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STUCCOWORK FROM METROPOLIS: A COMPREHENSIVE RESEARCH ON STYLISTIC FEATURES OF THE STUCCOES IN THE ROMAN BATH-PALAESTRA COMPLEX

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Abstract: This study examines the stuccoes found in the Roman Bath-Palaestra Complex, the largest public structure uncovered to date in Metropolis, during the 2011–2012 excavations. All of the identified examples were uncovered during the excavation of a particular room. The relationship between the stucco and the space, and its use in the interior design of the room, is one of the research topics of this article. The aim is to reveal the functional and structural significance of the room within the bath with the help of finds such as stucco and colored wall plaster (fresco). Dating proposals have been made based on the decorative features of the stucco, contextual information, and comparisons with similar examples. Stuccowork and application have been preferred for centuries, particularly in the interior design of public buildings and private residences during the Roman Imperial period. However, it has mostly remained in the background as a research topic and has not been sufficiently studied. Therefore, this study both evaluates the high-quality stuccowork in the Roman Bath-Palaestra complex in Metropolis and draws attention to stucco, which is an important part of ancient architecture and craftsmanship.

Keywords: *Stucco, Metropolis, Roman Bath-Palaestra Complex, Wall Painting, Architectural Ornament.*

INTRODUCTION

Spread out over the summit, down the sides, and around the base of a hill located between Yeniköy and Özbey in İzmir's Torbalı township, the ancient city of Metropolis was situated at the boundary between Ionia and Lydia (Fig. 1). The history of the settlement of this hill dates back to the Bronze Age. Planned in the third century BC, Metropolis gained the status of a wealthy city thanks to its location on the road between Smyrna and Ephesus, and its fertile agricultural lands.[1] In the Late Hellenistic period, the city expanded towards the eastern and southern slopes of the hill. The structures built there, such as the Stoa, Bouleuterion (Council House), Theatre, and Gymnasium, as well as the high-quality sculptures and reliefs, reveal the level that Metropolis had reached in architecture and art. By the Roman Imperial period, the city had expanded once again and spread across the Torbalı Plain. During this period, the southern slopes of the city were

[1] AYBEK/ARSLAN 2022, 342-351.

Fig. 1. Aerial Photo of Metropolis.

reserved for large-scale, high-quality residential buildings featuring elaborate decoration.[2] Public buildings such as the Bath-Palaestra Complex, Balneum, and Agora were constructed on the eastern plains. The city, which enjoyed its heyday in the second century AD, began to decline in the third century AD due to successive destructive earthquakes and possible attacks, such as the Gothic invasion. Traces of repairs can be seen on the large-scale public buildings in the city. This situation resulted in the gradual change of function of the buildings in Late Antiquity. Production was revitalized with various workshops and ateliers to generate income for the city. From the sixth century AD onwards, there was no significant construction activity in Metropolis for a long time. That is, until the Medieval Castle, stretching from the city center to the Acropolis, was built during the Laskaris period. This construction process was a large-scale defensive movement that resulted in the destruction of the ancient structures in the city center of Metropolis. The city soon fell under Turkish rule, bringing an end to 1,500 years of uninterrupted life in Metropolis.

The stuccoes that form the subject of this study were found in Bath-Palaestra Complex, which was planned for the eastern plains where Metropolis meets the Torbalı Plain. Evaluated as an imperial-style therme and built on an area of 16,000 square meters, this structure is the largest complex identified in Metropolis to date. The Bath-Palaestra Complex was essentially expanded in three construction phases.[3] At the end of the first century AD, the structure consisted solely of bathing sections; however, in the second century AD, a large palaestra and mosaic-decorated porticoes were integrated into the complex. In the third century AD, the building attained its present layout. The northern section comprises a mosaic-floored hall, where dining and drinking establishments (tabernae) were located, as well as three adjacent rooms with marble and mosaic pavements, although the walls of these spaces have been completely destroyed (Figs. 2-3). The stuccoes were discovered in the westernmost of these three chambers, hereafter referred to as the "Hypocaust Room". Measuring 7,10 × 5,60 meters, the room was partially equipped with a hypocaust system, while the remaining section preserved marble revetment slabs in situ (Fig. 4). The function of the hypocaust system in this chamber (set apart from the main bathing spaces) as well as the manner in which the lower-level marble flooring was employed, constitute central questions of this research. The role of the stuccoes, found here in a collective deposit, is intrinsically connected to the interior decoration of the chamber and its immediate architectural context.

[2] AYBEK/ARSLAN/GÜLBAY 2021; GÜLBAY 2023, 161.

[3] AYBEK 2016, 117-118.

THE SPATIAL FUNCTION AND ARCHAEOLOGICAL FINDINGS

During the archaeological excavations conducted in the Bath-Palaestra Complex, the stuccoes were recovered predominantly from the Hypocaust Room situated behind the northern mosaic portico and its surrounding area (Figs. 2-4). Owing to the large-scale alterations carried out in later periods, the original function of this chamber within the bath's initial architectural scheme is not entirely clear. Adjacent to the wall that delimits to the east the northern mosaic hall where the dining facilities (tabernae) were located, the Hypocaust Room was revealed, where a lime mortar floor mixed with brick fragments was encountered. The stuccoes were observed in great concentration above this floor surface (Fig. 4).

