Mamluk metalwork fittings in their artistic and architectural context

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Introduction

The multitude of Mamluk religious and charitable monuments that are still extant in cities such as Cairo, Damascus, Tripoli, and Jerusalem mirror the importance given to architecture under the Mamluk sultanate. This sultanate, designated *Dawlat al-Turk* or *Dawlat al-Atrāk*[1], which ruled in Egypt from 1250 to 1517 and in Syria from 1260 to 1516[2], had its origins in the *Baḥrīya*, the bodyguard of the last Ayyubids. The Mamluks were recruited from the lands to the north and east of the Black Sea. In the first period of Mamluk rule, during the *baḥrī* sultanate, children below military age were purchased on the slave markets of the Qipshaq steppe; they consisted mainly of Turks of various tribes, in addition to some Kurds, Mongols, Caucasians, Rūm, and Franks.[3] When the supply of the steppes declined, the Qipshaq were supplanted by Circassians (Jarkas) who came to dominate the military aristocracy under the *burjī* sultanate, the second period of Mamluk rule that begun in 1382 AD. After arriving in Cairo, the young Mamluks – as new converts – received an education in the elements of Islam, Arabic language, and administration alongside their military training.

The Mamluks controlled the economy through the *iqṭāʿ* system, state lands given as property to military officers who received these grants of land in lieu of pay on the condition that they maintained a certain number of men-at-arms[4], and through the funnelling of funds of which they could dispose at liberty into religious endowments, the *awqāf*. The establishment of *awqāf* was advantageous to the Mamluk elite: they not only perpetuated the name of the founders but, by employing their own family members in these institutions, the Mamluks created and indeed sustained a livelihood for their sons and grandsons, the *awlād al-nās*, to whom otherwise no privileges could be bequeathed.[5]

Besides palatial and domestic constructions, the patronage of the great Mamluk sultans and amirs reveals a strong predilection for buildings of a religious nature.[6] This was not only an expression of their strong Islamic awareness[7], but also had political, social, symbolic and personal reasons. By commissioning religious buildings the Mamluks as founders and administrators of *awqāf* established and reinforced their ties with different segments of society.[8] Their links with and influence over the religious establishment was created principally through their patronage of mosques and *madrasa*s in which the *ʿulamāʾ* found employment, on whom the Mamluks as converts to Sunni Islam depended for legitimising their rule and with whom the Mamluks had manifold ties through intermarriage. In the Sufi establishments, the *khānqāh* or Sufi convent, the Mamluks found a vehicle to exercise some influence upon the religious classes and the growing Sufi community by staffing them with men in their confidence. Larger segments of the population profited from the creation of work, not only during the time of construction but also in the upkeep and day-to-day care of the building, for which a staff of people was appointed, paid for by shops, baths, *khān*s,

[1] The term Turk in the wide sense embraced all the Mamluk races and was practically synonymous with the Mamluks; see Ayalon (1991), 316.
[2] Holt (1991), 321.
[3] Ayalon (1991), 316.
[4] Lewis (1970), 226–27.
[5] For charitable acts at the expense of the state and securing an income to the founder and his clan, see Behrens-Abouseif (2002), 65.
[6] For the development of the citadel in Cairo under the Mamluks, see Rabbat (1995). Since the site underwent constant reconstructions and additions under the successive patrons, many features of the consecutive stages have been lost.
[7] Ayalon (1991), 319.
[8] Humphreys (1972), 119; Newhall (1987), 117; O'Kane (1996), 514–15.

*wakāla*s, and kitchens that were simultaneously established to provide the revenues for the upkeep of the religious structures. These latter commercial buildings developed the urban structure from which entire neighbourhoods would profit.

On a symbolic level, the sheer monumentality and exuberance of the decoration of many a façade emphasized the glory of the elite and simultaneously emphasized their right to rule.[9] By adhering to an easily recognisable 'Mamluk style', the constructions proclaimed the dynastic tradition of their predecessors. However, the motivation to commission religious buildings also lay in the more personal sphere of actual piety or a keen interest in architecture itself, as shown by the most lavish patrons of the Mamluk era, Sultan al-Nāṣir Muḥammad and Qāitbāy.[10]

This proliferation of religious and secular structures stimulated the blooming of other crafts that were used to embellish these structures profusely. Walls and floors were paved with marble mosaic, walls and windows were faced with coloured stucco in intricate designs, painted and gilded wood was applied on the ceilings, while geometric, floral, and epigraphic designs carved in stone and marble, glass mosaics, marble intarsia, and even the occasional use of glazed tiles culminated in a feast of colour and ornament and lent interiors an overpowering effect. To this sumptuous ornament were added furnishings like woodwork *minbar*s with delicately inlaid star patterns, woodwork *maqṣūra*s executed in the *mashrabīya* technique, and *dikka*s, as were multitudes of glass lamps.

