



# The Sultan's Lost Edifice

A Historical Overview of the Building  
North of the Mosque of Sultan Qaitbey in Cairo

Jarosław Dobrowolski, ARCHiNOS Architecture, 2021

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Project funded by the European Union



The study has been produced as part of the project *Heritage for the Living in the "City of the Dead"* carried out by ARCHiNOS Architecture ([www.archinos.com](http://www.archinos.com)) in the complex of Sultan al-Ashraf Qaitbey in the Eastern Cemetery in Cairo, known as the 'Desert of the Mamluks' (*sahra' al-mamalik*). The project financed primarily by the European Union combines historic preservation, cultural and educational activities, as well as social development work with emphasis on promoting traditional crafts and on women, children, and youth. The latter two components are co-financed by the Drosos Foundation, and numerous other donors have contributed to the enterprise. The work is carried out in cooperation with the Ministry of Antiquities and Tourism and its Historic Cairo Project.



Sultan al-Ashraf Qaitbey (reigned 1468-1496), woodcut by Tobias Stimmer, 1575, possibly based on a portrait from life

Many Mamluk-period monuments in Cairo's vast Muslim cemeteries (often referred to as the 'City of the Dead') are nowadays isolated, free-standing structures, their present appearance belying the fact that they were originally parts of huge multifunctional architectural ensembles. In the complex of Sultan al-Ashraf Qaitbey in the Eastern Cemetery, completed in 1474, many of the structures survive at least partially, and eight are listed as national monuments, while other buildings have disappeared or have been reduced to meagre ruins. One part that is currently missing is the building that used to stand between the Sultan's mosque/madrassa (listed as No 99) and his *hawd*, (a charity for distributing water to animals, No 183).

In Sultan Qaitbey's architectural complex at the Eastern Cemetery, the mature Mamluk architecture reached its apex of glory, marked by refined elegance and perfect craftsmanship. It is uncontestedly one of the most important monuments in Cairo, and the mosque/madrassa and tomb at its centre are familiar to any Egyptian as the iconic image featured on the one-pound bank note.

It is then somewhat surprising that originally, and until relatively recently, the structure appeared in a much different context than it does today. A tall residential and service building originally adjoined the mosque/madrassa next to its minaret and stretched towards the still partially surviving *hawd*.

The building faced a wide section of the main street that leads through the cemetery, and together with similar structures on its other side (apparently including a Sufi convent)<sup>1</sup> gave this space a distinct character of an urban square overlooked by the entrance façade of the mosque/madrassa.

Although the building between the mosque and the *hawd* has disappeared almost entirely, some insight into its original form and function can be gained from examination of archival imagery and of the physical remnants both preserved aboveground and exposed in the recent clearing operations carried out by ARCHiNOS Architecture in 2020.

**The first source of information** about the now-lost building are historical images: either depictions from the pre-photography era or archival photographs. The available images are presented on the following pages. The engraving and the lithograph based on the drawings of Pascal Coste (recorded between 1818 and 1825) and David Roberts (1839) are extremely valuable sources, as they document features that do not exist any longer. However, there are obvious inaccuracies in the representations, either inherent to the authors' drawings, or introduced during the preparation of printing plates (which was done by people who hadn't seen the depicted views themselves). Only one photograph of the building still standing largely intact could be located. Later photographs document the progressing process of destruction that led to the current layout of the site on which the now non-existent building once stood.

<sup>1</sup> Hani Hamza, *The Northern Cemetery of Cairo*, AUC Press, Islamic Art and Architecture Series, 2001, p. 32, 42

1<sup>re</sup> COSTE DEL.

mis à l'estampe par le COURTIN, et imp. à la Lib. L. LÉTRONNE au Quai Voltaire.

F. OLIVIER SC.

VUE EXTÉRIEURE DE LA MOSQUEE KAID-BEY.

1

Lithograph by Pascal Coste, 1818 - 1825.

*Architecture arabe: ou Monuments du Kaire, mesurés et dessinés, de 1818 à 1825.*

Typ. de Firmin Didot frères et compagnie, Paris 1839, plate 32

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2

Lithograph by David Roberts, 16 January 1839.  
*Egypt & Nubia. From drawings made on the spot by David Roberts, R.A.,  
 with historical descriptions by William Brockedon, F.R.S. Lithographed by  
 Louis Haghe. F.G. Moon, London 1842-49, Vol. 3, plate 100*





3

Photograph by Wilhelm Hammerschmidt, ca. 1860. Griffith Institute catalogue number 03432  
Courtesy Griffith Institute, Oxford. For research purposes only, public distribution prohibited

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4

Photograph by Pascal Sébah, ca 1875 (?)

Albumen print, Minneapolis Institute of Art,

Photography and New Media Department, accession number 82.57.52

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5

Photograph by Félix Bonfils, 1870s or 1880s  
(aniline-tinted albumen silver print)

Canadian Centre for Architecture, Montréal, reference number: PH1980:0683.01:01 I

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6

Photograph by Gabriel Lekegian, 1870s or 1880s (albumen print)

The Getty Research Institute,

Pierre de Gigord collection, Series I: Large Format Albums, Lot A 27, Neg. No 80

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8

Photograph by André Salles, 13 April 1893

(glass plate negative)

Bibliothèque nationale de France, département Société de Géographie, SG XXEM-115

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9

Photograph by G. Eric Matson, 1934 - 1939

The Library of Congress: Matson (G. Eric and Edith) Photograph Collection  
catalogue number: 03814

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To this visual material should be added cartographic sources, meagre as they are.

The early representations of Cairo<sup>2</sup> are far too schematic to provide any detailed information on particular buildings within Sultan Qaitbey's complex. It may be noted, however, that even there, the complex is usually noted. On Richard Pococke's map of 1743 (the first actual map of Cairo as opposed to the earlier "bird eye's views"), the Eastern Cemetery is described as *Sepulchra Mahometana vulgo Keid Bey*; Carsten Niebuhur's map of 1774 also marks the area as *Kaid bey* and shows the complex clearly as a built-up area with the main street crossing it and side streets branching off.

The detailed map of Cairo in the *Description de l'Égypte*<sup>3</sup> stops just short of including the Eastern Cemetery (it marks the road leading to it as *Sikkat Qayt Bey Chemin qui Conduit aux Tombeaux*.) The map of environs of Cairo<sup>4</sup> in the *Description* identifies the area of the Eastern Cemetery as *Mosquées et Tombeaux de Qayt Bey*, but does not show individual buildings.

The map of Cairo in Pascal Coste's *Monuments du Kaire*<sup>5</sup>, surveyed at some time between 1818 and 1825, provides some detail.

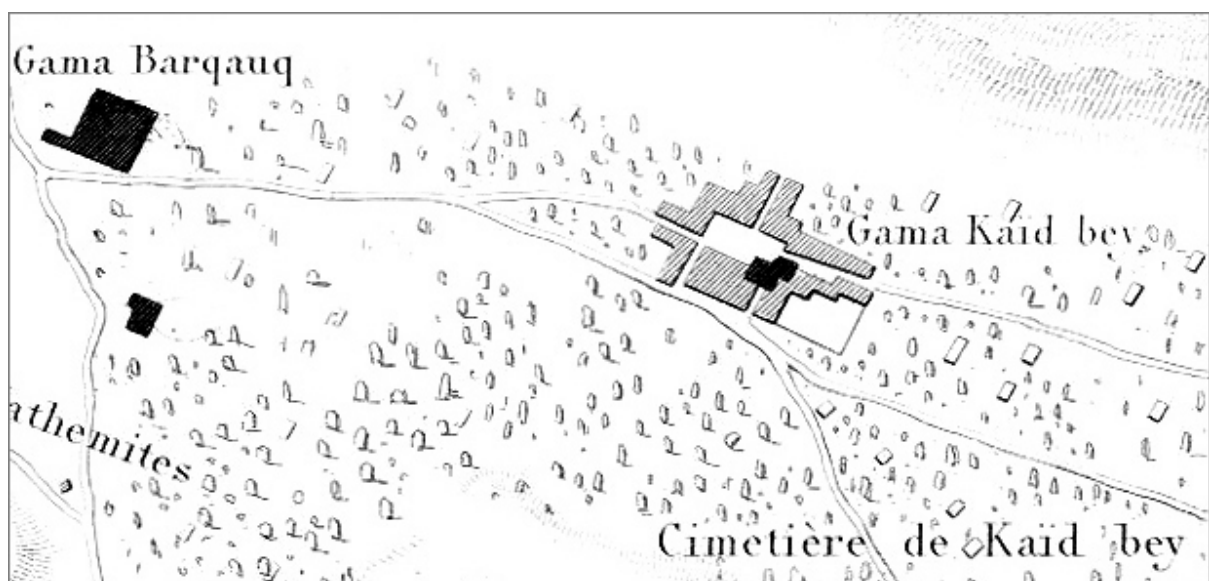


Fig. 10: Complex of Qaitbey on Pascal Coste's map

The complex of Qaitbey is shown as a built-up urban area, with a clearly defined square in front of the mosque/madrassa. Only the immediate surroundings of the mosque and the square are shown in that level of detail, although more Mamluk-period buildings existed at the time and are still extant, including such parts of Qaitbey's complex as the maq'ad (No 101) and the tomb of al-Gulshani (No 100). The whole neighbourhood is described as *Cimetière de Kaïd bey*. Within the area shown in detail, it is clear that a building abutted on the entrance façade of the mosque/madrassa.