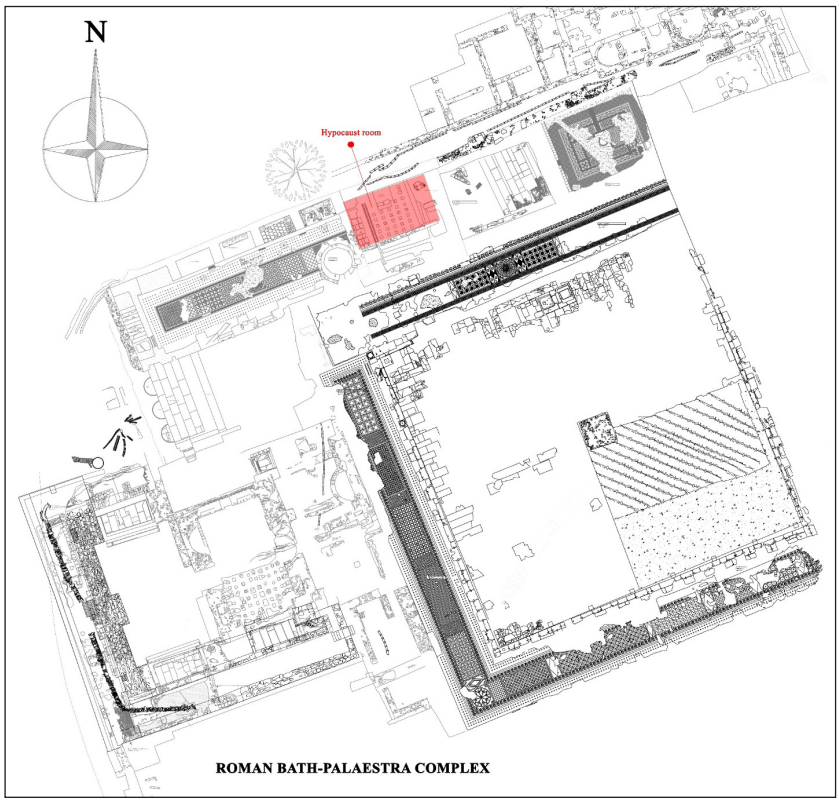

Fig. 2. Plan of Bath-Palaestra Complex.

At the same stratigraphic level, a bronze coin discovered on the floor was dated to the reign of Claudius II Gothicus (270 AD). In the same chamber, though approximately 1,20 meter higher in elevation, another bronze coin was revealed, corresponding to the reign of Constantine I (306–337 AD). The associated ceramic assemblage from this context indicates a dominance of Late Roman pottery (379 of the 396 identified sherds belonging to the Roman Imperial period).

Since the original floor was not preserved, excavation continued deeper, and immediately beneath the floor a hypocaust system with rectangular bricks was revealed (Fig. 3). A clay pipeline passing west of the brick columns also formed a boundary for the hypocaust installation. Another noteworthy feature is an area located to the west of this conduit, approximately fifty-five centimeters below the floor level of the hypocaust system, the surface of which was paved with marble slabs (Fig. 6). The discovery of such a marble pavement beneath infrastructural elements like the hypocaust system and the clay pipeline suggests the presence of an earlier phase of construction in the area. In order to better understand that earlier building phase, a stratigraphic sounding of ca. two meters depth was excavated within the Hypocaust Room. However, this sounding, located in the north-eastern part of the chamber, did not yield any further marble pavement slabs (Fig. 6). Examination of the finds from the archaeological sounding revealed that, after the first levels containing Roman Imperial period ceramics and fragments of painted wall plaster, a significant concentration of Hellenistic ceramics was encountered. In particular, the numerical prevalence and contextual distribution of mold-made Hellenistic bowls suggest that the marble-paved area was associated with an early construction phase in the complex. The

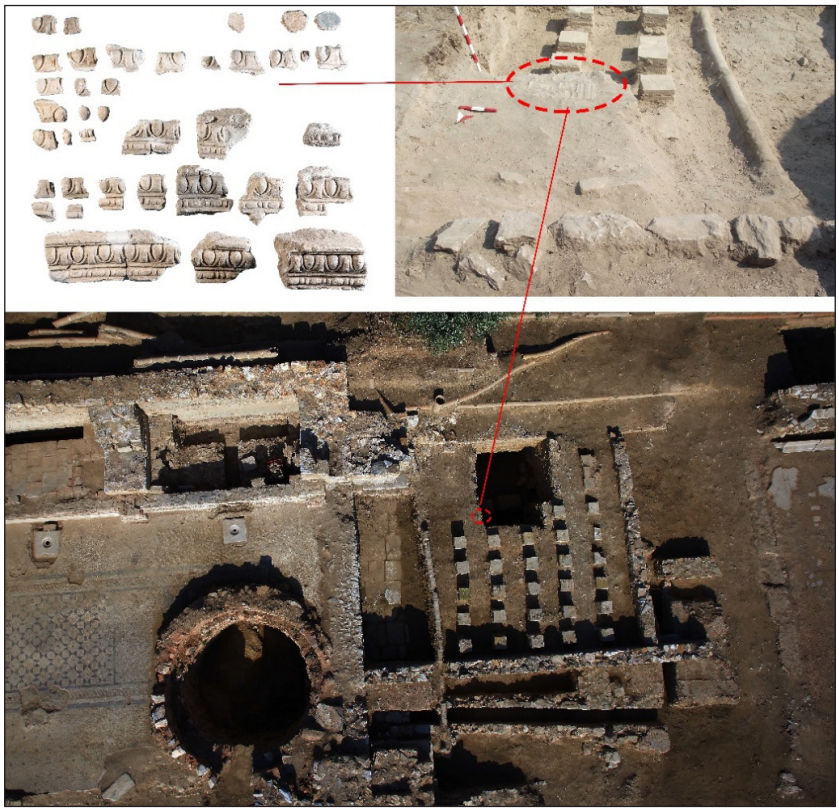

Fig. 3. Findspot of Stuccoes in the Hypocaust Room.

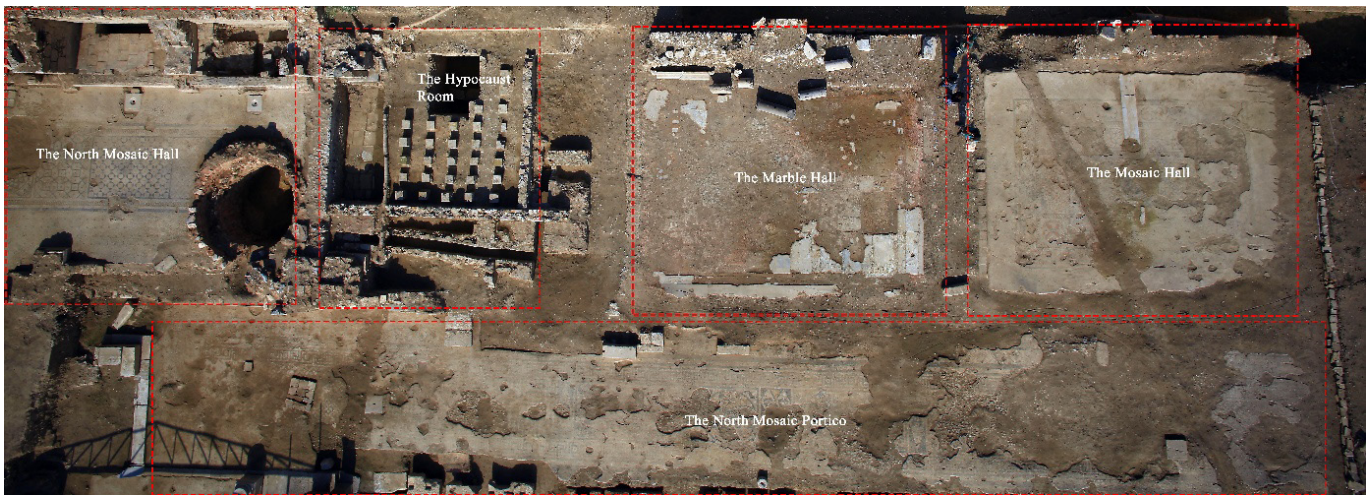

Fig. 4. Northern Sections of the Bath-Palaestra Complex.

same sounding also produced a terracotta figurine of Isis–Aphrodite.