Besides all this, metalwork is a much favoured and recurring medium in Mamluk buildings. This is still attested by fittings like doors, window grilles, and window shutters that continue to impress with their bold designs and the image of strength they convey. The use of metalwork in religious and secular buildings was, however, much more various, as such diverse objects as lamps, candlesticks, incense-burners and Qurʾān-boxes were commissioned on a wide scale to fulfil their respective functions, although most of these have, at some stage, been removed from these locations for fear of theft and the purpose of conservation. The large quantity of objects preserved attest to the fact that the art of metalworking was a highly popular craft within the Mamluk period and that it was supported by the selfsame patrons who commissioned the opulent constructions.

The wide availability of Mamluk metalwork objects in museums and private collections both in the Middle East and in the West has stimulated scholars for more than a century to provide detailed studies of these objects and their decoration. A comprehensive study dealing with the stylistic and technical development of Mamluk metalwork throughout the period is, however, still lacking. This is hardly surprising: the manifold categories into which Mamluk metalwork can be subdivided – like jewellery, household objects and lighting devices, religious artefacts such as Qurʾān-boxes and Kaʿba keys, fittings like doors and doorknockers, military gear and paraphernalia, or coins and weights – share little common ground except for their material and some decorative motifs. The differences between them with respect to their use, be it private or public, religious or secular, the scale of the objects, and the different techniques employed for the diverse types of materials have led to a need to specialise and have encouraged scholars to study segments only of the rich variety of Mamluk metalwork.

Most studies that have previously dealt with Mamluk metalwork have opted for a descriptive approach. Numerous publications present individual metal objects, with the intention of identifying their

[9] Humphreys (1972), 119; O'Kane (1996), 514–15.
[10] Newhall (1987), 262; Harithy (2000), 236.

patrons, attributing an at least approximate date to them, and if possible, pinpointing their makers.[11] Other scholars have chosen a wider angle of approach, concentrating on categories of objects, such as Mamluk metalwork lamps, and this has enabled them to distinguish between different types mostly on the basis of their shapes and to trace their stylistic and technical development through time.[12] In addition, different studies have focused on specific topics, such as the lineage and development of decorative motifs used on Mamluk vessels,[13] the technique used,[14] or the composition of the alloys employed to produce the objects.[15]

Besides the identification of patrons and the description of objects as a goal in itself, a number of studies provide more insight into the organisation of the craft of Mamluk metalwork. On the basis of technical and stylistic similarities between metalwork objects, authors have been able to identify workshops that were active during a limited period.[16] In other studies the discussion has focused on the existence of different centres of metalwork production, Cairo and Damascus in particular, and the attribution of specific objects to them.[17] Scholars have also analysed the development of the industry at large[18] and the export of Mamluk metalwork to Europe.[19]

Of the studies referred to above, almost all focus on portable objects that today are housed in museums or private collections. Occasionally at most Mamluk metalwork fittings, such as doors, doorknockers, and window grilles, have been taken as the point of departure.[20] Of those, only the catalogue of Mamluk metalwork doors and doorknockers by Batanouni deals with the topic *in extenso*. Although valuable for its systematic gathering and descriptions of the objects, this study is limited geographically as it focuses on Cairo only. Moreover, she has studied the objects detached from the context in which they function, leaving aside any analysis of the relationship between these fittings and their surroundings.