The same publication includes a detailed plan of the building and its immediate surroundings<sup>6</sup>.

The focus is obviously on the structure itself, and the urban context is shown in a simplified, schematic way, but the plan still contains important information. It may be noted that the square is described as *Grande Place*, clearly indicating that Pascal Coste perceived it as an urban space, not a desert location.

The plan clearly shows a lane at the back side of the building that adjoined the mosque/madrassa to the north (right on the picture).

<sup>2</sup> Summarised in Warner, Nicholas, *The Historic Monuments of Cairo: A Map and Descriptive Catalogue*, American Research Center in Egypt Conservation Series I, AUC Press, p. 4-11

<sup>3</sup> *État moderne I*, pl. 26, 1809

<sup>4</sup> *Ibid.*, pl.15

<sup>5</sup> Coste, Pascal, *Architecture Arabe, ou Monuments du Kaire, Mesurés et Dessinés, de 1818 à 1825*, Typographie de Firmin Didot freres et. Comp, 1839, Pl 66

<sup>6</sup> *Ibid.* pl. 33



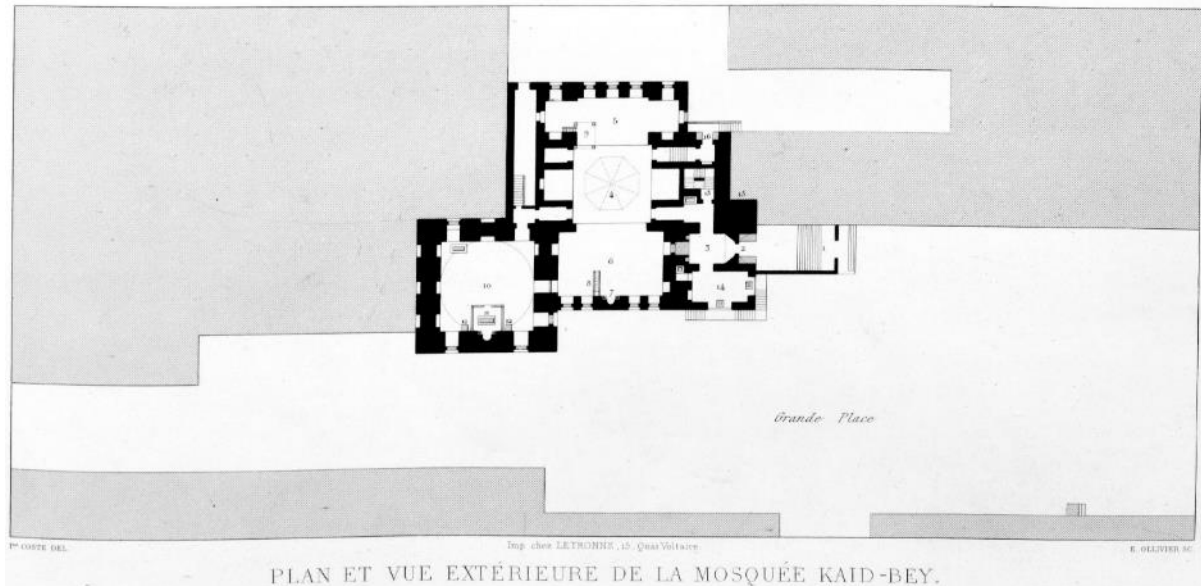


Fig. 11: Plan of the mosque/tomb of Qaitbey and its surroundings by Pascal Coste

It also indicates that the building formed a separation between the “Grande Place”, from which the main entrance led to the mosque (as it does today), and another space to the west, from which a secondary entrance was accessed, which is now not in use.

Another cartographic source is a rather schematic plan published in 1897 in the *Bulletin* of the *Comité de conservation des monuments de l'art Arabe* at the time when the Comité was about to embark on large-scale restoration work<sup>7</sup>.

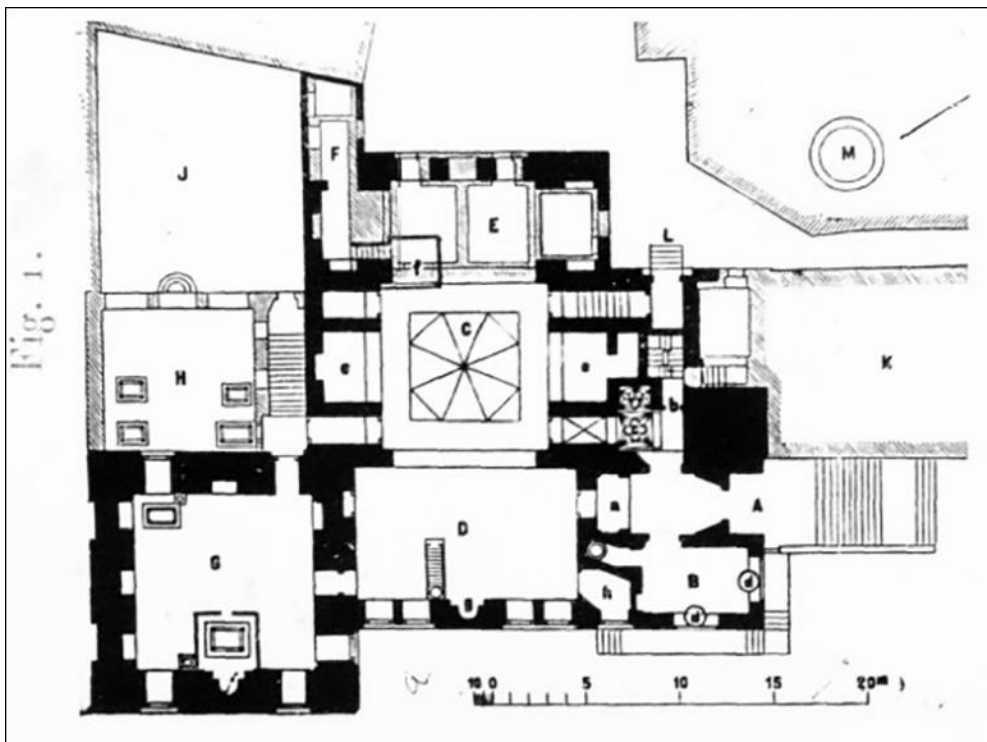


Fig. 12: Plan of Qaitbey's mosque/tomb in the 1897 *Comité Bulletin*

The plan shows in more detail the same features as Pascal Coste's: the same location and width of the building adjoining the mosque/madrasa, the alley at its back, and the open space unconnected to the public square in front of the mosque from which a secondary entrance (marked “L” on the plan) leads to the covered *sahn* of the mosque/madrasa (“c”). The round structure marked “M” is a huge well, which is built of bricks, and over which remnants of a waterwheel (*saqia*) are still preserved.

<sup>7</sup> *Comité de conservation des monuments de l'art Arabe, Exercice 1897*, Imprimerie Centrale J. Barbier, Cairo 1898, Pl. I



**Another source of information** about the building are the scarce remnants preserved aboveground. One such part is the stretch of the front wall 7.5 metres long that survives next to the main entrance of the mosque/madrasa. The stone wall, of rubble core construction, is one metre thick. On its interior face are clearly visible remnants of two perpendicular walls, also of rubble core construction and 70 cm thick, that formed side walls of rooms 2.65 m wide. The ends of stone barrel vaults covering these rooms and built of well-dressed regular blocks protrude from the inner face of the front wall. The vault next to the mosque's minaret rests directly on the massive block of the minaret masonry with the face of the minaret wall slightly recessed above the vault. In other words, the vault was built together with the minaret and not added to it. The facing blocks of the minaret and the wall abutting on it are bonded.

Each of the two units has a narrow slit-window in the front wall. These windows are clearly visible on archival photographs.

The remnants are important clues to the original layout of the structure, but it needs to be kept in mind that when the *Comité* removed other parts of the building and preserved the remaining part of the wall as a permanent ruin, much of it was re-faced with new stone blocks. Most or all of the remnants of the vaults are apparently also reconstructed. This explains why there are no traces whatsoever of any floor above the vaults, and why a plain wall face continues where the springing of the barrel vault covering the third unit should be expected.



Fig. 13: Remnants of the demolished building next to the mosque of Qaitbey, 2018

Photo: iFly Egypt

Springings of stone vaults and marks on walls' facing corresponding to ends of semi-circular vaults are also found on the walls in the northern part of the lot where the now-demolished building once stood (farther from the mosque and next to the *hawd*.)



Fig. 14: Remnants of the demolished building next to the *hawd* of Qaitbey, 2018

Photo: George Fakhry



However, these walls have been completely re-faced. The photograph by G.E. Matson taken between 1934 and 1939 (Fig 9) shows that the vaults and upper parts of the walls close to the *hawd* of Qaitbey were built of bricks. The wall visible on Matson's photograph is the outer face of a huge brick-built water tank. The only part of the original brick vault now preserved is located in the corner next to the back wall of the *hawd* (shown on the photograph below, left.) It is also clear from Matson's photograph that there was a door into the vaulted room adjacent to the water tank and that the doorjamb of this entrance was still preserved in the 1930s. It was not retained when the wall was re-faced. The outer facing of the wall of the *saqia* (marked with an arrow on the photograph below, right) did not in the 1930s have a dressed stone facing as it has now. It is not known what the restoration (probably in the 1980s) was based on.



