

# The Virtual Theatre District of Pompeii

Weis, A.<sup>1</sup>, Jacobson, J.<sup>2</sup>, Darnell, M.<sup>3</sup>

<sup>1</sup>Henry C. Frick Dept. of the History, of Art and Architecture, University of Pittsburgh, PA, USA

<sup>2</sup>PublicVR, Boston, MA, USA, <sup>3</sup>Worldsunknown, VA, USA

*weis@pitt.edu, jeff@publicvr.org, michael@worldsunknown.com*

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## Abstract

*Our project is a reconstruction of the Theatre district in Pompeii as an interactive three-dimensional model. This model will include the large or “grand” Theatre, the Triangular Forum and its monuments, and the connecting areas between the forum, theatre, and the encircling street grid. We will integrate the model with an encyclopaedia-like website containing supporting references, photography, and other documentation.*

*Keywords:* Pompeii, Theatre District, Virtual Museum, Unity.

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## 1. Introduction

In the two and a half centuries since it was unearthed, Pompeii has evolved as an archaeological site, in the popular imagination (Zevi 1981, Leppmann 1968), and as a problem of documentation (Wallace-Hadrill 2006). As the site weathers, it is recorded and reconstructed in response to new discoveries and techniques, each era producing its own cultural artefacts in text and other media. Our project is to reconstruct part of the Theatre District (Figure 1) in Pompeii as an interactive three-dimensional model including: the large or “grand” Theatre, the Triangular Forum and its monuments, and the connecting areas between the forum, theatre, and the encircling street grid.

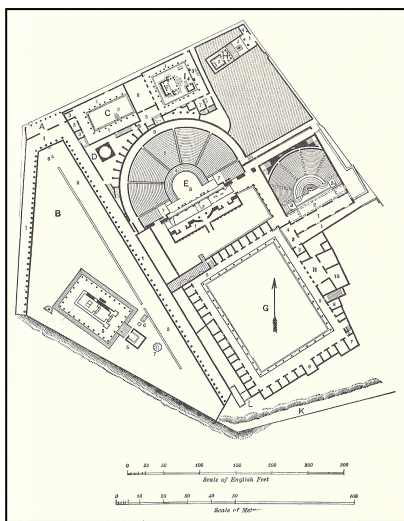


Figure 1: Plan of Theatre District, Mau and Kelsey 1899.

## 2. Project History

This project is loosely based on a now distant effort at model construction at Carnegie Mellon University's Studio for Creative Inquiry (Frischer 2000). Originally called “The Pompeii Project”, this was one of several early efforts intended to show that 3D models could be used to illustrate and interpret archaeological sites. The original model was built for small main-frame computers (SGI Onyx, SGI's Performer) and was based on photographs and print resources. It was intended primarily for museum audiences and, in a later effort, it was converted, with improvements, to VRML format and made web accessible (Jacobson 2005). The VRML model ran briefly at the Mobile Exploratorium and is available online (Pompeii 2010).

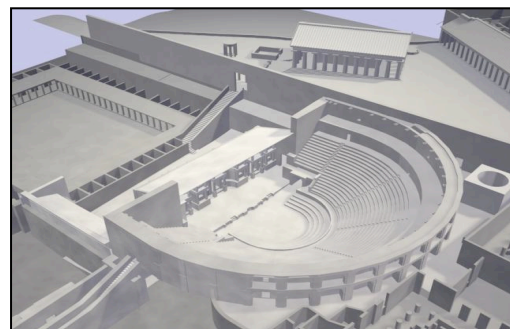


Figure 2: Virtual Theater District model in Unity format.

VRML lacked the expressive power needed for accurate reconstruction so, in 2005, some members of the original Pompeii team began a new project using Unreal Engine (Unreal 2010) and later Unity (Unity 2010) to construct a Theatre District model (Figure 2)

based on new photographs and measurements taken on the site. This new model is web based and it will be the centrepiece of an innovative web site that allows the cyber visitor to compare individual elements from the model with photographs and historical images (JACOBSON 2010). Eventually, the user will be able to navigate efficiently between the virtual space, the data, the metadata, and the way these data have been interpreted. The website will be flexible enough to accommodate new information for later development of the site as it becomes available.



**Figure 3:** Entrance to the ambulatory/crypta from the Triangular Forum, with exit to the Theatre beyond.

### 3. Purpose and Limitations

Our goal is educational, to present the theatre area to users of the website in an information-rich manner. Our resources have allowed us to work only with the published reports of the site and what we have been able to observe there. As a result, the model has obvious anachronisms, like the juxtaposition of an archaic temple and a much later theatre, and subtler ones that require a more nuanced investigation to adequately characterize.

Much of what one sees in the theatre today was probably carried out in the Augustan period: The well-known inscriptions over the side entrances or *parodoi* (CIL 10.833-34) record the additions made to the theatre by M. Holconius Rufus and M. Holconius Celer—the *tribunalia*, or honorary seats above the *parodoi*, and the *crypta*, which probably refers to the long barrel-vaulted cryptoporticus or ambulatory that carried another bank of seats above: *M(arcus et) M(arcus) Holconii Rufus et Celer / cryptam tribunalia theatrum s(ua) p(ecunia)* (Figure 2). A third inscription (CIL 10.838), from the cavea, or seating area of the theatre, refers to the *cursus honorum*, or resumé, of Holconius Rufus and allows the rebuilding to be dated with unusual precision to ca. 3/2 BCE, within the reign of the Roman emperor Augustus (D'ARMS 1988, LING 2007). The same phase of building created a nexus of new

access routes between the theatre and the Triangular forum, in the form of a structure that we call the “Theatre Passage Block”. This structure separated the two areas visually but connected them at multiple levels. It included the eastern third of the *crypta* / ambulatory, with access doors to the cavea (Figure 3) and two staircases leading to the upper levels of seating (Figure 4). A small latrine was tucked into the space beneath the ambulatory and the staircases.



