

The Virtual Basilica of St. Paul in Rome as a Tool for Pedagogy and Cultural Heritage

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Long Abstract:

The Basilica of St. Paul in Rome, originally constructed in the 4th century, was one of the most revered churches in the world until a fateful fire reduced it to rubble in 1823. Through the centuries, the building—like its namesake—had become a protagonist in the development of Christianity. Its millennium and a half of unparalleled importance to Western culture are akin to a survey course of art history or religious history packed into a single site. As a result, also lost to that fire was our ability to know and appreciate the building's importance across its long history. A similar fate befell countless works of art housed within and those that did survive lost their original context. Today, following a reconstruction, it stands as a UNESCO World Heritage Monument. Though built on the footprint of its predecessor, the current building only loosely reflects the original.

Yet another kind of reconstruction is possible, one that restores and enhances if not, of course, entirely replaces what time has claimed. Over the course of 10 years, cutting-edge technology has been used to digitally recreate the basilica to allow academic audiences to assess and understand the complex building that perished in the flames. That work culminated in a book—*St. Paul's Outside the Walls: A Roman Basilica, from Antiquity to the Modern Era* (Cambridge University Press, 2018)—and a [website](#). Now, with the support of an NEH-Mellon Digital Publications grant, work has been expanded in a new but closely connected direction and it is about to be published as an intuitive, interactive, annotated, diachronic, VR model of St. Paul's Basilica for students, scholars, teachers, tourists, conservators, and all interested in the history of Rome and of Christianity.

The project's intellectual significance spans a variety of arenas. In the classroom, a secondary school teacher or college professor is able to impart lessons about St. Paul's as if on site. The virtual basilica presents decorative, architectural, and archaeological details from the building's 1,500-year history. Users are able to juxtapose historical reconstructions with contemporary views, and my project contrasts not just antiquity and today, but seven salient moments across the history of the basilica and its immediate surroundings. The reconstructions have been based on a careful study of archaeological reports, written descriptions and over 1,700 images including detailed survey drawings. To share this primary evidence, a system of annotations can be activated by clicking hotspots located around the virtual building.

These annotations are a key feature of the project and include didactic text, images, or audio; but rather than just be a 'press here to learn more' device, these annotations will be fluid and constructive. Users are able to add annotations to a clipboard and pull them together to form an argument, replay them to revisit highlights from the model, and export the notes for use in an essay or website. Similarly, a user can drop a virtual camera at particular locations, essentially saving their viewpoints. In this manner, a student or teacher could customize their visit. They could record this guided tour, add a voiceover and export a video essay supported by specific views and references to research materials. With these capabilities, the project promises to be an innovative [Open Education Resource](#).

Experiencing the basilica in VR enables users to sense the building's vast scale and to explore novel vantage points both above and below ground. Additionally, a series of fixed viewpoints matched to prompts encourage students to learn through simulation: How were the spatial experiences of pilgrims different from those of clergy? How did segregation by gender affect viewing the copious imagery on the walls? For tourists and amateurs, the project is a chance to experience plausible reconstructions of an ancient, medieval, and early modern space in Rome from the comfort of home. To visualize the gradual accrual of changes to the building is to enhance one's understanding of the city's actual, built palimpsests, where earlier phases continue to exist alongside the present.

By offering an engaging spatio-temporal experience of a building whose past was severed from its present, the Virtual Basilica Project complements and extends more traditional approaches to art and architectural history and, in the process, makes itself relevant to an even broader audience. Such a sophisticated VR model is unprecedented, highly innovative, and an important opportunity to advance the medium as a pedagogic and research tool across the Humanities at large.

The aim, now, is to combine this tool with a laser scan and photogrammetric survey of the current iteration of the basilica, which rises on the same footprint as the original. In so doing, the project can serve as a digital repository for modern and historical structures. As a UNESCO World Heritage site and as a fully functioning Catholic church, the conditions of the current fabric are of great interest to those in charge of its maintenance, namely the Vatican authorities, with whom this project is collaborating.

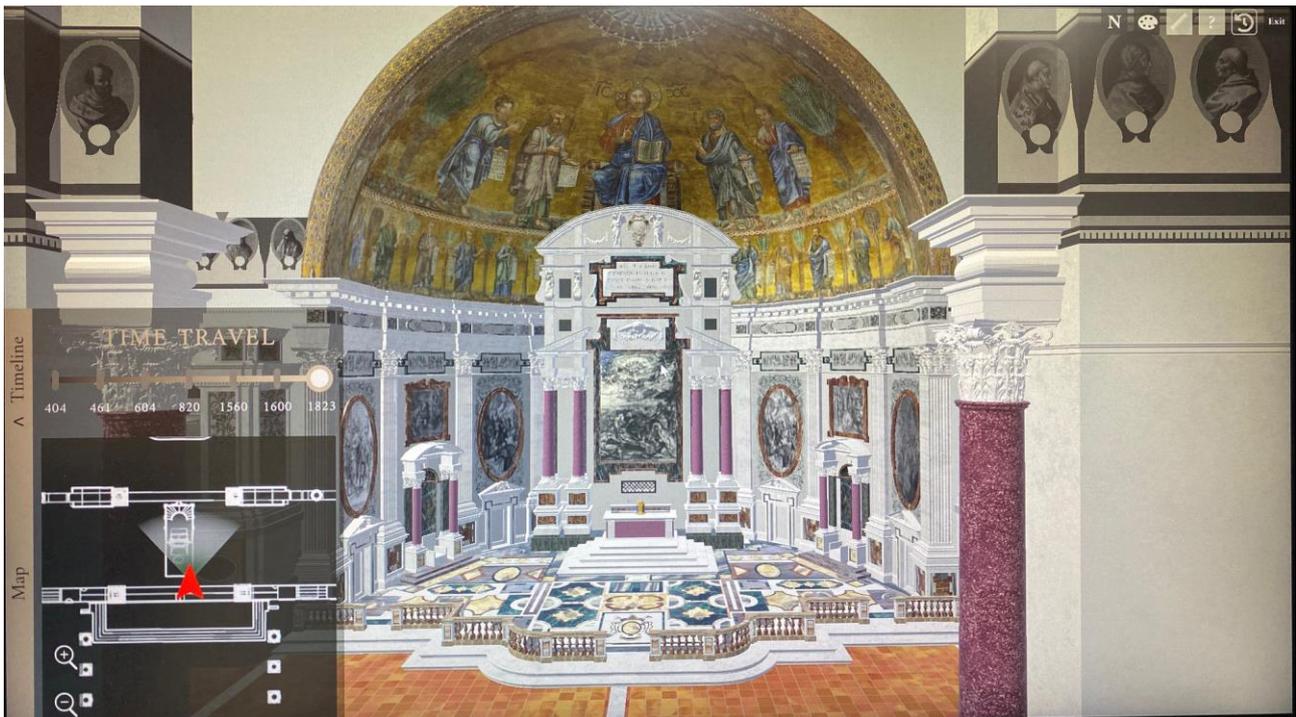


Fig. 1. View of the Apse of St. Paul's Basilica around 1823, as reconstructed in The Virtual Basilica Project, 2022 (©Nicola Camerlenghi).

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