Fig.15: Remnants of a brick-built vault next to the *hawd* of Qaitbey, 2018

Photo: George Fakhry

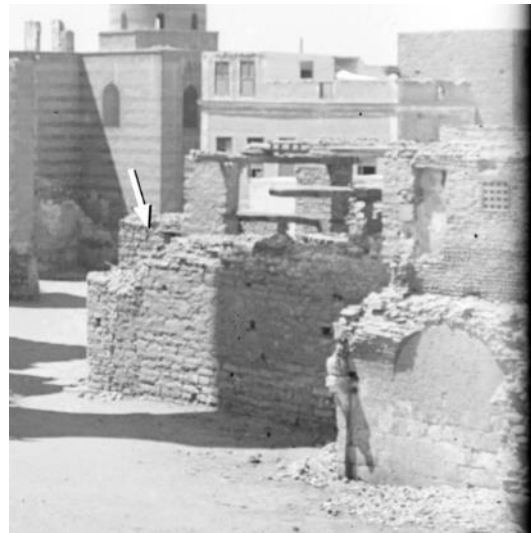


Fig.16: Remnants of a vault next to the *hawd* of Qaitbey, and wall of the *saqia* before re-facing

Photo: G. Eric Matson, 1930s

**Finally, the third source of information** about the lost building are its parts exposed in the recent excavation.

When ARCHiNOS began its work here, the site was covered by a thick layer of refuse. In 2018, the garbage and the underlying layers of asphalt paving, sand and rubble were cleared down to the level corresponding roughly to this at the time after the demolition of the building. Subsequently, in July – August 2020, the area north of the street that now bisects the site was cleared to expose the surviving architectural remnants. In October 2020, the small triangular lot south of the street, i.e. next to the mosque and the preserved section of the front wall was also excavated.

The work resulted in significant information about Sultan Qaitbey's building, clarifying many (albeit by far not all) uncertainties about its original layout. Surprisingly, remnants of structures predating Qaitbey's complex have also been unearthed.

The plan summarising the results of the excavations is included on page 15 as Fig.17.



Fig. 17 - SCALE 1:100

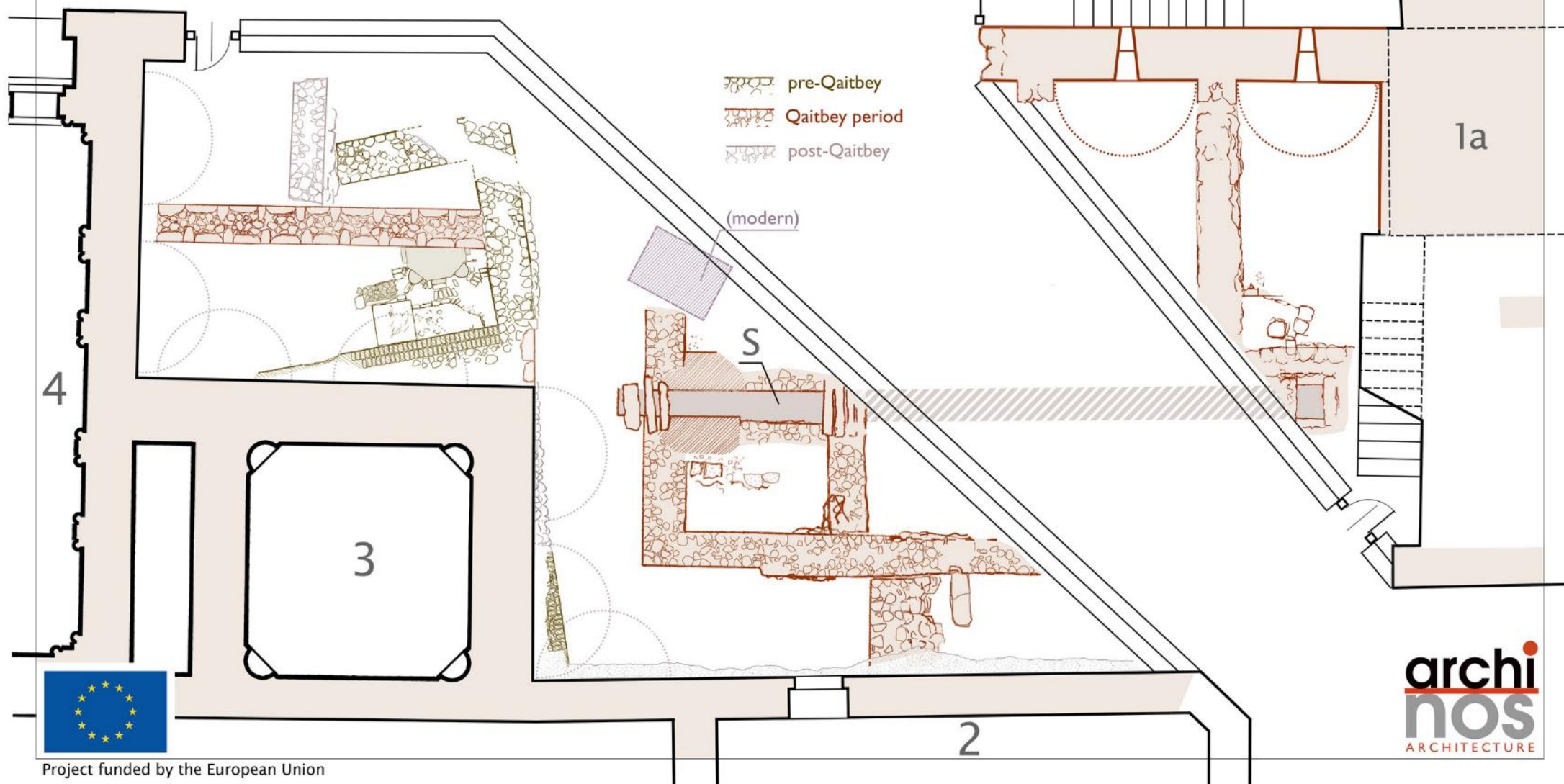
## EXCAVATED REMNANTS OF STRUCTURES

BETWEEN THE MOSQUE/MADRASA (No 99) AND THE *HAWD* (No 183),  
OF SULTAN QAITBEY, EASTERN CEMETERY, CAIRO



1-mosque/madrasa 1a-minaret; 1b-sabil  
2-saia 3-water tank 4-hawd S-sewer

ARCHINOS Architecture, Jun-Dec. 2020



Project funded by the European Union

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## THE ORIGINAL FORM AND FUNCTION

Some questions remain unresolved, but a fair amount of information about the original building and its later fates can be drawn from these sources. It is obvious from David Roberts' lithograph (Fig. 2 above) and from the earliest photographs (No 3 and 4) that in the 19th century the building comprised two distinct sections. The southern one, this adjacent to the mosque/madrassa, had its front façade built of ashlar stonemasonry with courses of the same height as those in the mosque. The still-preserved section of the front wall and the remnants of the vault behind it are bonded with the masonry of the mosque and were evidently built together with it. The façade had a distinctive fenestration pattern of the upper floors, which was still clearly discernible by the early 19th century in spite of some evident alterations to the original appearance. The rectangular windows were arranged in multiple tiers in groups of three. While it is clear that this section of the building was part of the Qaitbey's complex of the 1470s, it is also clear from both Robert's lithograph and early photographs that the façade of the northern part, adjacent to the *hawd* of Qaitbey, was different and apparently later.

### 1. The Southern Section

It is obvious that the southern section of the structure, which immediately adjoined the mosque / madrasa, was a communal residential building of a type popular in Mamluk-period Cairo. Such structures were called by different names depending on how they were used, but all displayed the same overall concept, basic layout and functional arrangement as the *raba'*, a residential apartment block, often with shops or storerooms on the ground floor, founded as an investment for a *waqf* (a religious endowment)<sup>8</sup>.

The *raba'* is a building type unique to Cairo. It is a structure combining a number of apartments, usually duplex and sometimes triplex ones, and often stacked on more than one level, that were accessible through independent entrances. Typically, each unit had its own staircase. The apartments were provided with toilets, and for economy, latrines in two neighbouring units shared a common sanitary shaft. The units were therefore grouped in pairs in which their plans were mirror images of each other. The independent apartments were rented out to unrelated tenants, so the *raba'* functioned much like a modern apartment building or tenement house.

The emergence, and then continued construction of such buildings indicates that the city included a sizeable population of people who were independent of any large household or the military and who were not wealthy enough to buy or build their own house, yet were able to pay money for their rents – people who would nowadays be classified as lower-middle class professionals<sup>9</sup>.

It is estimated that by the end of the Ottoman period in the late 18th century, no less than 10% of Cairo's population of 250,000 lived in *raba's*<sup>10</sup>, and judging from the number of buildings preserved, the proportion was probably similar in the late Mamluk times. Essentially identical buildings were also erected as parts of funerary complexes in the cemeteries to house Sufi communities or personnel of religious institutions.

By the end of the Mamluk period, within 1000 metres from Sultan Qaitbey's mosque/madrassa there were no less than ten such buildings in the Eastern Cemetery<sup>11</sup>. Some were apparently intended to support the *waqf* foundation with the revenue they earned, and others –virtually identical architecturally—were built as residences for the Sufis associated with funerary complexes or possibly for service personnel.

