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The Sultan al-Nāṣir Muḥammad Madrasah in Cairo: Restoration and Archaeological Investigation

Cairene architecture reached its heyday during the reign of al-Nāṣir Muḥammad Ibn Qalāwūn. . . . A man of strict morals, keen intelligence, iron willpower, and boundless energy, yet vengeful and dishonest, al-Nāṣir was also a man of taste and culture, a patron of scholars, and friend of the historian Abu al-Fidā'.¹

Sultan al-Nāṣir Muḥammad had three reigns altogether: as a child from 1293 to 1294, as an adolescent from 1299 to 1309, and, finally, as an adult from 1310 to 1341. The sultan's reigns were characterized less by warfare than by frenetic building activity; Michael Meinecke attributes no fewer than seventy-seven new buildings and renovations to his second reign. His third reign, which lasted for thirty-one years, saw four hundred and fifty new buildings and renovations. In the capital alone, for instance, the sultan endowed a madrasah, a mosque on the Nile (of which all traces have vanished), and the mosque named after him in the citadel.²

The Sultan al-Nāṣir Muḥammad Madrasah was the first building the ruler had anything to do with.³ Begun sometime between 694/1294 and 696/1296 by Sultan al-ʿĀdil Kitbughā, it was finished in 703/1303 by al-Nāṣir Muḥammad during his second reign.⁴

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¹ Oleg V. Volkoff, *1000 Jahre Kairo: Die Geschichte einer verzaubernden Stadt*, trans. Marguerite Haeny (Mainz, 1984), 154.

² Michael Meinecke, *Die mamlukische Architektur in Ägypten und Syrien (648/1250 bis 923/1517)*, part 2, *Chronologische Liste der mamlukischen Baumassnahmen* (Glückstadt, 1992), 88–103 and 107–93.

³ On this madrasah, see K. A. C. Creswell, *Muslim Architecture of Egypt* (New York, 1978), 2:234–40, fig. 137 and pls. 85–89a, 111c, and 124d; Meinecke, *Mamlukische Architektur*, 88; Philipp Speiser, “Restaurierungsarbeiten an der al-Nasriyya Madrasa in Kairo,” *Zeitschrift der Deutschen Morgenländischen Gesellschaft* Suppl. 10 (1994): 527–40, pls. 1–4 and figs. 1–2; Wolfgang Mayer, Giorgio Nogara, and Philipp Speiser, “Archäologische Untersuchungen und Restaurierungsarbeiten an der Madrasa des Sultan an-Nasir Muhammad,” *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 57 (2001): 219–38, pls. 32–37.

⁴ For the building activities of the sultan, see Viktoria Meinecke-Berg, “Quellen zur Topographie und Baugeschichte in Kairo unter Sultan an-Nasir Muhammad b. Qala’un,” in *XIX. Deutscher*



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MADRASAH AND MAUSOLEUM OF AL-NĀṢIR MUḤAMMAD

On the western side of Shāriḥ Muʿizz li-Dīn Allāh at Bayn al-Qasrayn, the al-Nāṣir Muḥammad Madrasah (694–96/1284–96, 703/1303, Index no. 44) occupies a roughly rectangular site sandwiched between two other Mamluk monuments, the slightly earlier Qalāwūn complex (683–84/1284–85, Index no. 43) and the later Barqūq complex (786–88/1384–86, Index no. 187).⁵ Its façade on the main entrance side, overlooking Shāriḥ Muʿizz li-Dīn Allāh, is aligned with the street and is thus oriented more or less north-south. It consists of an ashlar wall some ten meters high and twenty-one meters long, defined at the top by horizontal molding and stepped crenellation. A little over half-way up this wall, a wide horizontal inscription band running the full length of the façade gives the names and titles of Kitbughā, who began the building, and al-Nāṣir Muḥammad, during whose second reign it was completed.

This inscription band is interrupted by the building's famous entrance portal, which divides the ashlar wall into two unequal segments. The southern segment, to the left as one faces the portal, measures 6.6 meters in length, and the northern segment, to the right, measures roughly ten meters. The portal is built around a marble doorway that formerly belonged to the church of St. Agnes in the Crusader-occupied town of Acre and was brought to Cairo by order of Sultan Ashraf Khalil ibn Qalāwūn, an elder brother of al-Nāṣir Muḥammad, after the Mamluk recovery of Acre in 1291.⁶ The portal thus consists of concentric Gothic arches, echoing this doorway, framed by a rectangular molding which is a Mamluk addition, which rises to stop just short of the horizontal molding at the top of the wall. The doorway allows equal entrance to both the mausoleum and the madrasah.

Immediately on either side of the portal are tall vertical recesses, both of which have barred fenestration on the ground-floor level. Above the inscription band, these vertical recesses enter oblong spaces or panels created by molding that merges with the horizontal molding along the top of the ashlar wall. The recess on the left (south-eastern) side of the portal rises the full height of the wall and culminates in two lobes with carved decoration, which terminate with the horizontal molding at the top of the wall. The recess on the right (north-western)

Orientalistentag, vom 28. September bis 4. Oktober 1975 in Freiburg im Breisgau, ed. W. Voigt, ZDMG Suppl. 3, no. 1 (Wiesbaden, 1977), 538–50.

⁵ The monument number refers to the *Index to Mohammedan Monuments in Cairo* (Cairo, 1952 and 1980), including a map of Cairo in two sheets (Cairo, 1950; Arabic version, Cairo, 1948).

⁶ On the gate see Mayer, Nogara, and Speiser, "Archäologische Untersuchungen," 232–38, pls. 35–37; Viktoria Meinecke-Berg, "Spolien in der mittelalterlichen Architektur von Kairo," in *Ägypten: Dauer und Wandel: Symposium anlässlich des 75 jährigen Bestehens des Deutschen archäologischen Instituts Kairo*, MDAIK Sonderschrift 18 (Mainz, 1985), 131–42, pls. 11–13.



side is slightly shorter. It is topped with three carved lobes, which stop short in the middle of the terminal oblong; and it makes a pair not with its taller companion on the left portal, but with a third recess five meters to the right at the far end of the façade. This third recess has a slightly narrower panel at the top, but is of the same height, two-lobed, and identically fenestrated. The windows set in both these two recesses open into the monument's mausoleum chamber.

Above a medallion in the inscription band midway between these two shorter vertical recesses is a deep round-arched niche. It makes a symmetrical pair with another round-arched niche above a medallion in the inscription band on the opposite side of the portal. Whatever their other purposes, these niches combine with the placement and scale of other elements to give the façade an air of noble and uncluttered mathematical balance, an effect achieved despite difficulties imposed by the site and by canonical requirements.

Above and behind the portal is the building's extraordinary minaret, which is built of fired brick with stucco decoration and girdled by two tiers of balconies; round faience elements are set into the upper part. Its base stands 15.2 meters tall and is topped by an octagonal segment of 8.5 meters and a wooden tip of Ottoman style. Immediately behind the portal, a passage with a high-coffered ceiling leads to the inner courtyard, at the center of which stands a rectangular water basin one meter in height.

