

Bridges

Mathematical Connections in Art, Music, and Science



2000

BRIDGES

**Mathematical Connections
in Art, Music, and Science**

**Conference Proceedings
2000**

Reza Sarhangi, Editor

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Preface

“And yet you are almost three, and numbers
are only months away. Already you ask
for *free of em* when it’s kisses or cookies.

Soon you’ll be counting off one, two, three,
and learning to know time in a breath— ”

from *Almost three* by Gar Bethel

There is a saying in Farsi that can be translated as “The game will not start until there are three.” The idea of counting in some cultures is often expressed as *one, two, and many*. The Bridges Conference has achieved its goal by publishing its third proceedings. *Bridges* has survived the stage of vulnerability and finitude and the game has now begun; we may go forever!

There was a time that the Bridges Conference was only a tiny seed implanted in the minds of a small group of colleagues at Southwestern College. The seed was nurtured by attending the Arts and Mathematics Conference series at Albany, New York directed by Nat Friedman. Nat came to our campus a year before the first Bridges to convince administrators here that this small group of people located far from urban big brothers and multi-versities was able to bring the image to reality – the seed to fruition. “Nothing to it,” as Nat would say and has said. He and *we* both know that there is a bit more than nothing involved. But the act of bringing together enough people with “child-like curiosities” (to quote Dan Daniel from “Bridges, June Bugs, and Creativity” and among the earliest to envision the conference we have now grown) is the most important thing *we* do. The conferees do the rest. And now we may celebrate the bright future of bridges on its third birthday. One, two, three, infinity!

The peer-reviewed Bridges proceedings for 2000 has attracted even more quality authors from around the world than ever before. The quantity of received papers forced us not only to be more sensitive to the selection of papers, but also to limit the number of pages for each article. Even with that we had to admit a significant growth in the number of papers accepted for publication. The increase in submissions, of course, caused more work for the referees. The 2000 Bridges proceedings reveals not only the quality of work of its authors but also the hard work of our referees. No words can express our appreciation for the work the referees have done to enable publication of the proceedings you have in your hands.

The cover of the book presents two images. One is a hand carving by well-known artist Brent Collins and the other is an image created with a computer by scholar Carlo Séquin. What Brent has conceived through his artistic intuition, Carlo has presented using computer languages and mathematics. This partnership offers one image of the collaborative adventure sought by the Bridges Conference. Michele Emmer, one of the first to call for a gathering of mathematicians and artists under one roof, clearly emphasizes the need for this merging of forces in his paper in this current volume.

To celebrate a new century and millennium, a group of faculty and students at Southwestern College decided to make a time capsule and fill it with materials for future undergraduates and faculty members. The capsule will be opened 100 years from now. Among other materials a volume of the 2000 Bridges Proceedings will be in that capsule. For a while, I wondered about the reaction of people in 100 years. Will they have understood the importance of uniting so many fields? Or will they have slipped back into honoring only narrow specializations? Or will they so take for granted the dialogue between and among fields they will not fully understand what we are doing. We can't determine what they will know, or feel; what they will wear or what they will have achieved in technology and science, but I am sure they will sense our excitement when they read this book -- and thrill at our early steps toward integration.

Finally, we do appreciate colleagues and friends of the conference from around the world who have carried our voices to such amazingly diverse parts of our planet.

Reza Sarhangi