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<sup>8</sup> Williams, Caroline, *Islamic Monuments in Cairo: The Practical Guide*, 7th edition, AUC Press 2018, p. 310

<sup>9</sup> Hazem I. Sayed, *The Rab', in Cairo: A Window on Mamluk Architecture and Urbanism*, unpublished PhD thesis at the Massachusetts Institute of Technology, 1987, 7-8, 59, 60, 96

<sup>10</sup> Raymond, André, "The Rab': A Type of Collective Housing in Cairo During the Ottoman Period", *Architecture as Symbol and Self-Identity*, Proceeding of Seminar Four in the series: Architectural Transformations in the Islamic World, held in Fez, Morocco, October 9-12, 1979, J. G. Katz, ed. Philadelphia: Aga Khan Award for Architecture, 1980, 57. There is some confusion about the numbers in the text, but the 10% as the lowest limit is clearly implied.

<sup>11</sup> The count does not include the accommodations for Sufis in the complex of Sultan Farag ibn Barquq, which are of a different architectural type.



Typically for such structures, the building north of Qaitbey's mosque/madrassa comprised units of a standard width, which contained on the ground floor stone-vaulted chambers (apparently, storerooms) with narrow slit windows in the front façade. Above them were two levels of rooms with triple windows arranged in three tiers (possibly originally two) in each of the tall rooms, as is clear from historical imagery. Such arrangement of the fenestration in the front façades was almost universal in this type of buildings. Typically, the back section of the structure would be divided into small rooms half the height of the double-height front room. Often, as apparently was also the case here, such duplex units with double-height front rooms were stacked vertically one above another.

The building is divided by transverse walls into four sections about 2.6 metres wide. It is utterly impossible to fit within this space two staircases (also allowing passage to the front rooms), so it is clear that the building contained four, and not eight residential units. They could be tall triplex units, each comprising two front-facing halls featuring double- and-triple tiered windows and placed atop one another. This would be a very unusual arrangement, unlike in any other preserved building of this type. It seems much more plausible that there were two lower-level units and two upper-level units, each occupying two modules. While also unusual, an arrangement like this can be seen in the huge 17th-century complex of the Qasaba Radwan Bey (the "tentmakers' bazaar") outside the Bab Zuwayla.<sup>12</sup> Although archaeological evidence is very fragmentary, with most of the structure lying under a modern street, it also points to such layout. Typically for this type of buildings, there was a sewer channel running lengthwise under the back part of the building. Four residential units each occupying a single module would require two sanitary shafts, each serving two units (as in examples "a" to "f" on Fig. 19.) It is clear that where one of them would have to be located, the sewer was solidly covered with hewn stones bearing the weight of the wall above, with no room for the shaft. This seems to prove that there was only one sanitary shaft serving a pair of apartments on each level. It is a more economical solution, in line with the general character of Mamluk architecture, which could be extremely lavish, but was always ingeniously designed, and never wasteful.

Archival images (Coste, Roberts and Hammerschmidt, Fig 1, 2, and 3 above) show that at a certain time, two windows on the upper floor in two different bays of the building were enlarged in an identical way, which also clearly indicates that they belonged to a single residential unit.

Over the ground and first floors constructed of ashlar stonemasonry, the upper storey was built of bricks and plastered. This was not unusual in the front façades if similar buildings in both Mamluk and Ottoman times, and the upper parts of back (or courtyard) walls were typically built of either brick or rough stone<sup>13</sup>.

Another feature typical of residential buildings of the type was a massive horizontal wooden beam visible in the early images between the upper floors of the façade. In the *wikala* of Qaitbey next to Bab al-Nasr, a similar beam carried a decorative inscription band<sup>14</sup>. In his *raba'* at the cemetery, it was apparently plain (much of the beam is a modern replacement). Such emphasis on horizontal divisions of the elevation was typical of communal residential buildings<sup>15</sup>, in contrast with the façades of Mamluk religious edifices that typically were strongly articulated vertically. This was achieved by composing larger complexes from distinct multi-storey parts set back or protruding in plan, and by grouping windows one above another in tall vertical recesses.<sup>16</sup> The difference is very clear in the images showing Qaitbey's complex when it was still largely in its original form. The richly articulated religious edifice at the core of the complex (with clearly distinguished units of the mosque/madrassa and its recessed portal, the *sabil-kuttab*, the minaret and the domed mausoleum) stood in stark contrast with the plain straight fronts of the residential buildings that flanked the square which the mosque faced. There, the rhythm of horizontal rows of windows and horizontal beams articulated the façades.

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<sup>12</sup> Hazem I. Sayed, *The Rab'*, p. 191-2, 226-234

<sup>13</sup> *id.*, p. 225-288

<sup>14</sup> Warner, *The Monuments*, p. 88

<sup>15</sup> Hazem I. Sayed, *The Rab'*, p. 172, 180

<sup>16</sup> This is carried out to the extreme in the side façades of the mosque of Sultan Hasan (A.D. 1356-62), where eight tiers of windows are placed in narrow recesses some 22 metres tall. (See Behrens-Abouseif, Doris, *Cairo of the Mamluks, A History of the Architecture and Its Culture*, AUC Press 2007, p. 203, 207)

As Hazem Ibrahim Sayed put it,

The residential components in a sense create a fabric or a context for the more monumental components of the complex. ...The religious complexes in the desert embody/exemplify the whole Mamluk urbanistic view: a horizontal context serving as a backdrop for a forward thrusting and upward reaching monumentalism.<sup>17</sup>

The span of 2.65m is surprisingly narrow for a residential unit. It is very probable, however, that each apartment comprised two bays within the structure. In the front section of the building (that contained the main full-height halls) the structural system universally used in this type of buildings was effectively a post-and-beam construction relying on massive pillars with thin dividing walls (see Fig. 18) This would make it easy to join the upper floor bays into comfortably wide residential units. It may be noted that such narrow modules were not exceptional in the Mamluk-period buildings of the type.

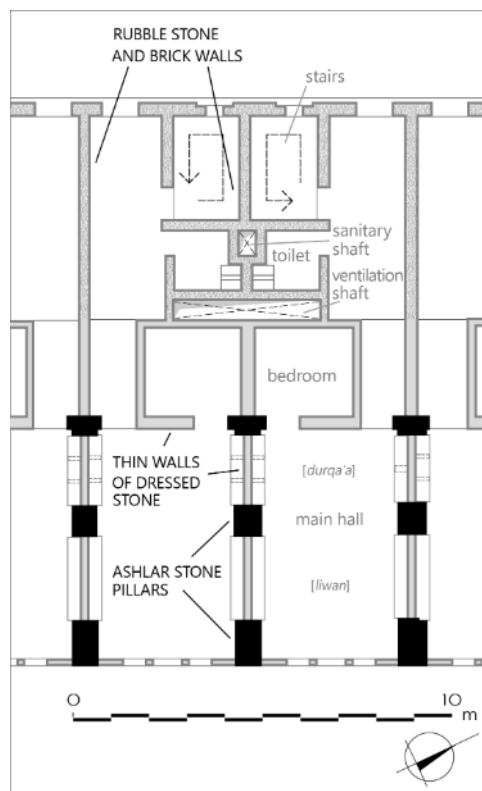


Fig.18: Structural system of a *raba'*:  
the *raba'* of Sultan Qaitbey in the Eastern Cemetery (No 104)  
After 2018 survey by ARCHINOS Architecture, scale 1:200

<sup>17</sup> Hazem I. Sayed, *The Rab'*, p. 180



Fig. 19 on page 20 shows the outline of the now destroyed building in the Qaitbey's complex compared with various other examples of the type in Cairo drawn to the same scale. Some are drawn after published sources and not original survey drawings, so the dimensions are approximate. The examples are:

- a – *raba'* of Sultan Qaitbey in the Eastern Cemetery (A.D. 1474, No 104)<sup>18</sup>
- b – *raba'-wakala* of Sultan Qansuh al Ghuri (al-Nakhla) in al-Ghuriya (A.D. 1504-5, No 64)<sup>19</sup>
- c – *raba'* al-Tabbana (*raba'* of Khairbak) in al-Dardal-Ahmar (A.D. early 16th century<sup>20</sup>, unlisted)<sup>21</sup>
- d – Sufi apartments (*khanqa*, *arwiqa*) in the complex of Amir Kebir Qurqumas in the Eastern Cemetery (A.D. 1506-10, No 162)<sup>22</sup>
- e – *raba'-wakala* of Sultan Qaitbey at Bab al-Nasr (A.D. 1480-81, No 9)<sup>23</sup>
- f – *raba'* at the *qasaba* of Radwan Bey in al-Khiyyamiya (17th century – ca A.D. 1631?, No 406)<sup>24</sup>
- g - Sufi apartments (*khanqa*, *arwiqa*) in the complex of Sultan Inal in the Eastern Cemetery (A.D. 1451-6, No 158)<sup>25</sup> Ground floor plan (plans of upper level not available)
- h – The destroyed *raba'* of Sultan Qaitbey next to his mosque/madrassa in the Eastern Cemetery – foundation level and partially ground floor level, after a 2020 survey by ARCHiNOS Architecture.

It is immediately visible that the structural system and the general functional disposition of space are the same in spite of individual differences. In some of the buildings, the residential units were put atop a ground floor containing shops. In this case, the entrances to the residential units led from a gallery and not from a passageway on the ground level along the back facade. When residential units were stacked in two tiers over shops placed on the ground floor, the gallery would act exactly like the back passage when there were no shops on the ground floor, with entrances leading alternately to lower-level apartments and to staircases giving independent access to the upper-level apartments. It is also immediately noticeable that within the uniform overall layout, there are marked differences, and no two buildings are identical. Some have elaborate ventilation shafts and/or sanitary shafts ventilated over the roof ("a", "c"), some don't; a single staircase may serve two twin apartments ("c"), and apartments can occupy two structural units, not one ("f", which was apparently also the case with the building in question in the Qaitbey's complex.)

