

Győző Vörös

## **Machaerus: The Herodian Fortified Palace Overlooking the Dead Sea in Transjordan**

### Introduction

Following a three-month-long thorough field survey in 2009 at the Qal' at El-Mishnaqa in Mukawir, known from ancient sources as the acropolis of Machaerus (Machairos) City, a new archaeological excavation started in the fortified royal palace on the hilltop, overlooking the Dead Sea in Jordan. The joint mission of the Hungarian Academy of Arts and the Jordanian Department of Antiquities (Excavation Permit No. 2010/13, given to Dr. Győző Vörös) conducted a sixty-one-day-long archaeological investigation on the site, from 1 April to 31 May 2010.

The architectural heritage of the Machaerus fortress' archaeological monument represents three superimposed structures of the Hasmonean, the Herodian and the Early Roman eras. According to Flavius Josephus, the naturally defended fortress was erected by the Hasmonean Alexander Janneus and destroyed by Gabinius in 57 B.C. (*BJ* I,8,6). The second period of the architectural heritage is the result of the building activity of King Herod the Great (*BJ* VII,6,2). There are six additional fortresses from the Herodian period that are giving excellent architectural (and archaeological) parallels for the comparative analysis: Alexandreion, Doq, Cypros, Hyrcania, Masada and Herodion, – the latest is the only non-Hasmonean legacy. As a result of my comprehensive archaeo-architectural analysis of these seven hilltop fortresses, that functioned as the eastern defence network of the Jerusalem kingdom during this period, I can state that they are not only representing similar architectural conceptions of fortified royal palaces, but the group of buildings were erected and designed most probably by the same constructors. Our excavations proved this statement with archaeological and architectural evidences. After the Tetrarch Herod Antipas and King Agrippa I, Machaerus became the *dominium* of the Roman *Praefectus Iudaeae* in 44 A.D. Following the Jewish Revolt eruption in 66, Lucilius Bassus besieged the fortress in 72 (*BJ* II,18,6; VII,6), where the zealots took refuge in the acropolis of the city. This event has remembrance monuments on the archaeological site, as the third period of its ar-

chitectural heritage: beside the surrounding wall erected around the acropolis, in the vicinity of Machaerus, there are Roman camps (*campus*), encircling walls (*vallum*) and an unfinished attack ramp (*agger*). The closest analogies of these monuments can be examined at the fortress of Masada (*BJ* VII,8-9) on the West Bank of the Dead Sea, where the classical Roman siege-techniques can be properly detected. The objectives and aims of the excavations and surveys of my Hungarian research team in collaboration with the Jordanian Department of Antiquities are the architectural and archaeological examinations of the monument and its material heritage as well, as the preservation, conservation and consolidation of the Machaerus fortress, and its attractive future presentation to the public.

### The surveys and archaeological investigations of the XXth century

It was the German explorer, Ulrich Jasper Seetzen who identified and discovered for the modern research the ancient archaeological site on 17 January 1807, based on the detailed descriptions of Flavius Josephus. He gave a narrative report of the ancient site, and put the Machaerus on his sketch map of the Trans Dead Sea region. In the subsequent 150 years further descriptions and map surveys were prepared, however nobody started archaeological excavations until 1968. Prior to the Hungarian-Jordanian excavations, the following important surveys and archaeological investigations were conducted on the site during the XXth century.

**1. 1953 (September and October), the first aerial survey and photo-documentation.** The ca. 4000 frames of the Hunting Aerial Survey of Jordan taken in this year opened a new chapter not only in the aerial archaeology of Jordan in general, but in the scientific documentation of the Machaerus palatial fortress in particular. These were supplied as diapositive copies through the courtesy of the Royal Jordanian Geographic Centre in Amman for scientific research to The Remote Sensing for Archaeology in the Middle East (RSAME) Project of David Kennedy at The University of Western Australia. Thanks for their kind support, we were not only receiving the six existing unpublished aeroplane photographs on the Machaerus and on its direct vicinity, but by these we have the precious documentation of the untouched, virgin archaeological site, prior any excavations.

