

Galileo in Hell

Galileo's Measurements of Dante's Inferno and the Beginning of Modern Science

University of California, Los Angeles
Center for Medieval & Renaissance Studies
Royce Hall 314
Friday, October 29, 2010

- 9:30 Coffee, pastries
- 10:00 Welcoming Remarks
Lee Walcott (Managing Director Emeritus, The Ahmanson Foundation)
Massimo Ciavolella (Italian, UCLA) and **Claudio Pellegrini** (Physics, UCLA), symposium organizers
- 10:15 **Roberto Fedi** (University for Foreigners, Perugia)
"Geometers in Hell"
- 11:00 **Mark Peterson** (Mount Holyoke College)
"The Mathematics of Galileo's *Inferno* Lectures"
- 12:00 Lunch
- 2:00 **Gianluca Rizzo** (Franklin and Marshall College)
"*Frabrica Inferni: An Architectural Model for Dante's Inferno*"
- 2:45 **Paolo Fabbri** (University of Venice)
"Visions of Hell"
- 3:30 **Claudio Pellegrini** (Physics, UCLA)
"Galileo, Hell, and the Moon (How the birth of modern science was helped by the Florentine literary and artistic culture)"
- 4:15 Concluding remarks

Galileo's last and perhaps most important book, *Discourses on Two New Sciences* (1638), is generally considered the beginning of modern science. The book begins with a discussion of the properties and resistance of materials. With remarkable foresight, Galileo showed how the size and shape of all existing objects and living bodies, from ants to elephants, to planets and stars, are determined by a few simple rules. This powerful, novel idea and rules, that today we call "scaling laws," are one of the most useful tools that scientists have for understanding nature.

It is tempting to say that the development of scaling laws was strongly influenced by the literary and artistic cultural environment in which Galileo received his early education. But what led Galileo to the scaling laws?

He first mentions his work on the resistance of materials in a letter to Antonio de Medici in 1609. In his *Discourses on Two New Sciences*, Galileo refers to a discussion with a foreman in Venice's Arsenal as the element that stimulated his interest in the study of materials. But another hypothesis has been advanced recently by Mark Peterson: Galileo had been thinking about these problems well before he wrote the letter to Antonio de' Medici, and before he became a Professor in Padua in 1592 and started visiting the Arsenal. Peterson claims that the initial ideas came to Galileo from his study of the geometry and structure of Hell in the *Divine Comedy*.

Perhaps we have to go all the way back to the year 1588, when Galileo was twenty-four years old and was invited by Baccio Valori, the Consul of the Accademia Fiorentina, to give two lectures on the subject of "La figura, sito e grandezza dell'inferno di Dante Alighieri." Even if Galileo was already a well-known and respected young mathematician, the invitation would have been a great honor, which must have stimulated him to think deeply about the geometry and structure of Hell, thoughts that remained in his mind for most of his life, indeed, until he published his final book, *Discourses on Two New Sciences*.

This symposium, organized by Professors Massimo Ciavolella (Italian, UCLA) and Claudio Pellegrini (Physics, UCLA), will explore the connections between the beginning of modern science, the artistic, musical, and literary culture of Florence and Italy between the end on the sixteenth and the beginning of the seventeenth centuries, and the representation of Hell in visual and poetic form.

Cover: Drawing of "Lucifer in the Ice of the Giudecca" by Sandro Botticelli.

Inside: Diagram by Antonio Manetti showing profile, plan, and measurements of Dante's Hell; Portrait of Galileo Galilei by Ottavio Leoni.

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GALILEO IN HELL, OCTOBER 29, 2010

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