<sup>18</sup> Plan after: *Raba' of Sultan Qaitbey (monument # 104), Eastern Cemetery, Cairo: Documentation Project Funded by the Barakat Trust*, unpublished report by ARCHiNOS Architecture to the Barakat Trust, 2018, p. 12

<sup>19</sup> Plan after: Hazem I. Sayed, *The Rab'*, p. 268 (reproduced from survey drawings of the "Antiquities")

<sup>20</sup> Mona Zakariya in "Le Rab' de Tabbana", *Annales Islamologiques*, XVI, 1980, p. 275 gives the date 1522. Nicholas Warner in *The Monuments*, p.181 gives the date 1516.

<sup>21</sup> Plan after: Zakariya, p. 95-6

<sup>22</sup> Plan after: Dobrowolski, Jaroslaw and Dobrowolska, Agnieszka, *Polish-Egyptian Mission for Islamic Architecture, Amir Kebir Qurqumas, 1994/1995: A Report*, unpublished report to the Polish Centre of Mediterranean Archaeology, Appendix I, p. 2

<sup>23</sup> Plan after: Hazem I. Sayed, *The Rab'*, p. 274

<sup>24</sup> Plan after: id., p. 233 (reproduced from survey drawings of the "Antiquities")

<sup>25</sup> Plan after Patricolo, Achille in the Bulletin of the Comité de Conservation des Monuments de l'Art Arabe (1922). Fascicule 32, exercice 1915-1919, pp. 146

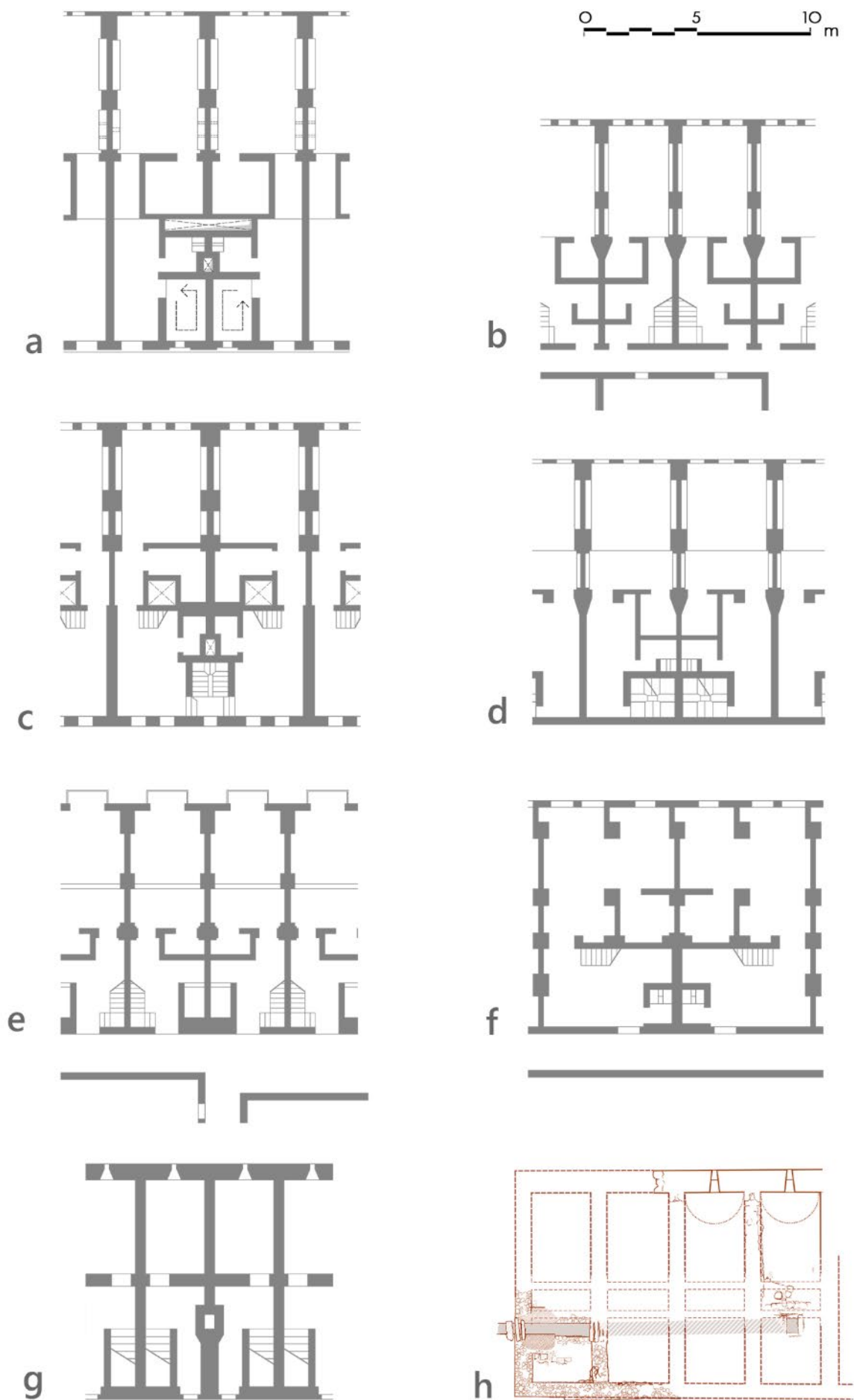


Fig.19: Comparison of different communal residential buildings in Cairo from the Mamluk and Ottoman periods, 1:250



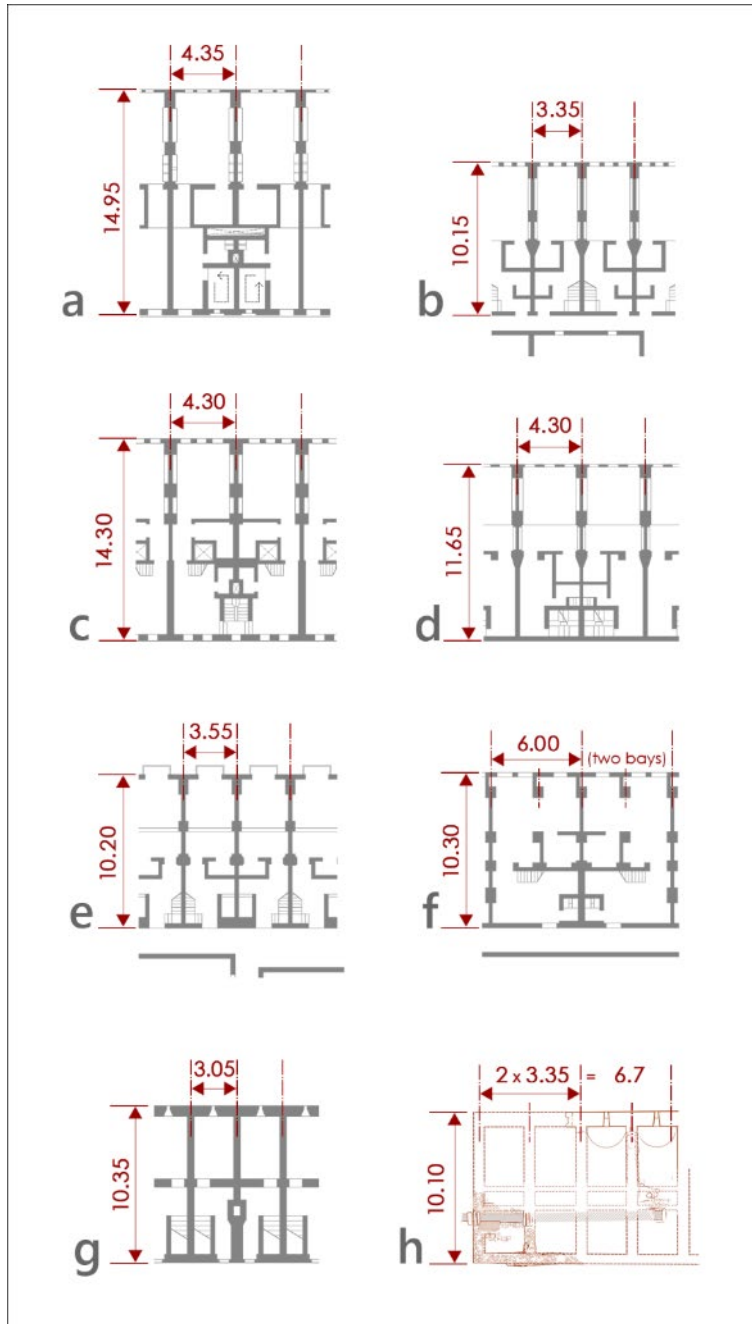


Fig. 20: Dimensions of different communal residential buildings in Cairo from the Mamluk and Ottoman periods, 1:500

As is clear from Fig. 20, both the width of the units and the depth of the building block differed considerably, with variations up to 43% and 48%. Noticeably, the dimensions of the raba' of Sultan Qaitbey in his complex in the Eastern Cemetery (No 104) are by far the largest. The 2019 survey of the buildings within the same complex on the eastern side of the "Qaitbey Square" by ARCHiNOS Architecture found that the width of the units was 3.90 – 4.00 (these buildings are shown on Coste's and Robert's depictions, but only scant remnants survive). The lost raba' next to the Sultan's mosque is decidedly on the smaller side, but is not exceptional. What makes it stand out is its small overall size, with just four residential units. The large raba' of Qaitbey at the cemetery comprises 33 units, the buildings on the eastern side of the "Qaitbey Square" probably had eight units each judging from Coste's representation, the *raba'-wakala* of Sultan Qansuh al-Ghuri in al-Ghuriya was described in its foundation deed as having thirty residences, and a historical source describes a *raba'* of no less than 78 apartments.<sup>26</sup>

<sup>26</sup> Hazem I. Sayed, *The Rab'*, p. 208, 97

There were also much smaller buildings of the type, e.g. the Ottoman-period *raba'* of Kizlar on al-Hilmiya Stret (A.D. 1617, No 265) which had six apartments in addition to a *sabil-kuttab*.<sup>27</sup> However, the very compact size of the Qaitbey's small *raba'* and its location directly adjacent to the mosque/madrassa suggest that it was constructed to house people holding specific positions prescribed in the *waqf* and related to the mosque/madrassa.