The marble-paved chamber to the east of the Hypocaust Room and the northern mosaic hall to its west are identifiable sections within the boundaries of the Bath-Palaestra Complex. These northern units of the complex share a common north wall with the Hypocaust Room. That wall simultaneously serves as the external northern boundary

Fig. 5. The Stuccoes from the Hypocaust Room.

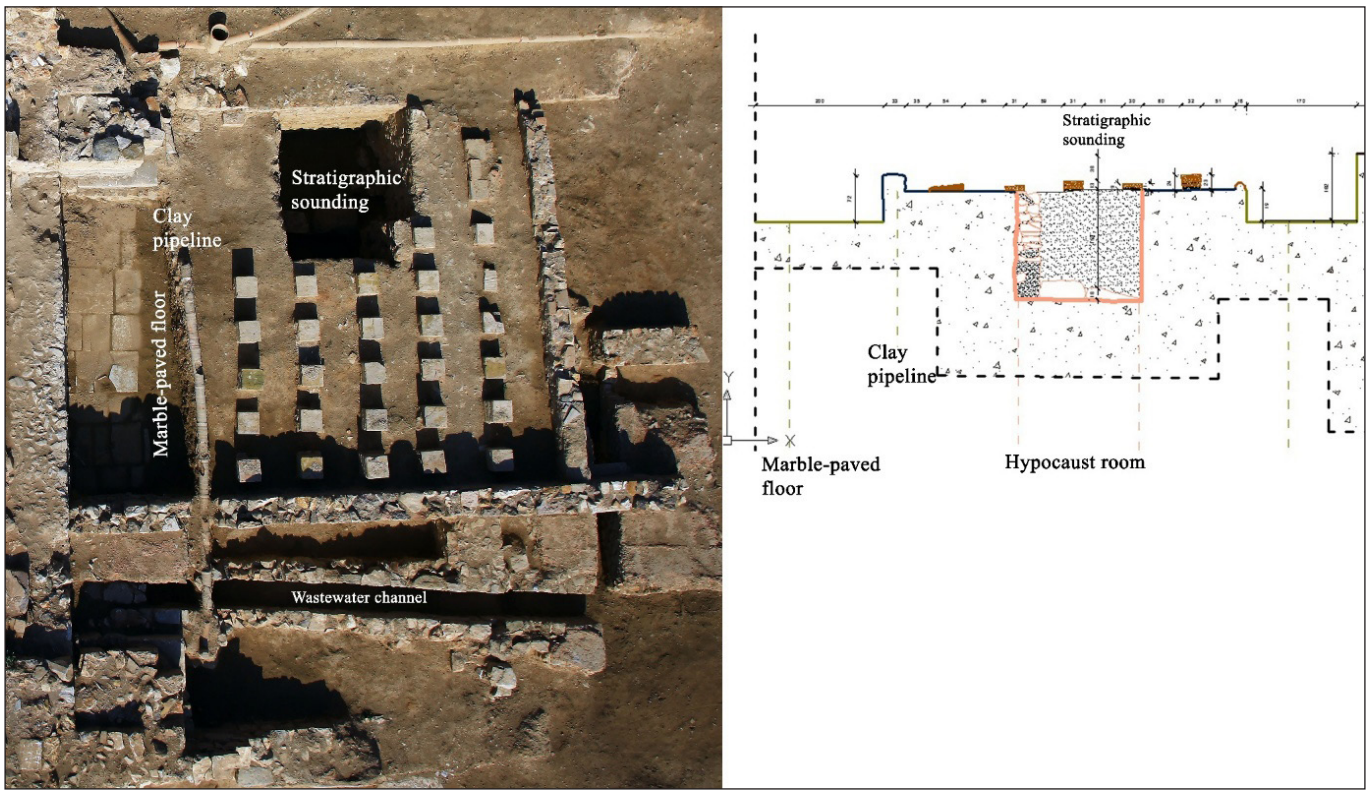

Fig. 6. Interior Design and Cross-section Drawing of the Hypocaust Room.

of the Bath-Palaestra Complex (Fig. 3, 4). The southern facade of the Hypocaust Room, on the other hand, opens directly onto the northern portico of the palaestra (Fig. 2). In summary, apart from the northern external wall of the Bath-Palaestra Complex, which bounds the chamber to the north, the room is flanked on three sides by other definable spaces. However, none of these adjoining areas contains a praefurnium (furnace).

The absence of a praefurnium in a room equipped with a hypocaust system raises questions regarding its function, as does the unusual location of such a hypocaust-heated space at a considerable distance from the bathing sections of the complex. The disconnection of this Hypocaust Room from its immediate surroundings can, of course, be understood in light of the subsequent alterations undertaken in the area. Notably, no floor paving existed within the hypocaust system; the first piece of bricks/pilae rests directly upon the natural soil. By contrast, in the heated rooms of the Bath-Palaestra Complex, the hypocaust floors are consistently paved with square bricks. This distinction is among the indicators of two different construction practices. Furthermore, no evidence of tubuli application has been identified on the walls. Although these differences and absences set the Hypocaust Room apart from the other heated chambers of the bath, they do not provide sufficiently clear data to elucidate the function of the system in this particular context. The finds recovered from the mortar of the room's floor suggest a date in the third–fourth centuries AD, a chronology further supported by the associated coins.

