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Words, Words, Words

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Mathematicians are justifiably proud of the elegance of their symbols, definitions, and proofs. But at the end of the day, the basic notions in mathematics are described by words, and exploring the words of mathematics leads us to the humanistic questions of understanding and interpretation that make the study of great literature so open-ended.

Our issue opens with an article by Randall Cone that uses mathematical tools to examine the words of *Hamlet* and uncover patterns within. This is perhaps the first article the *Journal of Humanistic Mathematics* is publishing in the overlapping fields of digital humanities and culture analytics. We hope and expect that it will not be the last.

Our next article examines another great text, the Torah. Morris Engelson in his article reviews various attempts to understand the Biblical value of π and interprets these within the Talmudic tradition.

Bethany Noblitt and Shelly Harkness explore how an instructor can help students understand specific words of mathematics by playing the believing game. In the following article, David Pierce shows how two words that came from the same Greek origin managed to diverge into two very different concepts.

In a short, provocative paper, Milos Savic asks the question: Does the content of an introduction-to-proof course matter? In other words, is the process of writing proofs inextricably linked to the subject material being studied?

Caroline Caswell and Derek LaBrie review the research on inquiry based learning and zero in on how it affects student motivation and engagement by analyzing it through the learner’s perspective.

Next, Michael Aristidou reviews some of the historical discussion on the Epicureans and their critique of Euclid’s geometry. Juan Sepulcre then introduces us to the long history of mathematicians who also were leaders in other fields such as Astronomy and Mechanics. Such cross-pollination of ideas typically benefitted both disciplines.

Amy Shoemaker then takes us through the mathematical period where continuity finally attained a rigorous definition, and introduces us to the nowhere differentiable continuous functions that were the result.

Though many articles in this issue of the Journal focus on text, not every intersection of art and mathematics involves words. Patricia Watkinson analyzes the mathematical inspirations behind many of the paintings of Michael Schultheis.

Reading the texts of an ancient mathematical argument, one often forgets that the authors were writing within a particular cultural context. John Little explores this through several passages of Plutarch concerning approaches to certain geometric problems.

Words can also reflect the biases and prejudices of the times. JoAnne Growney saw Emmy Noether in a mural at the 1964 World’s Fair. The mural was titled: “Men of Modern Mathematics”. Growney was inspired to write poetry reflecting on this and other similar experiences.

Will Turner generalizes mathematical models of words by adding a musical component, defining a generalized song. Then he offers a concrete example that readers can experience in multiple ways.

Perhaps the word in mathematics that students fear the most is “quiz”. Chuck Straley and Lauren Dupee describe their observations of students where some of the regular quizzes were replaced with pair-quizzes taken by two students together.

Sheila Miller takes us back to Shakespeare and *Hamlet*, exploring how some well-known works related to the essential mathematics of the astronomy of the time. She also describes how she uses these ideas in her classroom.

Opposite pairs of words define much of mathematics, and James Franklin explores one such dichotomy, the discrete/continuous divide. Next Nat Banting imbues the simple word “fifty” with an exceptional meaning.

With this issue we introduce a new category to the journal collection: *Communities*. This special column will feature works about the many diverse communities of mathematics around the world and throughout history. In the first contribution to this category, Asuman Aksoy and Ellis Cumberbatch describe the Gateway to Exploring Mathematical Sciences (GEMS) program at the Claremont Colleges, introducing eighth through tenth grade students to modern mathematics. Our acronym-driven journey then continues with the Enhancing Diversity in Graduate Education (EDGE) program. Sarah Bryant and Alejandra Alvarado reflect on the way the program has influenced their lives.

Robin Chapman kindly reviewed for us the two Poetry Anthologies from the 2013 and 2016 Bridges conferences. Mathematical poetry fans will enjoy the excerpts as well as her take on these two volumes.

We have a good number of original poems as well, starting with several from Pam Lewis exploring infinity in her poetry folder. Sara Katz, Sandra Lindow, Pedro Poitevin, Jessica Sklar, and Gene Grabiner also contribute poems to this issue.

Nora Culik takes a traveler on an inward contemplation during an external trip to Paris in our fiction work this issue.

Eric Gofen then takes us on a whirlwind tour of Physics, Chemistry, and Rap in order to show that one = zero.

We are sending out two calls this issue. First up, mathematical haiku. Send us your three-line wonders!

Next, Pamela Harris, Becky Hall, Carrie Eaton, and Emille Lawrence are guest editing a special issue of JHM on Mathematics and Motherhood. Please send them your abstracts!

Lastly, Gregory Crowther announces VOICES, a conference on teaching STEM through music. Presentations will be live-streamed to online participants for a nominal fee.

We hope you will enjoy this jam-packed summer issue!