The doors to the four residential units in the building were accessed from a narrow lane running along its back façade, which is clear from the excavated remnants and was typical for the overall disposition of buildings of this type. The gate visible on Robert's lithograph and on early photographs was a passageway leading to this lane that ran along the northern wall of the small *raba'*, rather than the entrance to the building itself.<sup>28</sup>

It may be noted that on the photograph by Pascal Sebah from around 1875 (Fig. 4), a panel with moulded frame is clearly visible above the gate. Such panels were used in historic Cairo to inform of street names, a practice initiated by the Napoleonic expedition. This is another proof that the gate was an entrance to a passageway leading to a lane, and not just an entrance to a building.

## 2. The Northern Section

The original form and function of the southern section of the building that immediately adjoined the mosque/madrassa of Sultan Qaitbey are quite clear. The northern part of the structure is more difficult to understand and some questions about its original layout may never be fully answered.

It is evident from the 19th-century images that before the whole structure was demolished about 1900, its northern section was not contiguous with the southern one that was quite clearly a part of the original Qaitbey's complex of the 1470s.<sup>29</sup> At the time when it was depicted, this northern section was obviously a residential building with a blank stone façade of the ground floor pierced with very small windows, which indicates storerooms behind it, and above, two tall storeys with large windows. The semi-circular arch of the gate to the passageway and the huge *mashrabiya* window bays indicate an Ottoman-period date. It may appear from the Robert's lithograph and Hammerschmidt's photograph that this part of the building was a direct continuation of its southern counterpart next to the mosque, or a very similar structure. However, it is clear beyond any doubt from the preserved remnants, both aboveground and exposed in the recent excavations, that this was not the case. The layout was different from the beginning. The northern section was definitely not divided into residential units by transverse walls. It was also significantly narrower, about 7.60 metres deep compared to 10.10 m in the southern section, its back abutting on a huge water-tank. This part of the building lacks a sewage channel underneath, which indicates that it was probably not originally intended for residential use.

This portion of the building was part of a set of structures belonging to the funerary complex of Sultan Qaitbey and related to the water supply and distribution system. They included the following (see Fig. 21 on page 24):

- A huge well 3.35 m in diameter, built of burnt bricks;
- A water-wheel feeding water conduits. The machinery is now gone save the massive wooden beam (7.10 m long) that once held the axle of the animal-driven horizontal cogwheel. However, the placement of the vertical wheel that moved the chain with water-fetching vessels is still clearly visible<sup>30</sup>.

<sup>27</sup> Depaule, Jean-Christophe et al., *Actualité de l'habitat ancien au Caire: le Rab' Kizlar*, Cairo, CEDEJ Dossier 4, p. 46

<sup>28</sup> Robert's lithograph suggests that there was another gate further north. However, early photographs leave no doubt that there was only one. There are more liberties in the lithograph despite the generally high level of detail.

<sup>29</sup> The distinct difference in the stone masonry on the ground floor level, with unmatching courses, is clearly visible on the photograph by Pascal Sebah (Fig. 4). This was later obscured when the façade was re-faced at the time when the upper floors were demolished, as seen on the photograph by Bonfils (Fig. 5). When the upper stories still existed, the difference in construction in the upper levels was obvious (Fig. 2, 3.)

<sup>30</sup> A good detailed depiction of a similar *saqia* is included in the *Description de l'Égypte, État Moderne*, Vol. 2, *Arts et Métiers*, Pl. V. The difference is that in the case of Qaitbey's *saqia* at the cemetery, the animal(s) turning the cogwheel probably walked below the rotating wheel, not outside its perimeter.



- a huge aboveground water tank of 45,000 – 50,000 litres capacity situated behind the *hawd* and about 7 meters from the front of the now-demolished building.
- A *hawd* or a drinking trough for animals, of which only the back part remains, including a richly decorated internal façade with Sultan Qaitbey's blazons and elaborate architectural decoration. The tank of the *hawd* is also preserved and measures 1.8 x 9.7 metres.
- A room (or rooms) of unknown use next to the *hawd* and behind the façade which is continuous with this of the small *raba'* adjacent to the mosque. This is the section commented upon here.

All these structures formed an "L"-shaped block that wrapped around the small *raba'* and was separated from it by a narrow lane.

The lane was accessible through a gate from the square in front of the mosque/madrassa, which was a public space, as is vividly illustrated on Fig. 1 and Fig. 2. The passageway connected this public square to the area that was apparently designed as the Sultan's private-use section of the complex. That area included a lavish *maq'ad* (reception hall), which is an architectural feature always associated with a residence, as well as a sumptuously decorated open-fronted hall and other residential and service facilities. From this side, a separate, small but exquisitely decorated gate led into the mosque – clearly intended as a private entrance for the Sultan and his retinue<sup>31</sup>.

Therefore, the gate in the façade of the building abutting to the north on the Qaitbey's mosque/madrassa marked the boundary between a public space and a restricted-access area. Typically for Mamluk architecture, the L-shaped course of the lane behind the small *raba'* made the access not straight-through, but bent. Another preserved gateway that led to the Sultan's personal-use area from the west is also dog-legged<sup>32</sup>.

The front section of the building north of the passageway was roughly square in plan, measuring about 6 x 6 metres. It is divided in the middle by a solid well-built rubble-core wall of ashlar masonry running parallel to the now-demolished front façade. Only the lowermost course of this wall is preserved and was exposed in the 2020 excavations, on the level of foundation courses of the walls of the *hawd* to the north and the water-tank to the west, i.e., underground (see Fig. 21, page 24). There is no sign whatsoever of the bonding of this wall with the perpendicular back wall of the *hawd*. This could suggest that the internal wall did not continue aboveground, but was a foundation for a central pillar in a single room covered with four cross-vaults. This would be in full accordance with the springing of vaults and edges of the semi-circular sections of the wall that the vaults rested on that are visible on the preserved stone walls of the *hawd* and the water-tank (see Fig. 14, page 13.) However, the wall is built of carefully cut stone, while other foundation walls are of rough stone. The standing walls were completely re-faced, and it is not certain how closely they followed the layout of the original. At the junction with the back wall of the *hawd*, of the internal wall ends short of directly abutting, which may indicate that it was cut when the structural facing of the *hawd* was rebuilt. It cannot be decisively concluded whether the room was divided into two narrow ones parallel to the front façade, or it was a single space.

A puzzling feature are the remnants of vaults visible on the re-faced walls of the passageway between the two sections of the building. The end of the vault that rests on the wall of the *saqia*, indicates that it was wider than the gateway that it covered (with lunette transverse cross-vaults). This would result either in an asymmetrical cross-section, or in very complicated geometry.

Another unanswered question is the original height of this section of the building. It immediately adjoined the *hawd*, which is more than six metres tall, i.e. it rises 3.5 metres above the tops of the vaults abutting on its back wall. That wall has been completely re-faced when the *hawd* was restored by the *Comité* in the early 20th century, but the restorers carefully retained a niche in its back wall, clearly indicating that it faced an interior. It seems logical that there was another storey over the

<sup>31</sup> Another instance of a secondary entrance into a mosque, evidently intended for the Sultan's personal use is this in the mosque of Sultan al-Mu'ayyad Shaykh (A.D. 1415-10, No 190). Hampikian, Nairy, "Medievalization of the Old City as an Ingredient of Cairo's Modernization: Case Study of Bab Zuwayla", in: *Making Cairo Mediaeval*, Nezar AlSayyad, Irene A. Bierman, Nasser Rabbat eds., Lexington Books, 2005, p. 205-6

<sup>32</sup> Unlisted, conserved by ARCHiNOS Architecture in 2018-20 with EU funding

vaults in the northern part of the building, and it should be expected that the façade facing the square was as tall as this of the adjoining *hawd*. However, there is no indication of any staircase leading to this level. There is a remote possibility that it the outermost of the four staircases in the small *raba'* served both a residential unit within it, and the northern part of the building. Otherwise, the access would have to be via a staircase (probably external) in the section of the structure containing the water-wheel. This seems quite probable, considering that functionally, the area in question probably was part of this section of the Sultan's complex.

It is equally unclear how the upper stories were accessed when in the late Ottoman times they served as apartment(s) on at least two levels.