The examination of room infrastructure reveals that immediately outside the southern wall delimiting the hypocaust system, an east–west oriented wastewater channel was constructed (Fig. 6). This channel constituted an extension of the sewer system running in front of the tabernae located in the northern mosaic hall. In front of each taberna niche, marble sewer covers were set into the mosaic floor, connecting to this shared drainage network. The channel then turned southwards at the eastern end of the hall. During the Byzantine period, the line of this sewer could still be observed in the section of a circular-built kiln that was cut into the mosaic floor (Figs. 3-4). With the construction and use of this kiln, however, the drainage channel evidently ceased to function. Nonetheless, its eastern extension has been preserved along the southern side of the Hypocaust Room. At the southeastern corner of the room, the channel turned northward once again, where its traces could be followed for approximately 4,5 meters before disappearing. Portions of the limestone cover slabs of the channel have survived in situ. At the same level above these covers, remnants of marble flooring prepared with a lime mortar containing brick inclusions can still be observed in places, exhibiting a distinctive reddish hue. The narrow strips formed along the edges during the placement of the marble slabs onto the wet mortar are clearly visible, providing important evidence for the original flooring technique.

It is thought that the Hypocaust Room underwent a change of function during the Late Roman period. It remains uncertain whether the space was originally designed with a hypocaust system as part of the building's initial plan, or whether the square brick pilae were integrated into the room at a later stage. Furthermore, no traces of a praefurnium, which would have been necessary to support an underfloor heating system, have been identified. While the surrounding rooms were clearly adapted for purposes of dining, leisure,

and entertainment within the bath complex, the presence of a hypocaust-heated room situated far from the bathing sections raises significant questions. Of course, the hypocaust system was not exclusively associated with bathing facilities. It is known that such heating systems were also applied in rooms like the sudatorium (sauna) or the aleipterion (room for oiling and massage), where bathing did not occur. In addition, beyond bath complexes, hypocaust installations are attested in private domestic architecture, particularly in triclinia intended for winter use.[4] Nevertheless, in every case, these spaces had to be supported by a functioning furnace system. The absence or possible destruction of any associated heating source makes it difficult to interpret the Hypocaust Room with certainty. The very shallow feature of its external walls may also have contributed to this ambiguity. Excavations further revealed that in the northeastern corner of the room, the surviving floor mortar was preserved at a higher level than the walls themselves, underscoring the severe degree of wall destruction in this space.

The stuccoes observed within the Bath-Palaestra Complex were not confined solely to the Hypocaust Room. Particularly in the adjoining chambers situated between the main building of the bath (housing the bathing sections) and the western mosaic portico of the palaestra, both stucco fragments and painted wall plasters were encountered. These rooms, which featured marble flooring and wall revetments, yielded stuccoes that differ from those of the Hypocaust Room in terms of both density and typology. The stuccoes in question are characterized by molded profiles and polychrome decoration. Additionally, painted wall plasters were documented in the northern mosaic hall located to the west of the Hypocaust Room. Although these findings are not as abundant as those from the Hypocaust Room, they nonetheless demonstrate that other parts of the Bath-Palaestra Complex shared similar interior decorative schemes.

MATERIAL AND TECHNIQUE

In architectural practice, stucco decoration was often regarded as a cheaper imitation of marble revetment.[5] For this reason, scholars traditionally tended to associate it with a modest cost building material and to overlook its broader significance. However, recent archaeological excavations have demonstrated that stuccowork could also be employed in highly refined and luxurious contexts. Particularly in Rome, Pompeii, and Herculaneum, stuccoes documented in both public and private architecture reveal the high quality of craftsmanship and the considerable variety of decorative schemes in this medium.[6] Nevertheless, research and fieldwork on stucco decoration have not yet been addressed in a sufficiently comprehensive framework. A major factor contributing to this situation is, of course, the perishable nature of the material. As stucco was generally applied as an interior decorative finish, its friable character rendered it less likely to survive compared to its marble counterparts. During the excavations of the Hypocaust Room, considerable effort was undertaken to ensure that the integrity of the stucco remains was not compromised. Subsequent restoration and conservation work further allowed the reconstruction and reintegration of fragmented pieces.

The fundamental stages of stuccowork application can be divided into four principal techniques. The first consisted of placing wet plaster into a wooden or clay mold, after which the mold was drawn away laterally so that the plaster retained its profile. This method was typically employed for moldings and profiled elements. Subsequent fine detailing could then be executed with smaller hand tools or applied using impression devices.[7] A second method involved pressing a previously prepared standardized motif, cast in a mold, onto the wet plaster in successive repetitions. This technique was commonly used for cornices or borders that framed the entire wall surfaces of a room. The third method consisted of incising directly into the wet plaster with a carving technique, most often employed to create figural motifs.[8] The final technique proposed for the execution of friezes or cornice bands involved the insertion of pre-prepared plaster elements into reserved fields, in a manner comparable to marble decoration.[9] This method, often attributed to Early Byzantine stuccowork, consisted of producing the stucco separately before setting it into place. The evidence from the Bath-Palaestra Complex at Metropolis provides several details that may shed light on which of these techniques was employed. The use of a wooden mold was almost certainly required, yet "unlike the successive repetitive impressions described above"[10], the decoration here does not exhibit a strict schema or precise symmetry. It is therefore more plausible that a longer mold was used in order to cover a

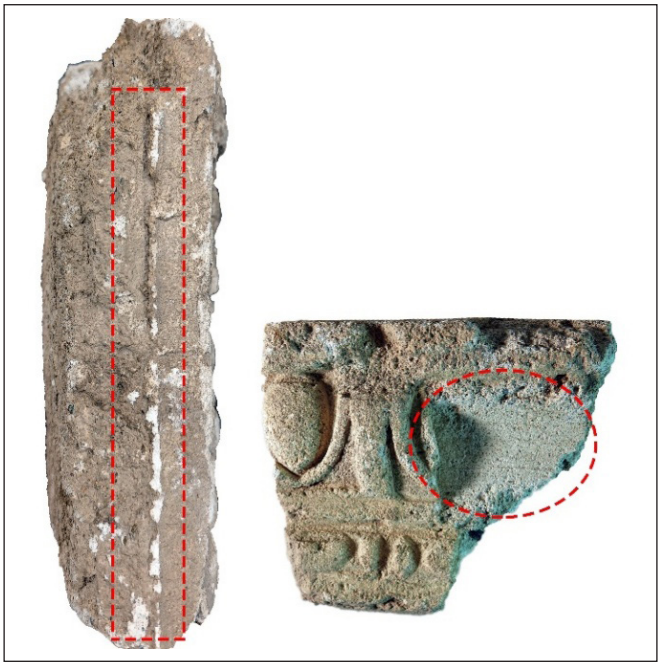

Fig. 7. The marks of the joints on stuccoes.

