supported by *waqf* around the al-Haram al-Sharif area. The clearance of buildings in this part of the city allowed for the emergence of *waqf* markets of a new architectural design such as al-Qattānīn market with a length of 94.5m. and a width of 5.5m. (Golvin 1967, 107). New *waqf* quarters appeared for the first time like al-Maghārība Quarter, which occupies the southeastern part of the city. Houses and Islamic religious sites were set up in this quarter. At the end of the Ottoman period, the number of *waqf* real estate was about 140 properties (*Waqf* 3/5, 28/1272/13).

The large number of Islamic *waqf* in Jerusalem provided permanent sources of funding through the construction of shops, markets, baths and caravanserais in Jerusalem or through the reconstruction of existing buildings belonging to *waqf*. This explains the proliferation of hundreds of commercial *waqf* real estate in the various markets and quarters of Jerusalem. This research sheds light on the important role played by the *waqf* in building the Old City of Jerusalem in accordance with new architectural models that do not differ from those found in other Islamic cities such as Cairo, Damascus and Tunis.

## REFERENCE LIST

### Archival Material

Registers [*sijill*] of the Ottoman Court of Jerusalem.  
- *Sijill* 270, 1557/964; *Sijill* 281, 1214/1799; *Sijill* 282, 1215/1800; *Sijill* 287, 1220/1805; *Sijill* 288, 1221/1806; *Sijill* 291, 1222/1808; *Sijill* 292, 1224/1809.  
Jerusalem *waqf* archive.  
- *WAQF*, 3/5, 28/1272/13; *Waqf* 13/1272/5.28/13; *Waqf* 2/27.3/927/13.

