

## Architecture & Mathemat. Sciences (Oxford,19-20 Mar 07)

Anthony Gerbino

Geometrical Objects:

Architecture and the Mathematical Sciences 1400-1800

Museum of the History of Science  
and Worcester College, University of Oxford

19-20 March 2007

<http://www.mhs.ox.ac.uk/architecture/>

Recent scholarship in the history of science has underscored the mutually reinforcing relationship between "high" and "low" or theoretical and practical, forms of early modern mathematics. As many historians have shown, mathematicians of the period were deeply involved in problems of instrument making, surveying, engineering, gunnery, and navigation. At the same time, the practitioners of these arts were increasingly concerned with questions of higher mathematics and natural philosophy as they pertained to the advancement of their craft. In fact, practitioners appear to have provided an important intellectual and technical context for many of the period's mathematical discoveries - an essential development, historians now maintain, in the larger history of the "scientific revolution".

Architecture, too, was a "mathematical" art, almost wholly dependent on geometrical or arithmetic operations of some form or another. The process of design itself - insofar as it required the application of consistent proportional rules - was largely defined by them, as were many other basic tasks. Surveying, cost estimates, bookkeeping, and even the use of routine graphic techniques - perspective, scaled orthogonal drawing, and stereotomic diagrams - all entailed a certain amount of mathematical training. Nor were these skills limited to the design of buildings. Architects also used calculations in mapping cities, laying out fortifications, and planning hydraulic projects for gardens, dams, and canals. Military and civil engineering had long been part of the Vitruvian tradition.

This symposium seeks to explore issues and questions raised by this situation. To what extent can the architect be considered a "mathematical Practitioner"? What role did architectural practice and building

technologies play in the broader evolution of mathematics? How did architects see themselves in relation to mathematicians and scientists? What are the documented cases of contact or conflict between these groups?

#### Organizers

Anthony Gerbino, Worcester College, University of Oxford

Mario Carpo, École d'Architecture de ParisLa Villette

Marco Panza, CNRS and Université de Paris 7

#### Participants

Kirsti Andersen, The Steno Institute, History of Science Department, Aarhus University

"The Geometry of an Art: Architects and Perspective"

Francesco Benelli, Dept of Art History and Archaeology, Columbia University

"Invisible Geometry: The Palazzo Del Podestà in Bologna"

Henk J. M. Bos, Mathematisch Instituut, Universiteit Utrecht

"When Is a Curve Known? The Reaction of 17th-century Mathematicians to the New Wealth of Hitherto Unknown Curves"

Bernard Cache, Berlage Institute, Rotterdam and Objectile, Paris

"Commensurability and Proportionality in the De Architectura"

Filippo Camerota, Istituto e Museo di Storia della Scienza, Florence

"Mathematical Sciences and Baroque Architecture: on the Villa Pamphilj, Oblique Architecture, and Vittoni's Newtonianism"

David Friedman, Department of Architecture, Massachusetts Institute of Technology

"UA 4180: Survey and Urban Design in the Rome of Paul IV"

Pascal Dubourg Glatigny, Centre Alexandre Koyré, CNRS, Paris

"Architecture and Science in Rome, 1740: The St-Peter's Dome Collapse"

Jacques Heyman, Faculty of Engineering (Emeritus), University of Cambridge

"Geometry, Mechanics, and Analysis in Architecture"

Ann Huppert, School of Architecture, University of Kansas

"Baldassarre Peruzzi, Antonio da Sangallo the Younger, and Practical Mathematics in Renaissance Architectural Practice"

Stephen Johnston, Museum of the History of Science, University of Oxford

"Fit for a King? Architecture, Instruments and Audience in 18th-century England"

Jeanne Kisacky, University of Syracuse

"Breathing Room: Measuring the Immaterial Requirements of Architecture"

Susan Klaiber, Winterthur, Switzerland

"Architecture and Mathematics in Early Modern Religious Orders"

#### Further Enquiries

The conference is sponsored by the Graham Foundation, the Samuel H. Kress Foundation, the Paul Mellon Centre for Studies in British Art, Worcester College, and the John Fell Fund of the University of Oxford. Attendance is open to all without charge. However there is a limit on places available and anyone wishing to attend must register with Anthony Gerbino by 1 March 2007. He can be contacted for registration or other enquiries at: [anthony.gerbino \(at\) worcester.oxford.ac.uk](mailto:anthony.gerbino@worcester.oxford.ac.uk).

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#### Reference:

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