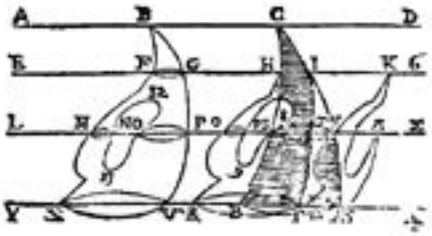
# BULLETIN

CSHPM SCHPM



May/Mai 2018 Number/le numéro 62

## WHAT'S INSIDE

### Articles



### Reports



Canadian Society for History
and Philosophy of Mathematics

Société canadienne d'histoire et
de philosophie des mathématiques

**ISSN 0835-5924**

# ABOUT THE SOCIETY

Founded in 1974, the Canadian Society for the History and Philosophy of Mathematics / Société canadienne d'histoire et philosophie des mathématiques (CSHPM/SCHPM) promotes research and teaching in the history and philosophy of mathematics. Officers of the Society are:

*President:* **Dirk Schlimm**, McGill University, Montreal, QC H3A 2T7, CA, dirk.schlimm@mcgill.ca
*Vice-President:* **Maria Zack**, Point Loma Nazarene University, San Diego, CA 92106, USA, MariaZack@pointloma.edu
*Secretary:* **Patricia Allaire**, 14818 60th Ave., Flushing, NY 11355, USA, PatAllaire@gmail.com
*Treasurer:* **Gregory Lavers**, Concordia University, Montreal, QC H3G 1M8, CA, Greg.Lavers@concordia.ca
*Past President:* **Elaine Landry**, UC Davis, Davis, CA 95616, USA, emlandry@ucdavis.edu

### Members of Council

**Craig Fraser**, University of Toronto, Toronto, ON M5S 1K7, CA, craig.fraser@utoronto.ca
**Jean-Pierre Marquis**, Université de Montréal, Montréal, QC H3C 3J7, CA, jean-pierre.marquis@umontreal.ca
**Karen Hunger Parshall**, University of Virginia, Charlottesville, VA 22904, USA, khp3k@eservices.virginia.edu
**Joel Silverberg**, 31 Sheldon Street, Providence, RI 02906, USA, joel.silverberg@alumni.brown.edu

### Volunteer Positions

The Society's Web Page (www.cshpm.org) is maintained by **Michael Molinsky**, University of Maine at Farmington, Farmington, ME 04938, USA, michael.molinsky@maine.edu. The Proceedings of the Annual Meeting are edited by **Maria Zack** and **Dirk Schlimm** (see above). The Society's Archives are managed by **Eisso Atzema**, University of Maine, Orono, ME 04469, eisso.atzema@maine.edu. **Hardy Grant**, hardygrant@yahoo.com, and **Amy Ackerberg-Hastings**, aackerbe@verizon.net, edit the CSHPM Notes column for *Notes* of the Canadian Mathematical Society. **Maritza Branker**, Niagara University, Lewiston, NY 14109, mbranker@niagara.edu, serves as CMS Liaison.

*New Members are most cordially welcome; please contact the Secretary.*

## President's Message

How time flies! I still remember vividly how I sat before an empty screen a little less than two years ago, trying to find the right words to begin my first President's Message for the 2016 *Bulletin*, No. 59. Now, three editions later, it's time to look back, say goodbye, and look ahead.

Looking back, in the past two years I've had a pleasant and smooth ride on the CSHPM train, thanks to its experienced and professional crew and the great care and foresight with which the tracks had been laid down before I boarded it. During this time we had two fun and successful annual meetings in Calgary and Toronto, as well as history and philosophy of mathematics sessions at the CMS winter meetings in Niagara Falls and Waterloo (organized by Maritza Branker). More recently, many members participated in January 2018 at the Joint Mathematics Meeting in San Diego, with AMS Special Sessions on *History of Mathematics* (organized by Sloan Despeaux, Jemma Lorenat, Clemency Montelle, Daniel Otero, and Adrian Rice) and on *Alternative Proofs in Mathematical Practice* (organized by John W. Dawson); a Contributed Paper Session on *Philosophy of Mathematics as Actually Practiced* (organized for POMSIGMAA by Bonnie Gold, Sally Cockburn, and Tom Drucker); a POMSIGMAA guest lecture by Raphael Núñez on 'Philosophy of Mathematics in the 21st Century: Why does it need the Sciences of the Mind?'; and a HOMSIGMAA guest lecture by Joseph W. Dauben on 'The history of Chinese mathematics: 60th anniversary of the founding of the IHNS (CAS), Beijing'. In addition to facilitating these personal exchanges, the CSHPM has also maintained its presence in print: The annual meetings led to high-quality contributions in our *Proceedings* (edited by Maria Zack and myself), with vol. 3 published last fall, and vol. 4 coming out this summer. Moreover, Amy Ackerberg-Hastings and Hardy Grant have been able to continue editing the CSHPM Notes series in the CMS *Notes* with contributions by CSHPM members on fascinating topics from the history and philosophy of mathematics.