Studying fittings provides a unique opportunity to focus on metalwork objects in their original environment, as the majority of the extant fittings still survive today in their initial location. Therefore it is possible not only to discuss the stylistic and technical features of the metalwork itself but also to reflect on the implications of the context on the design and decoration of the fittings and to study the reciprocity between metal fittings and their immediate surroundings. This context is for the most part lost for portable objects, whose specific use in religious, palatial and domestic architecture escapes us. Although now and then glimpses as to their use and location can be gathered from miniature paintings and descriptions in chronicles, travellers' accounts, and *waqf* documents, we lack a comprehensive idea as to the quantity of objects used or exhibited in a room and the visual relationship between them and their surroundings. The number of portable metalwork Mamluk objects whose inscriptions disclose the buildings for which they

[11] Gottheil (1909–10); Massignon (1912); Bahgat (1914); Combe (1931); Wiet (1932, 1958, 1970); Mayer (1935, 1939); Rice (1949, 1952, 1953:a, 1957); ʿAlī Yūsuf (1962); Emary (1967); Atıl (1981); Kalus & Naffah (1983); Atıl [*et al.*] (1985); Bloom (1987); Abu Khalaf (1988); Behrens-Abouseif (1988–89); Heidemann (2002).
[12] Rice (1955): lamps; Balog (1964): coins; Allan (1969): dishes; Allan (1971): lunch-boxes; Sourdel-Thomine (1971): Kaʿba keys; Batanouni (1975): doors; Baer (1983): different categories; Jenkins (1988): jewellery; Ward (1990–91): incense burners; Behrens-Abouseif (1995): lamps.
[13] Rice (1953); El-Basha (1962); Baer (1968, 1983); Allan (1982).
[14] Rice (1953); Allan (1982, 1996).
[15] Atıl [*et al.*] (1985); Craddock & La Niece (1990).
[16] Melikian-Chirvani (1969); Auld (1989); Ward (1995); Allan (1996).
[17] Rice (1952); Allan (1971, 1986, 1989); Ward (1995, 1999).
[18] Allan (1984).
[19] Allan (1989); Auld (1989); Ward (1989, 1999).
[20] For doors: Gottheil (1909–10), Batanouni (1975), and Allan (1984); For doorknockers: Batanouni (1975) and Heidemann (2002); For window grilles: Allan (1996).

were intended, let alone the specific location in which they served, is limited with the exception of the Kaʿba keys and astrolabes.[21]

The fittings that form the basis of this study are the doors, doorknockers, window grilles, and window shutters that are still predominantly located in religious buildings in the major centres of Mamluk rule, i.e. Cairo, Damascus, Aleppo, Jerusalem, Tripoli, and Hebron. Mecca and Medina are excluded, not only because the metalwork fittings that are fixed *in situ* today are believed to originate from periods other than the Mamluk, but they are also inaccessible to me.[22] On the whole these objects are manufactured of the base metals brass or bronze; on comparatively few objects the surface of the bronze and brass fittings is inlaid with gold, silver, or copper, while fittings made entirely of precious metals are absent. It should not be concluded from this that gold and silver fittings were never made. Despite theological disapproval of the use of gold and silver in religious structures and negative injunctions as found in a manual for the marketinspector, literary sources in the Mamluk period do mention their existence.[23] The Mamluks were not unique in this respect: the installation of gold and silver fittings in both religious and palatial structures had already been the practice in pre-Mamluk times as evidenced by descriptions of the gold and silver doors and doorknockers attached both at the exterior and in the interior of the Kaʿba[24] and at the *Qubbat al-Khaḍrā* in Damascus.[25] The use of gold and silver metal furnishings, especially lamps, in religious structures was also a common phenomenon in Mamluk times. Several reasons for the fact that today almost none of these survive are given by al-Samhūdī, a resident of Medina in the second half of the 15th century. Besides the theft of lamps, he recalls that after the mausoleum of the Prophet in Medina had fallen victim to another fire, the broken fragments of the fallen golden lamps were gathered and re-used to repair the gilding of the ceilings.[26]

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[21] The only Mamluk metalwork object so far known the original inscription of which explicitly mentions both the building and location for which it was intended is a candlestick made for the mosque of Ibn Ṭūlūn in 697/1297, nowadays housed in Cairo, the Museum of Islamic Art, inv. no. 128, and published in Wiet (1932), 7–8 and pl. 30; Fahmī (1959), 204–8, 231–38, pls. 13–18; Allan (1986), 49–50. According to its inscription is was to be positioned in the *miḥrāb* of the said mosque. More common are inscriptions on vessels referring to the building only, especially when it entails objects that were intended for already existing buildings. Examples of this are the lamps donated to the Umayyad mosque in Damascus, dated 726/1325–26, now housed in Damascus, The National Museum, inv. nos. 446A and 447A, and published by Rice (1955), 223–24, and Ḥasanī (1930), 57, and candlesticks made for the mausoleum of the Prophet in Medina, such as the one donated by Sunqur al-Takrītī before 697/1298, now housed in Cairo, the Museum of Islamic Art, inv. no. 7949, published by Wiet (1932), 135, pl. 28; and those donated by Sultan Qāitbāy in 887/1482, in the same museum, inv. nos. 4072 and 4297, published by Wiet (1932), 107–9, pl. 33, 118, pl. 34.

