

## Montfort

History, Early Research and Recent Studies of the Principal Fortress of the Teutonic Order

Editors: Adrian Boas and Rabei G. Khamisy

Montfort Castle, located in the western Galilee, was the principal fortress of the Teutonic Order, one of the three great military orders of the Crusader period. It was built in the early thirteenth century and occupied and dismantled by the Mamluk army in 1271. It is among the finest examples of Crusader spur castles. This present volume includes discussions by 23 scholars, experts in their fields, in 28 chapters covering every aspect of past and recent scholarship on the history of the Teutonic Order and the castle, travellers' descriptions, the architecture, the geographical setting, the material culture of the garrison, and detailed descriptions of the 1926 archaeological expedition to Montfort and the ongoing work of the Montfort Castle Project.

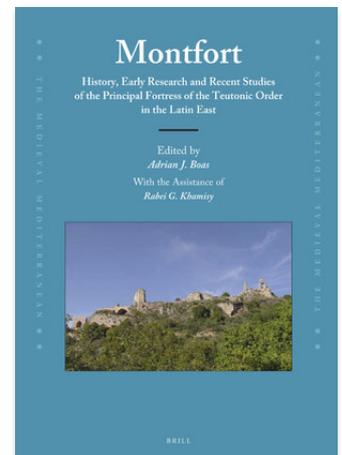
**Winner of the 2017 Verbruggen prize**, awarded annually by the De Re Militari society for the best book on medieval military history. The awarding committee stated that the volume offers 'a through exploration of all the sources, archaeological and literary, relating to an important site. A model for future work.'

Contributors are Laura Aiello, Zohar Amar, Tamar Backner, Adrian J. Boas, Nativ Dudai, Rafael Frankel, Jonathan J. Gottlieb, Lydia Perelis Grossowicz, Timothy B. Husband, Nurith Kenaan-Kedar, Rabei G. Khamisy, Robert Kool, Dorit Korngreen, Rafael Lewis, Nili Liphschitz, Cecilia Luschi, Lisa Piloni, Mary B. Shepard, Vardit Shotten-Hallel, Kristjan Toomaspoeg, Andrea Wähning, David Whitehouse, and Mark Wypyski.

### Readership

This volume is aimed at academics and students of Crusader studies, castle architecture and the military orders. It would be essential for academic institutes and libraries that cover those areas.

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# Montfort

*History, Early Research and Recent Studies  
of the Principal Fortress of the Teutonic Order  
in the Latin East*

*Edited by*

Adrian J. Boas

*With the Assistance of*

Rabei G. Khamisy



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## The Building Below the Castle

*Laura Aiello and Cecilia Luschi\**

*On the edge of the stream that runs through the valley formed by Wadi-Qarn, at the foot of the hill crowned by the castle [of Montfort], stand the ruins of a large well-preserved Gothic building. The abbot Mariti, later Van de Velde, and M. Renan, identified here the remains of a church.<sup>1</sup>*

Nahal Kziv (Wādī al-Qarn), a perennial stream below the castle to its north, was a major water resource for the region, an area important in the growing of cane sugar and sugar refineries. From at least the Crusader period use was made of its waters to run a number of mills (most of these are apparently of Ottoman date). The hydraulic system of the mills included small canals located upstream and mill ponds adjacent to them.

The structure below Montfort Castle included a large industrial component with a complex water piping system, still partly recognisable, and quite different to the other mills along the stream (Plate 10.1, 10.2). In the past, visitors have commented mainly on the romantic nature of this imposing structure with occasional suggestions regarding its possible use.<sup>2</sup> More recent research has focussed on the architecture and functional aspects of the building which consists of a large Gothic hall constructed over a mill.<sup>3</sup> A geometric as well as metric analysis was carried out at the site by the team from the University of Florence in November 2009.<sup>4</sup> It has shown that the mill was originally of a rectangular plan, built on a modular base using the royal cubit (Plate 10.3). A detailed discussion on the layout of the building and on the use here of the royal cubit was published by the authors of this chapter in 2012.<sup>5</sup>

\*

1 Rey, 1871, p. 146.

2 Renan, 1864, p. 759. See also references above, Chapter 5.

3 Pringle, 1986, pp. 68–71.

4 This survey, part of an integrated campaign, was carried out in 2009 by the Department of Architecture of the University of Florence. The scientific coordinator of the mission was Cecilia Luschi and the research group included Prof. Mauro Giannini, Laura Aiello (Architect) and Carmit Horev.