As it is time for me to move on, I'd like to thank all

members of the Executive Council for the great work they've all been doing for the CSHPM:

- current Vice-President, *Proceedings* co-Editor and Production Editor for the *Bulletin* Maria Zack,
- our tireless Secretary Patricia Allaire,
- our Treasurer Gregory Lavers,
- our Council Members Craig Fraser, Jean-Pierre Marquis, Karen Hunger Parshall, Joel Silverberg,
- our CMS Liaison and CMS winter meeting session organizer Maritza Branker,
- our Past President Elaine Landry,
- our Content Editor for the *Bulletin* and CSHPM Notes co-editor Amy Ackerberg-Hastings,
- our Webmaster Michael Molinsky,
- our Layout Editor for the *Bulletin* and Archivist Eisso Atzema,
- and finally the members of the Nominating Committee Chris Baltus, Dan Curtin, and Larry D'Antonio.

It has been an enormous pleasure working together with all of you!

Finally, looking ahead, we do have a number of things to look forward to. Our annual meeting, which will be held at UQÀM in Montreal in conjunction with the meeting of the Canadian Philosophical Association, is coming up soon. Jean-Pierre Marquis has been taking care of the local organization and Eisso Atzema was able to come up with a very exciting program, which includes a special session on the History of Philosophy of Mathematics and the Kenneth O. May lecture by philosopher and poet Emily Grosholz. The CSHPM *Proceedings* should soon be ready for your coffee table and interesting CSHPM notices are on their way. While I'm getting ready to take the back seat and enjoy my ride in the passenger car, there is plenty to look forward to from our exciting journey on the CSHPM train....

*Dirk Schlimm*

## Announcements

Outgoing Council member Karen Hunger Parshall received the 2018 Albert Leon Whiteman Memorial Prize of the AMS at January's JMM. The award cited her outstanding work in the history of mathematics, and in particular, her work on the evolution of mathematics in the USA and on the history of algebra,


Figure 1: Italian Maria Agnesi stamp

as well as her substantial contribution to the international life of her discipline through students, editorial work, and conferences. The full citation can be read at `www.ams.org/journals/notices/201804/rnoti-p472.pdf`. Congratulations!

Danny Otero was elected Ohio Section Representative to the MAA Congress for a three-year term beginning 1 July 2018.

The Smithsonian Institution Archives posted a memorial to Uta Merzbach on its blog, `siarchives.si.edu/blog/uta-c-merzbach`.

The Italian Government issued a postal stamp in honor of Maria Agnesi on March 8. France honored Sophie Germain in 2016, `www.wnsstamps.post/en/stamps/FR058.16`. The Mathematical Study Unit of the American Topical Association collects mathematics and mathematicians on stamps. See `www.mathstamps.org`.

*Mathematical Intelligencer* is celebrating its 40th birthday with a free showcase of articles until 15 May. See `link.springer.com/journal/283/40/1/page/1`

Springer has issued the Association for Women in Mathematics volume, *Women in Mathematics: Celebrating the Centennial of the Mathematical Associa-*

*tion of America*. Janet Beery served as one of the editors. Chapters by CSHPM members include: "Fostering Academic and Mathematical Excellence at Girton College 1870–1940," by Shawnee L. McMurran and James J. Tattersall; "Pioneers: The Pre-1940 PhD's," by Judy Green and Jeanne LaDuke; and "In Her Own Words: The Personal Perspectives of Mina Rees," by Amy Shell-Gellasch. *Researching the History of Mathematics Education*, containing papers from ICME-13 and edited by Fulvia Furinghetti and Alexander Karp, and *The Scientific Legacy of William Herschel*, by Roger Ceragoli and Cliff Cunningham, are also available from Springer.