[4] THÜR 2014, 68, Taf. 94, Abb. 9; HAMARİ 2019, 43-44.
[5] SCHEDING 2011, 41.
[6] MAURINA 2023, 220; PLANT 2022, 120-121, Fig. 6-7.
[7] WRIGHT 2005, Fig. 220.
[8] ADAM 1995, 464-465, Fig. 528.
[9] WRIGHT 2005, Fig. 221.
[10] ADAM 1995, 464-465, Fig. 528.

Fig. 8. Drawing of Type 1 Cornice. Drawing: Taner Özgür.

wider surface in a single application. A comparable technique may be observed in the stucco decoration of Dura-Europos.[11] Metropolis examples suggest a two-stage procedure. In the first stage, the base layer applied directly onto the wall included moldings and profiles, with the exception of the ionic kymation and astragal series. This corresponds to the first of Wright's three proposed categories of application.[12] Subsequently, lower relief elements such as the ionic kymation and astragal motifs were affixed within reserved areas as appliqué.[13] The joints between these elements can be clearly observed on the surviving stuccoes, where, for instance, egg motifs are easily detached along their seams (Fig. 7). The shaping of the architectural decoration within the reserved fields was most likely carried out while the plaster was still wet, using a wooden mold. A second possibility, however, is that architectural elements were prepared separately in a mold, allowed to dry, and then set into the reserved fields while the wall plaster remained damp. The reverse surfaces of the stuccoes display incised grooves intended to improve adhesion to the wall, yet no evidence has been identified to suggest the use of wooden dowels for fixing.

TYPOLOGY, STYLISTIC ANALYSIS, AND DATING

All of the stuccoes under consideration in this study were discovered in close proximity to one another. During conservation and restoration, fragments that matched were reassembled. On the basis of decorative typology, the stuccoes can be classified into two groups. The first, and more prevalent, consists of a decorative band composed of an ionic kymation above a sequence of astragal motifs (Fig. 8). The second group is represented by a smaller band, likewise composed of ionic kymation, but of more modest dimensions (Fig. 9).

Type 1

The type 1 stucco examples decorated with ionic kymation represent cornice ornamentation positioned at the junction of wall and ceiling (Fig. 10). The upper surface, which adjoins the ceiling, has a depth of nine centimeters, making it deeper than the underside, which measures five centimeters. Both the ionic kymation and the astragal ornament are framed above and below by profiled moldings. The total height of the cornice decoration is twelve centimeters, of which 5,2 centimeters belongs to the ionic kymation and 2,7 centimeters to the astragal ornament. In addition, the uppermost section is crowned by a profile measuring 1,8 centimeters in thickness. Egg-shells of ionic kymation have an average width of five centimeters, with a depth of six millimeters between egg and shell. Broad dart motifs that separate the egg-shells vary between one and two centimeters in width. The astragal design is executed in the form of two reels and one bead. No deliberate attempt was made to align the reel-and-bead sequence beneath the eggs. The decorative schema employed in the astragal motif follows a pattern of one bead between two reels. Within this composition, a very thin peduncle motif was used to separate the clusters. By contrast, in the ionic kymation, no such peduncle motif connects the eggs to the shells. On the underside of one stucco fragment, a downward-projecting profile reveals that a console gesion design was applied to the stuccoes.[14] However, as this detail is attested on only a single fragment, it is difficult to determine at what intervals it was employed, particularly since the console profiles were not arranged in a standard sequence within the decorative schema. This uncertainty precludes any confident reconstruction of their possible positions.

When examining the egg-and-dart arrangement of the ionic kymation, it becomes evident that the oval-shaped eggs are independent of the shells. Although there is a deep groove between the shell and the egg, the distance separating them is narrow. The shell leaves, composed of a single profile, closely follow the contours of the egg. An axial irregularity can be observed between ionic kymation, framed above and below by a single profile, and astragal. Such irregularity is prevalent in Anatolian decorative art, particularly in works dating to the Hadrianic or the Late Antonine–Severan periods.[15] The dart motifs positioned between the eggs present a particularly unusual form of ornament. In the decorative style of ionic kymation, the darts are typically pointed and often represented with wings. In Metropolis stuccoes, by contrast, they appear as thick bands (Fig. 10). These asymmetrically

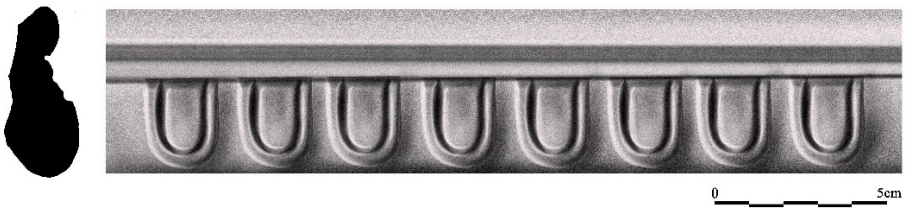

Fig. 9. Drawing of Type 2 Cornice. Drawing: Taner Özgür.

[11] ALLAG 2019, 227, Fig. 19.
[12] WRIGHT 2005, Fig. 220.
[13] ROZENBERG 2019, 189.
[14] For similar console decorations on stucco found in different ancient settlements see also SCHMIDT-COLINET 2013, 282, Abb. 236, 239; ROZENBERG 2019, Fig. 13, 17; ALLAG 2019, 227, Fig. 6a.
[15] KADIOĞLU 2013, 248.

Fig. 10. Drawing and Reconstruction of the Probable Positions of the Type 1 Stuccoes. Drawing: Taner Özgür.

rendered bands or darts are conjoined with the egg-frames above, and their junction line was deliberately accentuated by means of a very fine incised groove. The beads within the astragal sequence are executed in a broad manner, while the reels are of an oval form.

