

Carol Bier | *Conference Report*

*Bridges 2002: Mathematical Connections in Art,
Music, and Science*

Towson University, Towson, Maryland
July 27-29, 2002

The Bridges Conference had become a beloved annual celebration at Southwestern University in Winfield, Kansas in recent years, under the visionary direction of Dr. Reza Sarhangi of the Mathematics Department. It drew an increasingly large number of participants from throughout the United States and Canada and from abroad, who all share a passionate appreciation of the intersections among the arts, mathematics, music, and science. In 2002, Bridges moved with Reza to Towson University, a university within the state system of Maryland, just north of Baltimore. It grew some more, with the addition of equally passionate teachers, artists, and students, coming from local institutions, who added to the usual Bridges mix of intellectually curious participants from around the world.

The 2002 event combined many programmatic components as in previous years: a theatrical performance that expanded upon the conference themes (Steve Martin's Picasso at the Lapin Agile, directed by Peter Wray and performed by Towson University students in the Department of Theater Arts; this play recreates a hypothetical meeting of Einstein and Picasso in 1904, each on the verge of major discoveries and contributions to human learning); Corey Cerovsek's outstanding musical offerings accompanied by his clear explanations of the mathematical underpinnings of musical composition and performance; an art exhibition of works produced by mathematicians and by artists seeking to express or articulate mathematical ideas (co-curated by Christopher Bartlett, Professor of Illustration and Exhibit Design and Art Gallery Director, and James Paulsen, Professor of Sculpture and Foundations Design, both of Towson University); a poster session; an intense academic program of papers addressing points of intersection among mathematics, arts, music, and science; a series of workshops to involve participants actively in interdisciplinary hands-on learning; publication of proceedings in advance of the conference, available for purchase at MathArtFun (http://mathartfun.com/shopsite_sc/store/html/index.html).

As is to be expected at an interdisciplinary conference, traditional disciplinary barriers were challenged. Papers offered intellectually stimulating explorations of intersections among many disciplines including mathematics, art, physics, philosophy, history of science and philosophy of science, music theory, psychology, education, art history and criticism, architecture, computer science, and medicine; the workshops enabled us to utilize many different learning styles to absorb new ways of thinking. To single out highlights is particularly difficult since so many presentations were thought-provoking. What comes poignantly to mind today, however, was the provocative engagement of

Lebbeus Woods of Cooper Union's School of Architecture, whose superb drawings and dramatic photographs dealt with the "Heterarchy of Space," a title that does not begin to suggest the power of his presentation about the asymmetry of war and destruction. For those of us new to this field, Leonard Shlain's visually stunning Power Point display and discussion of "Art and Physics: Parallel Visions in Space, Time, and Light," and Ron Resch's video, "The Ron Resch Paper and Stick Film," were indeed memorable.

At the conclusion of the academic program, a post-conference tour by motorcoach explored the Baltimore-Washington region, highlighting art-math sites with visits to the Baltimore Museum of Art, the National Gallery of Art and National Sculpture Garden, Smithsonian Institution, and the Mathematical Association of America, and a visit to the barn studio of nationally acclaimed sculptor-mathematician Helaman Ferguson.

At the Baltimore Museum of Art, we attended two sessions, including a presentation on art and math in the Sculpture Garden by Linda Andre (Baltimore Museum of Art, Department of Education) and Peter Andre (U.S. Naval Academy, Mathematics Department), where we observed works by Max Bill (*Endless Ribbon*, 1935), Jose de Rivera (*Construction 140*, 1971), Michael Heizer (*Eight-Part Circle*, 1976/87), Ellsworth Kelly (*Untitled*, 1986), Tony Smith (*Spitball*, 1961), and George Rickey (*Space Churn with Spheres*, Variation III, 1972). In the galleries of African art, Prof. Lawrence Shirley (Towson University) discussed ethnomathematics, pointing to artworks in which counting, measurement, design, and symmetry play a part.

Arriving in Washington alongside the East Wing of the National Gallery of Art, a building whose plan is based on triangles, designed by I.M. Pei, tour participants had the choice of visiting numerous museums and monuments. Some chose to explore the visual mathematics of the Capitol and its dome, and the Washington Monument, an obelisk. Others walked along the mall and beyond as far as the rotunda of the Jefferson Memorial in the Tidal Basin, while others visited the national museums along the mall (Air and Space, Natural History, Freer and Sackler Galleries devoted to Asian and Islamic art). Those who visited the National Sculpture Garden could again observe the works of American sculptors in the post-War era, who explored phenomena related to mathematical concerns such as weight, mass and scale; balance, time and movement; light and reflection; perspective and distance, and convergence.

The afternoon included a Persian buffet, as well as a visit to the national headquarters of the Mathematical Association of America, at the entry to which is a pavement with a single pentagon tiling discovered in 1995 by Marjorie Rice. Later in the afternoon, we listened to an outstanding lecture by Dr. Arthur Wheelock, Curator of Painting at the National Gallery of Art, on Vermeer's use of the camera obscura and its effect on art and perception in the seventeenth century. Then we departed for the studio of Helaman Ferguson. Nearby, we observed the installation of his 45-ton granite fountain, the elements of which depict the Fibonacci series of numbers. In his studio we admired his triply-punctured tori sculpted of granite, as he explained his current fascination with negative Gaussian curvature. The day ended with dinner at the American Visionary Art

Museum and an evening walk along Baltimore's Inner Harbor to view the tallest pentagonal building in the world, as well as the Maryland Science Center and the pyramidal structures of the National Aquarium.

Ivars Petersen, Florence Fasanelli, and Victor Katz contributed numerous suggestions for the planning of this exciting daylong tour, which drew attention to local resources adding luster to the already glamorous qualities of Bridges 2002. Evident throughout the conference was an excitement and curiosity that was never fully satisfied but rather made ever stronger as we each grew to appreciate the many levels of complexity in each of our subjects and the ways these intersect and convolute as we explore them from the perspectives of various disciplines. The 2003 Bridges Conference will take place in Granada, Spain, July 23-25, combining forces with ISAMA (<http://www.isama.org/>), and drawing upon the active collaboration of Reza Sarhangi (Towson University), Nat Friedman (SUNY-Albany), and Javier Barrallo (University of the Basque Country, San Sebastian, Spain) for planning. We all look forward to yet another outstanding conference with a visually stimulating and thought-provoking series of programs.

Editor's Note

For more information on the Bridges conferences, see <http://www.sckans.edu/~bridges/> or e-mail Reza Sarhangi (rsarhangi@towson.edu).

About the Reporter

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