**2. 1968 (June), the initial archaeological excavation and field survey.** E. Jerry Vardaman's one-month-long mission was conducted with the institutional background of the Southern Baptist Theological Seminary, and financed by the American Mr. and Mrs. Cully Cobb, however his undertakings remained unpublished. I was fortunate enough to find in Jerusalem and in the USA three of his

unpublished manuscripts concerning his limited but important Machaerus excavations that summarized the scientific results. Vardaman was not only the first excavator of the fortress, but he identified during the first archaeological field survey the aqueducts' system and the Roman military structures in its surrounding: the camps, the vallum and the unfinished agger. His most prominent but unpublished archaeological find I discovered in Fort Worth of Texas: an excellently preserved sard seal-ring-gem attributed to King Agrippa I. Its publication is currently under preparation together with the reconstruction of Vardaman's excavations in my forthcoming academic Machaerus monograph.

**3. 1973 (March), a detailed archaeological field survey.** August Strobel (German Evangelical Institute for Archaeology of the Holy Land) published his results in two remarkable articles in 1974, concentrating on the monumental military remains of the Roman siege in 72 A.D. His survey could not be extended at that time to the aerial- and landscape-archaeological research of our days, since it was still undeveloped for his generation. Strobel did not use the information that could have been reached by the comparative architectural examinations with other fortresses besieged by the Romans in the first century (he only mentioned Masada without details). It worth to mention that even though he cited on of the unpublished articles of Vardaman, but his other 1969 manuscript already contained the architectural survey documentation of the Roman military monuments of Lucilius Bassus at the Machaerus. The surveys and descriptions of Strobel are still significant, more detailed than Vardaman's, some of his observations are even excellent and while he could not conduct excavations on the archaeological site, he published its proper photo documentation five years before the Franciscan excavations.

**4. 1978-1981, four seasons of large-scale archaeological excavations and architectural surveys.** Under the directorship of Virgilio Corbo, the Franciscan Biblical School (*Studium Biblicum Franciscanum*) in Jerusalem conducted a four-season-long thorough excavation that were published in preliminary reports in the *Liber Annuus* and the *ADAJ*. We can consider these Franciscan excavations (before the Hungarian-Jordanian mission) as the most relevant and important resource for the architectural and archaeological knowledge on the Machaerus. Following their mission the first preliminary layout of the fortified palace (*acropolis*) was prepared, and they identified on the eastern slope of the hill the remains of the still unexcavated city suburb (*suburbium*) described by Josephus. Between the archaeological finds, the ceramological analysis (Loffreda 1996) and the numismatic examination (Piccirillo 1980) have been properly published. We can determine that the excavations conducted among the walls of the Hasmonean fortification, concentrated on the archaeological clearing and layout-

surveying of the Herodian floor level. Stanislao Loffreda made a step further ahead: he identified and made a detailed functional description on the different rooms of the royal bath-quarter in the fortress. The scientific achievements of Corbo's Machaerus excavations are similar with his Herodion one, except that he was never able to prepare the Final Report for the Machaerus.

**5. 1992-1993, two-seasons supplementary excavations and the restoration project.** Six month after the death of Virgilio Corbo in December 1991, under the overall leadership of Michele Piccirillo, the Franciscan Biblical School (SBF) in Jerusalem, the University of Florence and the Cooperativa Archeologica, Florence continued the excavations and made the first steps in the direction of the monumental conservation by the reconstruction plans of Luigi Marino. The restoration project was extended to the Byzantine ruins of Mukawir village as well as to the construction work of the modern path leading up to the fortress. Since the Friars and SBF professors Piccirillo and Eugenio Alliata were both members of the Corbo-team and led the excavations of the Byzantine ruins of Mukawir already in the 80s as well, we can consider this new SBF affiliated project as a direct continuation of the Corbo-excavations by his former students a generation later. The most important tasks of the excavations were the uncovering of the Peristyle Courtyard's interior (with the cleaning of the Herodian Cistern in the middle) and its northern surrounding, in addition to their architectural monumental presentation to the public. Some preliminary reports with more detailed ground plans appeared on the supplementary excavations and on the reconstruction works, but it was received by the international profession and the Jordanian authorities with mixed reactions: as the ancient atmosphere was damaged by the huge modern pavement and the architectural character of the Peristyle Courtyard's column-reconstruction was simply wrong. The courtyard was originally not Ionic in style, the numbers of columns were 8 x 8 in Antiquity instead of the reconstructed 8 x 10, and although the presentation imitated anastilosis, it is an unauthentic modern reconstruction. We can consider this false restoration as a modern building-statue that (in lack of guardianship) gradually suffered vandalism.