5 See Luschi and Aiello, 2012, notably p. 70–73.



PLATE 10.1 *Mill and hall in Nahal Kziv in 1926.*  
COURTESY OF THE METROPOLITAN MUSEUM OF ART, ARCHIVES OF THE DEPARTMENT OF ARMS AND ARMOR, IMAGE © THE METROPOLITAN MUSEUM OF ART.



PLATE 10.2 *Mill and hall in Nahal Kziv today.*  
PHOTOGRAPH BY ADRIAN BOAS.

The earliest documented survey carried out by Rey in 1865 included a 1:2500 scale plan (Plate 10.4).<sup>6</sup> It shows the mutual relationship between the castle and the building under discussion. A more detailed survey was carried out in September 1982 by Pringle, on behalf of the British School of Archaeology in Jerusalem (BSAJ)

6 Rey, 1871, p. 143. See above, Chapter 5.

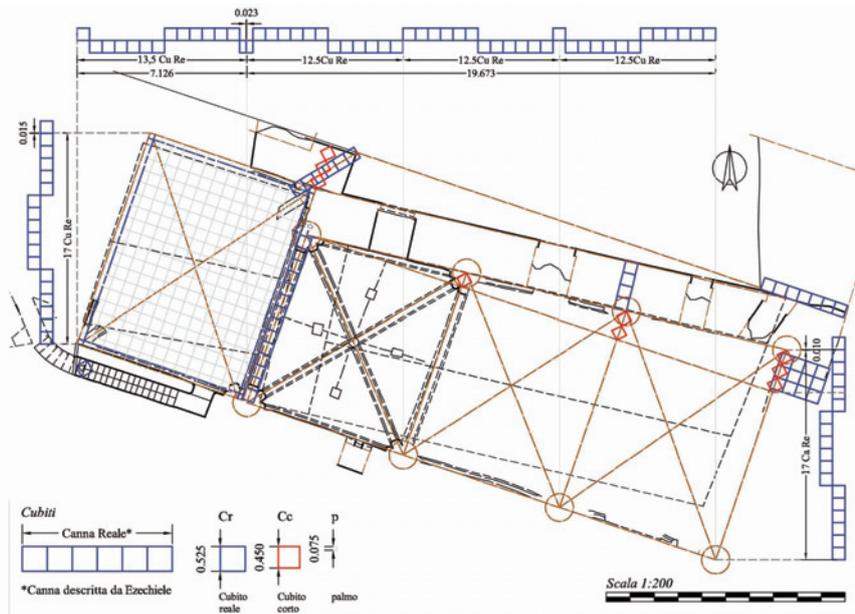


PLATE 10.3  
Plan of the mill.  
DRAWING BY LAURA AIELLO.

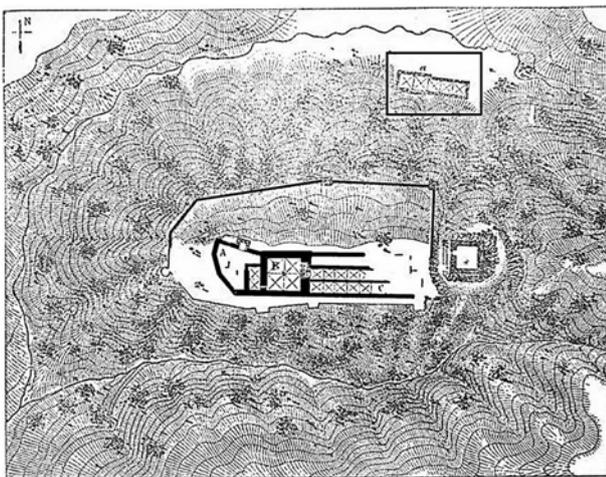


PLATE 10.4 Rey's plan showing the mill building (Rey, 1871).