[22] In the Kaʿba, three metalwork fittings are visible to the public. These are the Kaʿba door set high in one of its sides, a finely worked drain spout decorated with inscriptions that depends from the roof, and a silver boss in the south east corner, which protects the Black Stone. For these three fittings, see Stewart (1980), 81, 124. All three fittings *in situ* are modern, for they are replaced regularly in order to keep the Holy Place in mint condition. This is illustrated by three photographs made within a time frame of about 55 years between 1941 and 1997, each of which shows a different ornately decorated Kaʿba door. For the photograph in 1941, see Nasr (1997), 27; for the one made before 1980, see Stewart (1980), 81; and for the picture of the Kaʿba door in the late 1990s, see Nasr (1997), 37. In Medina, a variety of medallion doors (Nasr (1997), 118–19) and the metalwork *maqṣūra* that surrounds the cenotaph of the Prophet especially (Nasr (1997), 112–13) are the most conspicuous metalwork fittings. Certain features of the latter, such as the use of openwork inscriptions, were already observed by Burckhardt (1829), 164–66.

[23] Examples of references to the use of gold or silver furnishings in Mamluk buildings, see Van Ghistele (1976), 116; Ibn Shihna (1933), 90; Ibn Ṣaṣrā (1963) I, 161 and II, 120; *idem*, I, 249–50 and II, 188. For references from *ḥadīth* and *fiqh* texts that question the approval and disapproval of gold and silver, see Juynboll (1986).

[24] Nāṣer-e Khosraw (1986), 76 gave the following description: "The door to the Kaʿba is made of teak and is a double door 6.5 cubits [in between 292cm and 364 cm (the metric equivalent of a cubit ranges between 45 and 56 cm)] tall. Each half is 1.75 ells [200 cm] wide so that the whole door is 3.5 ells [400 cm] wide. The face of the door contains inscriptions and silver circles. The inscriptions are done in gold burnished with silver and contain the following Koranic verse: "Verily the first house appointed unto men to worship in was that which was in Becca" [Koran 3:96]. Two large silver rings sent from Ghazna are attached to the door too high for anyone to reach. Two other silver rings, smaller than the first two, are attached to the doors such that anyone can reach them. To these lower rings is fitted a large silver lock, and the doors can not be opened without removing it." The same author, p. 77, also described doors in the interior of the holy place: "[...] in the corner to the right, is a square structure three yards by three, in which there is a small door leading to the roof. A silver door is placed there and is called Gate of Mercy (*Bāb al-Raḥma*), and there is a silver lock affixed to the door. On the roof is another door, like a trap door, both sides of which are plated in silver [...] There are four other large silver plaques nailed to the wall with silver nails, on each of which is the name of a sultan of Egypt who sent a plaque during his reign. Between the columns are hung three silver lamps [...]".

[25] Muqaddasī (1963), 173, recorded the presence of gilded brass doors in the south-east side to the Umayyad mosque in Damascus.

[26] Al-Samhūdī in Bahgat (1914), 83. Besides this, precious metals were also among the objects taken as booty by Sultan Selīm in 923/1517 after the Ottoman conquest of Cairo. For the latter see the reference by Ṣiddīqī in Raby & Allan (1982), 36, note 89.

A variety of objects closely associated to doors, such as locks and keys, or fittings such as the crowning elements of minarets and *minbar*s, fall outside the scope of this research. Firstly, the locks and keys with which Mamluk metalwork doors could be closed were not made of metalwork; they were ingenious devices made of wood, called *ḍabba*.[27] Al-Maqrīzī relates that "their abundance in the markets of Cairo was such that if one wanted to buy a thousand locks in one day, it would not present any difficulty."[28] Nowadays, these devices have made room for beams and clasps installed at the reverse of the doors or for newly added metal locks on the door's face. The only decorated keys made of metalwork that can still be attributed with certainty to the Mamluk period are the Kaʿba keys that were traditionally presented by Mamluk rulers because they held sovereignty over the two holy cities. Besides the fact that a comprehensive study has already been done, they are not included in our study for two other reasons.[29] They are a class alone as their presentation was more symbolical than practical. Moreover, their relationship towards the surroundings for which they were intended is gone, as they are now in museum collections. Finally, the bulbous elements crowning both *minbar*s and minarets are left out of account here. The major reason for this is a practical one: the tips of minarets because they are located at a great height cannot be studied closely so that only general statements about their shape can be made. Such results would contrast with the approach chosen here for a close observation of the fittings and their details. Moreover, these crowning elements differ from the doors, window grilles and window shutters in another way that makes a separate study necessary. In contrast to doors and grilles that are defined by surface decoration on their flat exteriors, it is the undecorated three-dimensional and curvilinear shape that defines these crowning elements, which embody a totally different aesthetic from that of doors or grilles.