At the south-east end of the court is the main *iwān* with a prayer niche; its semi-dome and the wall above it also boast elaborate stucco decoration. Across from it, the north-west side of the inner courtyard is taken up by an *iwān* of virtually identical dimensions, the back wall of which displays a very fine stucco relief. Two shallow niches finished at the top with pointed arches made of brick are set into the south-western outer wall (of the *iwān*) made of ashlar masonry. Their form and position suggest that the existing corridor was adorned with niches on either side, as exemplified by the Maṣṣūr Qalāwūn Madrasah.⁷ Aligned with the central axis of the two long sides are two lateral *iwāns*, one on each side, with dormitory cells to the left and right of each; these are reconstructions dating from 1985–89, which were erected on existing foundations. The alignment of the inside rooms adjacent to the open courtyard and the *iwāns* is determined by the direction of Mecca, whereas the outer façade follows the course of the street or the site. This is a feature encountered particularly often in Cairo.

FUNCTION AND MANAGEMENT

The al-Nāṣir Madrasah is regarded by Creswell as the earliest structure in Egypt

⁷ The question arises as to whether they were matched on the opposite side originally, which might well have been the case because the present-day wall dates from the nineteenth or twentieth century.



with four *iwāns*.⁸ According to the Mamluk historian al-Maqrīzī, a different law school taught in each of the *iwāns*: Maliki law in the main *iwān*, Hanbali in the south-western *iwān*, Hanafi in the north-eastern side *iwān*, and Shafi'i in the rear *iwān*.⁹ There was also a library in the madrasah, possibly between the main *iwān* and the mausoleum of Qalāwūn.¹⁰ Al-Maqrīzī goes on to report that in the heyday of the complex, several eunuchs were stationed in the large entry passage to ensure that no unauthorized persons gained admittance. Sugar was distributed monthly to students, Quran readers, and other officials. The function of the building as a boarding school affected the architecture in that, in addition to the classrooms and the above-mentioned *iwāns*, accommodations for teachers and pupils as well as sanitary facilities fed by cisterns had to be provided on a sufficiently large scale. The cisterns were probably for the most part below the inner courtyard and the mausoleum, as well as behind the rear *iwān*. The living quarters were primarily housed in the upper floors, which disappeared long ago, with only a few on the ground floor, which were not reconstructed until 1987. It is not clear whether the madrasah also had a kitchen; no archaeological evidence for one has come to light.

Since the madrasah was expected to continue functioning after the sultan's death, it was endowed, according to al-Maqrīzī, by several *waqfs*, not from agricultural yields but from the revenue earned from rents paid for a storehouse, a *qaysāriyah*, and the apartment (Arabic: *rabʿ*) above it, a complex known as al-Dahishah.¹¹ This complex originally belonged to one Amīn ʿAlī and was situated in the street of the makers of head-dresses (*sharībishiyīn*). He also endowed some shops located in the Bāb al-Zuhūmah street in Cairo and with the Dār Tam outside Damascus.¹² When his son Anūk died in 1340, he was buried in the mausoleum and Amīn ʿAlī created a special endowment dedicated for readers of the Quran.¹³

CONDITION OF THE MONUMENT BEFORE 1985

Before restoration work began on the madrasah in 1985, it was in poor condition. The elegant architectural ornament was full of gaps; most parts of the complex were damaged and only partially preserved, and the rooms grouped several storeys high along the long sides of the inner courtyard had for the most part vanished. The condition of the building as of 1985 was the result of gradual decay and is

⁸ Creswell, *MAE*, 2:104–34, and figs. 50–68.

⁹ *Ibid.*

¹⁰ See *ibid.*, 234.

¹¹ See *ibid.*

¹² On this gate, see Mayer, Nogara, and Speiser, “Archäologische Untersuchungen,” 232–38, pls. 35–37.

¹³ See Creswell, *MAE*, 2:234.



documented by a ground-plan (fig. 2) published by Creswell in 1959.¹⁴ Julius Franz, who is known as the father of Egyptian Islamic monument conservation, described the madrasah as long ago as 1900 with the following words:

As is also the case in the Māristān [of Sultan Qalāwūn], the mausoleum of the donor and the prayer hall lie on either side of the entrance along the eastern façade; both are in a bleak state of dilapidation. The dome above the tomb has long since collapsed, and we had not expected to find well-preserved characteristic plaster sculpture, reminiscent of the delicate ornamentation of Alhambra, in the decrepit prayer hall. In the background of the extensive complex, important remains of the walls with fragments of their erstwhile beautiful plaster sculpture still stand, between which storehouses, workshops, and run-down dwellings have been wedged.¹⁵

In fact three dwellings, which have in the meantime been demolished, were built on the ruined site in the nineteenth century. Interestingly, an illustration (in the work written by Franz) depicts a minbar (pulpit) next to the prayer niche. This must surely indicate that the complex, despite the dilapidation described, was still being used for religious purposes. That this was indeed the case in the first half of the nineteenth century is attested in a drawing by Prisse d'Avennes; he was in Egypt from 1827 until 1844. In it several worshippers are depicted in front of the prayer niche and below a metal chandelier.¹⁶

At the end of nineteenth and the first half of the twentieth centuries, the Comité de Conservation des Monuments de l'Art Arabe undertook fairly extensive reinforcement and reconstruction measures.¹⁷ The ceiling beams of the two main *iwāns* were replaced and, although discussion about its original form ensued, the missing dome above the mausoleum was not reconstructed; instead, the opening was boarded up. The elevation of the rear *iwān* was reconstructed with red brick.

RESTORATION FROM 1985 TO 1987

In 1985 the German Archaeological Institute in Cairo began the restoration of

¹⁴ See Creswell, *MAE*, vol. 2, fig. 137.

¹⁵ Julius Franz, *Berühmte Kunststätten no. 21: Kairo* (Cairo and Leipzig, 1903), 55–56.

¹⁶ In 2003 the Ministry of Culture ordered a replica of the chandelier; see Prisse d'Avennes, *L'art arabe d'après les monuments du Caire depuis le VIIe jusqu'au XVIIIe siècles* (Paris, 1877), 235, pl. XIII.

¹⁷ Comité de conservation des monuments de l'art arabe, *exercice 1890*, 45–46.



the madrasah. The work was finished to a large extent in 1987.¹⁸ Following a careful survey of the complex and mapping of damage, a restoration program was developed. It focused on three areas of construction and undecorated sections:

1. Securing the masonry and replacing damaged and missing parts: this affected most parts of the complex and especially the south-west wall of the qiblah *iwān*, the street façade with its unrendered ashlar masonry, and the mausoleum masonry. The crown molding of the walls and some of the crenellation on the street side had to be rebuilt.

2. Repairing and replacing roofs and ceilings: all roofs had to be made watertight. The original coffered passage ceiling, which had only survived below the minaret, and the *muqarnas* cornices below it had to be reconstructed.

3. Reinforcing and replacing both fixed and movable parts of wood and metal: existing door panels were worked over and missing ones replaced. The same held for the inside shutters on the street side. The railings of the two-tiered balconies of the minaret, as well as the spiral staircase within it and the tip of the minaret (which dated from the Ottoman period) were all replaced. The missing metal grills across the windows were also replaced.

