

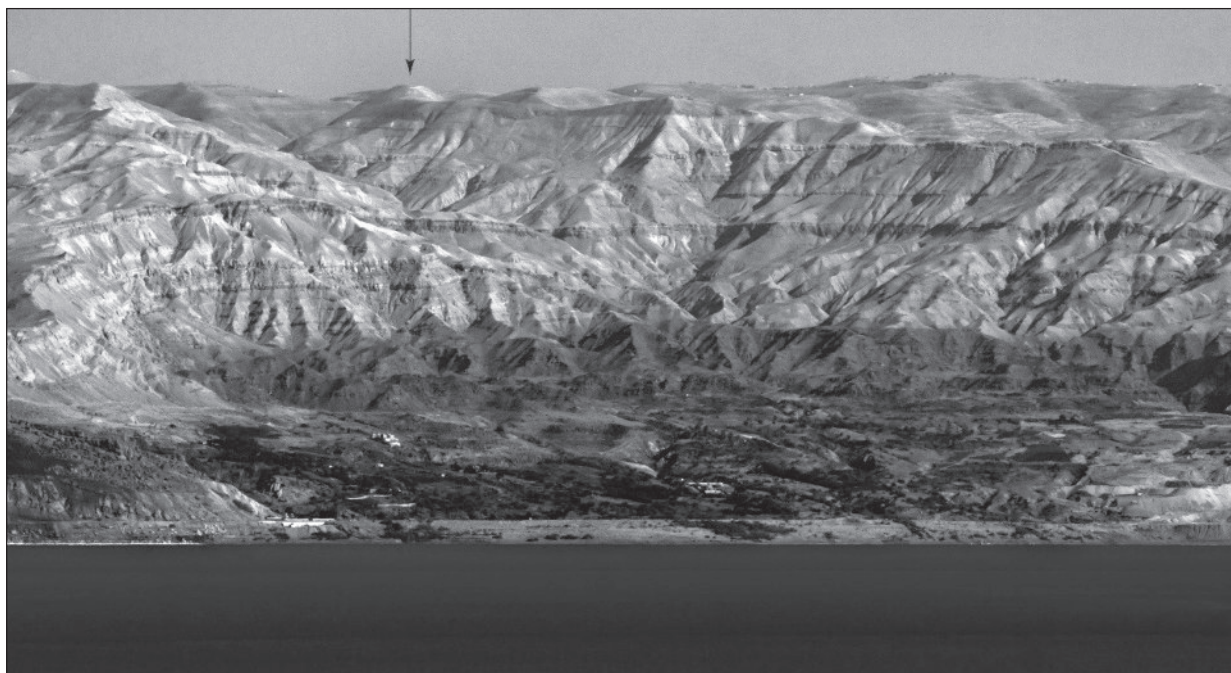
MACHAERUS PROJECT: PRELIMINARY REPORT ON THE 2016-2017 ARCHAEOLOGICAL EXCAVATION SEASONS THAT LED TO THE DISCOVERY OF THE LOST NORTHERN WING IN THE HERODIAN ROYAL PALACE

Győző Vörös

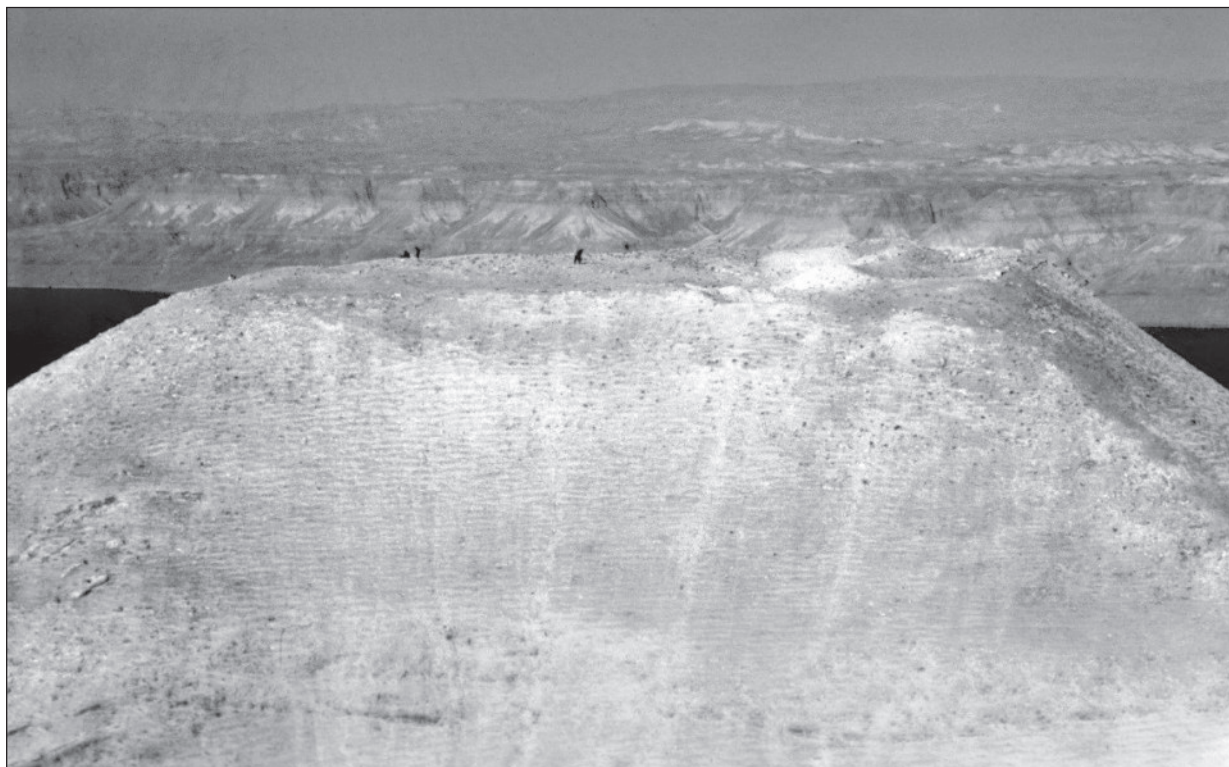
Introduction

The Memorial of Nabi Yaḥyā ibn Zakarīyā (Saint John the Baptist, Gr. Ἰωάννης ὁ βαπτιστής, Ar. يحيى بن زكريا), the historical place where the Christian and Muslim prophet was imprisoned and beheaded, is the Herodian royal city of Machaerus, overlooking the Dead Sea in Transjordan (Vörös 2013 and 2015). This information which complements the Gospels is not only based on the holy tradition of the Christian churches, but founded on the first century account of Josephus (*Antiquitates Judaicae* XVIII 5, 2), the official historian of the Flavian Dynasty in Rome. The written evidence of Josephus was also confirmed by the related reference in the *Ecclesiastical History*

(I 11, 4-6) of Eusebius of Caesarea (c. 324 AD). The historical data from the *Antiquitates* on John's arrest and jail by Tetrarch Herod Antipas is attested by all the Gospels; their accounts are consistent with and complement that of Josephus. The fortified palace and city of Herod Antipas at the Dead Sea was the only royal palace the Tetrarch inherited from his father, King Herod the Great. The royal court of the once magnificent Perea citadel, with direct views from its towers to Jerusalem and Jericho, was a magnificent choice for the celebrations of the tragic birthday banquet, the circumstances of which were described in detail by the Gospels according to *Mark* (6, 14-29) and *Matthew* (14, 1-12), (**Figs. 1-2**).



1. The mountain top historical site of Machaerus crowns the horizon, as viewed from the Dead Sea shore of Palestine. The royal eagle's nest was erected 1100 meters above sea level, and was visible from Masada to Alexandreion.



2. The virgin archaeological site of Machaerus, just before the start of the June 1968 archaeological excavations. View from the northeast.

During the three months of our eighth and ninth archaeological seasons, in September-October 2016 (Vörös 2017a and 2017b), and in September 2017, among other important discoveries, we excavated and surveyed a previously unknown part of the royal citadel of Machaerus. The Hungarian Academy of Arts, in collaboration with the Studium Biblicum Franciscanum, has been conducting archaeological excavations and architectural surveys at this historic site since 2009 (under the directorship of the present author). The Hungarian members of the last two archaeological excavation seasons were: Messrs. Imre Balázs Arnóczki, Tamás Dobrosi, Tamás Dósa-Papp and István Óri-Kiss. The Italian fathers from the Jerusalem Studium Biblicum were: Fr. Amedeo Ricco OFM, Don Gianantonio Urbani and Don Stefano Vuaran. The Jordanian Department of Antiquities (DoA) was represented by Messrs. Abdullah al-Bwareed (September 2016), Ahmed Ajarmah (October 2016) and Basem Mahamid (September 2017), respectively. The original intention of the fieldwork was to uncover the uppermost street of the Herodian lower city in Machaerus, and collect additional architectural

elements for our ongoing anastylosis project. However, the excavations uncovered a previously unknown area of the Herodian royal palace outside the surrounding wall of the Early Roman fortress.