**6. 1998 (May), helicopter survey.** The Aerial Photographic Archive of Archaeology in the Middle East (APAAME) Project of David Kennedy made excellent documentation of the archaeological site prior to our project. Comparing these aerial photos with the remote sensing documentation of the Hunting Aerial Survey in 1953, with the ones taken in 1990 after the excavations of Corbo (but before the Piccirillo excavations), and with the fourth one, the current Google Earth satellite images, we can properly conduct a comprehensive and comparative aerial and landscape archaeological examination of the Machaerus today.

As the result of the earlier investigations conducted on the archaeological site, the profession could have used only a sketch drawing as a ground plan (without having the building-stones marked) of the Machaerus. The above mentioned works either remained unpublished or appeared only in preliminary reports in different languages. Until today there has not been published any single monographs on the Machaerus. Nine month after the death of Michele Piccirillo in October 2008, in dedication to his beloved memory, a new, already the seventh archaeological mission started at the Machaerus, headed by the present author. Beside the excavations, surveys and conservations on the site, my scientific objective is to prepare an up to date academic monograph (and ultimately a Final Report) with the synthesis of the international Machaerus research. Along to the archaeological and architectural results of the Hungarian-Jordanian mission, I would like to summarise the research history of the Machaerus monumental descriptions, surveys, excavations through several generations in the last more than 200 years, and publish it in academic format for the international profession and the next generations.

I was fortunate to have personal conversations in the Jerusalem Franciscan Biblical School (SBF) with the Friars, Stanislao Loffreda (co-director of Virgilio Corbo at the 1978-1981 Machaerus excavations) and Eugenio Alliata (director of the SBF Museum). Both Professors kindly expressed their personal support towards the current Hungarian-Jordanian excavations at the Machaerus, and about my intentions for the upcoming bicentennial Final Report. I have received the same approach from Fr. Carmelo Pappalardo during our personal discussion in the Mount Nebo Friary. Unfortunately, beside the Franciscan Friars, Virgilio Corbo (1918-1991) and Michele Piccirillo (1944-2008), the Baptist E. Jerry Vardaman (1927-2000) and the Evangelical August Strobel (1930-2006) also passed away.

#### The Hungarian-Jordanian Archaeological Mission: Excavations, Surveys, Conservation

We have made latest standard and detailed surveys (archaeological, landscape archaeological, architectural, geological, geophysical and aerial surveys with Google Earth satellite images), but our archaeological investigations used also classical methods. For the better understanding of the architectural heritage and the archaeological stratigraphy, we opened seven excavation trenches: four in the Herodian palace; one in the western and two in the northern bastions of the Hasmonean fortification. During our research we used the newest excavation and survey technologies and techniques of the XXI century building archaeology. Its preliminary report, together with the stratigraphical examinations of the excavation trench-profiles, can be found in the 2010 *ADAJ*.

Neither the elevation documentation nor the professional architectural descriptions of the monument's superstructure have been surveyed earlier, including the necessary architectural monumental building diagnosis and analysis. Following the comprehensive architectural examinations and building archaeological research, we were able to conclude the relations of the different architectural periods and construction phases of the buildings and group of buildings of the archaeological monument of Machaerus and its surroundings. Our scientific results provided fundamentally new perspectives in comparison with the previous researches. In addition to the architectural descriptions, we could not only establish the sequence of the Hasmonean, the Herodian and the Roman periods already in the superstructure (and not just in the ground plan), but we prepared the theoretical reconstruction of the archaeological monument in its former glory, and identified the architectural space development of the Machaerus fortress as well. With the help of three-dimension computer-modelling, the architectural space development of the ancient (and unfortunately) modern constructions were illustrated not only by the ground plans of the different succeeding periods (and by the theoretical architectural reconstructions), but with the documentation of their current archaeological superstructure remains as well.

The only previous professional geological survey was conducted in relation to the Piccirillo headed SBF and University of Florence joint mission in October 2005, however those instrumental geophysical examinations, essential for the archaeological research, were not carried out by the Coli Brothers. In the meantime we were able to use their geological results (by surveying the field geostructural, lithostratigraphy, tectonics, geomechanics, the use of natural stone and the geological stability of the site) similarly to the previous architectural and archaeological investigations. We are standing on the shoulders of the previous generations.