As has already been mentioned, the madrasah boasted particularly elegant architectural decoration of stucco, wood, and marble. Here, too, securing and cleaning what was left took priority. Replacement was only undertaken where it could be verified. The most important replacements are listed below:

- Stucco decoration: undoubtedly the largest decorated surfaces (covering many square meters) are on the minaret. In addition to very careful and time-consuming cleaning, removing later layers of plaster and securing the original structure, some parts had to be replaced. The restoration work that was carried out on the upper semi-dome of the prayer niche in the main *iwān* was particularly elaborate, since the semi-dome is clad with a complex relief in the repoussé technique. At the same time, the decorated field above the niche as well as an Ottoman decorative window were restored. Other elements of decoration that were preserved and restored are the mausoleum pendentives and the grills of high windows. The stucco rendering was also restored and completed in four window niches on the main *iwān* façade overlooking the courtyard.

- Wooden decoration: the complex boasts numerous ornamental appointments of carved and partially polychromed wood, for instance in the mausoleum and the entry passage. In the passage, the carved coffered ceiling had to be replaced (save for three sections) in addition to the wall moldings.¹⁹ The wooden decoration of

¹⁸ Under the auspices of the Historic Cairo restoration project carried out by the German Institute of Archaeology jointly with the Egyptian Antiquities Organization, restoration work funded by the Kulturhilfe des Auswärtigen Amtes der Bundesrepublik.

¹⁹ Three original elements of the ceiling were preserved because they are located below the



the mausoleum was still largely intact; it was carefully cleaned and in some cases refitted.

RECONSTRUCTION

Since only part of the madrasah had survived, and especially since all the rooms grouped along the long sides were either in a fragmentary state or non-existent, the question arose as to whether reconstruction should be undertaken in part of the complex to at least give visitors some idea of what the original structure, as well as the archaeological remains, looked like. As archaeological investigation furnished reliable information on the course of the foundations of the rooms abutting the inner courtyard, we opted for rebuilding one *iwān* on each side with the adjacent single-storey dormitory cells, since survey measurements can be vouched for up to that level. Similarly, the water basin uncovered at the center of the inner courtyard was put in again as a significant element of the design.

The original entrance to the mausoleum is on the courtyard façade. From the standpoint of statics, it had been subjected to stresses at some unknown time, since one of the two marble columns supporting the lintel had broken below the capital. After the column was repaired, the doorway, which virtually corresponds to that of the roughly contemporary Qalāwūn Madrasah, was closed with a door of turned bobbins. All these measures were intended to secure the historic architecture and elements of decoration and, through restoration of part of the complex, make the fragmentary sequence of rooms more intelligible.

ARCHAEOLOGICAL INVESTIGATIONS

In the course of the restoration work already discussed, archaeological investigations were carried out in several places by means of trial trenches dug to shed light on the original ground-plan and on buildings that had previously existed at the site, and to gain general insights into the architectural history of the various sites. Five areas were studied: trial trenches A–D were made during restoration work in 1985–87 and 1989. Considerably more extensive investigations were conducted on the western corner (zone E) of the al-Nāṣir Muḥammad Madrasah site. They were made possible by generous funding from the Max Van Berchem Foundation (Geneva) in 1998, 1999, 2003, and 2004. The opportunity to excavate in Historic Cairo on this site, or at least near the Fatimid Western Palace, made the project particularly enticing. Unfortunately, however, it was soon discovered that groundwater and drainage seepage made it impossible to dig deeper than 1.5 meters below street level, so that the Fatimid strata could only be uncovered to a very limited extent.

minaret.



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TRIAL TRENCH A

It was hoped that excavating what had existed on the site before the mausoleum would uncover remains of a forecourt enclosed by arcades—as was indeed the case with the nearby Qalāwūn Mausoleum—especially since traces of stucco-clad niches are discernible on the exterior wall.²⁰ However, no remains of foundations were found. All that was encountered was the partly collapsed brick vault of a water cistern some 0.8 meters below the level of the forecourt.²¹ The cistern is presumably Mamluk, since part of it lies beneath the mausoleum. Remains of floor flags, presumably from the above mentioned forecourt, were found immediately below the first visible course of the masonry of the outer wall of the adjacent Barqūq Madrasah. This same wall intersects with several barrel vaults from the side rooms of the al-Nāṣir Muḥammad Madrasah. Both circumstances indicate that by the time the Barqūq complex was built, nearly a century after the al-Nāṣir Muḥammad Madrasah, not much attention was being paid to the latter. This might mean that maintenance of the facility was considerably scaled down not long after the sultan's death in 1341 and that attempts at repair were not undertaken until the Ottoman period (from 1516). This conjecture is supported by al-Maqrīzī, who wrote in 1404: “All this is past and the mosque has lost its lustre, but it is still flourishing as one of the finest madrasas.”²²

TRIAL TRENCH B

This trial trench affects the part of the site immediately to the north-west of trial trench A, in which wall remains had been shown by an earlier investigation to be parts of the *iwān* on the north side. A modern storeroom abutted the north-west side, enclosed in the inner courtyard by a stretch of façade with two door apertures. On the north-east side is a cell with barrel vaulting, which, intriguingly, had an opening for ascending to the (now vanished) upper floor. The conclusion to be drawn from the unity of foundation and superstructure is that they most likely date from the Mamluk period. Their north-west wall, which is also the wall of the side *iwān*, still retains the historic spring of the vault in situ, which made it possible to reconstruct the pointed arch and barrel vaulting. When the side *iwān* foundation was uncovered, it was revealed that a wall niche had been set into its back wall. The two door openings mentioned above were slightly recessed from the uncovered threshold substructure, a clear indication that this was a historic reconstruction.

²⁰ For the floorplan of the Qalāwūn Mausoleum, see Creswell, *MAE*, vol. 2, fig. 108.

²¹ According to Supreme Council of Antiquities (SCA) inspectors, several cisterns as well as a corridor were found below ground level. So far no plans or photos are available.

²² Quoted in Creswell, *MAE*, 2:234.



TRIAL TRENCH C

After the removal of a layer of rubble more than one meter high in the inner courtyard, the remains of a rectangular water basin (3.75 by 2.9 meters) were revealed at its center.²³ The inner corners of the basin were rounded, a feature characteristic of the basins found in Fatimid layers in Fustat. The basin has a rim approximately one meter high of bonded brick, which was rendered inside with a water-resistant or waterproof lime mortar (an aggregate of brick dust or charcoal ash). It was finished off at the top with limestone slabs, of which, however, only a few pieces were found. At some time, the basin had been partly filled in with bricks. The fresh water needed to fill it was probably brought from one or more subterranean cisterns via a lined shaft sunk several meters deep under the courtyard. Since there are no traces of individual places for ablution with the usual drains, the water basin is unlikely to have been used originally for ablutions. Instead, the reflecting surface of the water was perhaps a design feature of the courtyard.²⁴ There are similar basins in the Nūr al-Dīn Madrasah and Mārīstān (built 567/1162) and the ‘Ādilīyah Madrasah (built 623/1219), both in Damascus.²⁵

TRIAL TRENCH D

The south-west side of the inner courtyard was cleared of later additions, which were all in a precarious state, and partly excavated. This excavation made it possible to ascertain the Mamluk ground-plan to a large extent from the alignment of its foundations. It contained a side *iwān*, identical to the one on the opposite side, with three small rooms, most likely dormitory cells, on its left side. On the site of a demolished house, adjacent to the right (north-west) of the side *iwān*, the foundations of three more dormitory cells were uncovered, as well as remains of a linking passage running behind them, in which some of the limestone flag flooring has survived. Beneath two of the cells two sewage shafts were found, which are in part aligned with the inner courtyard. These shafts belong to a pre-Mamluk building phase and are part of an elaborate drainage system centered at some distance to the south-west.²⁶

²³ See Philipp Speiser, “Recherches archéologiques dans le Caire fatimide: Les éléments d’un puzzle,” in *Colloque international d’Archéologie Islamique*, ed. Roland P. Gayraud (Cairo, 1993), 423–26, figs. 9–10.

