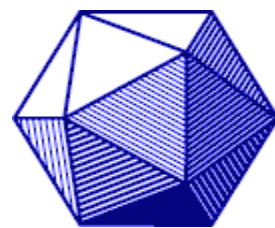


HOM SIGMAA News



Volume XIII, Number 1

February 2023

Greetings from the HOM SIGMAA Chair

Date to Remember:

August 2 – 5, 2023
MathFest in Tampa,
FL

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This past fall we continued our HOM SIGMAA Virtual Speaker Series presentations with an excellent talk by Andrés Navas from Universidad de Santiago de Chile (USACH), on “Khajuraho’s magic square is a hypercube”.

In February, Marjorie Senechal gave her lecture titled “Josephine Mehlberg (1905-1969), Mathematician”, originally scheduled for the AMS Special Session on the History of Mathematics at JMM 2023.

If you have any suggestions for speakers for our Virtual Series Lectures, please contact Jemma Lorenat, the Program Coordinator. Our Electronic Resources Coordinator, Antonia Cardwell, is soliciting History of Mathematics Course Outlines and library resources for the HOM SIGMAA page.

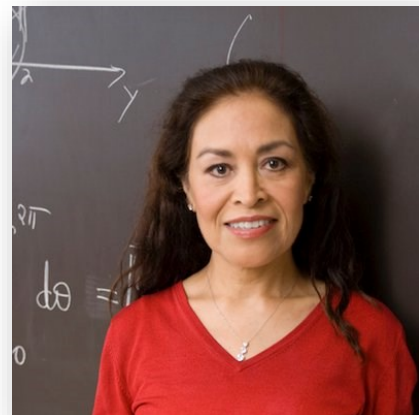
The 2023 Canadian Society for History and Philosophy of Mathematics (CSHPM) Annual Meeting will be held as part of the Congress of the Humanities and Social Sciences at York University on May 28-30, 2023. Registration is now open, note that the Special Session at the congress this year will be Underrepresented Mathematics.

Mark your calendars for MathFest 2023 in Tampa, FL, August 2-5. Our invited speaker for the Annual HOM SIGMAA Business meeting will be Della Dumbaugh from the University of Richmond, with Title: “Expect the Unexpected: Pioneers who Promoted Women in Math and Science” and Abstract: How did a department store magnate and a playwright advance American mathematics and science---and women in these male dominated fields in particular? This talk will explore the lives of Caroline Bamberger Fuld and Clare Booth Luce as we examine the surprising range of personalities that influenced the development of mathematics and science in America in the twentieth century.

HOM-SIGMAA is pleased to announce its twentieth annual Student Paper Contest in the History of Mathematics. The submission deadline is April 30, 2023. You can find the flyer at the end of this newsletter and [here](#) on the HOM SIGMAA website.

Lastly, HOM elections are not far away, including Secretary/Treasurer and Program Coordinator. Please consider joining the SIGMAA governance team, we are constantly looking for people to be involved. If you are interested, please contact me or our past chair, Amy Shell-Gellasch.

Best regards from Ximena, HOM SIGMAA Chair



HOM SIGMA Virtual Speaker Series

The HOM SIGMA Virtual Speaker Series has continued. The most recent events were:

- September 28, Andrés Navas, Universidad de Santiago de Chile (USACH), on “Khajuraho's magic square is a hypercube”
- February 21, Marjorie Senechal (Smith College) on “Josephine Mehlberg (1905 - 1969), Mathematician”

Watch the HOM SIGMA community on MAA Connect for information on upcoming speakers during Spring 2023.

Conference held to honor Ed Sandifer

Amy Shell-Gellasch and Larry D'Antonio organized a virtual conference, *How Ed Did It*, a celebration of the legacy of historian of mathematics Ed Sandifer, who passed away on August 31, 2022. The conference was held on February 17-18 with thirteen presentations by people who knew Ed and his work well and over 50 attendees. Rob Bradley began the event with a talk on Ed's legacy. Throughout the conference, audience members were able to share their thoughts and stories of Ed.



HOM SIGMAA Student Travel Grants Available

HOM SIGMAA is pleased to announce travel grants to graduate and undergraduate students. Money is available to help students travel to meetings to present a paper or poster in the history of mathematics. Details can be found in the HOM SIGMAA community on MAA Connect, www.connect.maa.org.