(Plate 10.5).<sup>7</sup> The publication of this survey included a theoretical reconstruction of the west wing (tower), derived from photos taken before the collapse of the remaining southern side of this tower in 1940–1942 (Plate 10.6). Pringle referred to the building as “a thirteenth century hall” and as a mill, over which was built “a guesthouse, dependent on the castle of the Teutonic knights and intended for the use of important secular or ecclesiastical visitors and their households”.<sup>8</sup> We have chosen to apply here the neutral term—“building”—to describe the structure.

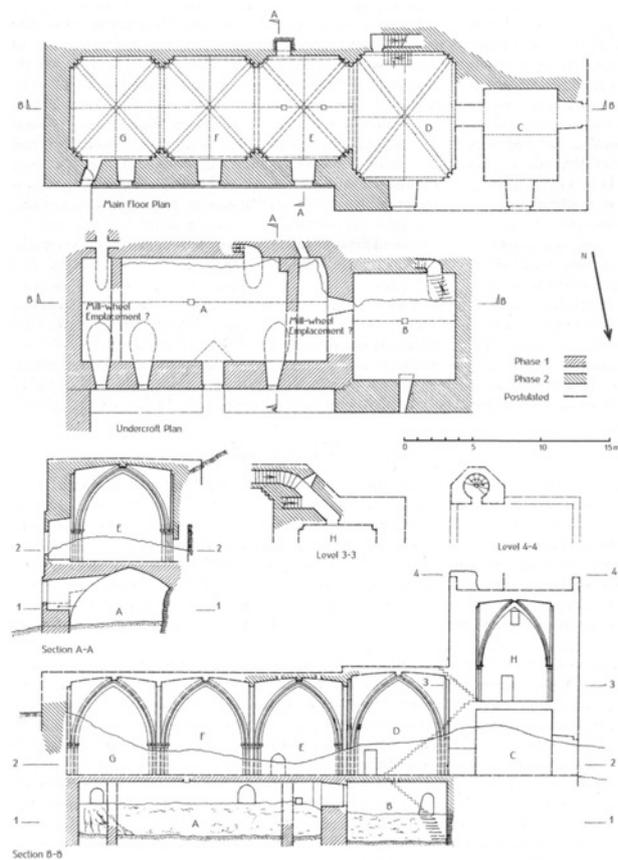


PLATE 10.5 Pringle's plan of the mill building (after Pringle, 1986, pp. 58–59).

7 Pringle, 1986, pp. 52–81.

8 Ibid., p. 76.



PLATE 10.6 *Photograph of remains of the mill tower.*

COURTESY OF IAA ARCHIVES: BRITISH MANDATE RECORD FILES: FILE NO. 50; COURTESY OF THE METROPOLITAN MUSEUM OF ART, ARCHIVES OF THE DEPARTMENT OF ARMS AND ARMOR, IMAGE © THE METROPOLITAN MUSEUM OF ART.



PLATE 10.7 *Barrel-vaulted ground floor level.*

PHOTOGRAPH BY LAURA AIELLO.

Our survey has revealed the high standard and quality of its architectural composition. The surviving remains of the building are of a nearly rectangular structure of two storeys, with an appendage, originally of three storeys, extending west of the main block. The lower level of the structure is a large semi-underground chamber cut into the bedrock on the mountain side and roofed with a pointed barrel vault (Plate 10.7). The vaulting of the upper storey has largely collapsed but, as can be seen in a single standing bay, was of rib-vaulting on square spans (Plate 10.8).



PLATE 10.8 *Standing bay of the upper storey hall.*

PHOTOGRAPH BY RABEI KHAMISY.

