

*PERSPECTIVE AND OPTICS IN THE NEXUS NETWORK JOURNAL*

It is almost six centuries since the invention of artificial perspective, a way of seeing that makes space a quantity, and the painter's art mathematical. This invention did not come to pass *sine scientia*. Alberti was the first to delineate the theory of the technique and leave legible evidence of its science. Battista was not the first to use this method, however, because as Manetti tells us, it is Brunelleschi we should credit with its invention.

And yet regarding the precise nature of Brunelleschi's invention, and the circumstances in which it came about, we can be certain only of the mantle of obscurity which shrouds them, which reveals only rough outlines, the hints of answers to our questions.

The authors gathered here look back into this history and approach those questions from their own discipline. Peering through the mist of time, as if into a stage across the hazy Arno, we attempt to recognise the characters and their roles in those first rehearsals of perspective. Perhaps a little like Alberti's early *fiatores*, we tease out from that occluded view the formative strands of a method that was to dominate the production of art, and our conception of what it is to see, until the advent of photography and modernism.

Thus the artist Richard Talbot, whose ideas are directly informed by his work and experience as an artist, has written "Speculations on the Origin of Perspective". The paper concerns the history and origins of linear perspective within early Renaissance painting. It raises issues relating to geometry, proportion and perspective in the paintings of Masaccio and Piero della Francesca, and also in those of Domenico Veneziano, Uccello and Leonardo da Vinci. It discusses the nebulous origins of perspective, its relationship to architecture and pictorial space at that time, and ultimately, questions the orthodox history of perspective.

György Darvas, an expert on symmetry, casts his eye over the history of art and, in his "Perspective as a Symmetry Transformation", argues that Brunelleschi's invention allows paintings to represent reality because they are a particular combination of symmetry transformations. Even the distorted appearance of the works of cubism and other forms of modern art owes its ability to represent reality to further operations involving symmetry.

Marco Jaff has followed the clues that suggest the astrolabe was centre stage in the moment of inception of perspective. "From the Vault of the Heavens" proposes a close connection between the stereographic projections used to map the sky, and the method of perspective projection used by Masaccio in the *Trinità* at Santa Maria Novella.

"The Diminution of the Classical Column: Visual Sensibility in Antiquity and the Renaissance" is the title of my own paper. I look through the eyes of an architect with an interest in history, and try to disentangle some of the particulars of how the Renaissance understood certain issues regarding the visual appearance of architecture in Antiquity.

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The column and the eye are its subject, and how the outline of the former was adapted to satisfy the latter's demand for beauty.

A designer and educator on the subject of perspective, Tomás García Salgado's "Distance to the Perspective Plane" retraces the development of the concept of distance as applied to perspective construction, leading us through the ideas of Alberti and Gauricus, and the implications for a modular system of perspective.

Other contributions to this special issue address different aspects of perspective as well. In this issue's Geometer's Angle column, Mark Reynolds offers "Perspectiva Geometrica", with step-by-step geometric constructions for perspective layout.

In Book Reviews, Michael Chapman looks at James Ackerman's *Origins, Imitation, Conventions*, in which Ackerman deals largely with issues pertaining to perspective, and in particular the specific perspective of the critic as observer with a peculiar and individual viewpoint. Jin-Ho Park reviews Preston Scott Cohen's *Contested Symmetries and Other Predicaments in Architecture*, which includes a chapter on the projective perspective that dramatically influenced the early eighteenth century design education at Ecole Polytechnique.

In exhibit reviews, João Pedro Xavier recalls the 2002 exhibit at the Uffizi Gallery in Florence entitled "Nel segno di Masaccio. L'invenzione della prospettiva", from which an important catalog was produced.

The issue is completed by a contribution to the Didactics section, "A Proposed Two-Semester Programme for Mathematics in the Architecture Curriculum" by Luisa Consiglieri and Victor Consiglieri. This picks up the thread of discussion concerning the education of the architect that was begun with the Round Table discussion at Nexus 2002 in Óbidos (see the *NNJ* vol. 4, no. 2, pp. 81-100).

I take this opportunity to express my thanks to Kim Williams for allowing me to act as editor on this issue, and for her unstinting support and advice in doing so. I am indebted also to each of the authors for the truly stimulating and enriching exchanges I have had with them when discussing their ideas, and I sincerely hope that this will not remain my privilege, but that the discussions will continue and broaden now that the issue sees public light.

David A. Vila Domini, Guest Editor