2023 HOM SIGMAA Executive Committee

Chair: Ximena Catepillán, Millersville University,
Ximena.Catepillan@millersville.edu

Secretary/Treasurer: Cynthia Huffman, Pittsburg State University,
cjhuffman@pittstate.edu

Program Coordinator: Jemma Lorenat, Pitzer College,
jemma_lorenat@pitzer.edu

Electronic Resources Coordinator: Antonia Cardwell, Millersville Univ.,
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Prize Coordinator: Amy Shell-Gellasch, Eastern Michigan University
ashellge@emich.edu

Past Chair: Amy Shell-Gellasch, Eastern Michigan University,
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Save these dates for future MAA meetings!

MathFest 2023	Tampa, FL	August 2-5
MathFest 2024	Indianapolis, IN	August 7-10
MathFest 2025	Sacramento, CA	August 6-9

Convergence Calendar

Visit <https://www.maa.org/press/periodicals/convergence/convergence-calendar> for a list of events and meetings around the world which relate to the History of Mathematics.

Small grants for the history of mathematics classroom are available

HOM members who need some help to purchase items for use in the teaching of the history of mathematics are encouraged to apply for a small grant. Information on how to apply can be found on our website <https://homsigmaa.net/> and at the end of this newsletter.



We are proud to announce a new peer-reviewed journal, *Euleriana*, dedicated to the life and work of Leonhard Euler, with secondary foci on Euler's legacy and the wider world of scholarly work in the 18th century. (See journal's [Aims and Scope](#) for more information.) The journal aims to be a leader in the expanding world of Euler scholarship.

Euleriana is an open-access journal, meaning that all of the content is freely available without charge to the user or their institution. Volume 3 will be appearing soon.

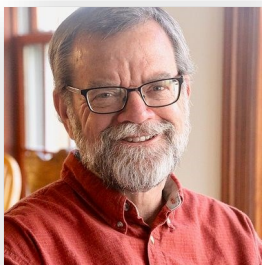
We'd love to hear from you! Euleriana is now accepting submissions, including translations, historical and archival notes, and book reviews. Potential authors are encouraged to contact the editors (Erik R. Tou, etou@uw.edu, and Christopher Goff, cgoff@pacific.edu) to inquire about papers before submission.



MAA invites you to join the online community, MAA Connect. This member benefit is designed for MAA members to connect, communicate, and collaborate with peers. This is a platform to share ideas, ask questions, and network.

You can log in to MAA Connect using your MAA membership username and password. The webpage at <https://connect.maa.org/home> provides more information on getting started and how to use MAA Connect. Use this information to set up your profile, or use the Getting Started instructions as you familiarize yourself with the platform.

If you have any issues logging in, please contact MAA Customer Service at 800-331-1622 or maaservice@maa.org.



Growing Into Teaching with Primary Sources

Stephen Kennedy

Recently Retired Acquisitions Editor for MAA Press and
Emeritus Professor of Mathematics at Carleton College

My earliest incorporation of primary source material into one of my classes was to use Euclid in my college geometry class thirty years ago. We worked together through Book 1 over the first two weeks of class. I didn't do this out of any sort of pedagogical commitment to the use of primary sources, I did it because I wanted to expose my students to the founding document of our discipline. As a side benefit, they would get to see a beautiful example of axiomatics in action. This also helped set them up for my later big reveal of non-Euclidean geometry. It became the standard intro to my geometry course.

As I grew as a teacher, however, I came to see that a better pedagogical reason to use primary sources was to illuminate motivations. I wanted to answer questions like: How did anybody ever discover the ideas we were learning? What questions and problems were they trying to answer? Why those questions? And I wanted to show mathematicians struggling with imperfect understanding and fumbling towards the truth. I could see in my own teaching that just presenting the formal perfection of polished modern mathematics did not produce in my students the level of understanding I wanted for them. And, in fact, it made the act of discovering mathematics seem to be the product of superhuman intelligence and beyond the powers of my students. It made my students look to authorities for answers, instead of looking inside themselves. I decided that *The Elements* is the wrong book to read if illuminating motivation is the reason to incorporate primary sources. Euclid isn't trying to discover new mathematics, he's trying to organize known mathematics formally. Axiomatization is an act of profound hindsight---Euclid already knows the whole landscape, he's just trying to organize it coherently.

So, I started having my geometry students read Lobachevsky and Bolyai. And here a whole new problem reared its head. I had no idea what these two were thinking. Neither one goes out his way to explain what they're doing, or why. Both move back and forth between two and three dimensions, both pull in a lot of trigonometry. My students struggled and so did I. Looking for help in the library I discovered that Saccheri is actually much easier to read than either of Lobachevsky and Bolyai---he actually explains what he's thinking. So, we read some Saccheri, but Lobachevski and Bolyai were the folks I wanted us to understand.