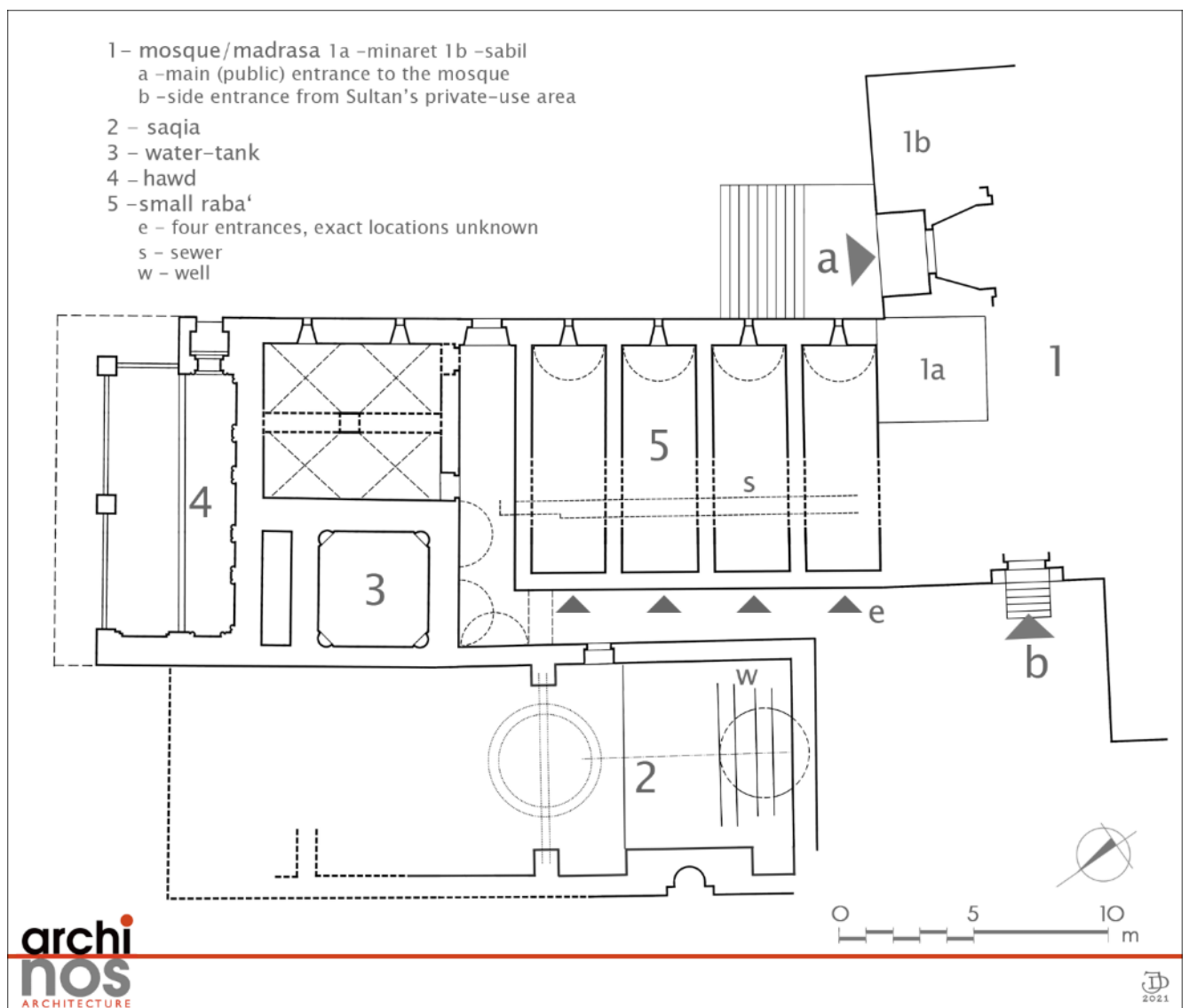


Fig. 21: Structures north of the mosque/madrassa of Sultan Qaitbey  
Based on 2018-2021 surveys by ARCHINOS Architecture, scale 1:250



## A DEEPER MYSTERY

Surprisingly, excavations in the northern part of Sultan Qaitbey's now-disappeared building revealed that the structures in the Sultan's funerary complex were built over remnants of an earlier building. Solidly built and regularly laid out stone and brick walls have been preserved partly below the level corresponding to Qaitbey-period floors, partly cut through by the foundations of the Sultan's buildings, and partly used as foundations for these walls where the alignment permitted such re-use. The plan of the excavated structures is included as Fig. 26, page 29.

The excavated area includes a room 3.05 m wide, with a decorative basin placed close to the back wall on the central axis of the room. The octagonal basin is about 105 cm wide and 65 cm deep, with four semi-circular recesses 22 cm deep alternating with four shallow rectangular recesses (Fig. 25, p. 28). Similar shapes were firmly established as the form of decorative basins in Egypt already in Roman times<sup>33</sup>, and continuously used in Cairo since its early date in al-Fustat<sup>34</sup>, so the shape does not provide any information for dating. No datable objects were retrieved from the excavations.

The early structures are of a significantly different alignment than the mosque/madrassa of Sultan Qaitbey and the surrounding buildings, which are oriented according to the *qibla* – direction towards Mecca. Two earlier Mamluk-period structures are located adjacent to Qaitbey's complex: the mausoleums of Mankalibugha al-Fakhri (before 1352, unlisted) and of Saad al-Din Ibn Ghurab (before 1405, No 94). They both followed a slightly different *qibla* direction<sup>35</sup>, and the adjacent buildings in service area of the Qaitbey's complex follow that orientation. However, this deviation in relation to Qaitbey's mosque is in the opposite direction than in the excavated structures, where the corresponding alignment is about 120°, at a 10° angle to Qaitbey-period walls above.

Qaitbey's buildings next to the mosque/madrassa and facing the square in front of it followed the same orientation as the mosque, determined by the direction towards Mecca<sup>36</sup>. However, both the massive *raba'* north of the square (No 104), and the structures south of it: the façade of the tomb called Murad Bey (No 95), the building erroneously listed as a *sabil* (No 412), and the Bab al-Gindi gate (No 93), which all belong to the Sultan's funerary complex, have a different orientation, unlike any of the religious buildings at the Eastern Cemetery. It is very similar to this of the structures excavated in 2020.

This suggests an intriguing possibility that at the time of construction of Qaitbey's complex in the early 1470s, there had been substantial structures in the area that determined the direction of the main street running through the cemetery, and consequently, the orientation of Qaitbey's buildings.

According to David A. King<sup>37</sup>, the azimuth 117°, similar to the alignment of the excavated structures, was known in mediaeval Cairo as the *qibla al-Sahaba* (of the Companions of the Prophet), after the orientation of the mosque of 'Amr Ibn al-'As, while the "*qibla* of the astronomers" used in Mamluk religious buildings was at 127°. Mediaeval chroniclers were fully aware of differences between different *qibla* directions used<sup>38</sup>.

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<sup>33</sup> Myśliwiec, Karol, Sztetyło, Zofia, *Tell Atrib I, 1985-1995: Pottery Stamps, Rescue Excavations*, Archeobooks, Warsaw 2000, p. 15-17, 42 (Pl. II B); Room 73 on the Plan I attached to the volume.

<sup>34</sup> Ostrasz, Antoni "The Archaeological Material for the Study of the Domestic Architecture at Fustat", in *Africana Bulletin*, no. 26, Warsaw: 1977, p. 75. A basin of similar form under the madrasa of Sunqur Sa'da in Cairo is dated to the Tulunid period (A.D. 868-905) according to information posted on the site by the Italian-Egyptian Center of Restoration and Archaeology (unpublished).

<sup>35</sup> In the mosque/madrassa of Qaitbey the *qibla* direction is about 126°, in the mausoleums of Mankalibugha and Ibn Ghurab it is 138°. (The true direction towards Mecca from Cairo is 136°)

<sup>36</sup> Interestingly, there are slight irregularities within the building of the mosque itself: the minaret is slightly at an angle with the rest of the front façade.

<sup>37</sup> King, David A. "Architecture and Astronomy: The Ventilators of Medieval Cairo and Their Secrets." *Journal of the American Oriental Society*, vol. 104, no. 1, 1984, p. 112-19. There is a good deal of confusion in King's paper and in Hani Hamza's study of the topography of the Eastern Cemetery (see note 1) that uses it as a source, because of the incorrect assertion that 117° was the orientation of the "orthogonal street grid" (which in itself is a far-stretched assumption) of al-Qahira, resulting from the course of the Khalig al-Misri canal.

<sup>38</sup> Id., p. 213-15

Wrote Hani Hamza in his magisterial study of the cemetery's topography:

To reconcile the need for keeping a correct *qibla* direction ... while keeping the façade aligned with the main road ... it was necessary to set the direction of the main road in the *sahara*' at 37°, i.e. perpendicular to the *qibla* direction. The need to set the buildings askew, as in the *qasaba*, was now deliberately dispensed with<sup>39</sup>.

This would imply that for more than 150 years, consecutive buildings in the cemetery were erected following a previously laid-out street pattern determined by the "*qibla* of the astronomers", which is highly implausible<sup>40</sup>. Then, all the funerary complexes would be aligned in a straight line, which is not the case, with the exception of these of Farag Ibn Barquq (A.D. 1400-11, No 149) and al-Ashraf Barsbay (A.D. 1432, No 121) with the neighbouring *takiya* of Ahmad Abu Saif (15th c., No 111). Rather, as they were building in the open desert, the architects didn't need to adapt to existing street lines. The main road through the cemetery, which was an important processional route<sup>41</sup>, in its stretch between the square in front of Qaitbey's mosque and the complex of al-Ashraf Barsbay runs in the direction of about 23°, obliquely to the facades of both mosques (35° and 34°, respectively). The road runs in the same direction south of Qaitbey's mosque, where it passes under the Bab al-Gindi gate to the Sultan's complex (see Fig. 27, p. 30.)