### Structural Damage

Beyond the obvious collapse of the vaulting of the first floor, our topographic survey has highlighted at least two critical points that should be monitored and taken into consideration in future conservation and in the event of restoration—deformation of the southern facade, and the structural failure of different parts of the surviving first floor bay. Two main phenomena have led to this deterioration: horizontal pressure caused by debris that has fallen or washed down on the mountain slope against the south wall of the structure, and the failure of the facade's foundations resulting from stream action. Earthquakes, heavy rainfalls and the growth of vegetation within the fabric of the structure have been the cause of the degradation and subsequent collapse. The pressure caused by debris gathering on the mountain slope against the southern wall can be observed in the misalignment of the bays of the first floor. The permanent deformation caused by these forces should be emphasized. Furthermore, although the ground floor is anchored to the rock outcrop, the area where the structure stands has undergone subsidence along the vertical elevation. This can be shown by measuring the altitude of the highest points of vaulted arches in the first floor.

### Building Phases

There are two distinct building phases, very similar to each other as far as techniques and materials are concerned, confirming a close temporal relationship. From a comparison with the castle, it would appear



PLATE 10.9  
*Hearthstones and doorposts in the castle and building in the valley.*  
 PHOTOGRAPHS BY LAURA AIELLO.

that the construction of the building in the valley was contemporary with that of the central wing of the castle with its two aisles and cruciform piers. This is supported by several factors: a comparison of technological details, an analysis of the style and technical details of the structures such as the cutting and processing of the stones, and a proportional study of the two structures. The first point of comparison can be observed in hearthstones and doorposts (Plate 10.9). In both structures we can see a clear resemblance in parts of the doorposts which have incisions for wooden bolts and axels. The examination and measurement of the surviving elements of entrances in the castle has allowed us to make a comparison with the access to our building (Plate 10.10) revealing a precise correspondence between the openings of the two structures.

The ground floor of the building is currently accessible through the original main doorway which was partly altered at a later date. It leads into three barrel vaulted rooms with pointed arches running parallel to the slope of the hill against which it is built (Plate 10.11). The floor is covered by a large amount of debris so that

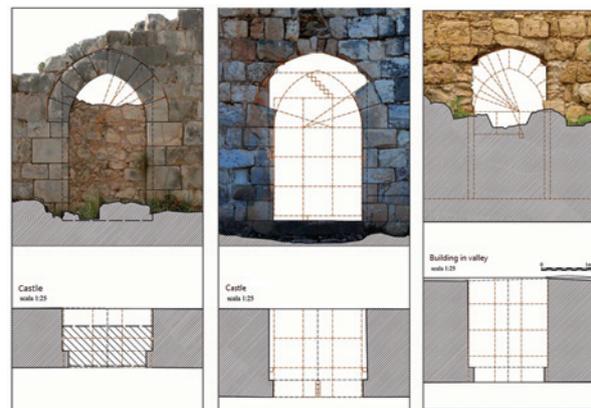


PLATE 10.10 *Doorways in the castle and building in the valley.*  
 DRAWING BY LAURA AIELLO.

it is impossible at present to examine the original floor. Our survey shows that the first two sections of this level are part of a single constructional block, while the third, on a different alignment, appears to have been added at a later stage. The walls are constructed above the rock outcropping and are properly adjusted and shaped to the form of the vaults. We noticed on this wall, in the first course above the rock, openings to a