**Figure 4:** Theatre Passage Block. Stairs to upper seating (right), entrance to crypta (left), entrance to latrine (centre).

The history of the theatre district before and after the Holconian project is unclear. Some connective tissue must have existed between the theatre and the “small theatre” before the Augustan period and post-Augustan construction was carried out there as well: a new arch and groin vault were inserted into the vaulted corridor leading from the Grand theatre to the street (Figure 5), probably to connect the corridor with a new set of colonnades built in front of it (Figure 6).



**Figure 5:** Corridor between theatre and Via Stabiana. Groin vault with brick arches.





**Figure 6:** *Colonnades between theatre (background left and rear) and small theatre (foreground right).*

Since parts of both the inserted vault (Figure 5) and the new portico (Figure 6) are in red brick, this construction may be related to a rebuilding of the theatre *scaena*, or stage building, in the same material and excavation now suggests extensive Julio-Claudian (Neronian) rebuilding in the Triangular Forum (CARANDINI et al. 2001, CARAFA 2002) as well. There is evidence, therefore, for a much broader program of Julio-Claudian renovation across the theatre district than has been traditionally noted and one that will require a much broader effort than ours—with architect and formal survey—to describe.

Other new projects may also impact traditional views of this districts' building history: early excavations in the theatre district (e.g. MAU 1906) indicated long standing concern for the control of water runoff and a new investigation of the drainage system surrounding the theatre was clearly in progress when we visited Pompeii in 2006. Another new project is underway in an adjoining district (Reg. VIII.7.1-15: <http://www.stanford.edu/group/pompeii/project.htm>) with implications for the Grand Portico. With so much uncertainty about the building history of the site and so many new initiatives, we have been conservative in our goals: we have not tried to distinguish between building periods in our model and we are trying to document the decisions made for the model within the context of ongoing scholarly discussion of the site.

In spite of this changing picture, a 3D model of the theatre district is and will remain a valuable educational tool for understanding its history.

First, although the theatre district is well documented in terms of “flat” plans (Figure 1) and photographic images, it is difficult to visualize its topography without experiencing the dramatic slope of the site, from the top of the city to the abrupt natural terrace of the Triangular Forum and below that to the narrow embankment of the theatre (Figure 7). Without a spatial understanding of the theatre district, one cannot appreciate the degree to which the slope has influ-

enced its development—from the ongoing need to cope with runoff to the difficulty the Holconii faced in their perhaps pioneering attempt to knit the different levels of the theatre district together architecturally.

Second, the size, integrity, and complexity of the “Theatre Passage Block” are all but invisible in plans (cf. Figure 1) and are easily overlooked in still photos where they appear to be a natural part of the theatre. One of the contributions that a 3D model can make therefore is to refocus the discussion of the Theatre district— from its current focus on the monuments that make up the space to the way the monuments connect. The model helps the cyber visitor understand how structures like the Theatre Passage Block changed the way people experienced this difficult topography in a way that existing images, plans, and descriptions of the site do not. It broadens the definition of monumentality, posing the question of how the Holconii, and perhaps other building patrons, created a sense of cohesion and, with it, monumentality on this uneven terrain.



**Figure 7:** *Topography of Theatre District within broader slope of site. Lithograph after drawing by A. Guesdon (1849).*

#### 4. Database and Web site

The Theatre District has attracted tourists since excavations began at Pompeii in the 18th century (cf. e.g. Figure 7). A still evolving aspect of our project is the documentation of this area as a focus of ongoing interest and research, with contemporary, digital images and with photographs, engravings, and other ephemera produced and published between the 18<sup>th</sup> century and the present day. Many authors (e.g. Fino 2006, Harris 2007) have examined the reception history of Pompeii since its discovery and our collection of images is not unique. Its value lies in the fact that it is 1) a representative collection of historical images that will be mounted on a website and available for public use and 2) that the architecture of the web site allows the historical images to be compared with photographs taken in 2006 and with the 3D model.

Given the variety of data we have brought together in modelling the theatre district, a critical goal of this new project has been to create a web site that allows the easy integration and navigation of our source and other data—verbal and visual, new images and historical ephemera-- and their interpretation. The web site we have constructed allows the visitor to select an area or feature of the theatre district and to juxtapose different data relating to that area or feature in adjoining columns or windows: 21<sup>st</sup>-century digital images of an archaeological feature in one window, for example, and 19<sup>th</sup>-century drawings and photos of the same feature in the other; or a detail from the 3D model in one window and a new image, an historical image, or explanatory text in the other. The user can click on the model in one window to summon information about that feature to the other window or click on links in the accompanying text to rotate the model and focus on a particular feature. This relational database gives the website a flexible and efficient architecture that allows the user to search the database directly (JACOBSON 2010).

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