Robin Wilson has published *Euler's Pioneering Equation: The most beautiful theorem in mathematics* with Oxford University Press. Oxford has also published *Scandalous Error: Calendar Reform and Calendrical Astronomy in Medieval Europe*, by C. Nothaft and E. Philipp.

Thomas Preveraud, Konstantinos Chatzis, Thomas Morel, and Norbert Verdier published "Traduire des mathématiques 'pour et par' des élèves dans la première moitié du xix$^{e}$ siècle : Acteurs et pratiques de traduction à travers trois cas d'étude en Europe et aux États-Unis" in a special issue on "Translators and Their Readers" in *Mémoires du livre* 9, no. 1 (Fall 2017).

Princeton has issued *Einstein for the 21st Century: His Legacy in Science, Art, and Modern Culture*, edited by Peter L. Galison, Gerald Holton, and Silvan S. Schweber.

NIAS Press announces *The Continuation of Ancient Mathematics: Wang Xiaotong's Jigu suanjing, Algebra and Geometry in 7th-Century China*, by Tina Su Lyn Lim and Donald B. Wagner. This is a translation and analysis of this Tang-period text.

Charles Mollan has completed Ian Elliott's *William E. Wilson (1851–1908), the Work and Family of a Westmeath Astronomer*. Wilson constructed an observatory at Daramona House in Streete, County Westmeath, and he was also related to Maria Edgeworth.

Sreeamula Rajeswara Sarma has completed the final version of his *Descriptive Catalogue of Indian Astronomical Instruments*, with 600 entries filling 4300 pages. Download a copy at `srsarma.in/catalogue.php`.

The Chemical Heritage Foundation (now known as the Science History Institute after a February 1 merger with Life Sciences Foundation) has acquired the library of historian of early alchemy and medicine Allen G. Debus (1926–2009), including 120 rare books from the 17th century and 23 volumes from the 16th century. A day of talks recognizing the importance of the collection, which addresses a number of gaps in CHF's holdings, will be held at CHF on 15 June.

PhilPapers Foundation announces the relaunch and rebranding of its archive service, `philarchive.org/`. The goals are to make more philosophers aware of the service and to separate PhilPapers open access content from the indexing service (for which universities must pay a fee). All archived papers automatically also appear in PhilPapers. Philosophers are strongly encouraged to archive their papers and to search for new papers.

The search engine for the *Isis Bibliography*, `isiscb.org/explore`, has new functionality through Zotero that also allows the bibliography to be updated entirely online on a daily basis. The PDF version of the *Bibliography* will have live hyperlinks.

**MAA News:** Since 1 January 2018, Taylor & Francis Group has assumed publication of *The American Mathematical Monthly*, *The College Mathematics Journal*, *Mathematics Magazine*, and *Math Horizons*. Among other things, this move should increase the visibility of MAA journals. MAA members continue to access the publications by logging in to the MAA website.

Maria Zack, Dominic Klyve, and Jeff Suzuki are organizing a session on "Teaching Undergraduate Mathematics with Primary Historical Sources" for MAA MathFest in Denver, CO, 1–4 August 2018.

The History of Mathematics section of the MAA's list of recommendations for undergraduate libraries is being revamped, and Fernando Gouvea, *fqgouvea@colby.edu*, is seeking reviewers for books in the BLL that do not yet have reviews.

**HOMSIGMAA News:** Toke Knudsen was reelected Program Chair, and Cynthia Huffman has succeeded Larry D'Antonio as Secretary. The 15th annual Student Paper Contest in the History of Mathematics received entries until 24 March 2018. Amy Shell-Gellasch, *amy.sg@earthlink.net*, is gauging interest in starting an ORESME/ARITHMOS style reading group in Michigan and northern Ohio and Indiana.

**BSHM News:** Spring 2018 gatherings and meetings included: Robin Wilson (aka Leonhard Euler) talking about "The Most Beautiful Theorem in Mathemat-

ics" on 15 February at Gresham College; "Research in Progress" on 17 February at The Queen's College, Oxford; Tony Royle's lecture, "Spinning, Stalling and Falling Apart: Flight and World War I," on 24 February at The Old Museum, Belfast; "The History of Computing Beyond the Computer" on 21–22 March at the Mathematical Institute, Oxford. Upcoming meetings include "History of Cryptography and Codes" on 19 May at Birkbeck, London, and "Mathematics and Patronage" on 23 June at Rewley House, Oxford.