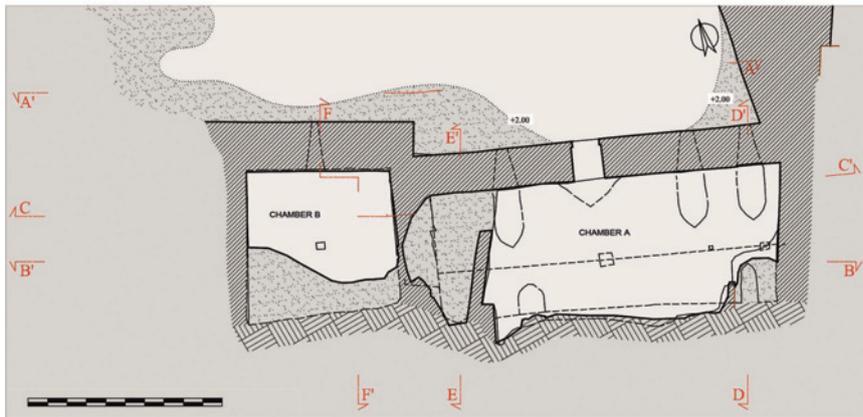


PLATE 10.11  
*Plan of the mill vault.*  
 DRAWING BY LAURA AIELLO.

stairway and two channels. The stairway is positioned opposite the entrance, in a raised position (approximately  $\frac{2}{3}$  of the estimated overall height of the chamber) and is at  $90^\circ$  with the vault (Plate 10.12). In the middle of the debris, an entrance with steps can be observed, in the same direction as the stair opening, leading to the upper floor. The two channels connect horizontally to a duct cut in the rock. The first channel, located to the east, shows traces of a vertical shaft at its top and four branches, one of which could still be inspected today (see the undercroft plan, above, Plate 10.4). From our initial analysis these look like air vents or water pipes. The only channel we were able to examine has an almost square section with a side of about 50–60 cm and we measured it to a depth of about 14 m (Plate 10.13). A careful examination has enabled us to state that this channel extends to just below the gate of the above mentioned staircase, before reaching the second section which is also connected to a vertical shaft. The last chamber has an opening that reveals (among debris) the entrance to a second staircase. Of the same quality of workmanship as the rest of the building, it opens at the base of the vault. Specially carved stone blocks form an entrance at  $45^\circ$ , which curves and then continues parallel to the vault.

The architectural analysis shows the use of construction techniques very similar throughout, even if made in two stages. It is quite probable that the labourers employed in its construction came from the same workshop. As the structure was expanded its construction techniques remain constant, although some technological improvements were introduced after the development of the first stage. In particular, the technique of wall construction with rubble fill, which the extent of collapse has allowed us to study in detail, occurs in all parts of the building.



PLATE 10.12 *Stairway in the ground floor vault.*  
 PHOTOGRAPH BY LAURA AIELLO.

The first important result, derived from our examination of the stratigraphic relationships between parts of the structure, was the identification of the original core—chamber A (Plate 10.14).



PLATE 10.13 *Water mill channel in ground floor vault.*  
PHOTOGRAPH BY LAURA AIELLO.

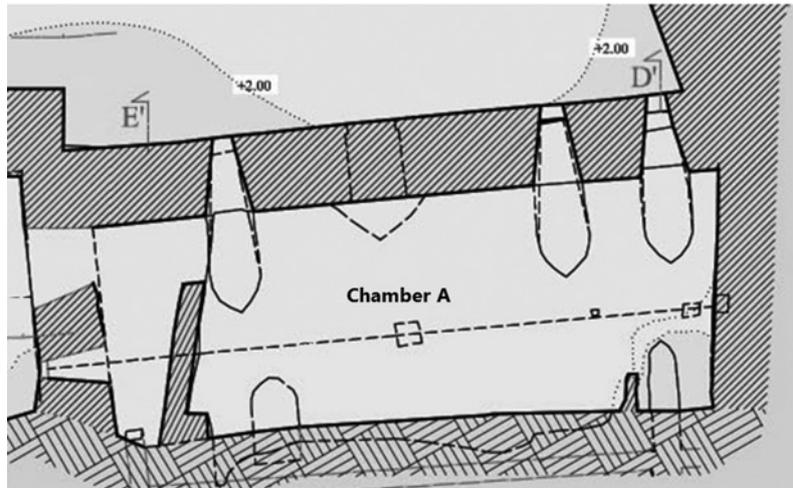


PLATE 10.14 *Plan showing the main vault of ground floor level.*  
DRAWING BY LAURA AIELLO.