The Discovery of the Lost Fourth Tower in the Northern-Wing of the Herodian Royal Palace through a Comparative Study of Aerial Archaeology

The late Father Michele Piccirillo (OFM) wrote the following observation in his 2004 internet-description on the Machaerus fortified royal castle: “The *upper city* was composed of the royal palace defended by four towers, of which only three have been identified.” (Piccirillo 2004). He based his important scientific observation on the general layout of Judean Herodian fortresses, which usually had four towers. The three aerial photographs (Figs. 3-5 below) illustrate what occurred during the previous half-a-century of excavations in the Machaerus citadel; the early archaeological excavations impacted on the later missions, as they dumped their excavation detritus on the area which overlay the fourth tower.



3. Aerial photograph taken at the end of 1978, after the first season of the First Franciscan Archaeological Mission. The excavation trenches of the 1968 American Baptist Mission are still untouched and visible, together with the long line of a military rifle pit fire trench from the 1967 War.



4. Kite aerial photograph taken in late 1993 (the camera-rig is clearly visible on the top-right, anchored at the modern dig-house), after the completion of the excavations of the 1992-1993 Second Franciscan Archaeological Mission, led by Michele Piccirillo (OFM). The excavation detritus, including the debris of the central Herodian cistern, is clearly visible on this photograph, deposited over the 2016-2017 excavation area.

The first aerial photograph was taken in 1978 (**Fig. 3**), after the completion of the first season for the Franciscan Archaeological Mission, under the direction of Father Virgilio Corbo. We can clearly see the 23 excavation trenches in the center of the citadel, opened as windows to the citadel's hidden past by the 1968 American-Baptist Mission, and a long military rifle-pit fire-trench from the period of the 1967 War. The 1978 excavation season of the Corbo-mission commenced by excavating around the Biblical citadel, to uncover the surrounding wall of the fortification. Their next objective was to reveal the important sacred interior. However, they were not aware at that time that the polygonal

surrounding wall of the citadel is not from the Herodian period (ca. 30 BC – 36 AD), but from the period of the Early Roman garrison (ca. 44 – 71 AD). This explains why they did not discover the fourth Herodian fortification tower (or fortified bastion) Piccirillo spoke about in 2004.

After the death of Fr. Virgilio Corbo (in 1991), his former student Fr. Michele Piccirillo continued with the Machaerus excavations begun by his teacher; among other important undertakings on the field, he fully excavated the 9.5 meter deep Herodian cistern in the center of the peristyle Doric royal courtyard. However, he put his c. 1000 m³ excavation



5. Helicopter photograph (APAAME_20171001_REB-0083) taken on 1 October 2017, immediately after the completion of our 2016-2017 archaeological excavation seasons. In the right-bottom corner of the early morning shot, the previously unknown wing of the Herodian royal palace is clearly observable (together with the refilled ritual pools and the cistern).

debris almost entirely above the area of the unexcavated, unknown, and since 71 AD completely forgotten, fourth fortification tower. The second aerial photograph from 1993 (Fig. 4) illustrates the surface-modifications on the Machaerus citadel since 1978.

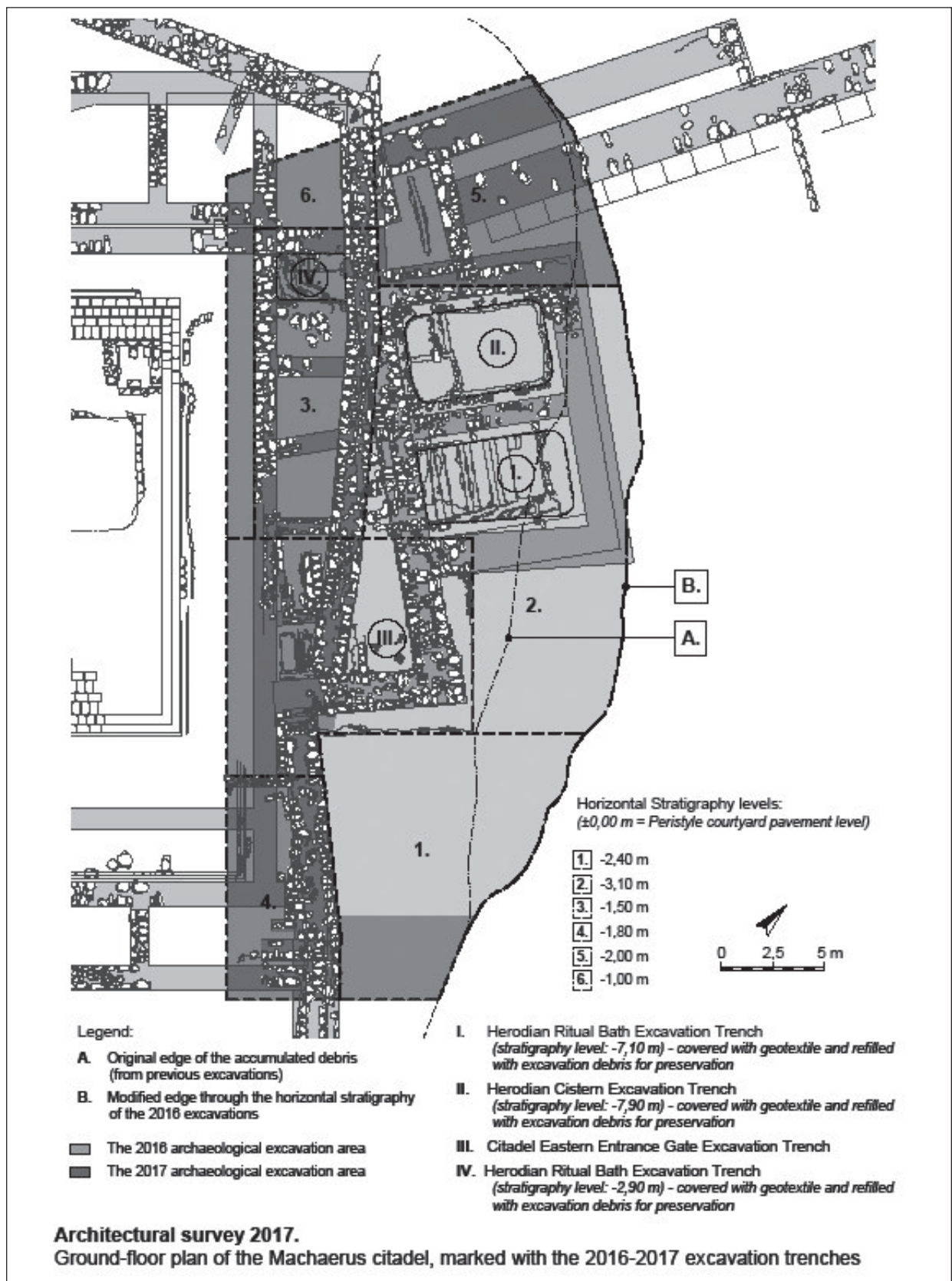
The third aerial photograph (Fig. 5), taken from the same angle as the previous two, was taken on 1 October 2017, immediately after the last day of the 2016-2017 archaeological excavations in this lost wing of the Herodian royal palace. It proves that this area consists of three halls and a huge fortification tower, with Hasmonean foundations, which had been converted into a monumental royal bath and cistern-reservoir during the Herodian period. The horizontal and vertical stratigraphies, together with chronological identification of the three subsequent building-periods, can be discerned on the season drawings (Figs. 6-11). We have also completed graphic and photographic documentation of the three newly discovered plastered constructions (the two ritual baths and the cistern), which were then covered with GEOTEXTILE covers and backfilled, to preserve them for future generations, and to ensure they will remain in good condition for presentation or restoration in the future.