Jimmy Soni and Rob Goodman received the 2017 Neumann Prize for *A Mind at Play: How Claude Shannon Invented the Information Age* (Simon & Schuster, 2017). Norman Biggs's *Quite Right: The Story of Mathematics, Measurement, and Money* (Oxford, 2017) was also "highly commended."

**FedCan News:** The Federation's webinars, "Assessing impacts in the HSS," on how scholars in the humanities and social sciences are measuring the impact of their work, and "Effective use of social media for associations," are available under Events at `www.ideas-idees.ca/`.

NCTM announces that all *Illuminations* content has moved to `nctm.org/illuminations`. The last issue of *Bright Ideas* was mailed in April.

The 2017 Fields Medal Symposium in Toronto focused on the work of Martin Hairer, 2014 Fields Medallist. Events were held October 15–19 and included a student workshop on probability, Hairer's lecture on "Taming Infinities," Hairer's student talk titled "On Coin Tosses, Atoms and Forest Fires," and four days of scientific talks that mainly dealt with stochastics and PDEs.

Speakers on the 2017–2018 schedule for the Philadelphia Area Seminar on the History of Mathematics (PASHoM) included: Marina Vulis (Norwalk CC and CUNY) on "The Saint Petersburg Academy of Sciences and Mathematics in the 18th–19th Century Russia" on September 21; Laura Turner (Monmouth) on "E. V. Huntington's Postulates for the Real Numbers: A Preliminary Report" on October 19; David Lindsay Roberts (Prince George's CC) on "An Antebellum Algebra Textbook: Proofs, Algorithms, and Slavery" on November 16; Peter Freyd (Penn) about his relationship with David Gale, co-author of the 1962 paper "College Admissions and the Stability of Marriage" with Lloyd Shapley, on December 14; V. Frederick Rickey (West Point, emeritus) on "Professor Bolesław Sobociński and Logic at Notre Dame" on January 18; Roman Sznajder (Bowie State) on "On Known and Less Known Relations of Leonhard Euler with Poland" on February 15; Christopher J. Phillips (Carnegie Mellon) on "The New Math and Mid-Century American Politics" on March 15; and John Botzum (Kutztown) on "The Phi-bonacci Sequence" on April 19. Alan Gluchoff, *alan.gluchoff@villanova.edu*, is also seeking talks for the third Thursdays of each month of the 2018–2019 academic year.

The Frederick V. Pohle Colloquium on the History of Mathematics, hosted by the Department of Mathematics & Computer Science at Adelphi University, presented the following speakers in 2017–2018: Volker Remmert (Wuppertal) on "The Art of Garden and Landscape Design and the Mathematical Sciences in the Early Modern Period" on October 4; Neil Gallagher (Webb Institute) on "Mathematics in the History of Navigation and Ship Design" on November 1; Robert E. Bradley (Adelphi) on "Jean D'Alembert Tercentennary" on December 6; Maritza Branker (Niagara) on "Complex Numbers through the Eyes of Cauchy and Hamilton" on March 7; Lawrence A. D'Antonio (Ramapo) on "Newton's Headache: How High the Moon?" on April 4; and Colin McKinney (Wabash) on "The Four Curves of Alexis Clairaut" on May 2.

The ARITHMOS Reading Group met March 3–4 at Western Connecticut State University to continue reading the 1736 English translation of Newton's *The Method of Fluxions and Infinite Series*.

The ORESME Reading Group met on Friday evening, March 23, 2018, at Northern Kentucky University (University Heights, KY) to read part of a seminal work by Kurt Hensel (1861–1941) related to the early development of the $p$-adic numbers, his *Theorie der Algebrischen Zahlen* (1908) in an English translation prepared by Danny Otero, one of ORESME's co-organizers. Inclement winter weather forced cancellation of the scheduled second part of the meeting the following morning, so the group intends to resume reading of the first four chapters of Hensel's book at its Fall 2018 meeting. Arrangements for this future meeting are yet to be finalized. For information, contact either Danny Otero, *otero@xavier.edu* or Dan Curtin, *curtin@nku.edu*.