The first room (chamber A) is illuminated by three tall windows, one to the left and two to the right of the entrance, all of the same type (Plate 10.15). The second room (chamber B) has a single window of similar form and dimensions.

The mode of construction of the barrel vaults of the two chambers of the ground floor (A and B) are markedly different. The first has a distinctive use of large stones, the second, in its lower surface, has a much smoother finished surface with well-worked blocks. Another point of comparison between the two phases of the ground floor is represented by the two staircases to the upper floor. Again, although the building technology does not appear substantially different, we can perceive a strong stylistic change. The first entrance is set at 90° to the chamber and is surmounted by a round arch and with a barrel vaulted interior. The second has a more complex entrance, set diagonally at 45° to the vault).

The design of these rooms where the waterwheels would have been located is not compatible with the employment of horizontal wheels, as is usually the case in mills in the Latin East, and we need to consider the possibility here of the use of vertical wheels (Plate 10.16) which were more complex and more advanced. The main requirements of vertical mills, which indeed can be observed here, are: a) a high posi-

tion of the outflow points and b) the presence of narrow dividing walls.

The two dividing walls are slightly oblique from the vault walls and are constructed of stones which are smooth on the visible part (Plate 10.17). As they were not constructed at the time of the vault construction, but at a later date, it is unlikely that they were intended to serve also as reinforcements for the first floor. If they had been intended to strengthen the vault they would have been constructed using well-squared blocks, to resist vertical pressure. Rather, it would appear that these walls were built to house the wooden structure of the wheels and to keep them in place. The outflow canal has not yet been found, and is probably buried beneath the massive debris present here.

### The Dam

Careful analysis has been made of what is commonly identified as a dam (Plates 10.18, 10.19).<sup>9</sup> The thick vegetation makes it difficult to examine and the poor state of preservation does not allow us to identify the water input system, hence we cannot at present go beyond a hypothetical model. It functioned as a dam or possibly a bridge with a hydraulic system which is connected to the lower part of the building. If indeed this dam functioned also as a bridge it could probably have been reached by a connecting door from the first floor of the building. The major preserved portion of the dam is on the southern side of the stream. It is

<sup>9</sup> Pringle, 1986: 61.



PLATE 10.15 *Door and windows on ground floor level.*  
PHOTOGRAPH BY LAURA AIELLO.

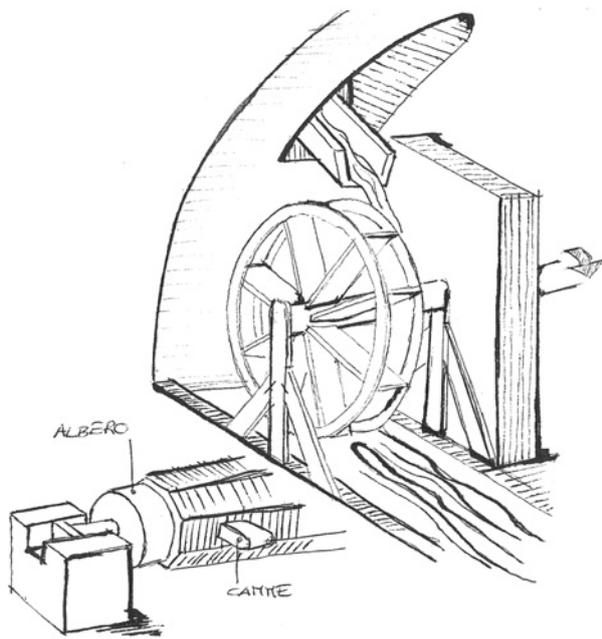


PLATE 10.16 *Reconstruction of a vertical mill wheel.*  
DRAWING BY LAURA AIELLO.

not aligned at  $90^\circ$  to the river but is perfectly aligned north/south. The presence of a finished surface of lime mortar and crushed bricks on the top of the wall would indicate a channel system for a water supply feeding the waterwheels inside the building. This is also confirmed by the presence of a two-outlet, square-section duct found at the ground floor. This channel must have been level with the mill-pool's surface.