²⁴ On basins in mosques, see Martin Frishman, “Die Ursprünge des Islam und die Gestalt der Moschee,” in *Die Moscheen der Welt*, ed. Martin Frishman and Hasan-Uddin Khan (Frankfurt and New York, 1995), 39.

²⁵ Creswell, *MAE*, 2:109–12, figs. 56 and 59.

²⁶ On the design of the individual wastewater shafts, see Speiser, “Les éléments d’un puzzle,” 434, fig. 11



ZONE E

In the late 1990s the city government had another decrepit house demolished, and its removal made possible the excavation of a wider area (177 square meters) in the western corner of the site. The site is bounded on the south-west towards the Qalāwūn Madrasah by a modern brick wall, on the south-east by the reconstructed side *iwān* and dormitory cells, on the north-east by the rear *iwān*, and on the north-west by a neighboring building. This site is part of the area in which the Fatimid Western Palace is thought to have stood, although pottery finds have hitherto failed to furnish evidence for it.²⁷

Within a jumble of wall remains (spoils from several damaged Mamluk and Ottoman structures which are beyond the scope of this work), a continuous, slightly trapezoidal complex showed up clearly. On each of three sides it has the remains of four identical cells or cubicles, all of which open on to what was probably an open courtyard measuring 5.5 by 5.5 meters.

The above-mentioned twelve cubicles are almost identical in form, and all have a surface area of almost 1.5 square meters. At the back, each has a seat built of two blocks of limestone. Between the two blocks of limestone is an opening that drains into the sewage system below. Each of the cubicles, most likely covered at one time by a vault or dome, enters onto the courtyard through a simple wooden door. Along the right-hand side wall of each cubicle runs an open water channel, which has a brickwork rim up to 0.4 meters high. It is unclear how the fresh-water channel was fed, since there are no indications of a cistern nearby; perhaps it was filled at its highest point from skin water bags or buckets. In two cubicles, remains of a floor from an earlier building phase were found about 0.3 meters deeper. An even earlier building phase was found beneath the north-eastern row of cubicles, where at least three cubicles were built on the demolished masonry superstructure of identical structures dating from the time the madrasah was built.²⁸

The south-east side, the fourth side of the courtyard, sustained considerably more damage; all that remains is the substructure of three toilet cubicles on top of another sewer.²⁹ The approach, now vanished, to the small courtyard with its water basin must also have been on this side. Incidentally, a similar facility was found several years ago in the nearby Sultan al-Kāmil (626/1229) Madrasah, mentioned above.

²⁷ Viktoria Meinecke-Berg, "Historische Topographie des Viertels," in *Die Restaurierung der Madrasa des Amīrs Sāqad-Dīn [sic] Mitqāl al-Ānūki und die Sanierung des Darb Qirmiz in Kairo*, ed. Michael Meinecke (Mainz, 1980), 18–28, especially 24, nn. 58 and 59, figs. 1 and 2.

²⁸ The frequent rebuilding of sanitary installations is not surprising, due to the destructive effects of water.

²⁹ It seems logical to place toilets after washrooms, using their waste water to keep the sewers clean.



Virtually at the center of the courtyard, but one meter deeper than the level of the cubicles, is an octagonal water basin whose nine parts were later adapted to fit into a square rim. This represents an example of recycling, perhaps of an element from the Fatimid Western Palace. A coin that was found dates the recycling of the basin to the Ayyubid era. The structure was undoubtedly a sanitary facility. The presence of a continuous freshwater channel in most cubicles suggests they were used by the teachers and pupils for the purposes of physical hygiene.³⁰

On the south-western outer wall of the washing facility, nine cells were excavated that were approximately 1.7 meters lower than the adjacent cubicles and were entered from the south-west. As clearly shown in a sketch from the first half of the nineteenth century, this was the outermost group of rooms in the adjacent Qalāwūn Māristān, in which the mentally ill were incarcerated and shackled under intolerable conditions in dark cells of only about four square meters.³¹

CONCLUSIONS

The excavations confirmed the conjecture that the ground-plan provided for four *iwāns*. However, stratigraphic analysis showed that cells and remains of secondary or minor *iwāns* visible before 1985 on the long side of the madrasah and marked on Creswell's plan as Mamluk likely date from the Ottoman period (1517–1798) and later.³² The madrasah does not seem to have been properly maintained after the donor's death; to judge from the pottery finds, extensive restoration work was carried out in the sections along the long sides at a time that cannot be precisely ascertained. Further, the minaret was given a new tip and the mausoleum may have been topped with a wooden dome.

The sanitary installations featuring cubicles around an open courtyard, described above, were also rebuilt during the Ottoman period. The numerous brickwork sewers, some of which go back to the first phase of building in the Ayyubid period (564–667/1169–1249) were, interestingly, left in place despite several renovations and were simply adapted to the new conditions. Most of the sewers are probably linked with the earlier development on the site, which according to al-Maqrīzī, included a bath.³³ This might explain why there was such an elaborate sewage system.

The importance of superior hydraulic installations for architectural planning has hitherto been too little appreciated and studied. This may be due to the fact

³⁰ Given the absence of taps and proper drainage, except for one small hole, a system with running water seems most unlikely.

³¹ See Creswell, *MAE*, vol. 2, fig. 124.

³² Except for one Mamluk wall of the north-eastern side *iwān*.

³³ Creswell, *MAE*, 2:234.



that Cairo, unlike many other cities, did not have public water mains until well into the late nineteenth century and even today does not possess a sophisticated municipal sewage system. Nor have historic sanitary facilities in mosques and madrasahs been sufficiently studied; consequently, it is difficult to classify this unusually large facility with twelve cubicles for washing and four toilets. The introduction of public water mains into such historic facilities would have made their cisterns and cesspits obsolete.

The octagonal basin that has been dated to the Ayyubid period might well have been part of the previously mentioned bath. The theory that this might have been a room in the Fatimid Western Palace, on the other hand, is dubious, especially since its architectural connection with the adjacent Mamluk Mārīstān of Sultan Qalāwūn, which itself has Fatimid elements, has yet to be investigated.

Despite archaeological excavation of several ground-floor rooms or at least their foundations, the floor-plan of the al-Nāṣir MuḤammad Madrasah still has gaps. Two to three storeys can be reconstructed on the basis of the window niches in the rear façade of the main *iwān*, which faces the inner courtyard. However, it is because the vertical architectural elements such as stairwells, light shafts, etc., are missing without a trace that the madrasah remains incomplete. The only possibility, therefore, is comparison by function and ground-plan with similar facilities which still have upper floors. One example suitable for such comparison is the virtually contemporaneous Baybars al-Jāshnkīr Khānqāh (706–9/1306–10), situated nearby in the Shāri‘ al-Jamaliyah.