The processes undergone during the application of the cornice band, together with the material-specific technical requirements of stuccowork in general, distinguish these products from their marble counterparts. Therefore, when comparing decorative elements with marble examples, it is essential to take this distinction into account. The softer structure and plastic qualities of stucco are more limited than those of marble.[16] As a result, details and stylistic requirements in the ornamentation could not always be executed with the same precision as in marble. In comparisons between stucco and marble decorations, such differences arising from the nature of the material should be approached with tolerance. Comparisons among stuccoes themselves, however, are much more decisive. In addition to ornamentation and typology, technique and method also provide significant information for dating. When the decorative style of the type 1 stuccoes from Metropolis is compared with examples from other cities, it becomes evident that the deep, though not very wide, scheme between egg and shell motifs can be observed in stucco works dated to the second half of the second century AD and the early third century AD.[17] The dart motifs placed between the egg-shell elements are highly distinctive. Their execution in the form of thick bands diverges from the conventional pointed and ribbed dart designs. Examples showing dart motifs without wings within the context of the ionic kymation are by no means rare.[18] However, even in these cases, they are not as thick and broad as those from Metropolis. Moreover, while pointed tips are regarded as indispensable in other cities' stucco decorations, the Metropolis examples, in contrast, display upper and lower ends of equal thickness, lacking pointedness. This design presents a motif of remarkable rarity.

Type 2

Within this type, five fragments have been identified (Fig. 11). Four of these are parts of an ionic kymation. Unlike those of type 1, the ornaments are smaller in scale, and the depth between egg-and-shell is greater. The shell width measures 2.2 centimeters, while its height is 2.5 centimeters. Depth of the egg-shell on the exterior surface is measured at 1.6 centimeters. There is no dart motif between the shells; instead, the interval between them is represented as a deep groove. However, at the upper outer corner of the egg-shell, a fine incised line can be observed, intended to create the impression of a dart (see the red arrow on Fig. 11). The finds belonging to type 2 were likewise discovered in the Hypocaust Room, though in smaller numbers, concentrated mainly in its eastern section. In type 2, ionic kymation is bounded above by a profiled band. Two moldings separated by a deep concave profile form the crown profile of the decoration, while no remains associated with the lower molding or form have survived. The stucco examples of type 2 appear to have functioned not as elements of a cornice block, but rather as strips used to delimit fresco schemes, figures, panels on the wall, or to frame them. Stylistically, ionic kyma of type 2 differs from that of type 1. The shell of the egg motif extends almost in a straight line, then curves softly to meet the

[16] SCHEDING 2011, 38-39.

[17] The study of over 1,000 stucco fragments discovered during archaeological excavations in the city centre of Carthage has revealed examples featuring various decorations, figures and motifs, predominantly dating to the Antonine period (SCHEDING 2011, 39-40, Fig. 4); The research conducted in Palmyra has examined approximately 4,000 stuccoes and wall paintings displaying different stylistic characteristics. The examination of the stucco pieces resulted in the creation of a typology of eight different types of ionic kymation. Among these, ionic kymation 1 is consistent with the Metropolis example, model 10/134, in terms of its egg-and-frame configuration (TOBER 2013, 194, Fig. 195). This model is of type 8 in the stucco friezes. This frieze, along with the others, is dated to the Late Antonine-Early Severan period (TOBER 2013, 208).

[18] MORA/DÍAZ/ÁLVAREZ 2014, Taf. CLV, Abb. 6; ROZENBERG 2019, Fig. 23.

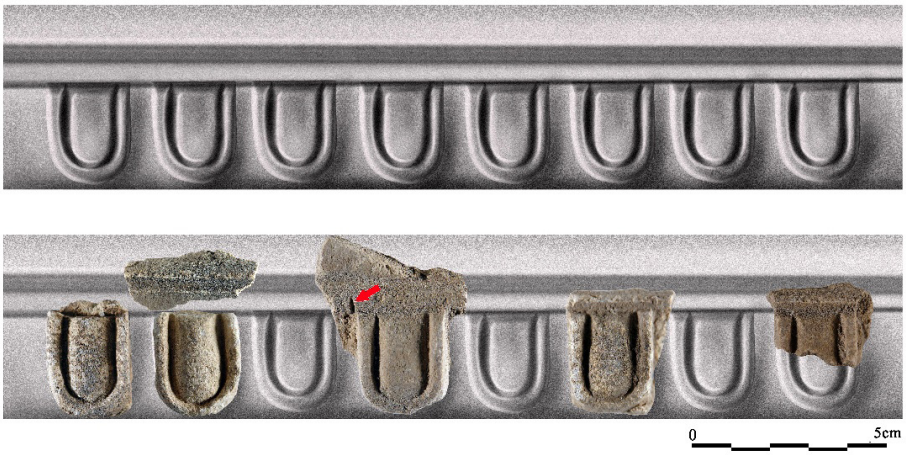

Fig. 11. Drawing and Reconstruction of the Probable Positions of the Type 2 Stuccoes. Drawing: Taner Özgür.

egg.[19] Although the egg is carved separately from the shell, the distance between them is narrow (4 mm). The depth between shell and egg is 2 mm. While no peduncle motif links the egg and shell, two elements join at the tip. Viewed in profile, both egg and shell are executed in a slightly convex form (Fig. 9).

As previously noted, stucco examples of type 2 were employed as borders. These frames sometimes served to delimit painted plasters, while at other times they were used to separate panels.[20] Thin borders are also frequently encountered in stuccoes used as ceiling decoration.[21] Such examples generally functioned as elements of vault ornamentation, framing various geometric panels and figures along the ceiling. Consequently, they were executed with a curve corresponding to the inclination of the vault.[22] All comparable examples included in the comparison are dated to the Roman Imperial period, between the first century BC and the third century AD. Type 2 examples from Metropolis, likewise, are dated to the Late Antonine–Severan period, both through parallels and thanks to the detailed analytical context provided by type 1.

DISCUSSION AND CONCLUSION

Within the scope of this study, an important argument to clarify is the function or design of the type 1 and type 2 stuccoes in the room. However, in order to elucidate this scheme of interior decoration, it is necessary to understand not only the stuccoes but also the frescoes. Fresco fragments revealed during the excavation of the Hypocaust Room are not sufficient to reconstruct the wall design of the inner space. Nevertheless, several plaster fragments with marks of red bands on a white ground and red geometric patterns on a white ground provide some clues regarding the fresco decoration of the room (Fig. 12). Although the integration of stuccoes with these painted wall plasters would be crucial for understanding the overall wall design, no surviving remains clearly show this combination. It is assumed that type 1 fragments were placed at the junction of the wall and ceiling as a cornice. No traces of paint were observed on the cornice stuccoes, which are thought to have extended horizontally along the wall line. Similarly, type 2 examples were probably part of the wall design together with frescoes. The hypocaust system beneath the floor indicates that the hall functioned as a heated room.[23] Yet, although this heated room was a section of a bath complex, it was most likely not related to bathing areas. This conclusion is based on both the position of the room within the bath complex and its relation to surrounding spaces, as well as the absence of remains associated with bathing installations. Moreover, stucco and fresco, as plaster-based decorative techniques, are not suitable for humid environments, which further supports this interpretation.[24] In light of these observations, it is reasonable to suggest that the hypocaust-heated room functioned as a winter hall. Comparable rooms of this kind are especially attested in villas, where triclinia or similarly spacious halls often exhibit elaborate architectural decoration.[25]

