DESIGN AND CONSTRUCTION IN ROMANESQUE ARCHITECTURE

IP.

In this study, C. Edson Armi offers a fresh interpretation of Romanesque architecture. Armi focuses on buildings in southern France, northern Italy, Catalonia, and Switzerland, the regions where Romanesque architecture first appeared around A.D. 1000. He integrates the study of medieval structure with an understanding of construction, decoration, and articulation in an effort to determine the origins and originality of medieval architecture and the formation of the High Romanesque style, especially in Burgundy, at sites such as Cluny III. Relying on a close analysis of the fabric of key buildings, Armi's in-depth study reveals new knowledge about design decisions in the early Middle Ages. It also demonstrates that the mature Romanesque of the twelfth century continues many of the applications created and perfected over the previous one hundred years.

C. Edson Armi is a professor at the Department of History of Art and Architecture at the University of California, Santa Barbara. A scholar of medieval art and architecture, he is the author of the prizewinning *Masons and Sculptors in Romanesque Burgundy* and *The "Headmaster" of Chartres and the Origins of "Gothic" Sculpture.*

DESIGN AND CONSTRUCTION IN ROMANESQUE ARCHITECTURE

First Romanesque Architecture and the Pointed Arch in Burgundy and Northern Italy

> C. EDSON ARMI University of California, Santa Barbara



© in this web service Cambridge University Press

> CAMBRIDGE UNIVERSITY PRESS Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi, Mexico City

Cambridge University Press The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org Information on this title: www.cambridge.org/9780521830331

© C. Edson Armi 2004

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2004

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication Data Armi, C. Edson. Design and construction in Romanesque architecture / C. Edson Armi. p. cm. Includes bibliographical references and index. ISBN 0-521-83033-8 (hb) Architecture, Romanesque. I. Title. NA390.A76 2004 723´.4 – dc21 2003048553

ISBN 978-0-521-83033-1 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate. Information regarding prices, travel timetables, and other factual information given in this work is correct at the time of first printing but Cambridge University Press does not guarantee the accuracy of such information thereafter.

Contents

list of illustrations *vii* acknowledgments *xiii*

Introduction 1

l History, Geography, and Construction *9*

2 The Pointed Arch and Groin Vault in Northern Italy *25*

3 The Pointed Arch and Groin Vault at the Beginning of the Eleventh Century in Burgundy *49*

4 The Pointed Arch and Groin Vault in Burgundy at the End of the Eleventh Century *65*

> 5 The Barrel Vault *95*

> > v

vi Contents

6 Systems of Arch Support *113*

7 The Pointed Arch and the Context of High Romanesque Architecture in Burgundy *139*

Conclusion 177

NOTES *181* BIBLIOGRAPHY *203* INDEX *215*

Illustrations

FIGURES

- 1. Cluny III, interior, nave, J.-B. Lallemand, 1773 5
- 2. Map of the Franco-Provençal dialect in the eleventh century 11
- 3. Novara, cathedral, exterior, northern transept tower 15
- 4. Oleggio, San Michele, interior, crypt 16
- 5. Agliate, San Pietro, interior, crypt 17
- 6. Bernay, Notre-Dame, interior, nave 18
- 7. Reims, Saint-Rémi, exterior, southern transept 18
- 8. Auxerre, Saint-Étienne, interior, crypt 19
- 9. Vignory, Saint-Étienne, exterior, chevet 20
- 10. Sant Llorenç de Morunys, abbey church, interior, nave 20
- 11. Cardona, Sant Vicenç, interior, nave 21
- 12. Typical sheet rock in the Mâconnais region 22
- 13. Tournus, Saint-Philibert, exterior, upper narthex 22
- 14. Tournus, Saint-Philibert, interior, lower narthex 23
- 15. Lomello, Santa Maria Maggiore, nave 26
- 16. Lomello, Santa Maria Maggiore, interior, nave 27
- 17. Lomello, Santa Maria Maggiore, interior, nave 29
- 18. Lomello, Santa Maria Maggiore, interior, nave 30
- 19. Lomello, Santa Maria Maggiore, interior, nave 31
- 20. Corvey, abbey church, interior, westwork 34
- 21. Soissons, Saint-Médard, interior, crypt 36
- 22. Jumièges, Notre-Dame, nave 37