One of the important discoveries of our 2016-2017 excavation seasons was the unearthing

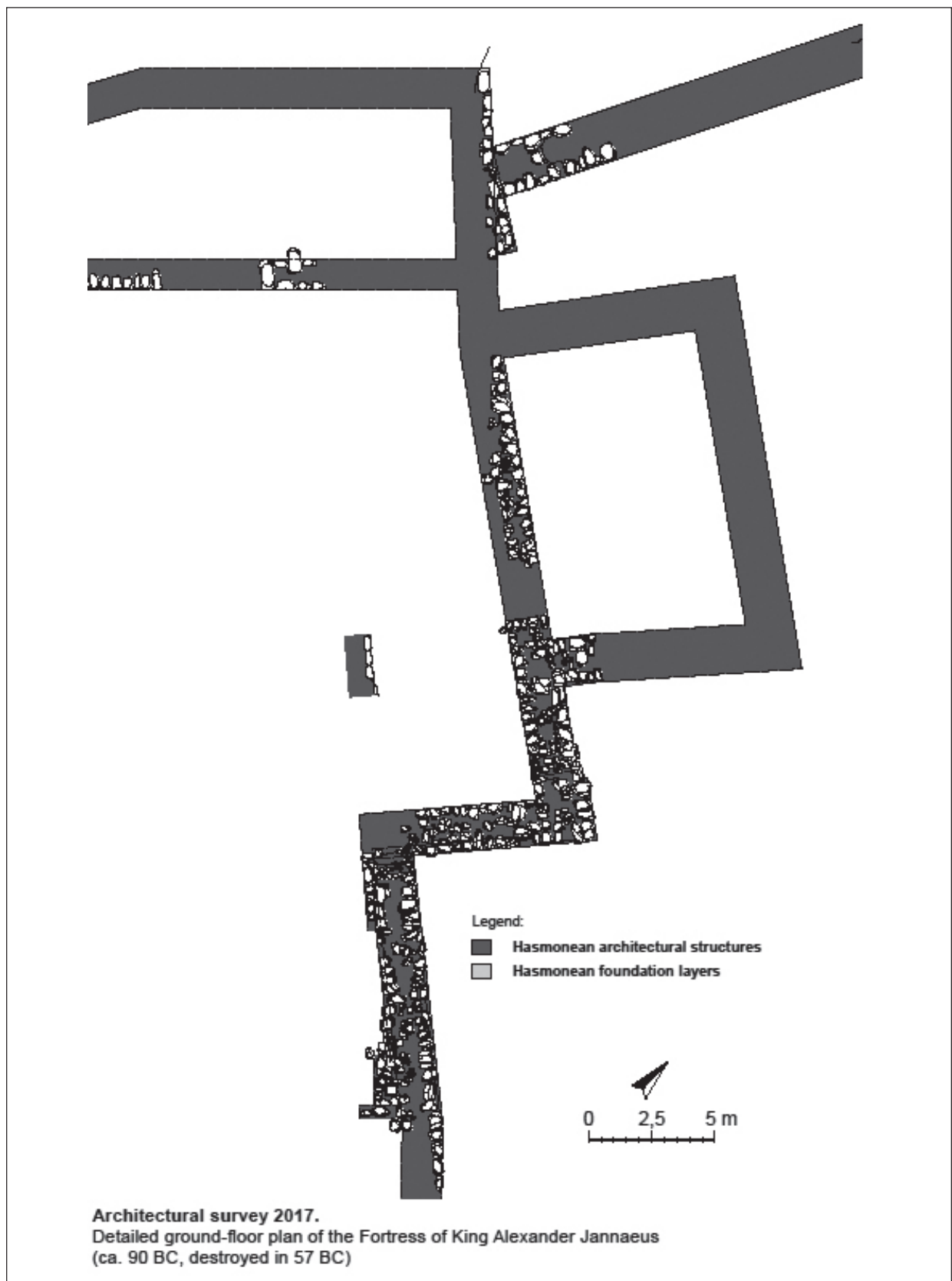
of the Early Roman garrison's citadel-gate towards the lower city, which is visible on both the third aerial photograph and the architectural drawings. Even though the gate is poorly preserved, the meeting point of the Hasmonean and (later reused) Herodian wall with the polygonal Early Roman surrounding wall clearly indicates its original place. This is the exact location where the Zealots separated themselves from the goy-gentiles, as described by Josephus: "As for the Jews that were caught in this place, they separated themselves from the strangers that were with them, and they forced those strangers, as an otherwise useless multitude, to stay in the lower part of the city, and undergo the principal dangers, while they themselves seized on the upper citadel, and held it, and this both on account of its strength, and to provide for their own safety. They also supposed they might obtain their pardon, in case they should [at last] surrender the citadel." (*Bellum Judaicum* VII 6, 4)

The Discoveries of the Five Machaerus Immersion Baths Outside the Herodian Royal Bathhouse (from 1968, 1980, 1981, 2016 and 2017).

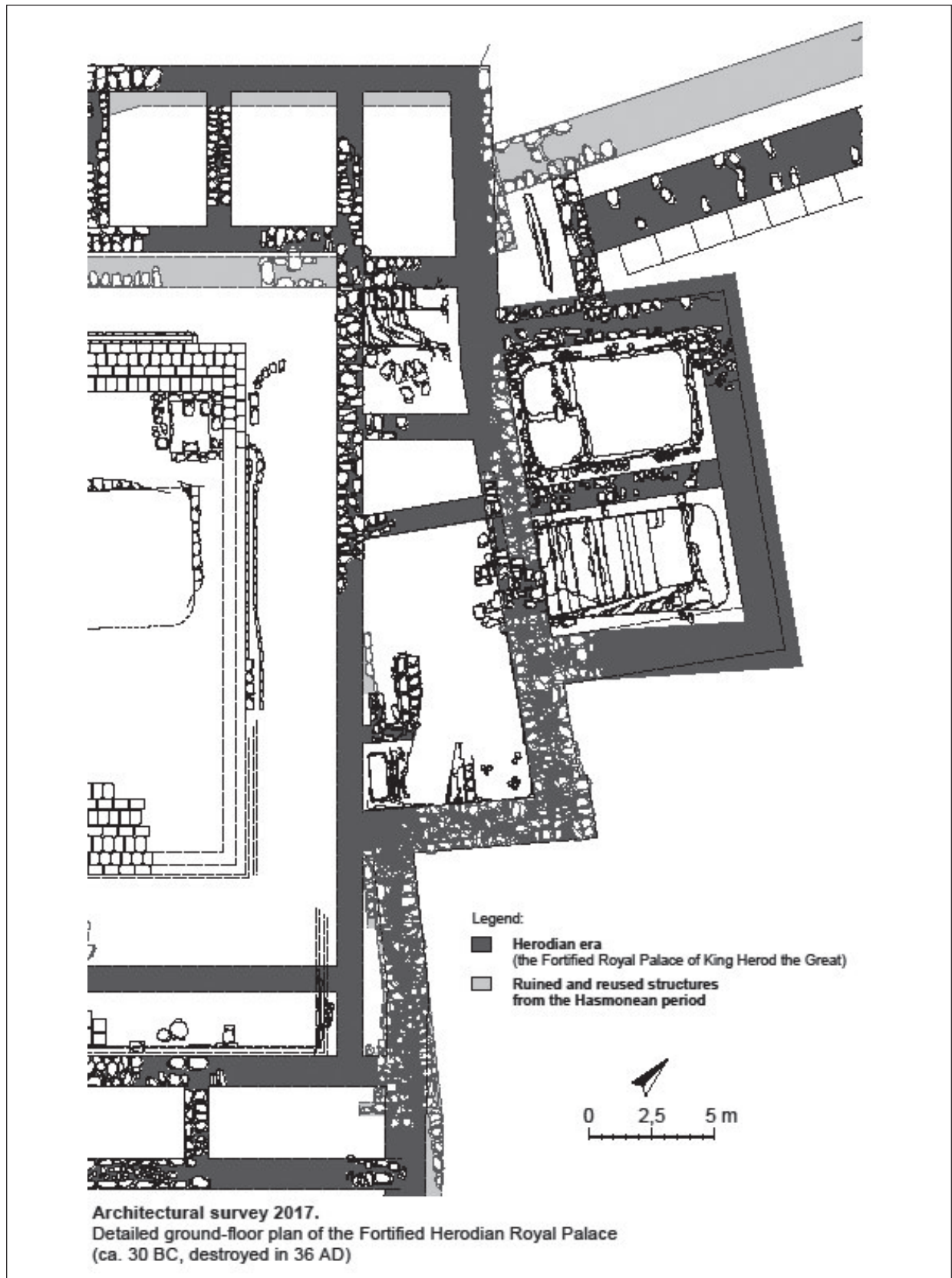
In June 1968, during the first excavation conducted at the ancient ruins of this Biblical citadel, the American Baptist Archaeological Mission (led by the Baptist Minister E. Jerry