Enter MAA Press. In 2011 MAA published *Lobachevski Illuminated* by Seth Braver and it was exactly what I needed. Braver reproduced Lobachevski's *Theory of Parallels* in its entirety and interspersed within it he included explanatory and historical notes. Around the same time Springer published David Pengelley and Reinhard Laubenbacher's first book on using original sources and MAA published David Bressoud's *A Radical Approach to Real Analysis*. I was inspired to do more, I added some historical content to my real analysis course but I wasn't brave enough to adopt David's book. I didn't think I knew enough about the history of analysis to dare it. I settled for using Steve Abbott's book that opened each chapter with historical vignettes and motivating problems. We didn't read any primary sources, but I got to tell historical stories. It didn't feel like enough. But I didn't know enough history, and I didn't know how to think like a historian, never mind teach like one.

I was born ten, or twenty, years too early. Suddenly, now that I'm retired from teaching, MAA Press is pumping out books that deliver exactly what I needed twenty years ago when I started trying to teach with historical motivation. We've got the two-volume Babylon-to-Bourbaki history through primary sources by June Barrow-Green, Jeremy Grey, and Robin Wilson. This remarkable book not only teaches history, but it explicitly and deliberately teaches the reader how to read sources like a mathematical historian. Meanwhile, the TRIUMPHS project has produced nearly one hundred modules ready to plug directly into a variety of different courses. Every module has been classroom-tested and comes equipped with pedagogical hints and tips and background historical exposition. There are tasks and problems for your students to complete. This is the gold standard for how to teach with primary sources. I assume that I don't have to introduce TRIUMPHS to the HOMSIGMAA crowd; I'm sure you folks are aware of this work, and its quality. What you might not know is that MAA Press is publishing a collection of TRIUMPHS modules on analysis and topology this summer. (With some added content not available at the website, including, notably, a brilliant context-setting essay on the history of analysis by Janet Barnett that will be an enormous help to faculty contemplating using these modules.) There are plans for future TRIUMPHS volumes.

Finally, sometime this spring MAA will publish David Pengelley's *Number Theory Through the Eyes of Sophie Germain*. I don't know if David thinks about it this way, but I think of it as his magnum opus. David, after publication of the Springer books that launched the movement to use primary sources in undergraduate math teaching, immersed himself in the unpublished writings of Sophie Germain. Simultaneously, he began exploring inquiry-based pedagogy in his teaching. In this book he weaves these two major intellectual strands of his life together. It makes perfect sense when you think about it. Germain is, famously, an autodidact. David asks students to perform computations, the very ones Germain must have been doing, and asks them what they see. Then he presents relevant excerpts from Germain and asks students to explain what she must have been thinking. Readers are literally following in her footsteps as she tries to prove Fermat's Last Theorem and, meanwhile and not incidentally, learning the standard material in an introductory number theory. It's a puzzle on two levels as students pursue an IBL course in elementary number theory and an historical investigation into what Sophie Germain was thinking.

It's becoming something of a golden age for teaching undergraduate mathematics using primary sources. I'm jealous of my younger colleagues who will get to teach from these books and I'm grateful to my colleagues who wrote them.



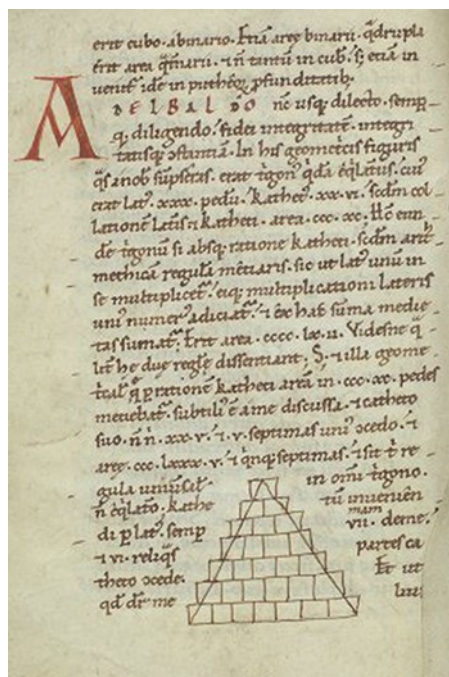
Convergence Offers Historical Materials for a Variety of Classrooms

Janet Barnett and Amy Ackerberg-Hastings

Editors, *MAA Convergence*

MAA Convergence (where mathematics, history, and teaching meet!) is both an online journal on the history of mathematics and its use in teaching and an ever-expanding collection of online resources to help its readers teach mathematics using its history. Founded in 2004 by Victor Katz and Frank Swetz, *Convergence* brings you a variety of interesting articles and teaching tools. We highlight here some of our newest articles and features for use in your classroom.