For the better understanding of the archaeological site, we have also conducted instrumental examinations during our survey. These instruments were on the one hand Ground Penetrating Radars and on the other an Eddy Current Detector, with different antennas. Among the antennas of the radar surveys, the 40 Mhz GPR antenna, under the same conditions, can reveal soil and rock structures down to 40 meters, while the 400 Mhz GPR antenna (launching 60 electromagnetic pulses per second) can reveal structures down to 4 meters under dry soil conditions. The antennas of the Eddy Current Detector, operated (by Dr. Péter Eisler) in different-strength-signals, were used primarily for the upper strata of the archaeological layers, until one meter deep from the surface. The examinations were extended to the Herodian and the freshly discovered Hasmonean cisterns as well.

As the fruit of the geological and geophysical researches (Dr. Alain Gachet, Radar Technologies International, France) we were able to prove the effect of the 31 BC earthquake on the Alexander Jannaeus' Hasmonean walls, and discover

the anti-seismic nature of the architecture of the Herodian cistern. On the walls of the latter, two fractures orientation have accurately determined the seismic waves direction which are perpendicular and oriented N 70°. He considered the approximate time of this earthquake to be the one at 113/114 A.D. It is probable that this, second earthquake caused the (archaeologically detected) result that in the absence of water storage, there were not any resettlements or permanent human existence on the site during the later periods.

Thanks to the fact that the expression of the Herodian architecture (named after King Herod, the great builder) in character and in features can be properly identified, the previous Hasmonean building activities (of Alexander Jannaeus) and the superimposed Roman (Zealots') additions on the ruins of the fortified palace (demolished by the Nabateans: *AJ* XVIII,5,1), were all determinable and specifically separated. To date the different archaeological layers of the subsequent periods in the stratigraphy of the accumulated debris and the wall-foundations, alongside the pottery material and coins we discovered, we were able to use fruitfully the ceramological analysis of Stanislaw Loffreda and the numismatic inventory of Michele Piccirillo as well. For the monument's building diagnosis and for the identification of the different architectural periods and phases of the superstructure, the Herodian fortified palaces on the West Bank of the Jordan River and the Dead Sea (mentioned in the introduction) and their scientific publications provided alignments with, and excellent comparisons for the architectural and material heritage of the Machaerus. We concluded that the archaeological site is an ancient, ca. 150-year-long time-capsule between the foundation of Alexander Jannaeus and the 72 A.D. fall of the military group of the zealot Eleazar.

My preliminary study on the architectural space development of the monument can be found in the forthcoming *SHAJ* 11.

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Fig. 1: Aerial photograph of the Fortress of Machaerus, view from the SE, ©APAA-ME\_19980517\_DLK-0186.tif (David Kennedy).