CONSERVATION MEASURES

After the archaeological excavations had been finished, the sanitary installations and parts of the adjacent finds were preserved, and the excavated surfaces abutting the buildings of the two madrasahs were filled in with sand. The restored and partially rebuilt sanitary installations should be regarded as an “archaeological window” offering a glimpse of the earliest building stage in the Fatimid/Ayyubid era (tenth and twelfth centuries).





Fig. 1. Key map: no. 44, Madrasah of al-Nāṣir Muḥammad; no. 43, Madrasah of Maṣṣūr Qalāwūn; no. 187, Madrasah of Barqūq (drawing by N. Hampikian/Ph. Speiser)



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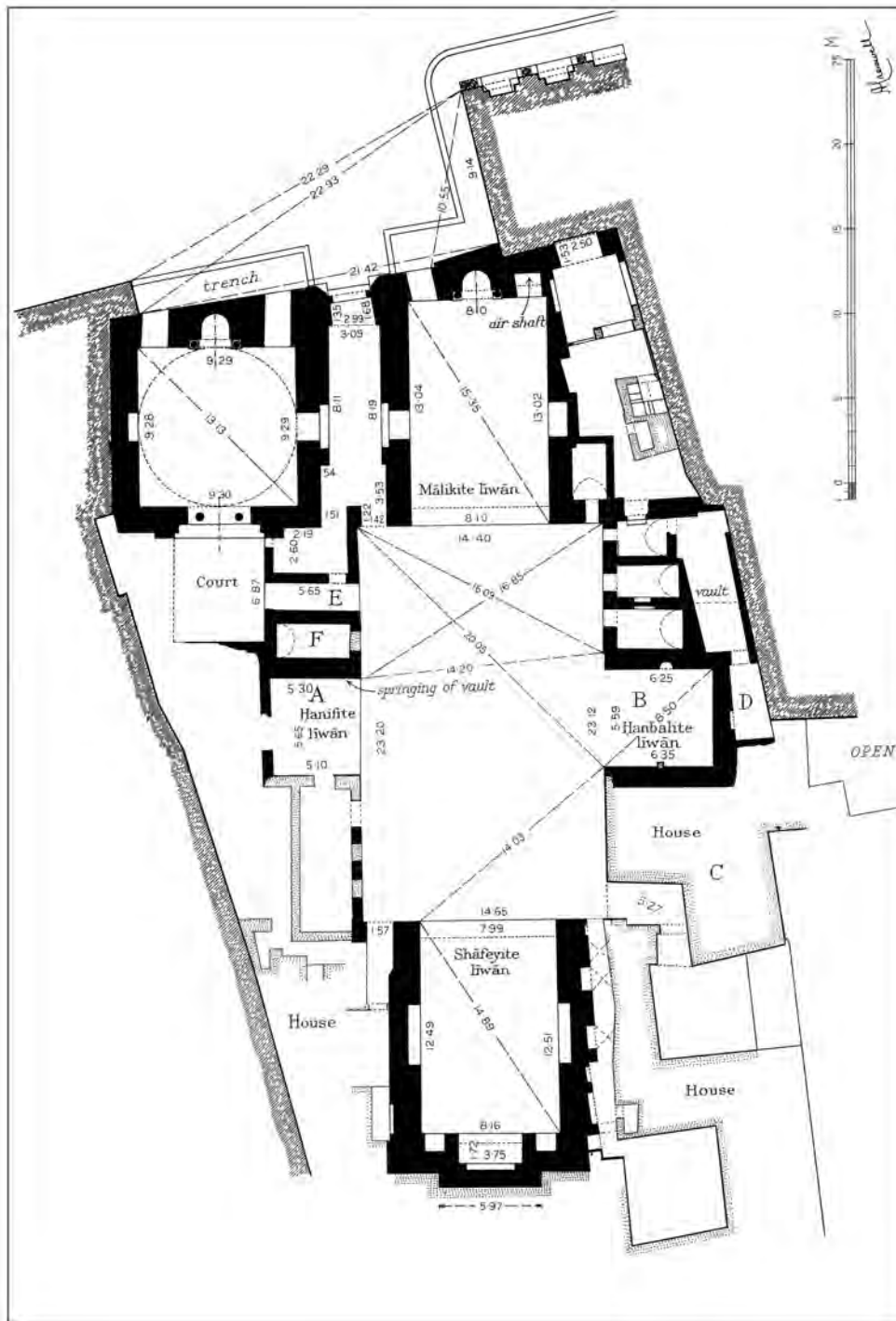


Fig. 2. Madrasah of al-Nāṣir Muḥammad, ground plan, 1959 (by K. A. C. Creswell)



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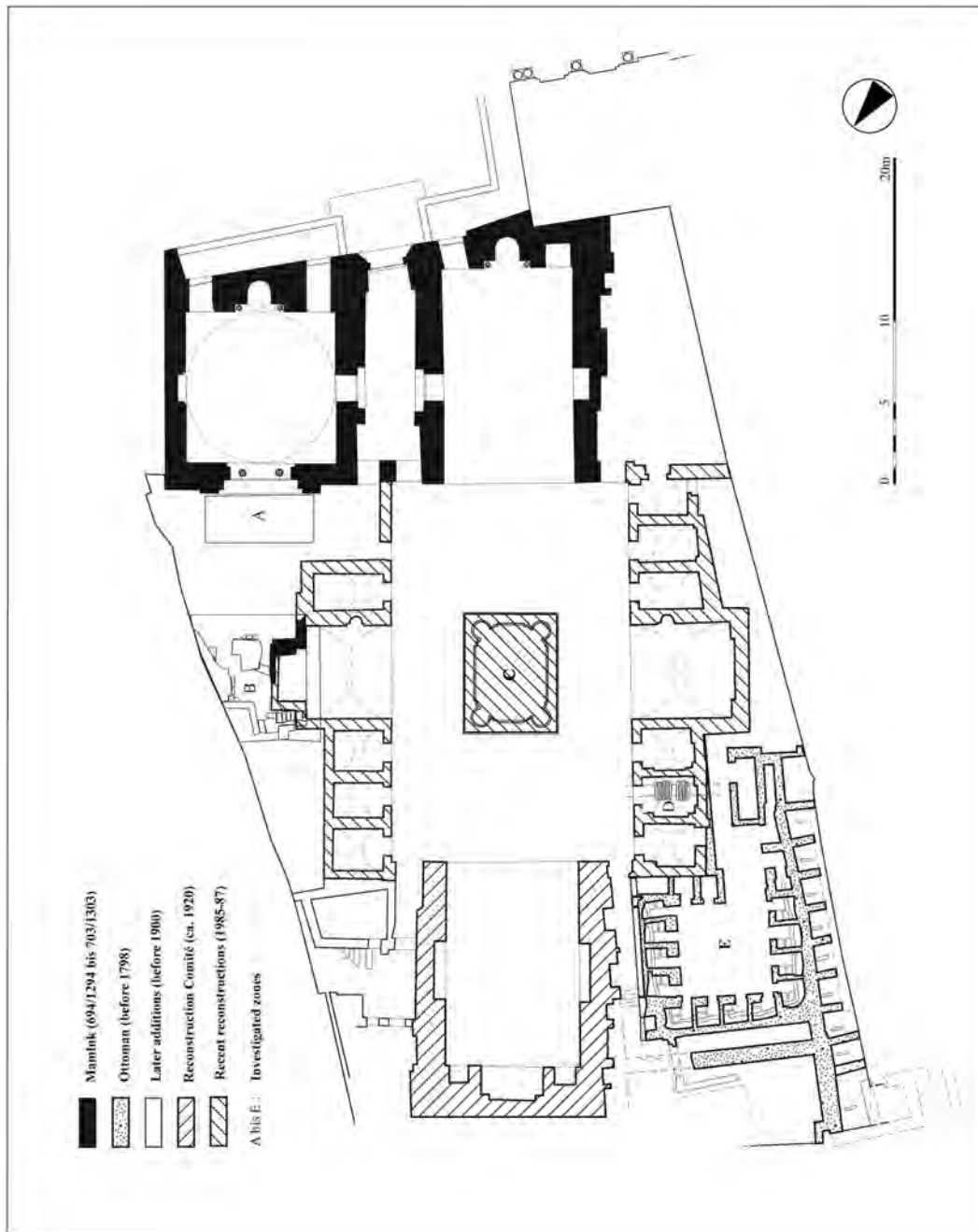