### References

- 'ARIF, 'A., 1992. *al-Mufasssal fi tārīkh al-Quds*. Jérusalem: Maktabat al-Andalus.
- AL-'ARNA'ŪT, M., 2011. *al-Waqf fi al-'alam al-Islāmī*. Beirut: Jadawel.
- ASALI, K.J. *Ma'āhid al-'ilm fi bayt al-maqdis*. Amman: Jam'iyyat 'Ummāl al-Matābī' al-Wataniyya.
- ASALI, K.J. 1990. Jerusalem under the Ottomans 1516-1831 AD. *Jerusalem in History*. K.J. Asali (ed.). New York: Olive Branch Press, 200-228.
- BAEDEKER, K., 1893. *Palestine et Syrie : manuel du voyageur*. Leipzig: Baedeker.
- BEN-ARIEH, Y., 1984. *Jerusalem in the 19<sup>th</sup> Century: The Old City*. Jerusalem: Yad Izhak Ben Zvi Institute.
- BURGOYNE, M.H., 1987. *Mamluk Jerusalem an Architectural Study*. Jerusalem: The British School of Archaeology.
- CHOURAQUI, A., 1996. *Jérusalem : une ville sanctuaire*. Paris: Editions du Roche.
- CUNEO, P., 2000. The Urban Structure and Physical Organisation of Ottoman Jerusalem in the Context of Ottoman Urbanism. *Ottoman Jerusalem: The Living City: 1517-1917, vol. 1*. Sylvia (ed.). London: Altajir World of Islam Trust, 211-220.
- DEGUILHEM, R., 1986. *History of Waqf and Case Studies From Damascus in the Late Ottoman and French Mandatory Times*. PhD diss., New York University.
- DEGUILHEM, R., 2004. On the Nature of the *Waqf*. Pious Foundation in Contemporary Syria: A Break in the Tradition. *Les fondations pieuses (waqf) en Méditerranée : enjeux de société, enjeux de pouvoir*. R. Deguilhem and A. Henia (coord.). Koweit: La Fondation Publique des Awqaf du Koweit, 395-431.
- DE SAULCY, 1866. *Derniers jours de Jérusalem*. Paris: Hachette.
- DUMPER, M., 1992. *Siyāsāt isrā'īl tujāh al-awqāf al-Islāmīyya fi filastin 1948-1988*. Beyrouth: Mu'sasat al-dirāsāt al-filastīniyya.
- DURI, A.A., 1990. Jerusalem in the Early Islamic Period: 7<sup>th</sup> -11<sup>th</sup> Centuries AD. *Jerusalem in History*. K.J. Asali (ed.). New York: Olive Branch Press, 105-120.
- EDDÉ, A., 2009. Religious Circles in Jerusalem in the Ayyubid Period. *Ayyubid Jerusalem: The Holy City in Context 1187-1250*. R. Hillenbrand and S. Auld (eds.). London: Altajir Trust, 195-201.
- FINBERT, E.J., 1955. *Isra'el*. Paris: Librairie Hachette.
- GIL, M., 1996. The Political History of Jerusalem during the early Muslim Period. *The History of Jerusalem: The Early Muslim Period 638-1099*. J. Prawer and H. Ben-Shammai (eds.). Jerusalem: Yad Izhak Ben-Zvi, 1-38.
- GOLVIN, L. 1967. Quelques notes sur le Sûq al-Qattānīn et ses Annexes à Jérusalem. *Bulletin d'études orientales* XX, 101-138.
- HAWARI, M.K., 2007. *Ayyubid Jerusalem (1187-1250) an Architectural and Archaeological Study*. Oxford: Archaeopress Publishers of British Archaeological Reports.
- HAWARI, M.K., 2009. Ayyubid Monuments in Jerusalem. *Ayyubid Jerusalem: The Holy City in Context 1187-1250*. R. Hillenbrand and S. Auld (eds.). London: Altajir Trust, 216-275.
- HEYD, U., 1960. *Ottoman Documents on Palestine 1552-1615*. Oxford: Clarendon Press.
- HILLENBRAND, C., 2009. Ayyubid Jerusalem - A Historical Introduction. *Ayyubid Jerusalem: The Holy City in Context 1187-1250*. R. Hillenbrand and S. Auld (eds.). London: Altajir Trust, 1-22.
- HIVARI, M., 1990. Crusader Jerusalem 1099-1187 AD. *Jerusalem in History*. K.J. Asali (ed.). New York: Olive Branch Press, 130-177.
- 'Isā, A., 1981. *Tārīkh al-bimārīstānāt fi al-Islām*. Beirut: Dār al-Rā'id al-'Arabī.
- LITTLE, D., 1990. Jerusalem under the Ayyūbids and Mamlūks 1197-1516 AD. *Jerusalem in History*. K.J. Asali (ed.). New York: Olive Branch Press, 177-200.
- MESHORER, Y., 1996. Coins of Jerusalem under the Umayyads and the Abbasids. *History of Jerusalem: The Early Muslim Period 638-1099*. J. Prawer and H. Ben-Shammai. Jerusalem: Yad Izhak Ben-Zvi, 413-420.
- NEUWIRTH, N., 2000. Jerusalem in Islam: The Three Honorable Names of the City. *Ottoman Jerusalem: The Living City: 1517-1917, vol. 1*. Sylvia (ed.). London: Altajir World of Islam Trust, 77-93.
- ROSEN-AYALON, M., 1996. Art and Architecture in Jerusalem in the Early Islamic Period. *History of Jerusalem: The Early Muslim Period 638-1099*. J. Prawer and H. Ben-Shammai (eds.). Jerusalem: Yad Izhak Ben-Zvi, 386-412.
- SCHAEFER, K.R., 1985. *Jerusalem in the Ayyubid and Mamluk Eras*. New York: University Microfilms International.

SROOR, M., 2010a. *Fondations pieuses en mouvement : de la transformation du statut de propriété des biens waqfs à Jérusalem (1858-1917)*. Damas: IFPO et IREMAM.

SROOR, M., 2010b. al-Awqáf al-Islámiyya fí Hârat al-Nasârâ fí al-Quds Wal-tahawul ilâ Mulkiyya Masihiyya fí 'Awâkhir al-'Ahd al-'Uthmânî. *Arab Historical Review for Ottoman Studies* 41-42, 145-206.