Those metalwork doors, doorknockers, window grilles, and window shutters that are still located in their original surroundings form the starting point of this study. They provide the basic material not only to trace the technical and stylistic development of fittings throughout the Mamluk period and to compare the developments between the different centres, but to study the objects within their original environment as well. This body of material is supplemented by objects that were at some stage transferred to museums. On a local level, this transfer was mostly brought about for reasons of preservation. During the restoration campaigns in Cairo instigated from 1882 AD onwards by the *Comité de conservation des monuments de l'art arabe*, which from now on will be referred to simply as the Comité, numerous objects – among them metalwork fittings – found their way to the Museum of Islamic Art in Cairo that was established between 1898 and 1903AD. Today, this museum houses the largest single collection of extant metalwork fittings from the Mamluk period, consisting of complete objects or fragments thereof. Collections of Mamluk metalwork and Mamluk revival fittings are also found in Europe, for example in the Museum für Islamische Kunst in Berlin and the Victoria and Albert Museum in London. These are, however, merely built up of fragments of doors, mostly plaques, which are included in this study only if they can be attributed with certainty to a Mamluk door. The body of material in this study is completed by fittings described and photographed in the catalogues of museums or auction houses.

Apart from the material evidence, various literary sources from the Mamluk period offer complementary information. Sources such as topographical works, chronicles, and travellers' accounts are

[27] Ibn al-Ukhuwwa (1937), 95–96, 236–37, lists regulations for the craft of making locks, which, according to him, was an important trade as it secured the protection of women and wealth.
[28] Maqrīzī (1853) II, 101. Thévenot (1664), 271–72, was clearly surprised to find that all the locks and keys were made of wood, and none of them of iron, not even those of the city gates.
[29] Sourdel-Thomine (1971).

especially useful for information on the craft of metalworking or the different centres of metalworking. Of the Mamluk historical sources that have been consulted, the topographical study of Cairo by the historian al-Maqrīzī has proved to be the richest in detail concerning the organisation of the markets and the crafts.[30] He not only pinpointed the locations of a wide variety of crafts within the city but also differentiated between various specialisations within the métier of metalworking. Furthermore, he observed the decline of certain crafts and techniques in his life-time, such as that of inlaying with gold and silver, providing us with explanations for it.[31] With respect to Damascus, the late 14th century chronicle of Ibn Ṣaṣrā has provided valuable insights regarding the craft of metalworking, not least because extant metalwork fittings from the Mamluk period are rare in this city.[32] Although its time-frame is limited – it covers the period between 1389 to 1397 AD – his account offers elucidating descriptions of different events that explain the loss of so many metalwork objects.[33] Besides chronicles and topographical studies, two other categories of literary sources give information about the craft. The *ḥisba* manual of Ibn al-Ukhuwwa, a manual intended to guide the market inspector on the practical and technical details of the supervision of the crafts and trades, gives details on the composition of alloys and warns against fraudulent practices such as the embezzlement of precious metals by craftsmen.[34] Information about mines and the import of metals into the Mamluk domain is mostly provided by travellers such as the famous Ibn Baṭṭūṭa.[35]

These selfsame sources are on the whole lacking in detailed descriptions of Mamluk fittings, not surprisingly as their intention to begin with was not art-historical. If fittings are mentioned at all, the historians restrict themselves simply to pointing out their presence while sometimes adding rhetorical comments as to their size, strength, and the display of wealth of the material, all of which were mostly intended to inspire awe in the reader. The only metalwork fittings that received more descriptive attention are those that were connected to the holy places – Mecca, Medina, and Jerusalem – which can include not only details about the material, techniques, and designs but also sometimes even inscriptions.[36] For Mamluk buildings in Cairo, the descriptions of constructions in *waqf* documents have at times proved to be a more fruitful source, as some of these provide information about the material, technique, and design.[37] A manual describing in detail the manufacture of fittings and their designs, such as the text written by al-Jazarī at the beginning of the 13th century in which he guides the reader step by step through the entire manufacturing process of the door and doorknockers which he made for the palace of Āmid, has not yet been located for the Mamluk period, if it exists at all.[38]