viii Illustrations

23. Jumièges, Notre-Dame, nave, interior • 38 24. Saint-Benoît-sur-Loire, abbey church, interior, narthex • 39 25. Saint-Benoît-sur-Loire, abbey church, interior, narthex • 39 26. Hersfeld, abbey church, interior, crypt • 40 27. Speyer, cathedral, interior, crypt • 41 28. Aosta, cathedral, interior, crypt • 42 29. Aime, Saint-Martin, interior, choir • 43 30. Saint-Jean-de-Maurienne, cathedral, interior, crypt • 45 31. Aime, Saint-Martin, interior, southern transept • 46 32. Tournus, Saint-Philibert, plan • 50 33. Tournus, Saint-Philibert, interior, lower narthex • 51 34. Tournus, Saint-Philibert, interior, lower narthex • 53 35. Chapaize, Saint-Martin, interior, nave • 56 36. Chapaize, Saint-Martin, interior, nave • 57 37. Chapaize, Saint-Martin, interior, nave • 57 38. Chapaize, Saint-Martin, interior, nave • 58 39. Chapaize, Saint-Martin, interior, nave • 59 40. Cardona, Sant Vicenç, interior, nave • 60 41. Chapaize, Saint-Martin, interior, nave • 61 42. Farges, Saint-Barthélemy, interior, nave • 66 43. Le Puley, priory church, interior, nave • 67 44. Saint-Hippolyte, abbey church, interior, nave • 69 45. Farges, Saint-Barthélemy, interior, nave • 71 46. Tournus, Saint-Philibert, interior, nave • 72 47. Tournus, Saint-Philibert, interior, nave • 73 48. Tournus, Saint-Philibert, interior, cloister • 74 49. Tournus, Saint-Philibert, interior, cloister • 75 50. Paray-le-Monial, priory church, interior, ambulatory • 76 51. Levens, Sainte-Marie, interior, crypt • 77 52. Saint-Martin-du-Canigou, abbey church, interior, crypt • 78 53. Sant Llorenç de Morunys, abbey church, interior, nave • 79 54. Sant Cugat de Salou, interior, transept • 81 55. Milan, Sant'Eustorgio, exterior, apse • 82 56. Farges, Saint-Barthélemy, exterior, nave • 83 57. Chapaize, Saint-Martin, exterior, crossing tower • 84 58. Cluny III, interior, choir • 85

59. Cluny III, exterior, nave • 86

Illustrations ix

60. Cluny III, interior, choir • 87 61. Cluny III, interior, nave • 88 62. Cluny III, interior, nave • 89 63. Cluny III, interior, nave • 90 64. Paray-le-Monial, interior, nave • 91 65. Tournus, Saint-Philibert, interior, upper narthex • 96 66. Tournus, Saint-Philibert, interior, upper narthex • 97 67. Tournus, Saint-Philibert, interior, upper narthex • 99 68. Tournus, Saint-Philibert, interior, upper narthex • 100 69. Tournus, Saint-Philibert, interior, upper narthex • 101 70. Elne, Sainte-Eulalie, interior, nave • 102 71. Tournus, Saint-Philibert, interior, upper narthex • 103 72. Uchizy, Saint-Pierre, interior, nave • 104 73. Brancion, Saint-Pierre, interior, nave • 105 74. Ager, Sant Pere, interior, northern apse • 107 75. Saint-Michel-de-Cuxa, interior, crypt • 108 76. Paray-le-Monial, priory church, interior, choir • 109 77. Brancion, Saint-Pierre, interior, nave • 111 78. Cardona, Sant Vicenç, exterior, apse and choir • 114 79. Cardona, Sant Vicenç, interior, nave • 115 80. Hersfeld, abbey church, exterior, apse • 116 81. Limburg an der Haardt, abbey church, nave • 117 82. Limburg an der Haardt, abbey church, interior, transept • 118 83. Ager, Sant Pere, interior, apse • 119 84. Combertault, Saint-Hippolyte, interior, choir and apse • 119 85. Combertault, Saint-Hippolyte, interior, choir and nave • 120 86. Châtillon-sur-Seine, Saint-Vorles, interior, westwork • 121 87. Chapaize, Saint-Martin, exterior, crossing • 121 88. Chapaize, Saint-Martin, interior, crossing • 122 89. Bray, village church, interior, crossing • 123 90. Laizé, Saint-Sulpice, interior, apse • 124 91. Chapaize, Saint-Martin, exterior, nave • 125 92. Chapaize, Saint-Martin, interior, nave • 126 93. Saint-Martin-de-Laives, interior, nave • 127 94. Mazille, Saint-Blaise, exterior, apse and choir • 128 95. Mazille, Saint-Blaise, interior, apse • 128