Stylistic evaluation of stuccoes in the Hypocaust Room and proposed dating has been discussed in detail above, with the conclusion that the stuccoes are consistent with the architectural ornamentation of the Late Antonine–Severan period. Ceramic fragments and coins recovered together

[19] The form of the egg-shell recalls tongue/groove motif frequently encountered on architrave and frieze blocks of the Roman Imperial period (KAYMAK 2015, 237, Fig. 17); Architrave–frieze blocks bearing this ornamentation are also attested in the Bath-Palaestra Complex in Metropolis.

[20] MAURINA 2023, 221-222, Fig. 5-7.

[21] For the stucco panels of the Bath of the Swimmer in Ostia (BEDELLO-TATA 2014, Pl. XLI, Fig. 5); for stucco examples seen in the civil dwellings of the Vigna Barberini on the Palatine Hill in Rome (MAURINA 2023, 220); for the vaulted stuccoes decorating the cubiculum of the Villa della Farnesina in Rome (PLANT 2022, 120-121, Fig. 6-7).

[22] WADSWORTH 1924, 29, Pl. 7, 16, 27; PLANT 2022, 119-120, Fig. 3-5.

[23] It is thought that the hypocaust system in the space is related to a phase of change in Bath-Palaestra Complex. Main basis for this idea is that the hypocaust-heated space is located at a higher level than the marble and mosaic-floored halls to its east. These three rectangular spaces situated appx. 1,5 meters below the north mosaic-floored hall and tabernae to the west, are thought to have been arranged symmetrically side by side in the original plan of the Bath-Palaestra Complex. The marble floor covering identified on the western edge of the Hypocaust Room emerges as the original building level in this layout. In the second phase of the building, floor level must have been raised with a hypocaust system planned for this area.

[24] However, examples of stucco and fresco can also be found in steam rooms of baths: Ephesos Terrace Houses 2, Unit 1 private bath structure (RATHMAYR 2010, 94, 96; ZIMMERMANN 2010, 107, Taf. 20, Abb. 22-23); Tepidarium of the Forum Bath in Pompeii (GENSHEIMER 2018, 82, Fig. 3.1); Tepidaria of the House of the Labyrinth, the House of the Cryptoporticus and the House of the Silver Wedding in Pompeii (GENSHEIMER 2018, 93).

[25] At the Terrace Houses in Ephesus, located about twenty-two kilometers from Metropolis, there are likewise rooms equipped with hypocaust system. Many of these spaces are not related to bathing, but rather are halls and rooms intended to be kept warm during the winter (THÜR 2014, 68, Taf. 94, Fig. 9); Similarly, a basilica in the Terrace Houses of Ephesus was also equipped with an underfloor heating system. The stuccoed room, accessed through the so-called apse hall, shows clear parallels with the hypocaust-heated room in Metropolis, both in terms of its rich stucco decoration and the use of the hypocaust system (THÜR 2014, 221, Pl. 93, Fig. 7).

Fig. 12. Painted plaster fragments reflecting the fresco design of Hypocaust Room.

with stuccoes during archaeological excavations also provide evidence regarding the later use of the room. In particular, two of the three bronze coins are dated to the reign of Emperor Constantine I (306–337 AD). Ceramics from the same context likewise consist predominantly of everyday vessels characteristic of the fourth century AD. Although the original floor of the structure has not been preserved, the contextual association of stuccoes offers important data about the time of the building's destruction or roof collapse. Based on available finds, this phase can be placed in the fourth century AD, at least for the Hypocaust Room if not for the entire bath complex.

The dart motifs positioned between the egg-shells of type 1 constitute a highly unusual design within stucco typology. Comparable thick bands are rarely encountered either in nearby Anatolian cities or in central regions of the Roman world. Examples exist in which dart motifs are rendered in more rounded rather than pointed forms,[26] and, in some cases, dart shafts are left flat rather than ribbed.[27] However, none are as thick or stylized as those at Metropolis. This peculiarity may be attributed to a chronological or stylistic influence, since neither contemporary stucco examples nor marble versions of such ornaments exhibit comparable thick darts or bands. It is therefore plausible that the distinctive dart motifs of type 1 derived from the technical constraints of stucco molding. Perhaps the choice of flat and thick darts reflected the ease of shaping them. Since no further evidence for stuccowork has yet been discovered in other buildings at Metropolis, opportunities for local comparison are lacking. Limited scientific research and publications on stuccowork also hinder the identification of parallels for type 1 dart decorations. Nonetheless, the comprehensive studies of stucco design and craftsmanship from Carthage in North Africa and Palmyra in Syria allow for some degree of comparison. In Italy, particularly at Rome, Pompeii, and Herculaneum, stuccoes are preserved in far better condition, though stylistically they differ significantly from those at Metropolis. In Roman contexts, stucco decoration is more strongly associated with the Late Republican and Early Imperial periods, followed by a decline from the Antonine era onward.[28] Stucco usage in Asia Minor is especially well attested in the Terrace Houses of Ephesus.[29] Yet even there, no parallels to the Metropolis examples (particularly of ionic kymation decoration) can be identified. The fact that the stuccowork at Metropolis has so far been documented only within Bath-Palaestra Complex suggests that stucco application was not a widespread practice within the city. Even in domestic contexts where fresco decoration is common, stuccowork appears not to have been preferred. In this respect, the Hypocaust Room constitutes a unique architectural feature for Metropolis.

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[26] MORA/DÍAZ/ÁLVAREZ 2014, Taf. CLV, Abb. 6.
[27] TOBER 2013, 194, Abb. 195, Ionisches Kyma 1-3.
[28] WADSWORTH 1924, 14; MAURINA 2023, 218.
[29] THÜR 2014, 7, Taf. 97-102.

REFERENCES

ADAM 1995
Adam, J. P., *Roman Building, Materials and Techniques* (London - New York: Routledge).

ALLAG 2019
Allag, C., Stucs de Syrie: maîtrise des matériaux et des techniques, *Syria Stucs d'Orient Suppl.* V, 217-230.