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[30] This is the *Kitāb al-mawāʿiẓ wa'l-iʿtibār bi-dhikr al-khiṭaṭ wa'l-āthār.*

[31] For the various locations of the craft, see Sections 5.2.1 and 5.2.2 of this study; for the different specialisations, see Section 5.2.1; for the decline of the inlaying technique, see Section 5.4.

[32] Ibn Ṣaṣrā (1963). For events resulting in the loss of objects, see pp. 134–35 and 164 of this study.

[33] See Section 5.4 of this study.

[34] Ibn al-Ukhuwwa (1937).

[35] Ibn Baṭṭūṭa (1853–58). For the necessary import of different kinds of metals, see Section 5.1.

[36] For remarks on the techniques used for the fittings in Mecca, see Ibn Baṭṭūṭa (1853–58) I, 309. For the recording of inscriptions in pre-Mamluk times, see Nāṣer-e Khosraw (1986), 76 and Ibn Jubayr (1852), 90. This interest in fittings installed in or having belonged to the holy places is also present among westerners who travelled through the Islamic world during the Mamluk era: when they are confronted with fittings bearing Christian images they describe them with more vigour and detail than Islamic fittings. See Clavijo (1859), 160 and Fabri (1975), 864. This is only to be expected of Westerners encountering Western art in the Islamic sphere.

[37] One of the most explicit descriptions of metalwork fittings found so far are those in the *waqf* of the *madrasa* and *khānqāh* of Sultan Barqūq, Jaritz (1982), 120, 140–41. Here, the presence of brass window shutters with silver-inlaid inscription bands (*ṭirāz*) is mentioned. In addition to this, six walnut doors are mentioned with fittings of pierced brass, with corner-pieces and an inscription band inlaid with silver.

[38] Jazarī (1990), 327–36 and a translation of this section in Jazarī (1974), 191–95 and in Wiedemann & Hauser (1921), 215–26. The writer who was responsible for the copy of this manuscript in Leiden, Leiden University Library, inv. no. or.117, fol. 172b line 1, omitted this specific section of the manuscript, adding that he left it out because of a "lack of usefulness" (*ʿadam nafʿat*).

A third type of source used in this study is Mamluk miniature paintings and 19th century drawings. The fittings shown in an architectural context in miniature paintings are simple.[39] All that is depicted are the contours of their design; details of the surface decoration are absent. Portrayals of metalworkers at work or of the interior of a workshop are not part of the Mamluk pictorial repertoire, although they are found, for example, in a Persian manuscript in the 16th century.[40] More details can be gleaned from the drawings and paintings of Western academics and artists in the 19th century, when an interest in the Middle East and its artefacts stimulated the portraying of genre scenes and architecture, either in a scholarly context or in a staged romanticised environment, of which Mamluk metalwork fittings were a part.[41] The artists' drawings were not necessarily less realistic or detailed than those of the academic draughtsmen, even if these fittings, especially doors, mostly serve as the background of a genre scene.[42] For all their detail, they can serve as an aid in reconstructing the former design and decoration of objects that are heavily damaged today.[43] Some caution should, however, be exercised in using such drawings for comparative purposes: when comparisons are made between extant objects and the drawings made of them, differences can be observed with respect to their design and decoration. Furthermore, the dates attributed to them are either generic, or sometimes simply wrong.

The aim of this study is to broaden the picture of Mamluk metalwork by opening up a comprehensive body of primary material hitherto largely neglected which, uniquely, still functions for the most part in its original surroundings. The very nature of the material allows us to study the objects from different angles: as singular autonomous artefacts with their own peculiarities; as a compendium of objects reflecting a characteristic Mamluk style; as a group that reflects upon the craft, its patrons and metalworkers; and as objects in relation to their architectural surroundings. To determine the characteristic features of Mamluk metalwork fittings in the different centres, their designs, decorative motifs, and techniques are studied throughout the period. That also involves an attempt to discern if and when certain developments took place. Pinpointing specific features in certain periods might in the future provide a tool for attributing a date or provenance to detached fittings whose original location is uncertain.

