

Rome Reborn in Google Earth

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Abstract

This paper discusses the development process in building the "Ancient Rome 3D" layer in Google Earth in 2008. The layer contains a 3D model of Rome in A.D. 320, showing more than 7,000 buildings. More than 200 of the better-known buildings and features are marked with information balloons, which have links to external HTML pages that contain descriptions of the objects and a heterogeneous set of on-line resources related to each building or feature. The process was a collaboration between Google Earth software engineers and the University of Virginia.

Keywords: Google Earth, 3D, historic archaeological models

1 INTRODUCTION

Rome Reborn¹ is an international project based in the Virtual World Heritage Laboratory (<http://vwhl.cbr.virginia.edu>) at the University of Virginia. The project's ultimate goal is to build 3D digital models that illustrate the urban development of ancient Rome from the first settlement in the late Bronze Age (ca. 1000 B.C.) to the depopulation of the city in the early Middle Ages (ca. A.D. 550). The project, begun in 1996 at University of California, Los Angeles, and moved to the University of Virginia in 2004, is led by Bernard Frischer and represents the collaboration of an international team of archaeologists, architects, modelers, and computer scientists.²

In 2007, the first version of the model, Rome Reborn 1.0,³ was publicly exhibited in Rome at a press conference organized by the mayor at that time, Walter Veltroni. This model (see fig. 1) shows Rome within the Aurelian Walls in the year A.D. 320 when the city was at its peak both in terms of population (estimated to be ca. 1,000,000 people) and urban development.⁴

Rome Reborn 1.0 contains about 7,000 buildings, which for the purposes of the model were divided into Class I and Class II categories. The Class I category is for landmarks and other features that are well-known and for which there is documentary information about their location, function, size, and appearance. Class II covers buildings and features whose existence is documented but whose actual location, appearance, and size are not known (e.g., apartment buildings, single family dwellings, warehouses, and shops). Approximately 250 buildings in the model are marked as Class I, and the remainder belong to Class II.



Figure 1. *Rome Reborn 1.0*

One of Rome Reborn 1.0's major weaknesses was that it could not be run in real time using the Internet. Another problem was that the Class II buildings had limited architectural details, using a library of textures for windows, doors, balconies, etc. that could be attached to the base forms. Since June, 2007, the Rome Reborn group has been actively researching and implementing

¹www.romeborn.virginia.edu.

²For the background and history of the project, see Karen Moltenbrey, "History in the Making: Scholars and Modelers Accurately Re-create Ancient Rome and Make It Accessible via the Internet," *Computer Graphics World* (December 2008): 16–25.

³www.romeborn.virginia.edu/rome_1.0.php.

⁴For the city of Rome in the fourth century, see Bernard Langdon, *Rome in Late Antiquity*, translated by Antonia Nevill (New York: Routledge, 2001): 1–57; John Curtius, *Pagan City and Christian Capital: Rome in the Fourth Century* (Oxford: Oxford University Press, 2000): 3–157.

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