Incidentally, this is almost parallel to the section of the Ayyubid city walls of al-Qahira south of the Burg al-Zafar in the north-eastern corner of the enclosure. That wall, which is located 600 metres to the north-west of the Eastern Cemetery's main street, runs at 21°. <sup>42</sup> There are no clues to judge whether this is purely coincidental or not.

Apparently, unlike the builders of other funerary complexes in the Eastern Cemetery, Sultan Qaitbey took into account the existing earlier street pattern<sup>43</sup>, and the buildings that he erected along the main road through the cemetery conformed to it. After the 2020 excavations it is now known that where he wanted to depart from this pre-existing pattern to align the core of his complex surrounding the mosque/madrassa with the *qibla* direction, he had to demolish earlier buildings.

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<sup>39</sup> Hani Hamza, *The Northern Cemetery*, p. 23

<sup>40</sup> It is difficult to point out *who* and *when* would take the decision about the location and direction of this part of the "Sultan's Road", *al-darb al-sultani*

<sup>41</sup> Galila El Kadi, Bonnamy, Alain *Architecture for the Dead: Cairo's Medieval Necropolis*, AUC Press 2007, p. 175

<sup>42</sup> All geographical references after the 1:5000 maps of Cairo: *Kharita al-Qahira tabiyn al-athar al-Islamiya*, Survey Service (*maslahat al-misaha*) 1948, and after ARCHiNOS Architecture's surveys where available

<sup>43</sup> Qaitbey was known to take keen interest in his numerous building projects and personally supervise them, so it can be assumed that he made crucial decisions about the location and layout of his funerary complex himself. See: Petry, Carl F., *Twilight of Majesty: The Reigns of the Mamluk Sultans al-Ashraf Qaitbey and Qansuh al-Ghawri in Egypt*, Occasional Papers 4, Middle East Center, Jackson school of International Studies, University of Washington, 1993, p. 79-80



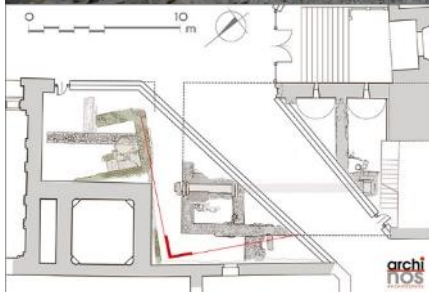


Fig. 22: Foundation walls in the north-western corner of the small *raba'* north of the mosque of Sultan Qaitbey. A passageway goes around the corner in an "L" figure.

Photo: Jarosław Dobrowolski, 2020

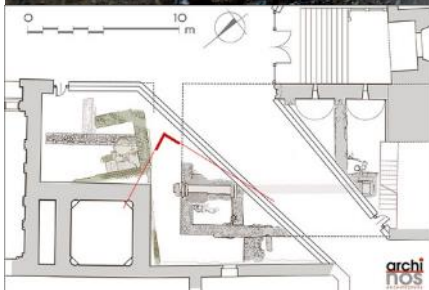


Fig. 23: Passageway through the building north of the mosque of Sultan Qaitbey. The sewage channel underneath the small *raba'* is clearly visible

Photo: Jarosław Dobrowolski, 2020



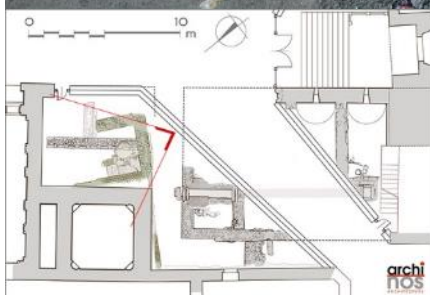


Fig. 24: The wall cutting through earlier structures in the northern part of the now-demolished building. The earlier walls are at an angle to the Qaitbey-period ones.

Photo: Jarosław Dobrowolski, 2020

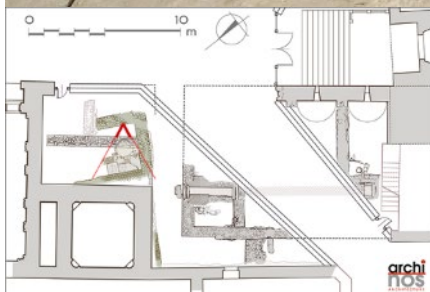


Fig. 25: A decorative basin cut through by the later wall. The earlier structures are at an angle to the wall of Qaitbey-period water-tank (in the back)

Photo: Agnieszka Dobrowolska, 2021



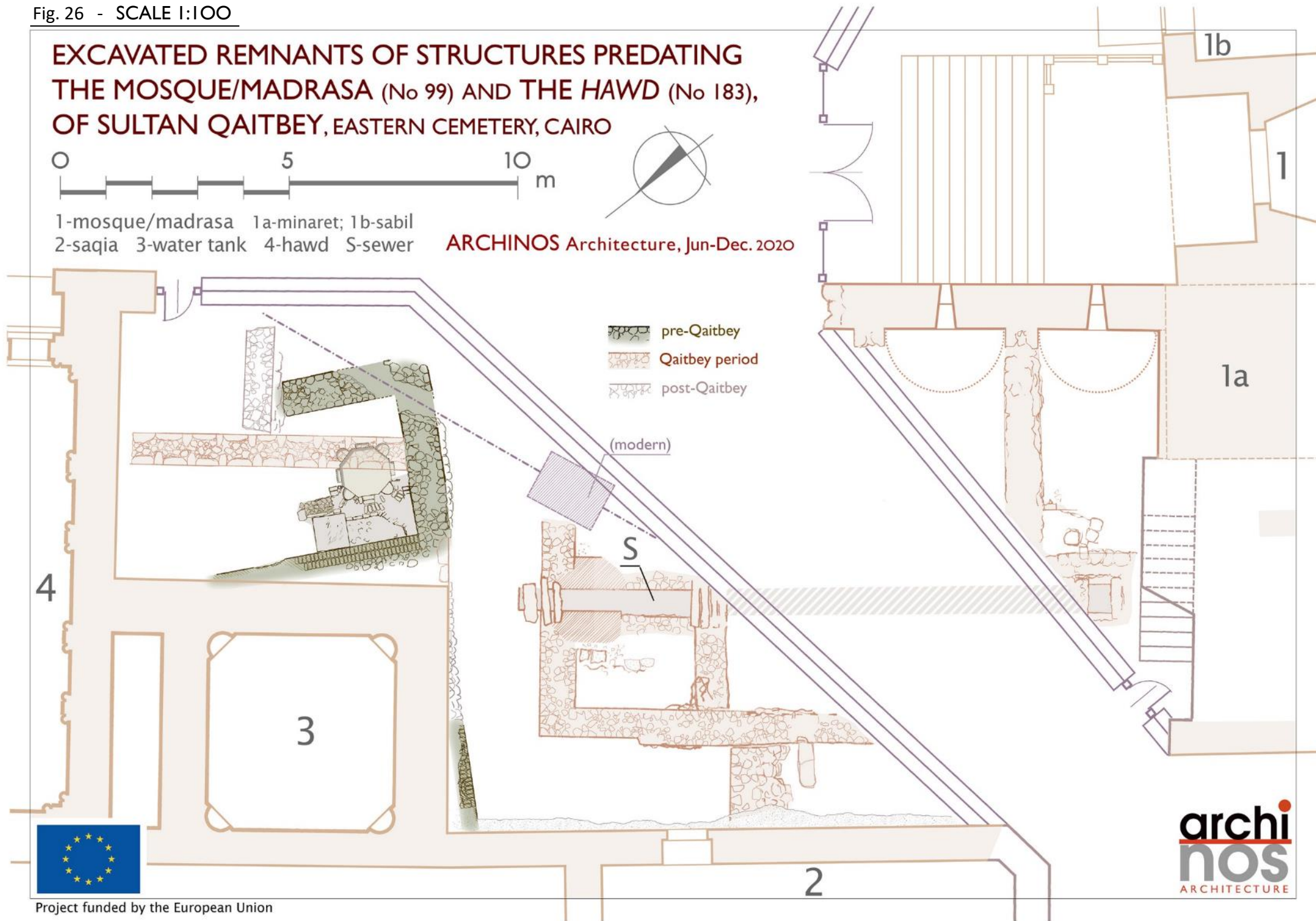
Fig. 26 - SCALE 1:100

# EXCAVATED REMNANTS OF STRUCTURES PREDATING THE MOSQUE/MADRASA (No 99) AND THE HAWD (No 183), OF SULTAN QAITBEY, EASTERN CEMETERY, CAIRO



1-mosque/madrasa 1a-minaret; 1b-sabil  
2-saqia 3-water tank 4-hawd S-sewer

ARCHINOS Architecture, Jun-Dec. 2020



Project funded by the European Union



# Excavated remnants of structures predating the complex of Sultan Qaitbey in the Eastern Cemetery in Cairo IN RELATION TO THE LAYOUT OF QAITBEY'S BUILDINGS

ARCHINOS Architecture, Jun-Dec. 2020