Fig. 3. Madrasah of al-Nāṣir Muḥammad, ground plan after excavation in 1985–89 and 1998–2004 (by M. Lehner, Ph. Speiser, and G. Nogara)



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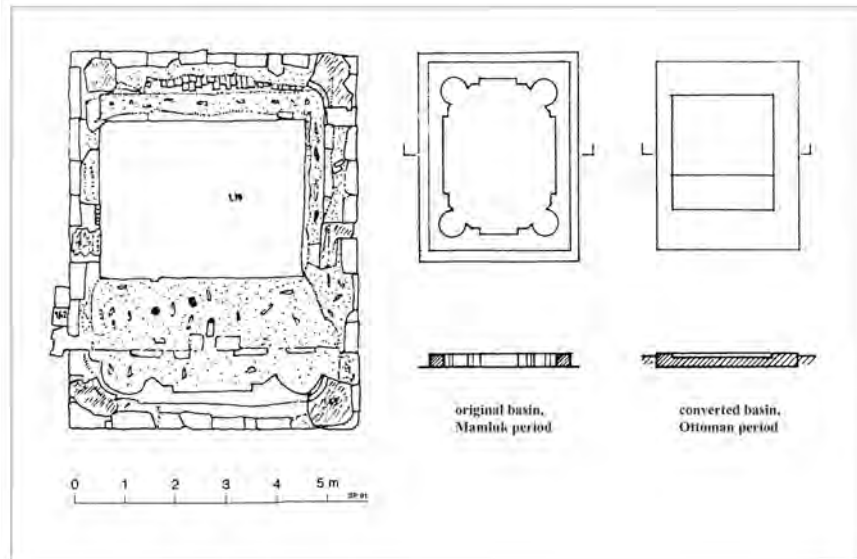


Fig. 4. Madrasah of al-Nāṣir MuḤammad, zone C courtyard, fountain (by Ph. Speiser)

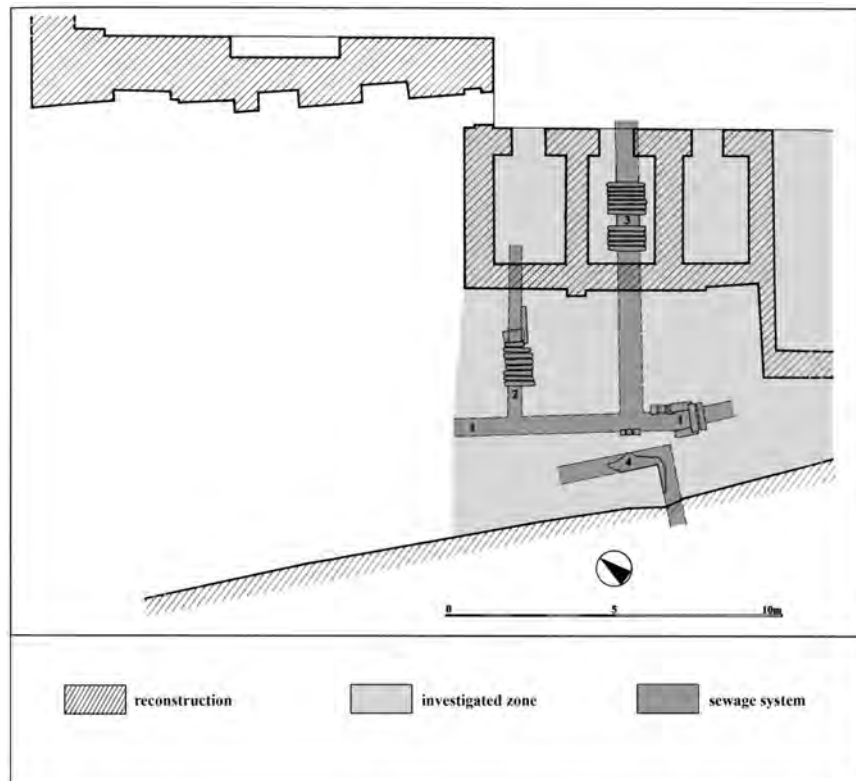


Fig. 5. Madrasah of al-Nāṣir MuḤammad, zone D, phase 1 (by G. Nogara)