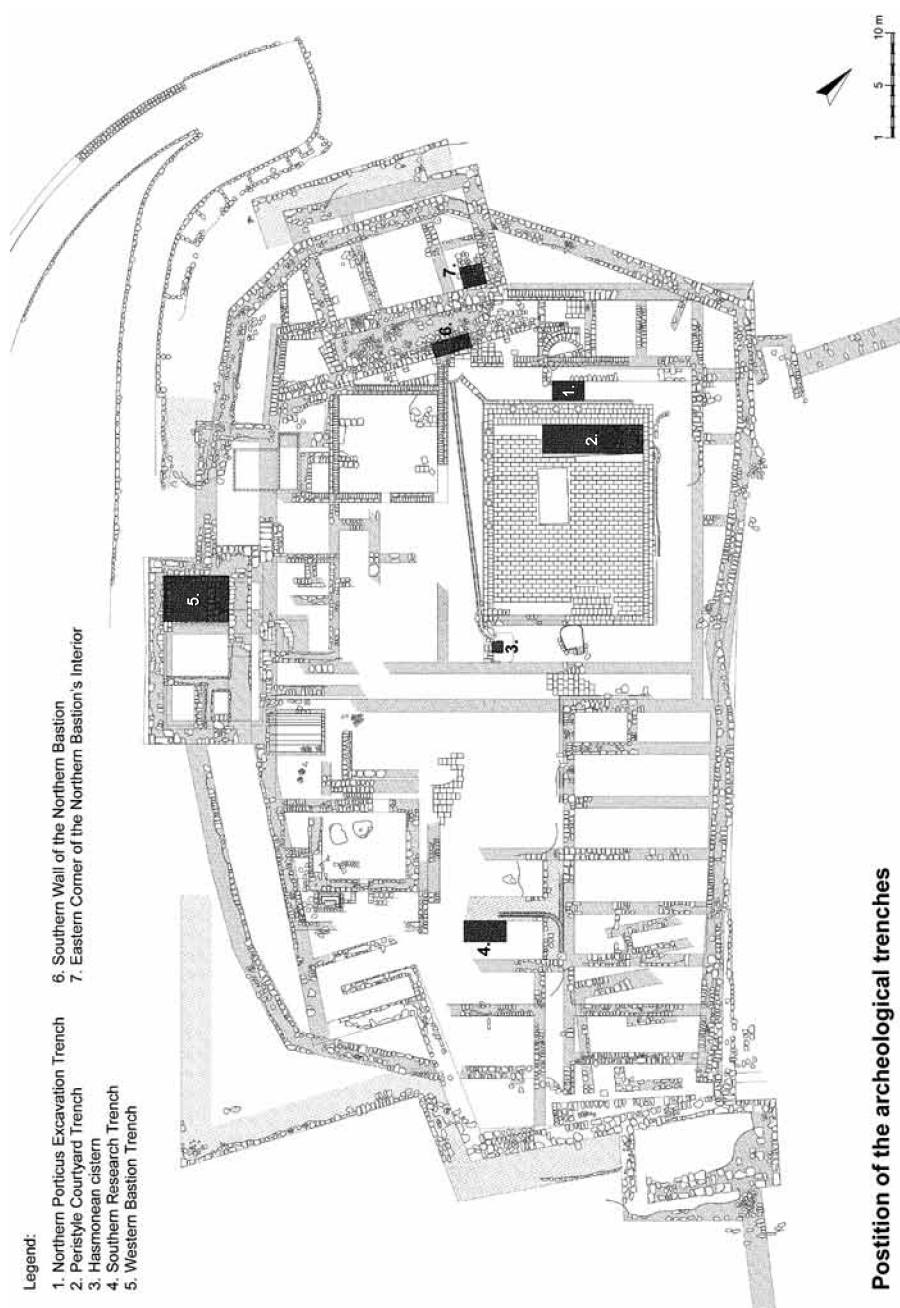


Fig. 2: The 2010 ground plan of the Fortress of Machaerus, marked with our excavation trenches.



Fig. 3: The interior of the 15.5-meter-deep Hasmonean cistern discovered in the Southern Porticus Excavation Trench of the Peristyle Courtyard, with the excavation profile of the *in situ* ancient debris, accumulated in the bottom. View from its Eastern corner.



Fig. 4: The Western Bastion Trench after excavations with modern constructions and pilgrims in the background. After our six-meter-deep archaeological trench, the highest wall-remain of the fortification tower became 8.75 meters high, thus giving an unexpected vertical dimension of the surviving monument. View from the South.

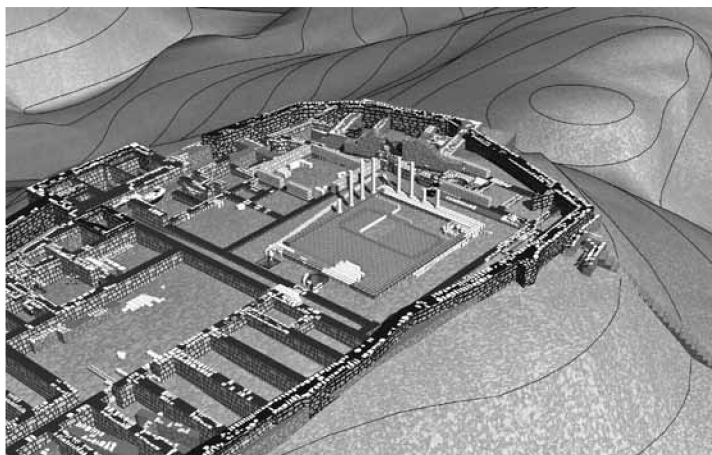


Fig. 5: Detail of the three-dimensional architectural computer modelling of the monument remains. View from the East.



Fig. 6: Theoretical architectural reconstruction of the Herodian fortified palace: superimposed drawing on aerial photograph, based on three-dimensional computer modelling. View from the NE.



Fig. 7: Theoretical architectural reconstruction of the Herodian palatial fortress, the aquaductus and the cistern-system: superimposed drawing on aerial photograph, based on three-dimensional computer modelling. View from the East.



Fig. 8: Theoretical architectural reconstruction of the Herodian fortified palace: superimposed drawing on aerial photograph, based on three-dimensional computer modelling. View from the SW.