

SITE AND STRUCTURE AT THE VATICAN: FROM THE EARLIEST SETTLEMENT TO THE PRESENT

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1. Introduction

This digital research project and reference tool is the work of five professors and graduate students from Harvard University's Graduate School of Design. It provides a chronologically-ordered sequence of digital models representing the Vatican Hill, its plain to the south, and the north-eastern slope of the Janiculum as a topographical site developed from about 30 A.D. to about 1940. We are working with three Dell workstations (each equipped with dual Pentium 400 mhz processors and 512 megabytes of RAM). Solid modelling was utilized with the intent of future development on a Z-Corp 3-D printer which will provide sealed solid models of the topography.

2. Project

The Vatican site presents an especially rich opportunity for study, not only on account of the great cultural, historical and artistic importance of the buildings which are now there — the Basilica of St.Peter's, the Vatican Palace and Museums, as well as the urban fabric between the basilica and Castel Sant'Angelo — but also because this same site served, at different historical moments, for an imperial villa and hippodrome and for a cemetery complex. Thus the same site has accommodated buildings of virtually every use and scale, from domestic to public and from secular to sacred. While other digital projects have reconstructed culturally significant structures on this site such as St.Peter's, The Vatican Palace and the Cortile di Belvedere, our project is concerned with the evolution of the site and its structures over time and in particular with the ways in which site and structure interact. We aim to represent how the site evolved from one configuration to another. For this reason, we are concerned with the reconstruction of patterns of transit through the area, of water conduits, bridges, changing ground levels and patterns of settlement. Looking at the entire site over a long chronological span focuses attention on fundamental shifts such as the change from an original north/south orientation for roads and structures in the area to the present east/west axis.

This observation in turn suggests that, for instance, St. Peter's was not originally perceived as the terminus of an axial approach, as it is today, but flanked a road leading to and from downtown Rome. A continually evolving site also raises challenges of representation: we have experimented with various techniques, such as transparency, color-coding and animation to illustrate the passage from one state to the next. Striving for seamless continuity also revealed conflicts between different areas of scholarship. For instance, assumptions of Renaissance scholars that Nicholas V's planned porticoed road in the Borgo would have retraced the path of the ancient Via Cornelia are rendered problematic by the doubts of Classical topographers about the precise location of this road. Thus the scope and digital format of the project have challenged or cast into doubt traditional understandings of the material and raised new questions to be investigated.

The research is by necessity interdisciplinary, incorporating evidence from geology and archaeology as well as from history and architectural history. We are interested in providing as accurate a representation as possible for each of the natural and built elements on the site over the entire time span of the project and in its final, interactive, form bibliographic references will be incorporated into the database. Because definitive solutions cannot be given for the locations, dimensions or appearance of many site elements we address this in two ways. Realizing our most likely solution in a three-D model, we link alternative hypotheses to this as AutoCad images. Second, we draw on our skills as historians and as designers to create reconstructions for the missing forms. In other words, the state of scholarship obliges us to design and represent hypotheses. Thus, while ours is a research project which depends on the scholarly literature and written primary sources it also uses architectural design as a research instrument. For example, in fitting Nero's circus onto the site, we realized that such a project almost certainly involved massive earth works on the east slope of the Vatican Hill. Also troubling is the likelihood that the obelisk was not placed on the level plain but in the more difficult location on the slope. We calculated that the creation of a level track for the circus resulted in a change of grade

level of some meters to the west and meters to the east. While this does not disprove the traditional location of the circus, it certainly raises the question of why it might have been dug into a hillside when an extensive open plain was available very nearby. Displaying disparate kinds of information in a consistent format and with consistent graphic conventions enables us to see relationships between elements that were hardly noticeable before. Further, the collaboration of scholars from the historical disciplines with architects and urban designers permits a broader range of vision and the application of more and different criteria of judgment.

3 Conclusion

Our digitalized images enable us to see and to manipulate the material in ways that weren't

possible before. Instead of navigating between fotos, plans, and reconstruction drawings which contain contradictory information or information extraneous to the research question at hand, the flexibility of digitalized imagery permits us to visualize research hypotheses precisely, and equally precisely to define alternative explanations. Further, this technology allows the eye to assess relationships between built form and the topography of the Vatican area, literally adding a third dimension to literary and archeological evidence. The advantages of this approach enable us to think more independently of the scholarly literature, question accepted images and interpretations more freely and, most importantly, to pursue entirely new research questions.