To understand the uniqueness of Mamluk metalwork fittings, their designs, decorative motifs, and techniques are compared to earlier and contemporary metalworking traditions and to fittings executed in various other materials present in Mamluk constructions. Only then will their dependence on and borrowing from other *métiers* become evident, as will their individual nature. This relation to other media is also relevant for the context in which they functioned: by investigating if the designs and decoration of metalwork fittings were fine-tuned with the surrounding ornament, their relation to their immediate environment will become clear. By reflecting upon their exact location and visibility within a construction, the importance of metalwork doors and other fittings in religious buildings will be ascertained. A final aim is to determine the scale and development of the craft throughout the Mamluk period and to identify the role

[39] In exceptional cases, drawings on other Mamluk media such as glass contain illustrations of fittings. For the depiction of a pair of doorknockers on a glass bowl, attributed to the middle of the 13th century, see Carboni & Whitehouse (2001), 242–45.
[40] For the depictions of workshops in the Persian manuscript *Majālis al-ʿushshāq*, Berlin, Museum für Islamische Kunst, inv. no. I.1986.229, see Gladiss (1996), 134–35.
[41] Prisse d'Avennes and Bourgoin are among the most famous of scholarly painters who depicted metalwork fittings. Among the 19th century genre-painters, Ludwig Deutsch and Jean-Léon Gérôme have proven to be the most observant of the details of Mamluk metalwork fittings.
[42] The most realistic and refined depiction of a Mamluk door hitherto known, i.e. the door (cat. no. 1/1) in the name of Sultan Baybars, which is now installed in the French Embassy in Gīza, is present on a painting entitled 'The Nubian Guard' by Ludwig Deutsch in 1895. It is now in a private collection and is published in Mathaf (1989), cover page.
[43] An example of this is the heavily damaged door (cat. no. 15/1), still installed in the mosque and mausoleum of Ulmās al-Nāṣirī in Cairo, 729–30/1329–30, which was depicted by Prisse d'Avennes (1877) II, pl. 100.

of both patrons and artists in this, so as to understand, if possible, the mechanisms behind differences in the quantity and quality of fittings in the Mamluk period.

This study is divided up into two parts: an analytical study consisting of five chapters dealing with the development of fittings, their sources of inspiration, their context, and the industry, and a catalogue with a description of each individual fitting. Before the actual topic of Mamluk metalwork fittings is addressed, the wider picture of metalwork fittings and their survival rate elsewhere in the Islamic world will be considered in Chapter One in order to contextualise the scope of the craft of Mamluk fittings better. Chapter Two focuses on each category of Mamluk metalwork fittings, i.e. doors, doorknockers, window grilles, and window shutters, which can be subdivided into a number of types on the basis of their design. The basic characteristics of each type such as the preferred techniques, design, and decoration will be discussed and experiments by individual craftsmen traced. The meaning of the decorative repertoire of these fittings is then considered.

The purpose of Chapter Three is to inventorise the extent to which Mamluk metalworkers draw from other traditions – whether earlier or contemporary, executed in metalwork or in other media – for their designs, techniques, and the decorative ornament they used. For which inventions can the Mamluk metalworkers be held responsible? In addition, the influence of Mamluk fittings on both Ottoman and so-called Mamluk revival metalwork is considered, so as to pinpoint the legacy of Mamluk fittings.

Chapter Four focuses on metalwork fittings and the relation to the surroundings in which they function. In this way, the mutual relationship between metalwork fittings located in one and the same space is examined, besides which attention is focused on the impact of the surroundings on the design or decoration of the doors and grilles. What are the implications for a metalwork object when installed in an environment that is public and intended to impress through height, contrasting textures and colours? To what extent are the fittings made subordinate to the surrounding architecture and to what degree do they still serve as autonomous objects?

Chapter Five deals with the industry of metalwork fittings. Different centres of this industry are distinguished, and their role – whether local or of a more widespread nature – is discussed. Certainly the industry was not static, since fluctuations in the output, quality, and the kind of metal employed can be discerned. The role of the patron in this rise and decline will also be assessed.

For the rendering of Arabic texts, the transliteration of the Encyclopaedia of Islam (2nd edition) is used, with the following exceptions: ‘j’ is used instead of ‘dj’ and ‘q’ instead of a ‘dotted k’. In addition, the underscores of the digraphs ‘th’, ‘kh’, ‘dh’, ‘sh’, and ‘gh’ are not used.