Associate editor Ximena Catepillán has continued to increase the reach of our offerings by translating into Spanish (with the help of Samuel Navarro), the 2015 article by founding editor Frank Swetz, “[Pantas’ Cabinet of Mathematical Wonders: Images and the History of Mathematics](#).” En “[El Gabinete de Maravillas Matemáticas de Pantas: Imágenes e Historia de las Matemáticas](#),” Swetz discute cómo motivar e involucrar a sus estudiantes mediante el uso de imágenes, especialmente las de objetos históricos, manuscritos y textos, en la enseñanza de las matemáticas. Another of our associate editors, Betty Mayfield, designed “[Need the Area of a Triangle? The Pope Can Help!](#)” specifically for secondary students and pre-service teachers to engage in active reading and thinking about how to determine and derive theorems in geometry.



Above: A 12th-century manuscript copy of the letter by Gerbert d’Aurillac that is discussed in Mayfield’s article.

Convergence’s article series expanded in 2022, with additions to existing series as well as newly-created series. Two new entries have been added to the TRIUMPHS team’s “[A Series of Mini-projects from TRansforming Instruction in Undergraduate Mathematics via Primary Historical Sources](#)”:

[“Solving Linear Higher Order Differential Equations with Euler and Johann Bernoulli: A Mini-Primary Source Project for Differential Equations Students,”](#) by *Convergence* associate editor Adam E. Parker;

[“Fourier’s Infinite Series Proof of the Irrationality of \$e\$: A Mini-Primary Source Project for Second-Semester Calculus Students,”](#) by Kenneth M Monks.



Portraits of Leonhard Euler (left) and Johann Bernoulli (right)
From [Convergence’s Portrait Gallery](#).

Our series that offers examples of how online databases of mathematical objects can be mined to unlock the collections that they preserve for use in research and teaching, [“Keys to Mathematical Treasure Chests,”](#) has a new installment from Manny Medrano on [“Andean Khipus.”](#) Associate editor Mike Molinsky is converting his long-running column in the CSHPM/SCHPM *Bulletin* to a web-based format. [“Quotations in Context”](#) begins by exploring the background and context to oft-reprinted statements by Plato, Bertrand Russell, and Albert Einstein. And, for students and instructors who want to know more about what is involved in researching and writing the history of mathematics, Amy Ackerberg-Hastings provides an overview in [“HoM Toolbox, or Historiography and Methodology for Mathematicians.”](#)



Inka-style khipu VA 16148 in the Ethnologisches Museum, Berlin
(© Ethnologisches Museum, Staatliche Museen zu Berlin).

Convergence also continues to offer other features useful for teaching mathematics with its history:

- “[Mathematical Treasures](#),” images and descriptions of texts and objects significant to the history of mathematics;
- “[On This Day](#),” a listing of three or four historic mathematical events that happened on any given date;
- “[Today's Quotation](#),” a quotation about mathematics from a historical figure selected from a catalogue of quotations alphabetized by author;
- “[Problems from Another Time](#),” highlighting historical problems;
- “[Conference Calendar](#)” (edited by associate editor Bud Boman), an up-to-date guide to conferences and events online and around the world that feature or include the history of mathematics and its use in teaching.

Access all of these materials and more from our homepage:

<http://www.maa.org/press/periodicals/convergence>.

Interested in contributing? We'd love to hear from you at convergence@maa.org! *Convergence* publishes expository articles on the history of topics in the grades 8–16 mathematics curriculum; translations of primary sources; classroom activities, projects, or modules for using history to teach mathematics; and classroom testimonials after applications of such activities, projects, or modules. For more details about *Convergence*'s submission and refereeing process, please see our [Guidelines for Authors](#). If you are interested in assisting with editorial tasks, the editors are always looking for referees and will soon be considering future nominations for the editorial board. They would be happy to receive emailed expressions of interest for those roles as well.

Visit the HOM SIGMAA website today!!!

The HOM SIGMAA website (<https://homsigmaa.net/>) includes HOM SIGMAA news, announcements of upcoming conferences, links to other history of mathematics pages, and other resources. Suggested additions to the website (for example, conference information, links, or photos) are always welcome at Antonia.Cardwell@millersville.edu.

