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Conversations on Change

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Conversations on Change

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Welcome to Volume 2 of *Euleriana*! One of the pleasures of studying the history of mathematics is reading how historical figures conversed with each other on topics of their era. In this volume, those conversations focus on differential equations—a subject which occupied Euler’s attention for much of his 56-year career. Throughout, we will see how he corresponded with many scholars of the day as he developed and refined his mathematical ideas.

In the [Reviews](#) section, Robert Bradley examines Jeremy Gray’s *Change and Variations: A History of Differential Equations to 1900*, published last year as part of the Springer Undergraduate Mathematics Series. As this text is a history of partial differential equations, Leonhard Euler’s work is a key component in the narrative. Among other things, this work features Euler’s integral calculus text *Institutionem Calculi Integralis*, and his correspondence with Johann Bernoulli (1667-1748) and Bernoulli’s son Daniel (1700-1782). Like Gray’s previous book, *A History of Abstract Algebra*, his *Change and Variations* will pique the interest of any student of Euler’s work.

The first two offerings in the [Translation & Commentary](#) section come from Sylvio R. Bistafa and are both titled “On a New Class of Oscillations.” The first of these is a piece by Georg Wolfgang Krafft (1701-1754), who noticed a hanging clock setting itself in motion. In the second (numbered E126), Euler responds and elaborates, touching ultimately on the notion of resonance.

The final translation, of Euler’s self-descriptively titled “The Solution of a Problem of Searching for Three Numbers, of Which the Sum, Product, and the Sum of Their Products Taken Two at a Time, Are Square Numbers” (E270) has been provided by Mark R. Snavely and Phil Woodruff.

And there's more! In our [Articles & Notes](#) section, educators will want to read about the TRansforming Instruction in Undergraduate Mathematics via Primary Historical Sources (TRIUMPHS) and its math history classroom projects. In this issue, Janet Heine Barnett, Dominic Klyve, Kenneth Monks, and Adam Parker highlight four Euler-based projects for Calculus courses. This is Part I of a two-part survey of curricular materials from TRIUMPHS.

Archivists will be intrigued by Dominic Klyve's note on Euler's correspondence schedule and Cynthia Huffman's Euler Archive Spotlight on the Basel problem. Klyve uses dates and data from the Euler *Opera Omnia* to uncover some details on Euler's weekly work schedule. Huffman collects and summarizes Euler's many proofs of the formula $1 + \frac{1}{4} + \frac{1}{9} + \frac{1}{16} + \dots = \frac{\pi^2}{6}$ by gathering the articles on this problem that are available from the Euler Archive.

If you have ideas or articles to submit for subsequent issues, please let us know; we are always [accepting submissions](#). The next issue is scheduled to appear in summer 2022!