

A Mathematician's Choice

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A Mathematician's Choice

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Mathematics and choice go hand in hand. At some point in our lives we must choose to pursue a mathematical career, or to move on to other pursuits. On the other hand, the mathematics that we know can have profound effects on the choices that we are capable of making.

This issue opens with Katrina Piatek-Jimenez's work on the choice of women to pursue mathematics as an undergraduate major; Piatek-Jimenez also explores, through semi-structured interviews with women at a large public university and a small liberal arts college, the choices they make with respect to possible future career paths.

In the late Middle Ages, Italian religious painters chose to move towards more naturalistic spaces, a choice which required the development of the one-point perspective system and its associated mathematics. James Lawson explores these changes through the art of the period.

Choosing wisely has been a central problem in game-theory, and Kerstin Bever and Julie Rowlett introduce us to some basic problems in the field through compatibility quizzes, movies, and the iterated dating dilemma.

Many instructors are choosing to move to online courses in an attempt to better educate a greater number of students. David Shoenthal looks at a finite mathematics course taught both in a face-to-face setting and online, and offers techniques to improve the online experience for students.

Lovisa Sumpter shows how contemporary policy documents from around the world and historical texts emphasizing the pleasure component of mathematics may resonate with educators who argue recreational mathematics can be used to enliven and bolster children's mathematical experiences in school.

Cyrus Hettle leads off the World of Mathematics section with an exploration of how Diophantus's *Arithmetica* introduced the world to syncopated mathematics, an expository structure that can be viewed as a bridge between the rhetorical style of his contemporaries and today's modern, symbol-based style. Amy Shell-Gellasch then takes us on a virtual guided tour of a special collection at the Smithsonian, the kinematic models of Schilling that were created around the turn of the 20th century to illustrate mathematical curves.

Marion Cohen shares with our readers her technique for getting Calculus I students up to speed on instantaneous change on that critical first day of class. Christopher Storm and Holly Zullo then examine how confident students are in their answers to mathematical questions where the answers are true or false and suggest that seeking out counterexamples is a habit of mind we should encourage in our students.

Eric Livingston follows with an investigation into how mathematicians actually develop rigorous proofs from intuition. Next M. Sencer Corlu and Burcu Alapala examine the interaction of mathematics and culture in the context of international schools. After that, David Pierce takes us on an etymological tour of the conic sections; if you ever wondered where exactly the names *parabola*, *hyperbola*, and *ellipse* come from, you should read this! Valery Ochkov and Elena Bogomolova close this section with a passionate defense of the use of equation-solving software in the teaching of mathematics.

Emily R. Grosholz brings us this issue's book review, of Edward Frenkel's *Love and Math*. Our poetry section this issue contains works by four poets, Philip Holmes, Laura Eleanor Holloway, Raymond Greenwell, and Matthew Schroeder.

Where will computerized proofs leave the mathematicians of the future? Harun Šiljak shows us one possible future in his short story *The Cantor Trilogy*.

We close this issue, our longest till now, with a Call for Papers for an upcoming special issue of *JHM* on *The Nature and Experience of Mathematical Beauty*. No doubt our readers have many such experiences to share!