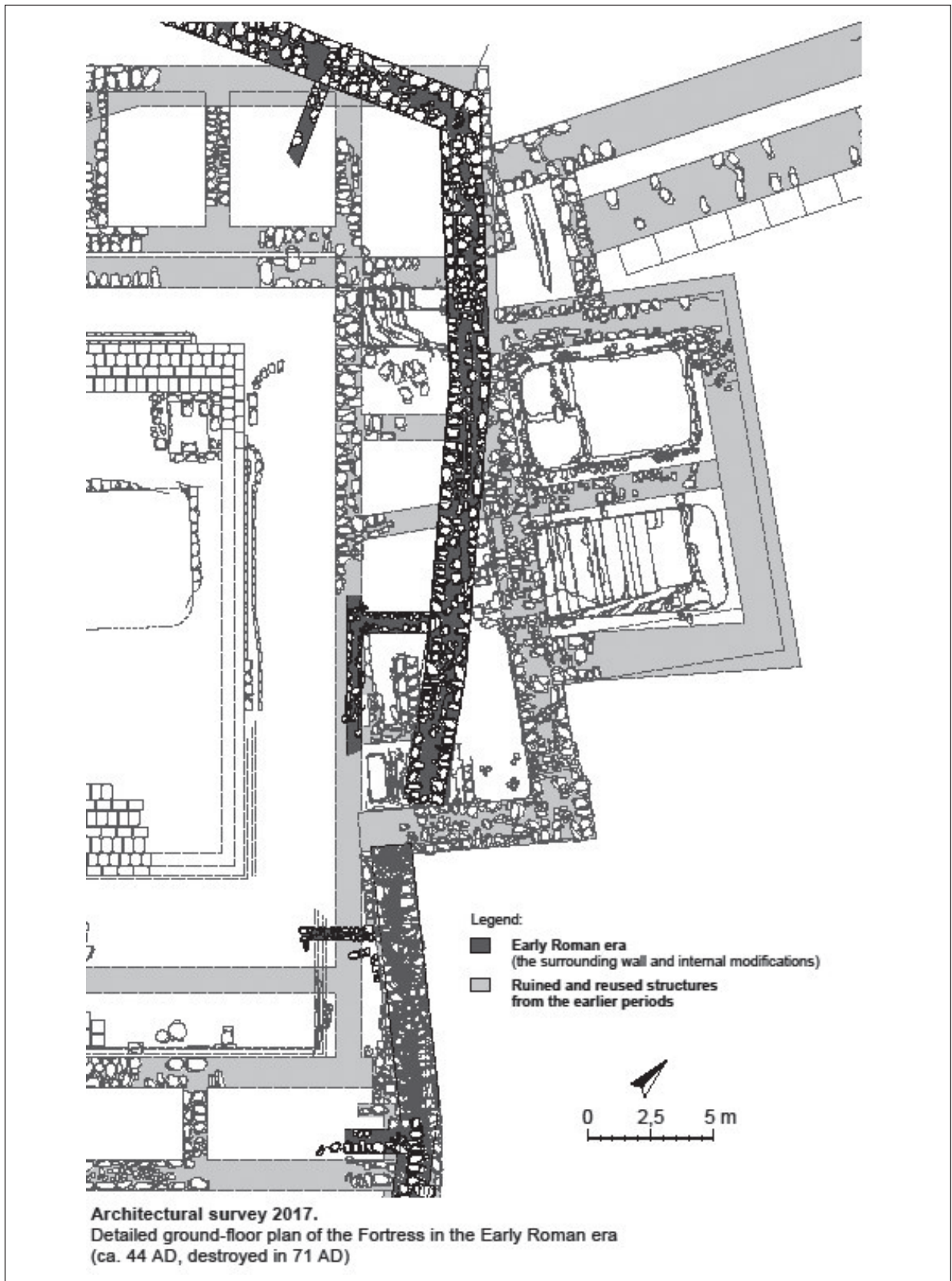
6. Ground floor plan of the Machaerus citadel, illustrating the 2016-2017 excavation trenches.



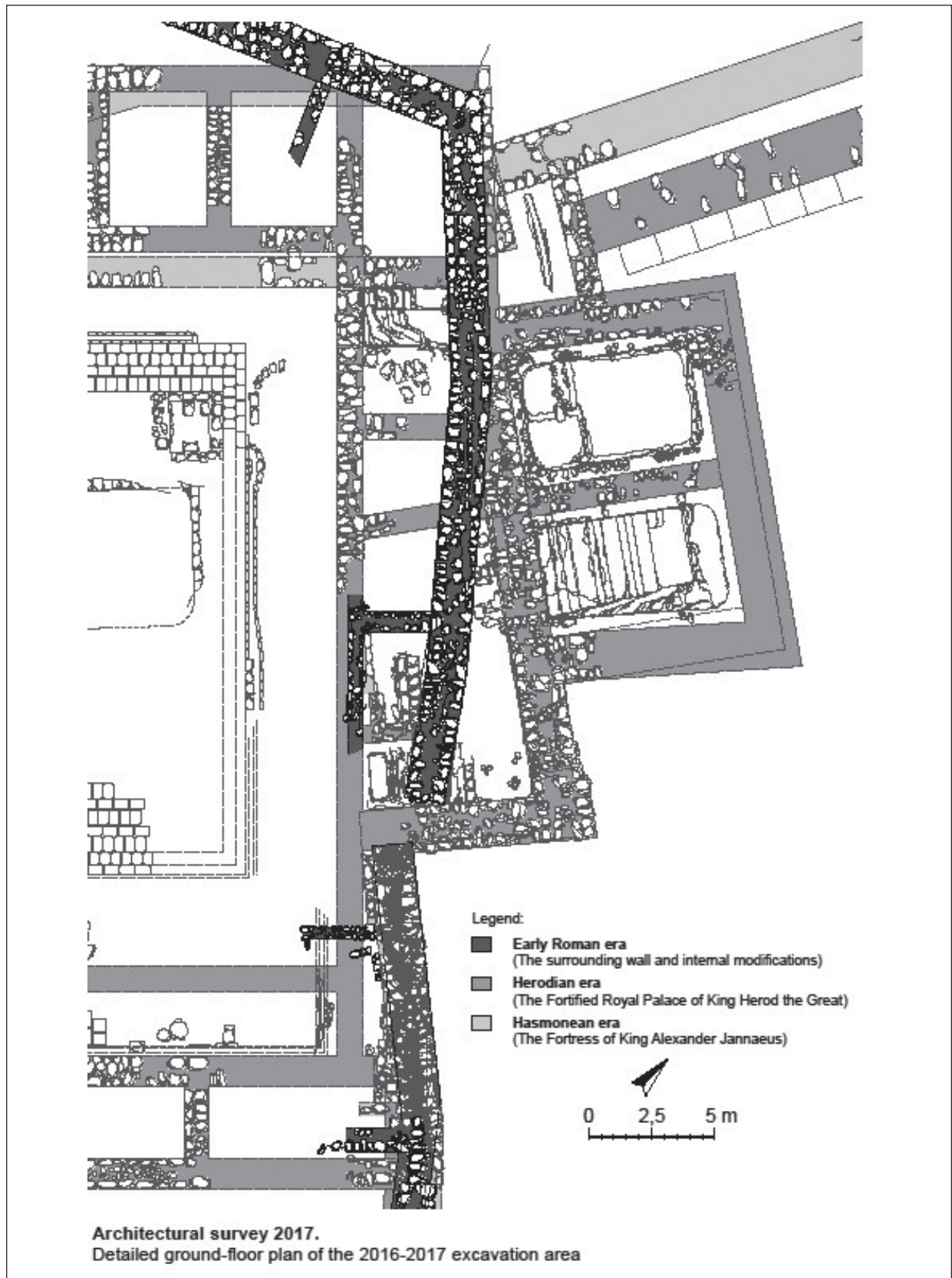
7. Detailed ground floor plan of the Fortress of King Alexander Jannaeus.