x Illustrations

- 96. Mazille, Saint-Blaise, interior, choir 129
- 97. Malay, Notre-Dame, exterior, apse and choir 129
- 98. Malay, Notre-Dame, interior, apse, choir, and crossing 131
- 99. Cluny III, exterior, choir *132*
- 100. Cluny III, wooden model 132
- 101. Tournus, Saint-Philibert, exterior, upper narthex 133
- 102. Cluny III, exterior, southern transept 133
- 103. Cluny III, interior, southern transept 134
- 104. Paray-le-Monial, priory church, interior, northern nave and transept 135
- 105. Cluny III, interior, southern transept 136
- 106. Cluny III, exterior, southern transept 136
- 107. Tournus, Saint-Philibert, interior, nave 137
- 108. Rivolta d'Adda, Santa Maria and San Sigismondo, interior, nave and choir *141*
- 109. Tournus, Saint-Philibert, exterior, nave 145
- 110. Saint-Martin-du-Canigou, abbey church, interior, nave 147
- 111. Tournus, Saint-Philibert, interior, upper narthex 148
- 112. Tournus, Saint-Philibert, interior, upper narthex 149
- 113. Tournus, Saint-Philibert, interior, upper narthex 149
- 114. Tournus, Saint-Philibert, interior, upper narthex 150
- 115. Tournus, Saint-Philibert, interior, upper narthex 151
- 116. Tournus, Saint Philibert, exterior, narthex facade 153
- 117. Saint-Hippolyte, priory church, interior, nave 159
- 118. Saint-Hippolyte, priory church, interior, nave 160
- 119. Saint-Hippolyte, priory church, interior, nave 161
- 120. Saint-Hippolyte, priory church, interior, nave 162
- 121. Saint-Hippolyte, priory church, exterior, chevet 163
- 122. Saint-Hippolyte, priory church, interior, choir and apse *165*
- 123. Saint-Hippolyte, priory church, interior, nave 166
- 124. Gigny, abbey church, interior, nave 167
- 125. Cluny III, exterior view and plan, P. F. Giffart 169
- 126. Cluny III, interior, nave 170
- 127. Cluny III, exterior, nave 171

Illustrations xi

DRAWINGS

- 1. Typical brick-based groin vault, early eleventh century 33
- 2. Typical northern French groin vault, early eleventh century 35
- 3. Impressions in vault mortar left by lag boards 47
- 4. Cross section of Milanese early eleventh-century apse 82

Acknowledgments

I would like to confess that at eighteen I suddenly fell in love with Romanesque architecture, and the passion has stayed with me forever. Unfortunately, while the last part of this statement may be true, the first part, however romantic, is fundamentally distorted. The undergraduate art-history teachers at Columbia University initiated and nourished my interest in Romanesque architecture, and thoroughly shaped my approach to it. I must begin a book on this subject by thanking them.

As a sophomore I took a class on early medieval art with someone who was more than what usually is called an inspiring teacher. Although a university professor, Meyer Schapiro took the time to shepherd small groups of undergraduates to see medieval manuscripts at the Morgan Library. However much these books touched me, the interaction of this man with art impressed me even more. At this point in my studies I dared not approach him personally. Nevertheless, his love of the object, his approach to writing about art, and the insights he brought to creation opened not only a field of research but also – may I say it without sounding trite – a way of being and a life commitment. From him, at a very young age, I realized what art history could be.

To whet our appetite for high medieval art, on the last day of class Schapiro showed one slide of the central tympanum at Vézelay. He used it to criticize Henri Focillon's theory that the pressure exerted by architecture determined the shape of Romanesque sculpture. This black-and-white image did not knock me off my feet, but I believe that

xiv Acknowledgments

a small epiphany did occur, and I trace an interest in the specific problems of Burgundian Romanesque architecture and sculpture to this moment in a dark classroom. I also believe that, right from the start, his patient and layered method of looking and his tendency to integrate the discussion of sculpture and architecture (as a young man he had seriously considered being an architect) influenced my thinking about Romanesque art. Schapiro showed remarkable sensitivity to the creative role of masons and sculptors within the group activity of church building. This approach that balances the individual expression of possibly illiterate artisans against the group dynamics of a structured organization inspired me to study the creative process in medieval art and industrial design.