AYBEK/ARSLAN 2022
Aybek, S./Arslan, B., Eski Çağlardan Günümüze Torbalı Ovasında Ulaşım Ağı ve Metropolis'in Stratejik Önemi. In: Nurdan, S./Özler, M. (eds.), *18. Türk Tarih Kongresi*, Vol. 11 (Ankara), 341-359.

AYBEK 2016
Aybek, S., Metropolis'te Bulunan Üç Roma Hamamı. *Arkeoloji ve Sanat Dergisi* 153, 109-124.

AYBEK/ARSLAN/GÜLBAY 2021
Aybek, S./Arslan, B/Gülbay, O., *The Peristyle House of Metropolis* (İstanbul: Ege Yayınları).

BEDELLO-TATA 2014
Bedello-Tata, M., Ostia Antica. Terme del Nuotatore. Stucchi dall'ambiente 18. In: Zimmermann, N. (ed.), *Antike Malerei Zwischen Lokalstil und Zeitstil. Akten des 11th Internationalen Kolloquiums der Aipma 13–17 September 2010 in Ephesos*. Archäologische Forschungen Bd. 23 (Vienna: Austrian Academy of Sciences Press), 121-126.

GENSHEIMER 2018
Gensheimer, M. B., *Decoration and Display in Rome's Imperial Thermae, Messages of Power and their Popular Reception at the Baths of Caracalla* (Oxford: Oxford University Press).

GÜLBAY 2023
Gülbay, O., Home & Family Life. In: Aybek, S./Arslan, B. (eds.), *Metropolis; A City, Its People, Their Way of Life* (İstanbul: Arkeoloji ve Sanat Yayınları), 161-162.

HAMARI 2019
Hamari, P. (2019). *Roman-Period Roof Tiles in the Eastern Mediterranean Towards Regional Typologies* (Ph.D. diss., University of Helsinki).

KADIOĞLU 2013
Kadıoğlu, M., Anazarbos Zafer Takı: Restitüsyon ve Tarihleme Önerisi, In: Kökdemir, G. (ed.), *A Festschrift for Orhan Bingöl on the Occasion of His 67th Birthday* (Ankara: Bilgin Kültür Sanat Yayıncılık), 237-260.

KAYMAK 2015
Kaymak, G., Side P Tapınağı'nda Yeni Araştırmalar, Yeni Bulgular ve Yeni Yorumlar, *Adalya* 18, 203-240.

MAURINA 2023
Maurina, B., Fragments de corniches en stuc provenant des fouilles de la Vigna Barberini sur le Palatin à Rome. In : Carrive, M./Spühler, A./Tomassini, P. (eds.), *Peintures et stucs d'époque romaine. Études toichographologiques* (Bordeaux : collection de l'AFPMA 12), 217-228.

MORA/DÍAZ/ÁLVAREZ 2014
Mora, F. J. H./Díaz, A. F./Álvarez, M. B., Decoracion parietal de Augusta Emerita. Repertorio pictorico y contexto arqueológico a partir de las excavaciones de un vertedero del subirbio norte. In: Zimmermann, N. (ed.), *Antike Malerei Zwischen Lokalstil und Zeitstil. Akten des 11th Internationalen Kolloquiums der Aipma 13–17 September 2010 in Ephesos*. Archäologische Forschungen Bd. 23, (Vienna: Austrian Academy of Sciences Press), 461-471.

PLANT 2022
Plant, J., Hard as Rock and Light as Air: Stucco Ceilings in Roman Domestic Space. In: Haug, A./Hielscher, A./Taylor Lauritsen, M. (eds.), *Materiality in Roman Art and Architecture, Aesthetics, Semantics and Function* (Berlin: De Gruyter), 113-130.

RATHMAYR 2010
Rathmayr, E., Vorbemerkungen zu den Bauphasen. In: Krinzinger, F. (ed.), *Hanghaus 2 in Ephesos, Die Wohneinheiten 1 und 2, Baubefund, Ausstattung, Funde*. Forschungen in Ephesos VIII/8 (Vienna: Austrian Academy of Sciences Press), 86-100.

ROZENBERG 2019
Rozenberg, S., Stuccowork in the Ancient Landof Israel, *Syria Stucs d'Orient Suppl.* V, 183-200.

SCHEDING 2011
Scheding, P., Der römische Stuck eines kaiserzeitlichen Großbaus. Zur Bedeutung monumentaler Stuckausstattung im römischen Karthago, *Kölner und Bonner Archaeologica* 1, 37-44.

SCHMIDT-COLINET 2013
Schmidt-Colinet, A, Zusammenfassung: Palmyras Reichtum durch weltweiten Handel. In: Schmidt-Colinet A./al-As'ad, W. (eds.), *Palmyras Reichtum Durch Weltweiten Handel, Archäologische Untersuchungen im Bereich der Hellenistischen Stadt, Bd. 2, Kleinfunde* (Vienna: Verlag Holzhausen), 261-300.

THÜR 2014
Thür, H., Baubeschreibung. In: Thür, H./Rathmayr, E. (eds.), *Hanghaus 2 in Ephesos, Die Wohneinheit 6, baubefund, ausstattung, funde*. Forschungen in Ephesos 8/9, (Vienna: Austrian Academy of Sciences Press), 29-120.

TOBER 2013
Tober, B., Stuck und Wandmalerei. In: Schmidt-Colinet A./al-As'ad, W. (eds.), *Palmyras Reichtum Durch Weltweiten Handel, Archäologische Untersuchungen im Bereich der Hellenistischen Stadt, Bd. 1, Architektur und ihre Ausstattung* (Vienna: Verlag Holzhausen), 170-253.

WADSWORTH 1924
Wadsworth, E. L., Stucco Reliefs of the First and Second Centuries Still Extant in Rome, *Memoirs of the American Academy in Rome* 4, 9-102. DOI: 10.2307/4238518.

WRIGHT 2005
Wright, G. R. H., *Ancient Building Technology, Vol. 2, Materials, Technology and Change in History, Vol. 7/1* (Leiden - Boston: Brill).

ZIMMERMANN 2010
Zimmermann, N., Wandmalerei. In: Krinzinger, F. (ed.), *Hanghaus 2 in Ephesos, Die Wohneinheiten 1 und 2, Baubefund, Ausstattung, Funde*. Forschungen in Ephesos 8/8 (Vienna: Austrian Academy of Sciences Press), 105-121.