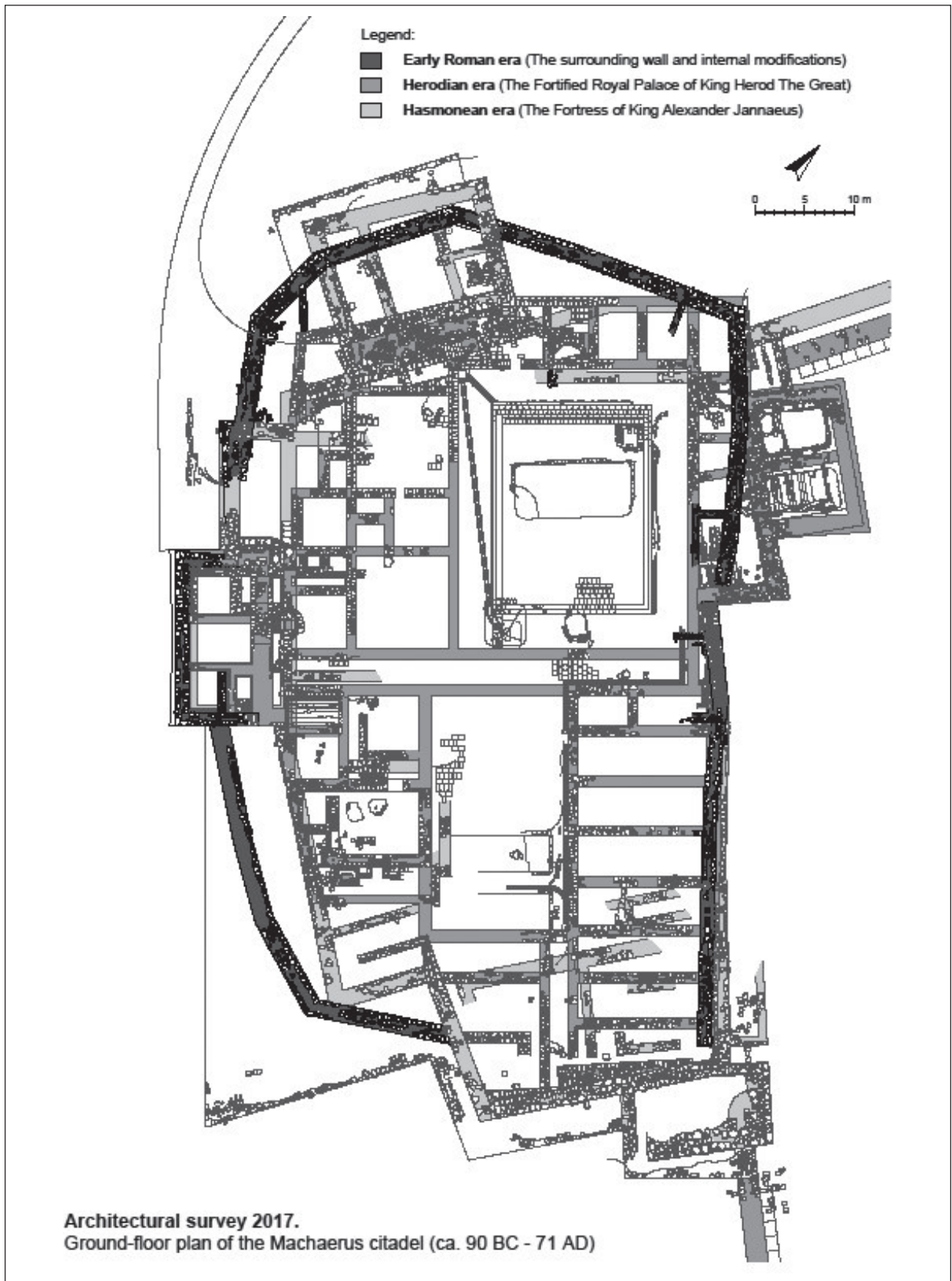
8. Detailed ground floor plan of the fortified Herodian Royal Palace.



9. Detailed ground floor plan of the fortress in the early Roman period.



10. Detailed ground floor plan of the 2016-2017 excavation area.



11. Ground floor plan of the Machaerus citadel.

Vardaman) discovered and identified the *apodyterium* and *caldarium* halls of the Early Roman bathhouse at Machaerus. This is the fourth largest built by King Herod; after the Lower Herodium, the Third Palace in Jericho and the Western Palace of Masada (Vörös 2015: 170-177; Netzer 2009: 256). The Americans also discovered a wonderfully preserved, small ritual immersion bath (a mikveh or hammam-tahara for tabila) for the royal family outside the walls of the splendidly decorated royal bathhouse; hence it provided a ritual rather than hygienic function. The wooden door and the segment-vaulted roof were both still intact; thus perfectly preserving the Herodian 3D architectural space. (Fig. 12)

In September 1979, the Italian-Franciscan Archaeological Mission, directed by Virgilio Corbo (OFM), completed the American excavation of the Herodian royal bathhouse at Machaerus, and discovered the only *in situ* Attic base of an Early Roman Ionic column from the Gospel period citadel, on the *stylobate-crepidoma* of the *apodyterium* hall. They also unearthed a beautiful mosaic floor in the *tepidarium*, and excavated the connected *frigidarium* bath as well, which clearly did not have a ritual function (Corbo 1979: 315-326). In 1981, the Franciscans discovered another

mikveh outside the bathhouse; however, unlike that found by the American Baptist mission, it was outside the walls of the citadel, in a house in the lower city of Machaerus. (Fig. 13) Virgilio Corbo's excavation report states that this small, domestic, private mikveh "cannot be excluded [as] a ritual bath" (Corbo-Loffreda 1981: 284).

During March-April 2014, the Hungarian Archaeological Mission re-erected, with clean anastylosis, one of the 475cm high, complete Ionic columns of the *apodyterium* hall in the bathhouse at Machaerus, on the exact place where the Corbo excavation had discovered the *in situ* Attic base, and also completed a theoretical architectural reconstruction of the complete bathhouse (Vörös 2015: 26-79 and 426-457). In addition, it appears that all Machaerus excavations have the same destiny; during our 2016 and 2017 seasons, as did the Baptists and the Franciscans, we discovered and fully excavated a one-one Herodian mikva'oth (the plural of mikveh), outside the bathhouse in the previously undiscovered and unknown northern wing of the royal Herodian fortified citadel, the only palace of King Herod the Great outside the borders of present-day Palestine and Israel (Figs. 14-19).

Discussion

We reconstructed the Herodian rainwater harvesting system of the Machaerus citadel,



12. The segment-vaulted, small Herodian royal mikveh, discovered in 1968, as it appears today from the inside.



13. The 1981 excavation photograph of the newly exposed private mikveh in the domestic quarter of the lower Herodian city of Machaerus. Viewed from the north.



14. The three steps at the bottom of the small northern Herodian royal mikveh in the citadel, discovered during the 2017 excavations, viewed towards the north. The surrounding wall of the Early Roman garrison is clearly visible on the right side of the photo. Before the destruction of the mikveh (probably in 36 AD) it may have had a well-made vaulted roof, as a large quantity of well-dressed Herodian ashlar stones had accumulated in its interior and in the immediate surroundings.



15. The monumental royal “Qumranic” mikveh, taken during the 2016 excavation. View from the south-east. Two large column drums are visible at the level of the fourth step, providing a clear indication of the final destruction of the citadel in 71 AD.

incorporating the newly discovered, large royal mikveh bath (which has 12 perfectly preserved steps). This was the seventh in a



16. The cistern and the king size royal mikveh can be seen in the foreground of the photo, with the two columns from the Herodian royal palace, which were re-erected in 2014, visible in the background. Taken during the 2016 excavation season. View from the north.

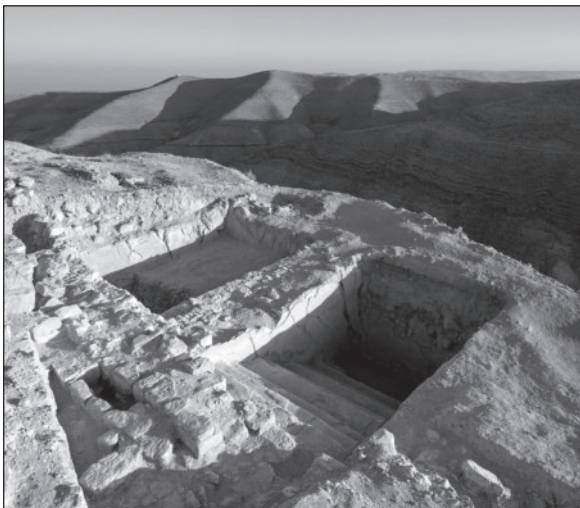


17. The completed, c. 1000 m² excavation area of the 2016-2017 archaeological seasons. View from the south.

series of overflowing plastered rainwater basins, which flowed into each other (Figs. 20-22). Just before the ritual bath, there is a newly discovered six meter deep cistern; this does not have stairs, as this would have diminished the water capacity. Its general physical appearance (together with the mikveh next to it) is similar to the mikva’oth-tandems in Jericho, which have an “otzar” (reserve or storage pool). It also very much resembles the Qumran mikva’oth, particularly the loculi, (Roland de Vaux (OP) Nos. 48-49, 56 and 138), and the architectural design, with its triple-stairs and breathtaking wide steps in the pool staircases. (Figs. 23-25) The general architectural features and physical appearance of both the ritual and non-ritual staircases in the pools at the Herodian citadel of Machaerus are very similar; in the three royal mikva’oth (discovered in 1968, 2016 and 2017, respectively) and the *frigidarium* (excavated in



18. The newly discovered, completely excavated, Qumranic style, monumental Herodian royal mikveh at Machaerus, with the re-erected columns of the palace in the background.

