

# The Jerusalem Archaeological Park Website Project

Y. Baruch<sup>1</sup>, R. Kudish-Vashdi<sup>1</sup> and L. Ayzencot<sup>2</sup>

<sup>1</sup> Israel Antiquities Authority,  
yuval@israntique.org.il  
kudish@israntique.org.il

<sup>2</sup> EagleShade, Israel  
ayzencot@013.net.il

**Abstract.** The archpark.org.il web-site presents a survey of the history and archaeology of Jerusalem. It is dedicated to the history and archaeology of Jerusalem from the Early Bronze Age until the Ottoman period. Its pivot is a dynamic time line, enhancing focal periods and events in the city's history. Internal links lead to complementary information, e.g., historical sources. A bibliography, arranged by periods and themes, is also available. The site holds a detailed description of a 3D virtual model of the Temple Mount. One of its unique features are the interactive maps, displaying the results of the ongoing excavations of the city from the 19<sup>th</sup> century. The IAA publications department scientifically and grammatically edited all the texts, which were also refereed by leading scholars.

**Keywords:** Jerusalem Archaeological Park, Temple Mount, David, Jewish Antiquities, The First Temple, Judah, Herod, Josephus, New Testament, Jesus, year 70 CE, Second Temples, Robinson's Arch, Upper City, Real-Time Visual Simulation, the Herodian Temple Mount Virtual Reconstruction Model, Ethan and Marla Davidson Center, Israel Antiquities Authority, The Early Islamic Period, The Umayyad period (660–750), Early Islamic Art and Architecture, The Jerusalem gates, The gates of the Temple Mount, Hulda gates, Kiponus gate, El-Aqsa, Tyropoeon Valley

## 1. Introduction

Hundreds of archaeological research years of Jerusalem have left us with a huge amount of information that occupies a lot of bookshelves in the libraries and archives. The information includes maps, illustrations and drawings published in all kinds of books, each of them dealing with another aspect of the city, usually divided by periods and/or topics (for example, burial habits or the city fortifications). The objective of the Jerusalem Archaeological website is to present all the known information about the city in a friendly format and nice GUI (Graphic User Interface). The information in the website is displayed by periods and topics.

The Jerusalem Website Project, [www.archpark.org.il](http://www.archpark.org.il), was initiated by the Israel Antiquities Authority in 2000.

The advisory committee consists of prominent archaeologists and scholars. At the head of the advisory committee stands Prof. Ronni Reich, director of the City of David and Robinson's Arch excavations. The content is backed up by historical sources and bibliographies, classified by periods and topics. Its advantage is that there is no limit for the information that can be displayed, meaning text, images, movies, interactive maps, etc. And of course the ability of linking in a very easy way all the website's content.

At this stage the site displays approximately 400 bibliography entries and approximately 80 historical sources for the 3 periods that are displayed.

It is important to clarify that the website focuses on presenting archaeological materials, especially findings belonging to excavations of Jerusalem. The historical background is only presented in order to frame the



Fig. 1. The home page of archpark.org.il

archaeological idea. Therefore it is presented in a laconic way and is backed up by relevant historical sources. The focus is always on the areas of the Jerusalem Archaeological Park; the areas south of the Temple Mount, the City of David, Mount Zion and Mount of Olives.

## 2. First Steps: Second Temple Period

The Jerusalem Archaeological Website was launched April 2000, as part of a much bigger educational project. The project's keystone is the Davidson Exhibition and Virtual Reconstruction Center, near the Dung Gate in the old city of Jerusalem (better known as the Temple Mount Excavations). The dominance of the Second Temple period in the area of the Davidson Center was the reason we chose to deal with it as a

starting point for the website's content. The purpose was to show the most up to date information in a digital way, by using the media's advantages with internal and external links to the historical sources, biographies of historical excavators and prominent scholars. A large bibliography, arranged by topic was also added. The site's glossary was also updated.

The initial idea was that the website will be a complement to the other visualization equipment of the Davidson Exhibition and not a project of its own. The perception was that the website be an important complement to the Virtual Reconstruction Model. The VRM displays the South and West sides of the Temple Mount in the Second Temple Period. Parts of the Model are displayed on the website using panoramic images accompanied by a scientific explanation of the model itself.

The model was constructed for the Israel Antiquities Authority by Lisa M. Snyder of the Urban Simulation Team at UCLA (Bill Jepson, Director) following the reconstruction plan of Jerusalem Archaeological Park Director of Excavations, Ronny Reich.

The use of real-time visual simulation reconstructions such as the Herodian Temple Mount project is forging new opportunities for the exploration of ancient sites. The technology offers three key benefits to more traditional means of representation and exhibition: it challenges the archaeologists to think about excavation information and reconstruction questions in three dimensions; the reconstruction options can be easily modeled, analyzed, and evaluated; and, the scholarly information can be readily shared with the public.