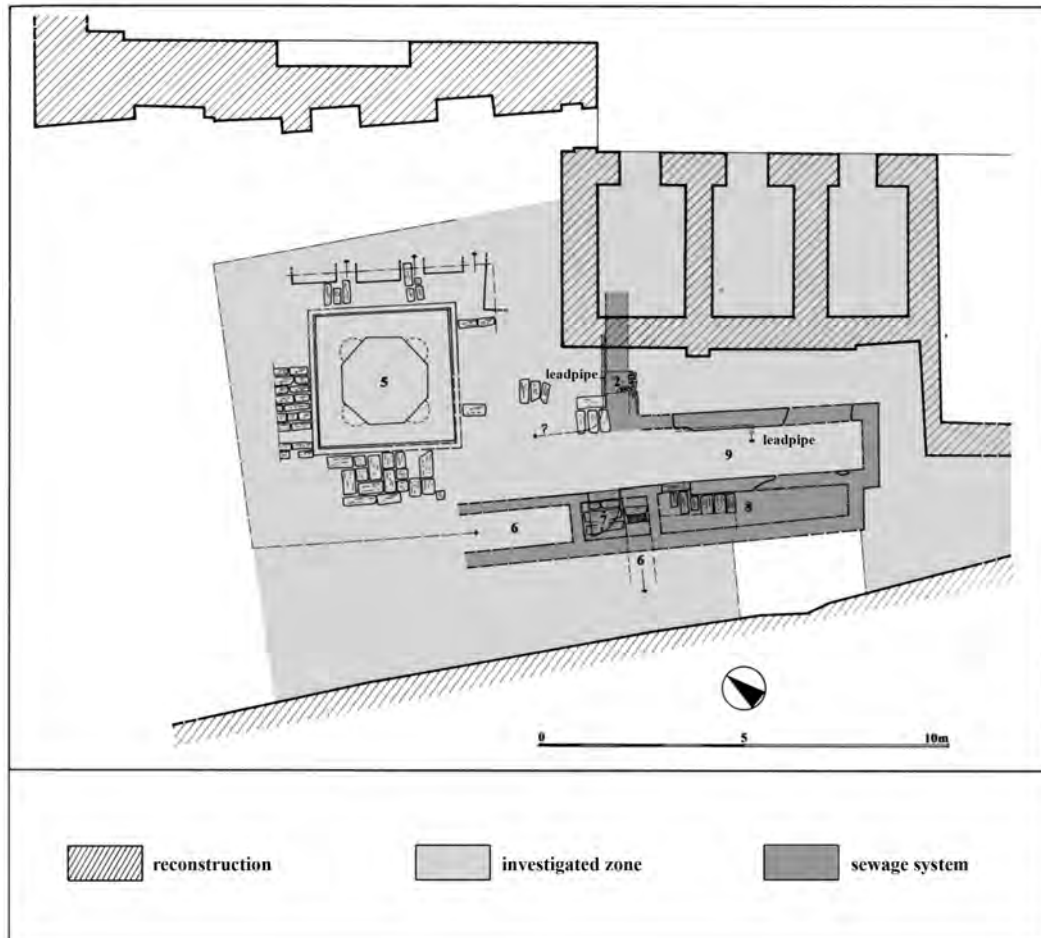


Fig. 6. Madrasah of al-Nāṣir Muḥammad, zone D and E, phase 2 (by G. Nogara)



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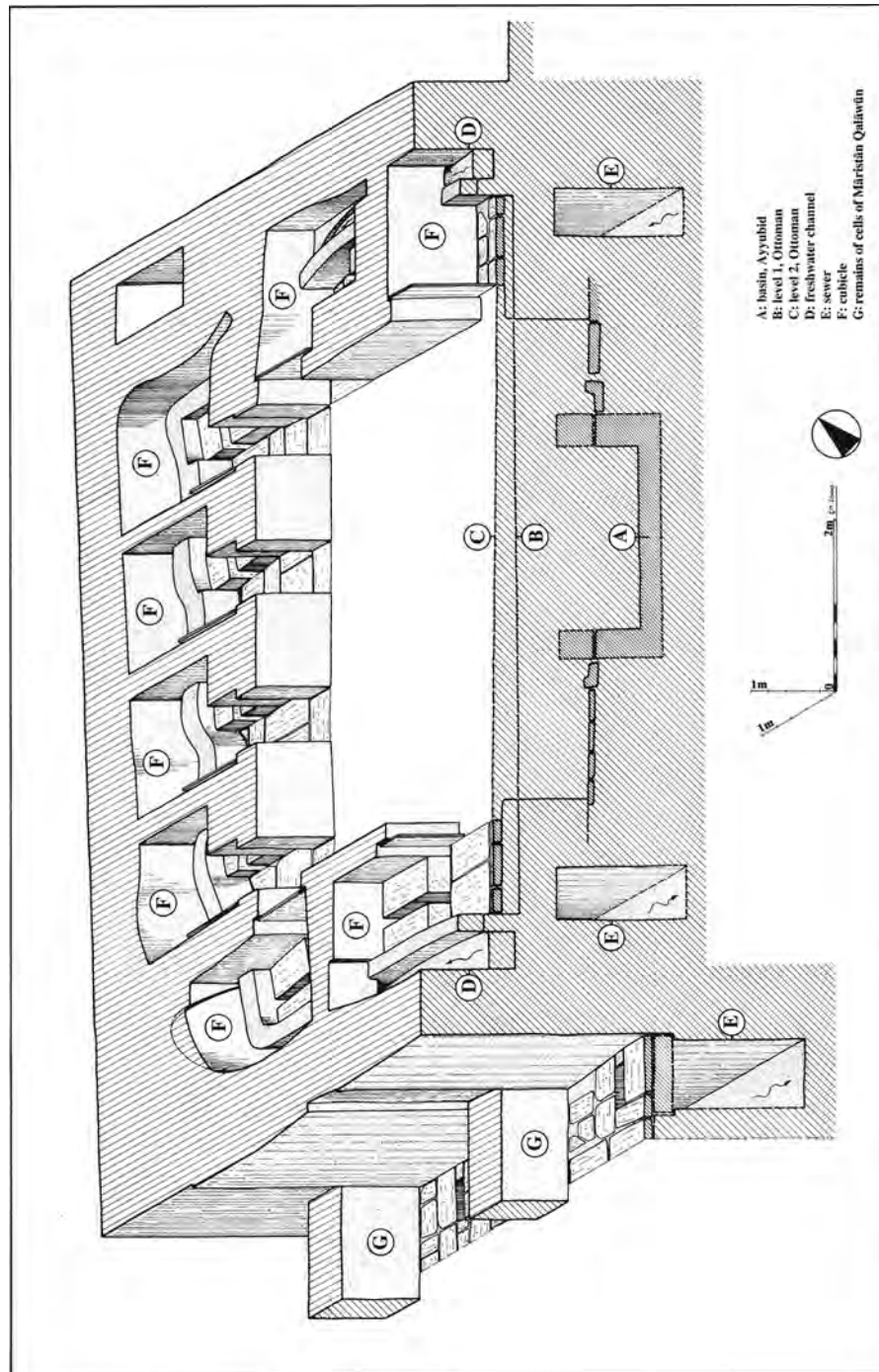


Fig. 7. Madrasah of al-Nāṣir Muḥammad, sanitary installations, axonometric reconstruction (by G. Nogara)



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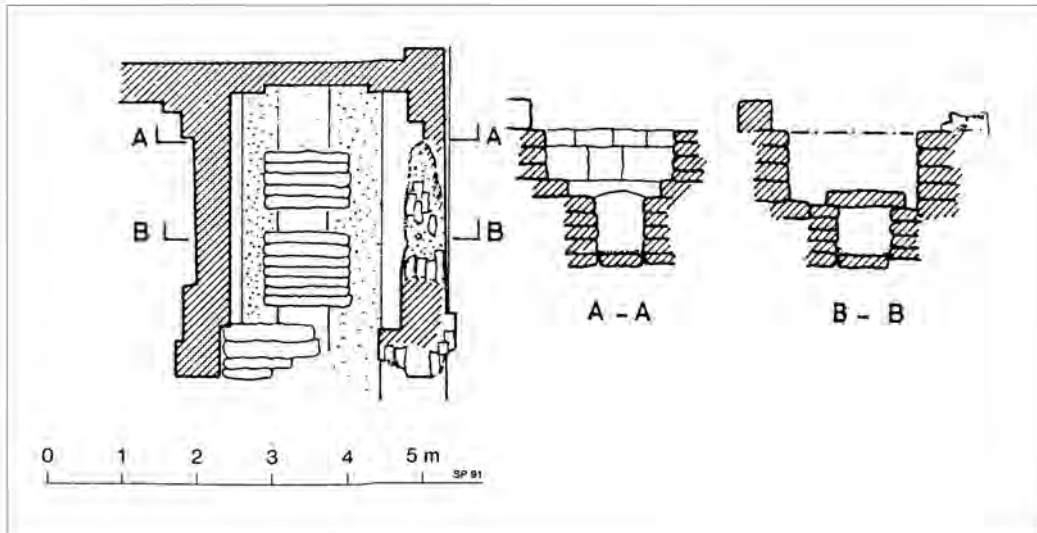