The two faces of the dam wall display a large number of masons' marks and crosses, the latter of fine quality, equilateral and with Tau finials. These are found up to one third of the height of the block on which they are incised. Some of these marks are reminiscent of masons' marks found in medieval European sites including Cistercian abbeys and Frederick II's castles.<sup>10</sup> Future excavation will probably lead to a better understanding of this structure and its possible later modifications.

### The First Floor Hall

The first floor has three rib-vaulted bays, only one of them standing, although severely deteriorated. Pilasters sustain arches with ogival ribs (Plate 10.20). The design is a distinct, archaic Gothic style. Decoration is basic and geometrical but well-cut in contrast with the rough, course stonework of the facade, and its remodelled openings.

The present level of debris in the first floor almost reaches the base of the vault, therefore minimizing the vertical impact that the four spans were intended to have. The collapse of the first two bays to the east does not allow a correct appreciation of the perspective of the room, the trapezoidal form of which was noticed



PLATE 10.17 *Dividing wall in ground floor vault.*  
PHOTOGRAPH BY LAURA AIELLO.

<sup>10</sup> Alberti, 1995, pp. 408; Luschi, 2005, pp. 42–8.



PLATE 10.18 *Dam, north bank.*  
PHOTOGRAPH BY LAURA AIELLO.



PLATE 10.19 *Dam, south bank.*  
PHOTOGRAPH BY LAURA AIELLO.

and recorded for the first time by our survey. Several segments of the wall in this room show that the structure extended further to the west.

In the third bay, in the debris against the south wall, the top of a pointed arched opening with a narrow shaft, possibly a fireplace, can be observed. In the fourth bay, at the foot of an area excavated into the debris against the south wall, is a well-formed entrance with threshold, posts and lintels made of blocks with carved decoration. From here a staircase ascends, straight in its first part, then bending to the right in its last part, leading to an upper floor where two corridors depart.<sup>11</sup> The first one gave access to this level, while the second one led to a second staircase, climbing to a final door, as is witnessed by a few surviving fragments, decorated with the same carved decoration seen below.

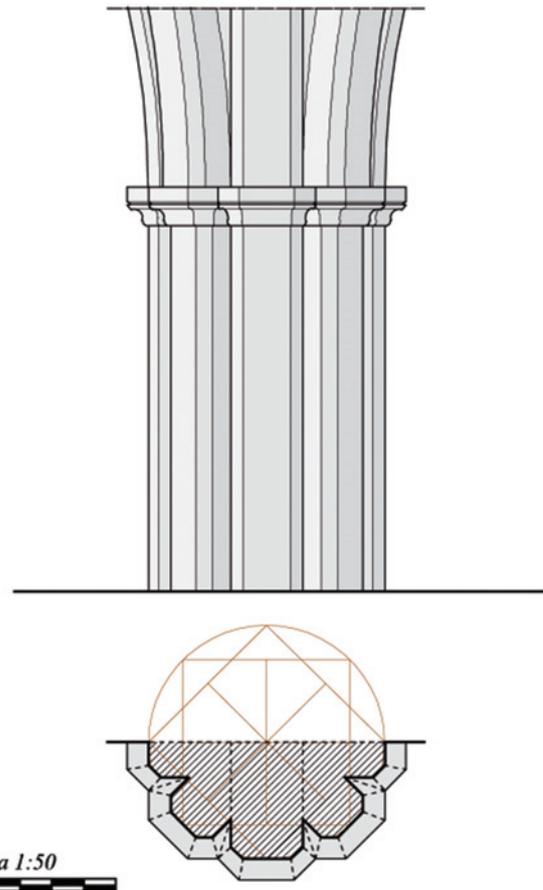


PLATE 10.20 *Pilasters in first floor hall.*  
DRAWING BY LAURA AIELLO.

<sup>11</sup> It was this staircase that led in the past to the belief that there was an underground passageway connecting the castle with this building. See above, Chapter 5, pp. 59, 62, 68.