Excavation information is typically recorded with two-dimensional drawings (plans, sections, and elevations) that may later be translated into perspective renderings or physical models. While each of these methods of representation has their advantages, it was not until the advent of computers that three-dimensional forms could be easily developed and exploited. The modeling process challenges archeologists to fully resolve their two-dimensional excavation drawings in three dimensions. Thus, the relationship between plan, section, and elevation is heightened, ensuring a more thoughtful reconstruction. The precision required in computer modeling also challenges the archaeologists to explore detailed reconstruction alternatives. Unlike controlled perspective renderings, the areas of uncertainty in a computer reconstruction must be addressed and a decision reached about how best to present that information. This is especially true with real-time simulation

models because the user has unlimited freedom of movement within the modeled environment.

Another key benefit of real-time visual simulation technology is that there is no limit to the number of times the reconstruction can be manipulated, immediately analyzed, and then modified. Ongoing reconstruction ideas can be shared as desired with excavation team members and outside scholars using the simulation, and feedback can be quickly incorporated into the model and analyzed. Screen images may also be captured with no onerous rendering overhead. In the event of a new discovery at the Temple Mount site, the real-time model at the Davidson Center can be quickly updated and the results of the new excavations made immediately available to visitors. This advantage was illustrated when two significant discoveries made during the model's development prompted changes to the Royal Stoa.

The greatest advantage of the real-time simulation model on display in the Davidson Center is that it allows visitors to experience the Herodian Temple Mount in a manner never before possible. Visitors can easily 'place' themselves within a digitally accurate perspective representation of the site and dynamically move through the monumental spaces, thereby gaining a greater understanding of the complex's temporal and spatial qualities. This ability to interact with the model is critical to the experience. Because the individual frames of a real-time simulation model are rendered at the moment of interaction, users have complete freedom of movement within the environment and can control their simulation experience. Nowadays the model serves as an important tool for the academic discussion about the topography of the city, and was presented in academic conferences and referred to in articles. In the VRM section of the Website, one can find an index of articles in which the historical, archaeological and architectural considerations of the development of the model are discussed.

The texts deploy all the thoughts and conflicts that were raised while building the model, and the conflicts that were found between the historical and archaeological interpretation, and between those and the architectural analysis. The website also includes 6 maps which together form a virtual tour through the important archaeological sites of Jerusalem. To our opinion, an actual visit is an integral part of the academic archaeological study, similar to the academic programs, which combine theory with field tours.

The main sites are marked on an accurate topographic map. The sites are displayed using texts and images. The virtual tour focuses on 55 antiquity sites.

### 3. Phase 2: The Early Islamic Period

Since the nature of a website allows a lot of independence we understood that we don't have to bound the site's content strictly to the physical Archaeological Park and Davidson Center, but we can use the website as a well of information related to Jerusalem, its excavations and the remains found along the Park. Thus, we decided to expand the list of articles and the images that accompany them (the site grew by 300% from the original website). The internal and

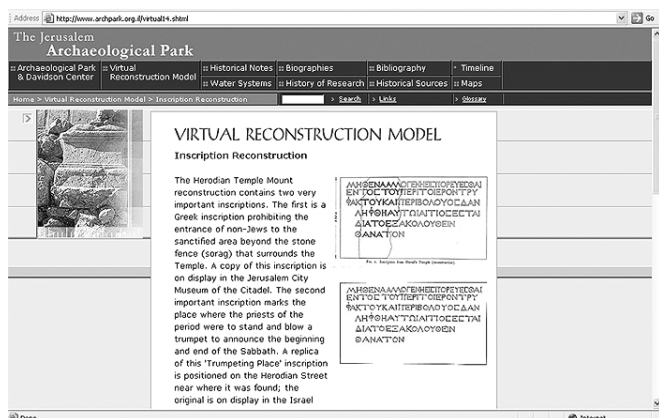


Fig. 2. The page of the Virtual reconstruction Model.

external links to the historical sources, bibliography list and additional websites with related materials were also updated. To our opinion, the bibliography list summarizes the topics related to archaeology of Jerusalem during the Early Islamic Period.

#### 4. Phase 3: The First Temple Period

This period set the imagination of a lot of scholars from the early 19<sup>th</sup> century until today on fire. The need of using our imagination still exists, even after all those years of documentation, excavation and research throughout the city. We felt that this particular period needs more than the regular text, historical sources and bibliography format we used for the previous periods. Data becomes relevant when it is put into context. The context for this period was right in order to use technology in a different way: to develop interactive maps.

The first interactive map that was developed covers the history of the excavations held in the City of David and the Ophel, the so-called “Temple Mount Excavations”.