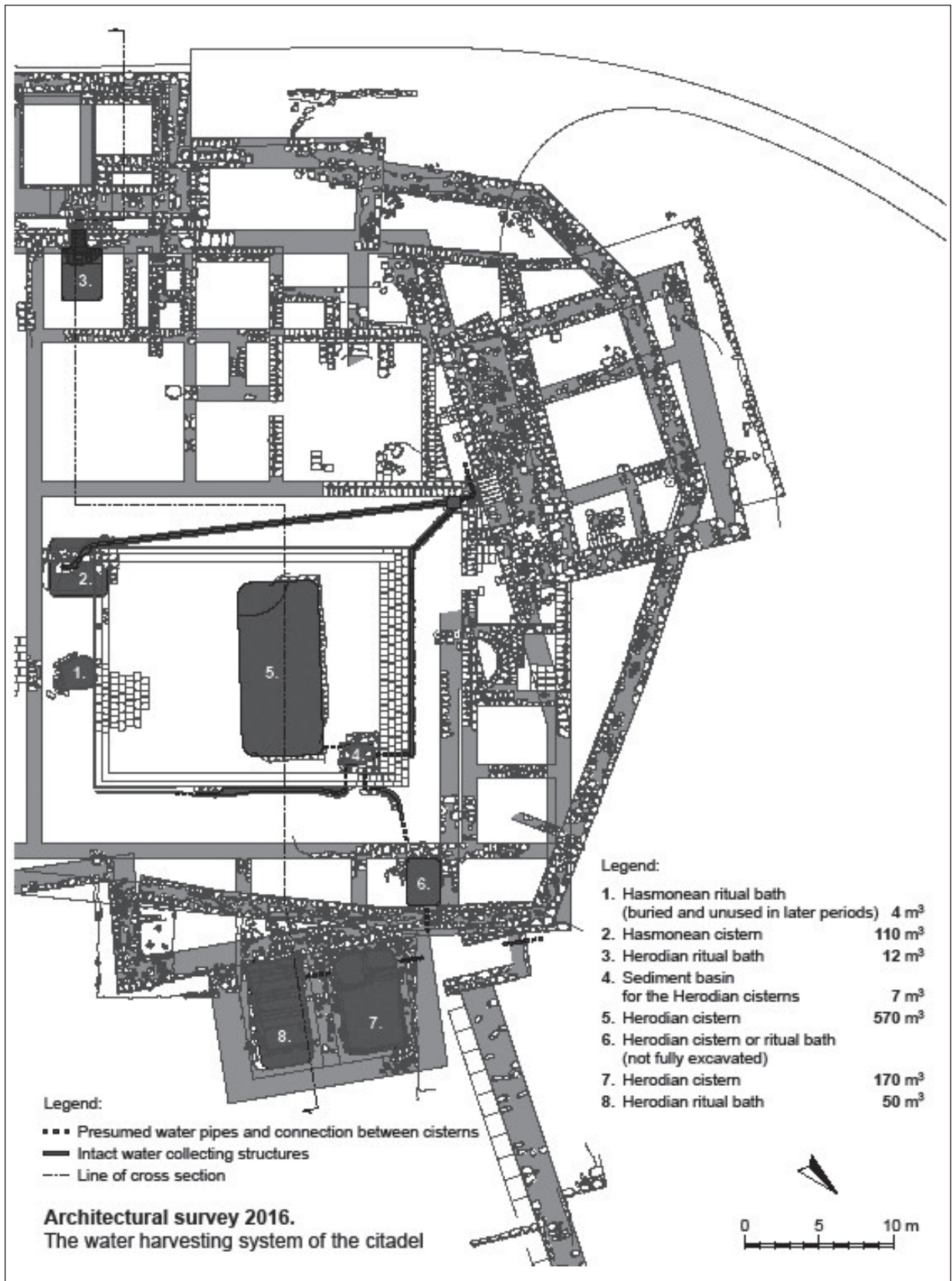


19. The king size royal Herodian mikveh, with its intact staircase of 12 steps, and the six meter deep cistern, "otzar" next to it (above), in the early morning Dead Sea sunshine. View from the south.

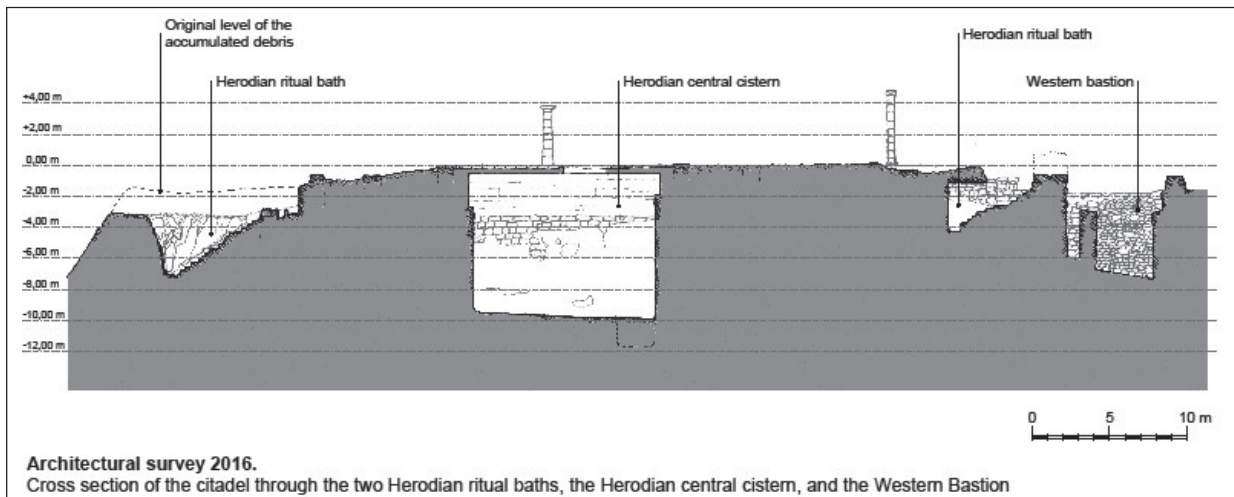
1979, Fig. 26). In addition to this, all four have the same type of plaster; thus, they have to have been constructed by King Herod the Great, c. 30 BC.

According to our archaeological discoveries, the newly discovered king-size mikveh, (the uppermost step of which is a good three meters lower than the level of the royal Herodian Doric *porticus* courtyard), originally had a vaulted stone roof, the architectural remains of which had accumulated in the bottom of the ritual bath. The roof of the other, much smaller Herodian royal mikveh at the citadel, discovered by the Americans 48 years earlier, is *in situ*; however, it has a segment-vaulted architectural space and form. Some years after the destruction of Machaerus by the Nabataean army of King Aretas IV Philopatris of Petra in 36 AD, a Roman fortress was built upon the ruins of the Herodian fortified palace. This took place after the 44 AD death of King Agrippa I, when Machaerus became a dominium of the Praefectus Judaeae. Its polygonal surrounding defense wall incorporated all of the earlier Herodian citadel, except for the northern wing, as only the basement level survived the Nabataean destruction; this became part of the uppermost area of the post-Herodian lower city (Figs. 10-11). During the post-Herodian period, the once magnificent king-size royal mikveh in the former palace, which had been used by the King and the Tetrarch Herods, was used as a kitchen; we discovered 12 fireplaces, thousands of cook-pot-fragments and animal bones in the ancient debris. The 71 AD demolition of the city by the Legion X Fretensis, commanded by Lucilius Bassus, was also evident in the upper stratum of the vertical stratigraphy of the excavation section profiles of the large royal mikveh; among the collapsed wall remains of the Roman fortress we uncovered four ballistic missiles. Moreover, in the identical horizontal stratigraphical layer, we uncovered two large-size column drums (Fig. 15).

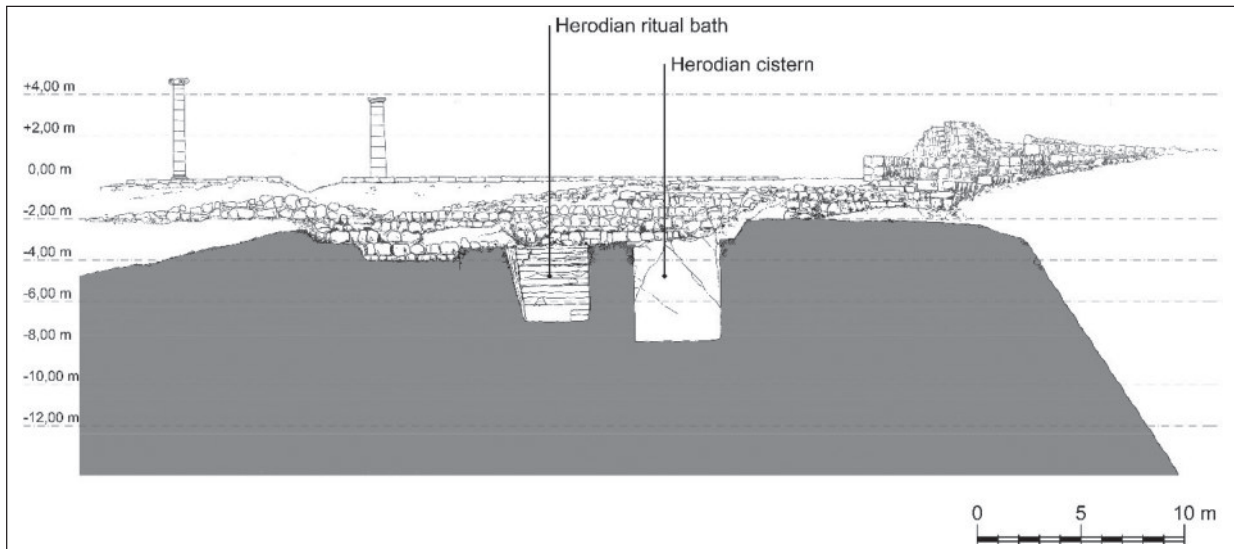
The ancient history of Machaerus had ended by 71 AD. However, its beginning did not start with the royal building activity of King Herod, c. 30 BC, as the Herodian royal builders had used the ruins of the Hasmonean citadel of High Priest King Alexander Jannaeus (erected around 90 BC), as foundations for their walls. During the 1980 excavations of the Herodian royal courtyard, under the south-eastern Doric porticus-corridor, the Franciscan Mission discovered a Hasmonean period mikveh. It