Fig. 8. Madrasah of al-Nāṣir Muḥammad, zone D, sewer details (by Ph. Speiser)

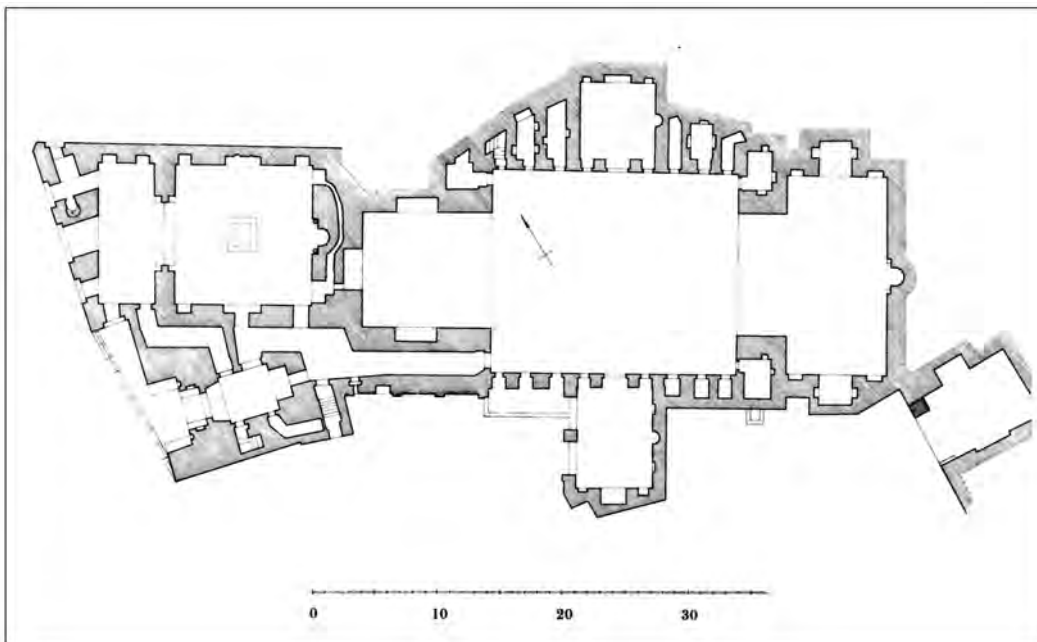


Fig. 9. Cairo, Khānqāh of Amir Baybars al-Jashnkīr (by M. Meinecke)



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Fig. 10. Madrasah of al-Nāṣir Muḥammad, street elevation during restoration, 1986 (Speiser)



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Fig. 11. Madrasah of al-Nāṣir Muḥammad, minaret, 1989 (Speiser)



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Fig. 12. Madrasah of al-Nāṣir MuḤammad, remains of northern iwān in front of the mausoleum, 1986 (Speiser)



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Fig. 13. Madrasah of al-Nāṣir Muḥammad, northern iwān during reconstruction in front of the mausoleum, 1987 (Speiser)



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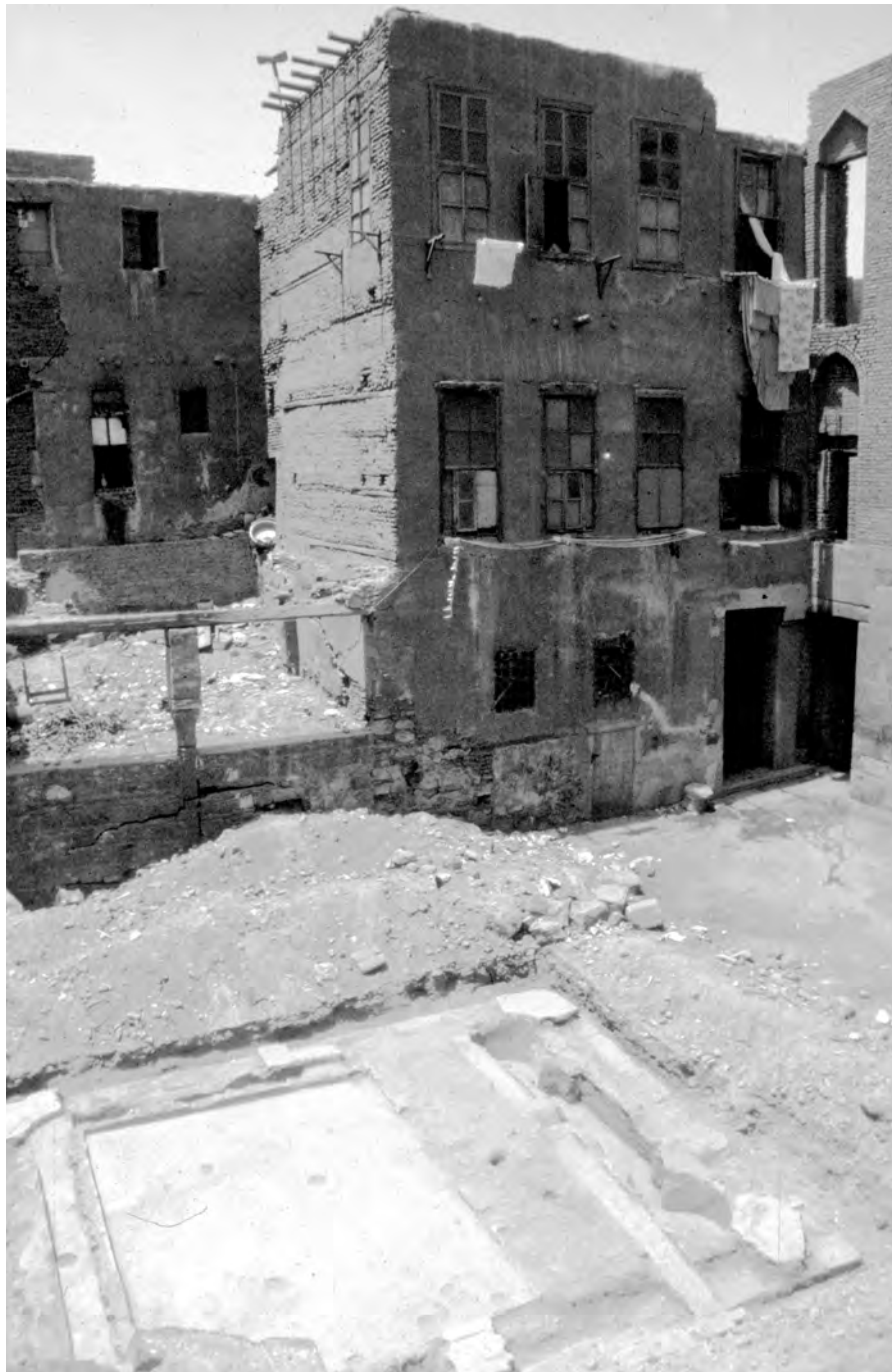


Fig. 14. Madrasah of al-Nāṣir Muḥammad, 1985, excavated basin in the courtyard in front of a residential building from the nineteenth century, now demolished (Speiser)



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Fig. 15. Madrasah of al-Nāṣir Muḥammad, excavated Ottoman sanitary installations with Ayyubid basin in the center, 1998 (Speiser)



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