HOM SIGMAA Small Grants

Guidelines and Procedures

Purpose: The HOM SIGMAA wants to aid its members in their quest to bring the joys of the history or mathematics to their students. These small monetary grants will allow HOM SIGMAA members to purchase items that will aid in learning the history of mathematics. For example, a classroom set of abacus or materials to make an historical model.

Guidelines

1. Recipients must be a current member of the HOM SIGMAA
2. The idea is to purchase items, materials to make a historical model, or materials that can be used year after year. (Not supplies that will be used up quickly.)
3. These materials may be used by an individual's colleagues, but belong to the HOM SIGMAA member and not their department.
4. Items or materials must clearly be for the instruction of a historical topic.
5. Grants will be for amounts up to \$100 and considered on a rolling basis (so apply early in the year.)
6. Approval of the grant is at the sole discretion of the HOM SIGMAA executive board.
7. Applications can be made at any time, but may take several weeks to be approved and paid out by the MAA. So plan ahead.
8. Receipts for purchased items is preferable. But if purchase depends on funding, receipts may be required after purchase.
9. Total annual grants dispersed will not exceed \$1000 per year and are subject to HOM SIGMAA funding needs.
10. Preference will always be given to first-time grantees. And the HOM SIGMAA has the right to deny any request if they feel a single member is requesting too often.

How to apply

Please send the application form (available on the HOM SIGMAA website) in Word or PDF to the Chair of the HOM SIGMAA via email.

HOM SIGMAA Classroom Small Grant

Name

Institution

Email

Phone

Address

Funds requested

Item(s) to be purchased

Purpose or use of items

HOM SIGMAA Student Travel Grants

Guidelines and Procedures

Purpose: The HOM SIGMAA wants to support students of the history of mathematics. We will offer travel grants (in the form of travel expense reimbursements) for students traveling to conferences to give a paper or poster on the history of mathematics. Grants are up to \$250 for a local/regional/sectional meeting, and \$350 for a national/international meeting. We encourage students to attend MAA meetings, but grants are not limited to MAA meetings. Submit application materials prior to the meeting; submit registration/travel/lodging receipts and verification of talk after the meeting.

Guidelines

1. Travel must be completed while a student or the summer immediately following graduation.
2. Approval of the grant is at the sole discretion of the HOM SIGMAA executive board.
3. Applications can be made at any time, but may take several weeks to be approved and are paid out by the MAA after travel is completed. So plan ahead.
4. Total annual grants dispersed will not exceed \$1500 per year and are subject to HOM SIGMAA funding needs and will be considered on a rolling basis.
5. Preference will always be given to first-time grantees.

How to apply (prior to meeting):

1. Please send the application form (available on the HOM SIGMAA website) in Word or PDF to the Chair or Secretary of the HOM SIGMAA via email.
2. Have your research advisor email the Chair or Secretary of the HOM SIGMAA a letter verifying your status and stating the nature of your research.

Reimbursement (post meeting):

Email scans of the following to the HOM SIGMAA:

1. travel receipts totaling the grant amount or more
2. program page verifying your participation.

HOM SIGMAA Student Travel Grant Application

Full Name:

Status: (circle one)

Graduate student

Undergraduate student

Home Institution:

Email:

Address:

Conference title and session title:

Location and dates:

Title of talk/poster:

The History of Mathematics Special Interest Group of the Mathematical Association of America

is pleased to announce its 20th (yes, 20th!) annual

Student Paper Contest in the History of Mathematics

This contest is open to all undergraduate students^π

Papers will be judged by a panel of specialists for content, originality, and presentation. Typically first and second place winners are chosen.

Submission Guidelines

- Topics can be drawn from any field of mathematics.
- Papers can address a single person or topic, or be an historical survey of a topic or school of thought.
- Submissions should be approximately 5000 words in length with font that is easy to read.
- Submissions should be in a single PDF file, including a title page with title of paper, the author, school, and complete contact information.
- Papers should include a full citation list.
- Papers should not draw too heavily from web sources.[§]
- Students submitting a paper need not be currently taking a history of mathematics course.
- All papers should be single-authored.
- Eligible papers are those written in the past year and while the author was an undergraduate.

Submission Deadline: April 30, 2023

Results will be announced to winners via email, on MAA Connect,
and on the HOM SIGMAA website in May.

Winning papers will be published on *Convergence*.

Submissions and questions can be directed to
Dr. Amy Shell-Gellasch ashellge@emich.edu

^π Students who have graduated less than a year ago but wrote their paper while still an undergraduate may also participate. Graduate and high school students may also submit for an honorable mention.

[§] Web sources that give access to print material, such as JSTOR, are completely acceptable.