20. The water harvesting system for the citadel.



21. Cross section of the citadel, through the Herodian ritual baths, the Herodian cistern, and the Western Bastion.



22. Cross section of the Herodian ritual bath and the Herodian cistern.

had been filled by the Herodian builders, and was hidden by the foundations of the new floor (Corbo 1980: 368; **Fig. 27**). In 2010, only seven meters from this small Hasmonean mikveh, the Hungarian Mission discovered and fully excavated a 15.5 meter deep Hasmonean cistern, which had a water capacity of 110 m³; this reservoir had been incorporated into the rainwater harvesting system of the Herodian period citadel.

The Machaerus hilltop is an archaeological time capsule, covering one and a half centuries, between c. 90 BC and 71 AD, with only three periods; the late Hellenistic (Hasmonean), the Herodian and the Early Roman. Each period was ended by military destruction (which usually produces a great harvest for archaeologists).

First, the Hasmonean royal fortress (erected c. 90 BC) was destroyed by the army of Aulus Gabinius in 57 BC. Secondly, the Herodian royal palace (erected c. 30 BC) was demolished by the armed forces of King Aretas IV Philopatris in 36 AD. Finally, the Roman garrison-fortress (erected by the Roman Praefectus Judaeae after the death of King Herod Agrippa I in 44 AD, which was occupied by the Zealots in 66 AD) was destroyed by the Legion X Fretensis, commanded by Lucilius Bassus, in 71 AD. This archaeological three layer sandwich is a unique opportunity to study and understand in context the built legacy and material heritage of New Testament period art, architecture and archaeology in the Trans Dead Sea Perea, which was not subsequently occupied.

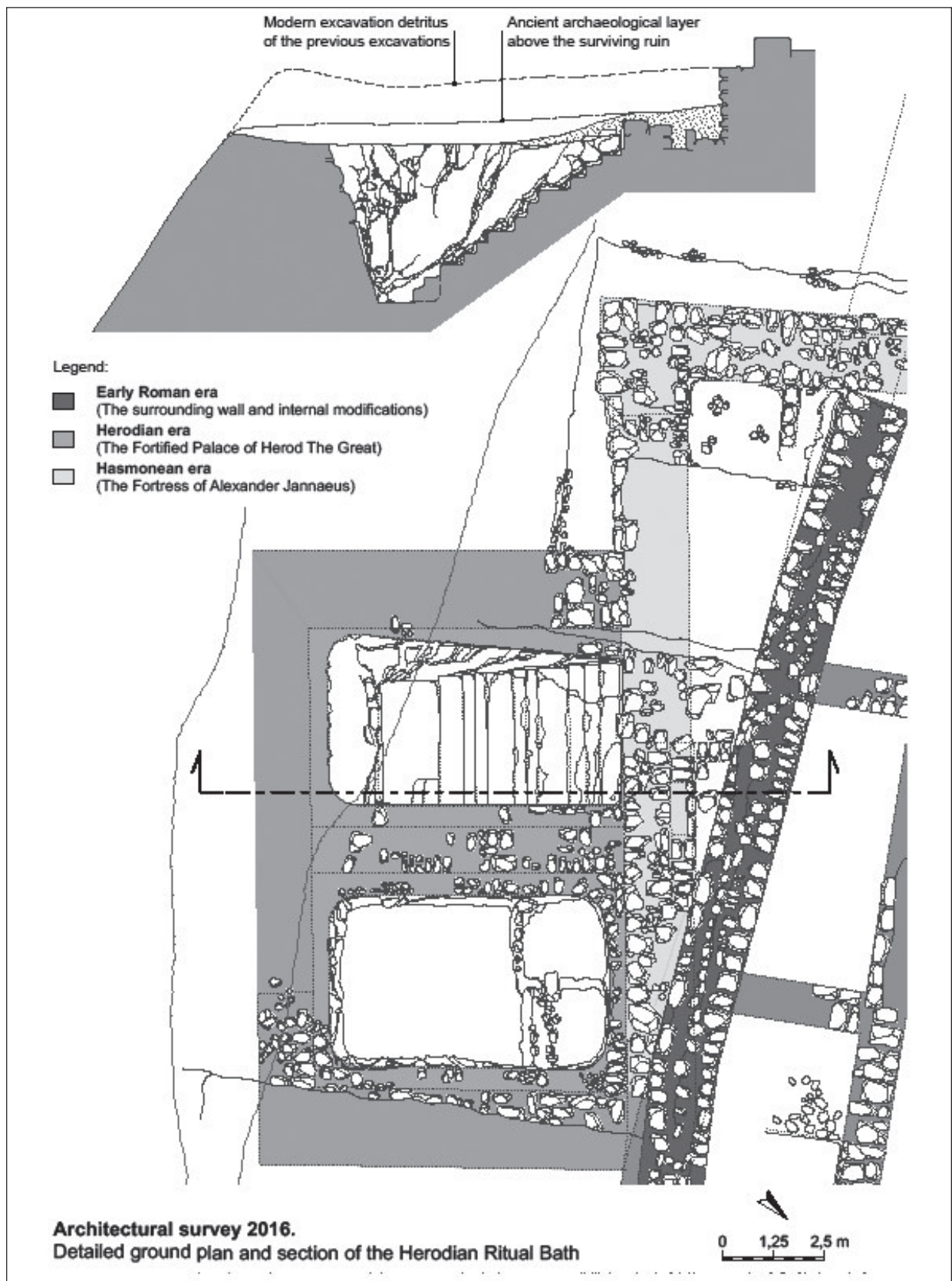


23-24. Architectural similarities between the monumental Herodian royal mikveh of Machaerus, and one of the mikva'oth (Nos. 48 and 49) in Qumran (École Biblique Photothèque Number: 13630-QmPAM40424).

Retrospective Context of the Research History

Machaerus disappeared from the map after 71 AD, and during the Byzantine, Crusader and Ottoman periods, the Holy Land pilgrims did not know where this historical place could be found. In the history of visual arts, there are tens of thousands of imaginative representations of the once magnificent Herodian royal palace of Machaerus; the earliest known is the depiction in the *Codex Sinopensis* from the sixth century. (Fig. 28) They knew from Josephus, Eusebius and other authors that the Judean Machaerus at the Dead Sea was where Saint John the Baptist had been imprisoned and killed, but it was not on the map of the Promised Land! On 17 January 1807, Ulrich Jasper Seetzen visited the Transjordan-Perean area and found a small Muslim hamlet called Mukawer (Seetzen 1810). He guessed, based on linguistic etymology, that the truncated, pyramid shaped hilltop nearby, which had some visible surviving ruins, could be the lost Machaerus (which means sword

in Greek) of antiquity (Seetzen 1854: Vol. II. 330-334). However, it was not until 1965 that August Strobel, a German compatriot of Seetzen, discovered by chance the 3.5 km circumvallation siege wall around the hill, in the late October afternoon sunlight. The destruction of Machaerus is very similar to the siege at Masada, which was also destroyed by the Legion X Fretensis, as Josephus states in his *magna opera* about the fate of both of the Dead Sea fortresses controlled by the Zealots. The huge Roman circumvallation wall was already an *opus delicti*; according to the historical sources, the only siege conducted by the Legion X Fretensis in Transjordan was at Machaerus. Strobel published his discovery three years later (Strobel 1968), and in that same year the American Baptist archaeological mission unearthed the first surviving walls, together with the mosaic and *opus sectile* floors of the once magnificent Herodian royal palace, pregnant with the history of this precious Gospel scene (Vörös 2013: 64-95; Vörös 2015: 110-241).