SROOR, M., 2010c. La métamorphose des institutions de waqfs du Saladin à Jérusalem dans la période ottomane. *Revue d'Histoire Magrèbine* 139, 79-111.

STEPHAN, S.H., 1944. An Endowment Deed of Khasseki Sultan Dated 24<sup>th</sup> May 1552. *The Quarterly of the Department of Antiquities in Palestine* 10, 170-194.

TIBAWI, A.L., 1978. *The Islamic Pious Foundations in Jerusalem: Origins, History and Usurpation by Israel*. London: The Islamic Cultural Centre.

'ULAYMÎ, M., 1999. *al-'Uns al-jalîl bi-rârikh al-Quds wa-al-Khalîl*. Amman: Maktabat Dandîs.

VAN LEEUWEN, R., 1999. *Waqf and Urban Structures: the case of Ottoman Damascus*. Leiden: Brill.

## Between Market and Architecture: The Role of the College of Engineers, Architects and Land Surveyors in Real Estate Pricing in 16th-18th Century Milan

Michela Barbot

*Institutions et dynamiques historiques de l'économie,  
Ecole normale supérieure de Cachan, France*

This research aims to provide some empirical evidence on mechanisms leading to real estate pricing in early modern Milan between the 16th and 18th centuries, with a special focus on the role played in this process by the *stima* – in both senses of evaluation and reputation – of the engineers belonging to the College of Engineers, Architects and Land Surveyors in Milan [hereafter referred to as “the College”]. I will use here the term “engineer” – instead of the word “architect” – as it is the one that most frequently appears in sources. However, it should be kept in mind that in modern Italy this term is used to indicate a professional person with composite functions, who at the same time carries out engineering and architectural activities (Contardi and Curci 1991; Mazzi and Zaggia 2004; Bossi, Langé and Repishti 2007).

This research, in particular, deals with a quite neglected aspect of the multiple functions taken on by these professionals: their evaluation of houses, workshops and flats distributed in the urban space. To analyze this activity, I have collected several historical documents available in four main archives: the Archive of the Venerable Factory of the *Duomo* of Milan – one of the biggest property owners in Milan (Barbot 2008a, 22-80; Barbot and Mocarelli 2011) – the Archive of the State of Milan [ASM], the Archive of the Civic History of Milan [ASCM] and the Archive of the College of the Architects of Milan [ACAM]. From them I obtained several *Statuti* [Regulations] of the Milanese College and altogether a set of 300 estimates and notarial deeds pertaining to 300 purchases made between 1565

to 1796 of 100 residential real estate units [called “houses” – *case* – or “apartments” – *appartamenti* – by the sources], 100 productive and commercial units [“workshops,” i.e. *botteghe*] and 100 units with a mixed function [the so-called “houses with workshop,” i.e. *case con bottega*].

I chose 1565 for the beginning of this study because of its importance in the urban history of Milan: the walls circling Milan [the so-called “Spanish Walls”] were completed in that year (Leidy 1985), while two years previously the College of Milan was founded. The final date of the study [1796] coincides with the end of the Habsburg’s domination over Milan [begun in 1535] and – as we will see – with the closure of the College and the urban guilds.<sup>1</sup>

My main research question can be expressed as follows: on what basis did Milanese engineers define the value of urban buildings in early modern Milan? This question is highly relevant for two major reasons. First, answering this question could help to clarify the logics and mechanisms at work in one of the most important economic sectors of pre-industrial societies. As in many other centres of the pre-industrial era, like in Milan, in fact, the urban building sector is one of great importance, coming third after the textile and food sectors (Cipolla 1974; Barbot 2008a; Mocarelli 2008b). Despite this relevance, the logic of the establishment of real estate prices remains a sort of “mystery” for historians. This hardly comes as a surprise: as many social scientists (Halbwachs 1909, 277-80; Bourdieu 2000a; Karpik 2007) have shown, such a mystery, in fact, is largely due to the characteristics of the house in so far