During my sophomore year, I was advised that learning German and French was necessary to become an art historian. My Germanborn parents had wanted me to have a positive appreciation of German culture, and so for three summers between my fifth and eleventh birthdays, I had lived in Germany, learned German, and presumably, at some now forgotten locations, seen Romanesque churches. After my experience with Vézelay, however, the incentive to learn another language became secondary to the need to see beautiful Romanesque buildings. At the end of the school year, I took the money set aside for acquiring French, bought a motorbike and a sleeping bag, and enrolled at the University of Grenoble. I then quickly motored off to spend the summer visiting Romanesque churches all over France. I studied and drew them and often slept in the bushes next to them, but I never properly learned French grammar.

On my return to college, I convinced Philip MacAleer, who was scheduled to teach Gothic architecture, that it would make sense to lay the foundation with a course on Romanesque architecture. As one of the few American experts in Romanesque architecture, he did not have to be persuaded to change the content of this class. Although young, he was a formidable teacher, and the way he presented Romanesque architecture had a formative impact. Lecturing without notes, he made the content precise and spare, and structured lessons as carefully as Bach arranged a fugue. He underscored the seriousness and worthiness of this arcane discipline by subjecting each scholar to devastating criticism, presenting each building complexly and in detail, and delicately placing each art-historical problem in its historical context.

Acknowledgments xv

At Columbia College, there were not only two Romanesque specialists to train me in my chosen field but also teachers whose approach to the art of other periods I found sympathetic. I was raised in a family of physicists, and I enjoyed seeing the physical evidence that supported ideas. Under the leadership of Rudolf Wittkower, Columbia had become a center for positivist research. He did not teach undergraduate courses, but the college allowed me to enroll in his graduate classes (as well as those of George Collins, another outstanding architectural historian). I was strongly influenced by Wittkower's interests in the creativity of the individual, the relationship between one person's work in different media, and the changing character within an architect's oeuvre. The specificity, depth, order, and pace Wittkower brought to the examination of Renaissance and baroque buildings struck me. To this day, I cannot think or write about architecture without being reminded of the standards he set for himself.

His standard of thoroughness literally took my breath away. He lectured for two hours in a room that faced Amsterdam Avenue, and although these classes were standing room only, he allowed no breaks or open windows, for fear that the traffic noise might interrupt the flow of the material. By the end of class, it was not unusual for students to faint from heat exhaustion and the loss of air. I learned to tape his lectures, a technique that in graduate school allowed me to follow two other exacting, no-holds-barred architectural historians, Robert Branner and Richard Krautheimer.

As chairman, Wittkower encouraged connoisseurship, and Howard Davis at Columbia College and Evelyn Harrison and Julius Held at Barnard College (the women's college of Columbia University) pursued this approach with astonishing levels of sophistication. Raised in a slow-paced California beach town, as a college student I often walked around Manhattan barefoot and skateboarded on the streets leading to Riverside Drive. I hardly expected competition just to get a good look at a slide. On the first day of class with Harrison and Held, I showed up at a time that I assumed was early, only to discover outside the door row after row of jostling mink coats containing Barnard commuters vying for front-row seats to get the best view of the art. Under these two professors (and the patient guidance of Bill Voekle, Held's teaching assistant), I began to understand that the physical examination of art is not a superficial activity. At the deepest level it could be a stren-

xvi Acknowledgments

uous and time-consuming search that requires sensitivity, training, and experience to be carried out successfully. To this day, when I plant myself in a building or repeatedly return to the same visual problem, I think of these and other undergraduate teachers, and I am profoundly grateful to them.

Returning to the present, I thank Beatrice Rehl, Michael Gnat, and the anonymous readers of Cambridge University Press for many important suggestions for improving the text. The work of free-lance proofreaders Susana Galilea, Nina McCune, and Winifred Davis was also most helpful. I also thank Larry Ayres, Jim Morganstern, and Elizabeth B. Smith for their comradery and insights into Romanesque architecture, Marie-Claude Reboux for her friendship and support, and above all, my wife, Mary, and daughters, Jemma and Rovenna, for their love and patience. Mary encouraged, questioned, and criticized my ideas, and edited parts of the manuscript in front of the buildings. At the University of California, medieval graduate students Cindy Canejo, Michelle Duran-McLure, Holly Henderson, Vibeke Olson, and Sarah Thompson were of immeasurable help in resolving problems in this book.

I deeply appreciate the financial support provided for this project from a John Simon Guggenheim Memorial Foundation Fellowship, a Paul Mellon Senior Visiting Fellowship at the Center for Advanced Study in the Visual Arts (National Gallery), and grants from the Graham Foundation for Advanced Studies in the Fine Arts and the Research Council of the University of California.