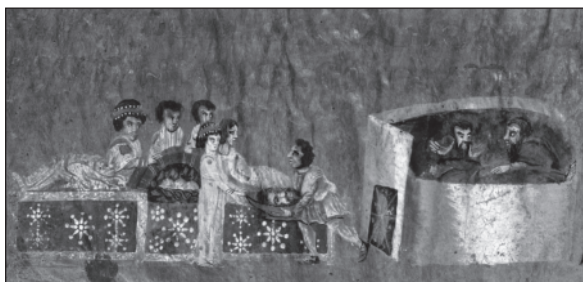
25. Detailed ground plan and section of the Herodian ritual bath.



26. The young Father Michele Piccirillo (OFM) excavates the lower stratum in the plastered pool of the frigidarium. Taken during the 1979 excavations of the Herodian royal bathhouse of Machaerus.



27. The Hasmonean mikveh at the foot of the Herodian Doric column which was re-erected in 2014. View from the south-west.



28. The oldest known representation of the birthday banquet of Tetrarch Herod Antipas and the beheading of Saint John the Baptist in an unroofed prison at Machaerus. Codex Sinopensis, Folio 10 verso, in the National Library of France (Paris).

It is now 49 years since the American Jerry Vardaman commenced fieldwork at Machaerus in 1968, which was the principal excavation season. In the second season in 1973, a German team, under the supervision of August Strobel, conducted a detailed survey of

the Roman circumvallation siege monuments (Strobel 1974). Then followed two large scale archaeological excavations, conducted by two generations of Italian academics from the Studium Biblicum Franciscanum in Jerusalem, directed by professors Virgilio Corbo (OFM; 1978-1981) and Michele Piccirillo (OFM; 1992-1993). When the research team from the Hungarian Academy of Arts commenced its present excavations nine years ago, all of the previous generations of distinguished academics had passed away. The Hungarian team are likewise only a link in a predictably long chain of research generations, as the Herodian city of Machaerus is large enough to be excavated until the 23rd century. It is not a coincidence that Pliny the Elder wrote in 77 AD: “Machaerus, next to Jerusalem, was once the most strongly fortified place in Judea” (*Historia Naturalis* V 15, 16). This means that in antiquity, from the point of view of military defense, the fortified city of Machaerus was more important for the Hasmonean and Herodian kingdoms of Jerusalem than the fortifications of Masada, Herodium, Hyrcania or Alexandreion (Vörös 2013: 152-175).

Conclusion

Likewise, in terms of sacred archaeology in Christianity, Machaerus is much more important than the other Judean Herodian fortified royal palaces. As described above, the use of mikva’oth, as at Machaerus, was common during the Herodian period (c. 30 BC – 36 AD). There were three royal mikva’oth in the biblical citadel outside its glorious bathhouse, and there had to have been several similar ones in the lower city, such as the private domestic mikveh discovered in 1981 by the Franciscan Mission. In such a bathing and immersing surrounding, where ritual purification had to be a daily, common phenomenon, Saint John the Baptist was imprisoned. In light of the archaeological remains, we can now understand even better the first century words of Josephus: “Now some of the Jews thought that the destruction of Herod’s army [and of Machaerus in 36 AD] came from God, and that very justly, as a punishment of what he did against John, that was called the Baptist: for Herod slew him [in ca. 30 AD], who was a good man, and commanded the Jews

to exercise virtue, both as to righteousness towards one another, and piety towards God, and so to come to baptism; for that the washing [with water] would be acceptable to him, if they made use of it, not in order to the putting away [or the remission] of some sins [only], but for the purification of the body; supposing still that the soul was thoroughly purified beforehand by righteousness. Now when [many] others came in crowds about him, for they were very greatly moved [or pleased] by hearing his words, Herod, who feared lest the great influence John had over the people might put it into his power and inclination to raise a rebellion, (for they seemed ready to do anything he should advise,) thought it best, by putting him to death, to prevent any mischief he might cause, and not bring himself into difficulties, by sparing a man who might make him repent of it when it would be too late. Accordingly he was sent a prisoner, out of Herod's suspicious temper, to Machaerus, the castle I before mentioned, and was there put to death." (*Antiquitates Judaicae* XVIII 5, 2)

HRH Prince El-Hassan bin Talal, Founder and Chairman of the Royal Scientific Society of Jordan, commemorated the historical place of Machaerus as follows: "*The evocative Citadel of Mukawir, or Machaerus to the ancient world, is a site that is redolent with the narrative and wonder of history and faith. It is one of those very special places that seem to exist beyond time and in its own space. It sits in a deeply imbued landscape that brings to life the resting*

chronicle of belief, devotion and struggle. This abandoned hilltop site with its faded but once magnificent fortified royal palace, occupies a strategic point overlooking the Dead Sea in the modern Hashemite Kingdom of Jordan. [...] This story of death for faith and for love of an ideal makes Mukawir so much more than a fascinating archaeological site. It sits in the landscape of religious memory as a testament and place of pilgrimage, not only for Muslims, but for Christians too. In our country, our beloved Prophet Yehya is Saint John the Baptist by another name. He is the valiant predecessor of Jesus Christ and, indeed, he is rightly considered to be the Patron Saint of Jordan." (Vörös 2015: 13); (**Fig. 29**).

Prof. Dr. Gyöző Vörös
Hungarian Academy of Arts
Studium Biblicum Franciscanum
Budapest – Jerusalem
E-mail: machaerus2029@gmail.com

Bibliography

- Corbo, V.
1979 La reggia-Fortezza Erodianna. Rapporto Preliminare alla Seconda Campagna di Scavo: 3 Settembre - 20 Ottobre 1979. *Liber Annuus* 29: 315-326.
1980 La Fortezza di Macheronte (Al-Mishnaqa). Rapporto Preliminare alla Terza Campagna di Scavo: 8 Settembre - 11 Ottobre 1980, *Liber Annuus* 30: 365-376.
Corbo, V. and Loffreda, S.
1981 Nuove Scoperte alla Fortezza di Macheronte. Rapporto Preliminare alla Quarta Campagna di Scavo: 7 Settembre -10 Ottobre 1981, *Liber*



29. TRHs Prince El-Hassan bin Talal and Princess Sumaya bint el-Hassan receive a complimentary copy of the MACHAERUS II final excavation report from the author at the Hashemite Royal Palace. Prince El-Hassan wrote the Foreword for this academic monograph. (Photo: courtesy of the Royal Court)

- Annus* 31: 257-286.
- Netzer, E.
2009 *The Architecture of Herod the Great Builder*. Tübingen.
- Piccirillo, M.
2004 *The Fortress of Machaerous*. <http://www.christusrex.org/www1/ofm/fai/FAImachr.html>.
- Seetzen, U. J.
1810 *Charte von Palästina, reducirt aus den von dem Herrn Doktor Seetzen an Ort und Stelle entworfenen Handzeichnungen*. (Gotha): republished by A. Strobel, Auf der Suche nach Machärus und Kallirrhoe. *ZDPV* 93 (1977) 253: Abb. 1. "Nachgezeichneter Ausschnitt der 1810 veröffentlichten Karte U. J. Seetzen".
- 1854 *Reisen durch Syrien, Palästina, Phönicien, die Transjordan-Länder, Arabia Petraea und Unter-Aegypten*. Hrsg. und komm. von Fr. Kruse, (Berlin).
- Strobel, A.
1968 Machaerus Geschichte und Ende Einer Festung Lichte Archaeologisch-Topographischer Beobachtungen. *Bibel und Qumran* (Festschrift H. Bardtke), (Berlin).
- 1974 Observations about the Roman Installations at Mukawer. *ADAJ* 19: 101-127,215-232; The German version is: Das römische Belagerungswerk um Machärus. Topographische Untersuchungen, *ZDPV* 90: 128-184.
- Vörös, G.
2013 *MACHAERUS I: History, Archaeology and Architecture of the Fortified Herodian Royal Palace and City Overlooking the Dead Sea in Transjordan. Final Report of the Excavations and Surveys 1807–2012*, Milan – Edizioni Terra Santa, P.400 (Jerusalem – Studium Biblicum Franciscanum – Collectio Maior 53).
- 2015 *MACHAERUS II: The Hungarian Archaeological Mission in the Light of the American-Baptist and Italian-Franciscan Excavations and Surveys. Final Report 1968–2015*. Milan: Edizioni Terra Santa. P.560 (Jerusalem – Studium Biblicum Franciscanum – Collectio Maior 55).
- 2017 Bathing and Immersing in Machaerus: The Herodian royal bathhouse and the four ritual purification baths (Miqva'oth). *Liber Annus* 66: 321-349.
- 2017b Machaerus: A Palace-Fortress with Multiple Miqva'oth. *BAR* 43-4: 30-39.