The City of David and the Ophel area are the most excavated areas in Israel, and in the world, since the early 19<sup>th</sup> century until today. Although the huge amount of written texts about that area, no integrated picture showing exactly where the exact locations of the excavations are and what are the liaisons between the areas. We also understood the problem of the archaeological orientation of that particular area and therefore decided to focus on that issue.

The raw material for this project was an “old map”, dated from the early 1950s. The first stage included mapping the excavation areas on the map itself. The second stage consisted of translating the map into flash, meaning, from a plain two dimensional material, hard to use and to understand, the development team transformed its context into a data source easy to use and interpret. Each excavation area was colored in a particular color, so that one can navigate by color or by the leading excavator’s name. For each area a special explanatory text was written, accompanied by illustrations.

The final result looks as follows: 25 areas mapped by excavation date, from the earliest to the latest. Each area displays an excavation expedition each expedition excavated more than one area, thus 80 excavation areas appear on the interactive map of the “Temple Mount Excavations”.

The second interactive map displays the main water systems of that period – the well-known Warren Shaft and the Gihon Spring. The Gihon Spring is one of the most important but difficult to understand remains of Jerusalem during the First Temple Period. The map was mostly established on the new findings of Prof. Ronnie Reich and Eli Shukrun’s excavations in the City of David. Its purpose was to acquaint the user with the years-long excavations held in that particular area. Since the findings are enormous we decided to display them according to the 4 main archaeological phases that were observed – The Middle Bronze Age, The Iron Age II phase 1 and 2, and The Second Temple Period. For each period we used the same basic section map, showing only the water systems’ and the fortifications. The changing points for each

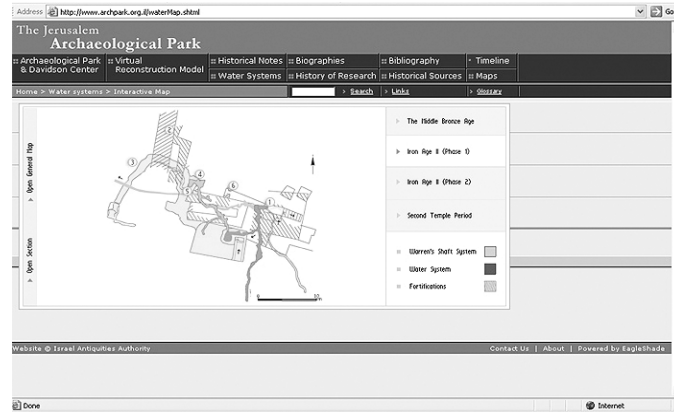


Fig. 3. A map from the web site.

period are the “hotspots”. Each hotspot on the map is represented by a clickable number where one can find the explanation and images taken “on the spot” regarding the specific area.

Since we only used a section map, we added a “general map” which gives the user an idea about the area where the water systems occurred. We also added a cross-section map for general information. Another map that was developed in that stage concentrates on the city’s walls throughout the First and Second Temple, and Early Islamic Period.

It is a very schematic map displaying only the city walls and the fortification areas. The user can choose the period he’s interested in and receive the city’s walls according to that particular period. The cities borders are a controversial issue in the study of the city. The proposed borders are our The timeline, the first item displayed in the site, contains a glance of all the information one will find in the website.

The timeline is divided into the main archaeological periods, from the Pre first Temple Period until the Late Islamic Period. Every Period is then divided into its sub periods, displaying the significant events and its archaeological remains. Next to each period an image of a significant find is shown.

We use the loading time of the application to explain to the user how to use and hat is displayed in the timeline.

As we continue to add historical notes for particular periods, as was done for the Second Temple, Early Islamic and First Temple Period, we added for each period a direct link to the article displayed in the historical notes section.

All the dynamic texts in the website undergo after they were added to the database a process named “full glossary index”, meaning, we scan all the dynamic texts for the words existing in the glossary and mark them. Those items are then displayed in the site in a different color. The user can then choose to relate to the differently colored item by pointing at that term with the mouse and then receive the term’s explanation without having to go to the glossary. This particular use of the glossary terms enables the user to read texts and receive explanation about the terms in one click.

We always have to remember that the web is alive and ever changing. The most important interaction is the collaboration between humans and technology. We must not forget that the end user is a real living, breathing human being. Engaging the visitor in a genuine and relevant way is the essence of creating a quality web experience.

## **Acknowledgements**

The Jerusalem Archaeological Website Project was funded by Mr. William Davidson, Mrs Ann Newman, Claire and Gordon

Prussian, Produced by Mr. Jacob Fisch, Developed and Designed by EagleShade Interactive Production House, Illustrations and Images: The Israel Antiquities Authority and Yad Ben Zvi.