International Days on Heritage and Scientific and Technical Instruments of Education in Europe were

held 23–24 March at the University of Rennes, France.

Winterthur Museum, Garden & Library held "Images, Copyright, and the Public Domain in the Nineteenth Century" on 29–30 March.

The 13th Maghrebian Colloquium on the History of Arabic Mathematics was held 30 March–1 April in Tunis, Tunisia.

"Humanities for STEM: Using Archives to Bridge the Two Culture Divide" took place at the NYU Tandon School of Engineering in Brooklyn, 6–7 April. On the same dates, the University of Pittsburgh's Center for Philosophy of Science held "Learning from Empirical Approaches to HPS." The 53rd Joint Atlantic Seminar for the History of Biology was held at Princeton on 7 April.

"Printing Colour 1700–1830: Discoveries, Rediscoveries & Innovations in the Long 18th Century" was held at Senate House in London, 10–12 April.

The Antiquarian Horological Society annual meeting is at Keele University in Staffordshire, 12–13 May. The theme is Edward Massey and his family's contributions to science and horology.

The History of Physics Group of the German Physical Society is holding a workshop on "Biographies in the History of Physics: Actors, Objects, and Institutions" for junior and established researchers on 22–25 May.

A Conference on History of Mathematics and Teaching of Mathematics will be held in Miskolc, Hungary, 23–26 May.

The National Maritime Museum, Greenwich, is hosting a history of navigation conference on "Navigation, heroism, history," 24–25 May.

"Measurement at the Crossroads," a third biennial conference on the history and philosophy of measurement, will take place in Paris, 27–29 June.

A summer school on The Foundations of Geometry in Historical Perspective will be held 2–7 July at the Max Planck Institute for Mathematics in the Sciences in Leipzig. Jeremy Gray is one of the speakers.

The 7th conference in the series Integrated History and Philosophy of Science will take place at Leibniz Universität in Hannover, Germany, 5–7 July. This year's theme is "The Evolution of Knowledge." See`integratedhps.org/en/`.

A workshop on the material cultures of urban knowledge communities, 1500–1800, will be held at the University of Kent, 6 July.

A number of organizations are sponsoring a workshop on "Women in the History of Science, Philosophy and Literature" in Syros, Greece, 12–13 July. Look under Events at `historyofwomenphilosophers.org/`.

The 8th European Summer University on the History and Epistemology in Mathematics Education will be held in Oslo, 20–24 July. See `esu8.edc.uoc.gr`.

The HAPP Network Summer School will consider "History of Physics: Scientific Instruments and Environmental Physics" in Oxford, 20–24 August.

The 5th Africa Regional Congress of ICMI on Mathematical Education will take place in Dar es Salaam, Tanzania, 29–31 August.

The 4th Latin American Conference of the International History, Philosophy, and Science Teaching Group will be in Santo André, Brazil, 3–5 September.

The 37th annual symposium of the Scientific Instrument Commission will take place 3–7 September in Leiden and Haarlem with the theme "Instruments and the 'Empire of Man over Things'." See `scientific-instrument-commission.org`.

A conference on "Heritage in the Limelight: The Magic Lantern in Australia and the World" will be held in Canberra, 4–6 September.

The next session of the Ancient & Medieval Sciences working group will be 13 September at the CHSTM offices in Philadelphia. For more information and readings, see `www.chstm.org/content/ancient-and-medieval-sciences`.

The 8th European Society for the History of Science Conference will be held in London, 14–17 September. The theme is "Unity and Disunity." See `eshs2018.uk`. The meeting will be preceded by "Female Networks: Gendered Ways of Producing Knowledge (1750–1830)" at the Department of Science and Technology Studies, University College London, 13 September.

"Books, Readers, and Reading: 250 Years of the Leeds Library," the oldest surviving proprietary subscription library in the British Isles, will be held 20–22 September. Joseph Priestley was the Library's first secretary.

An interdisciplinary and international conference on the history, present, and future of libraries will be held to commemorate the American Philosophical Society's 275th anniversary in Philadelphia, 27 September. Proposals are due May 15. See `apply.interfolio.com/49070`.

The European Physical Society's 3rd International Conference on the History of Physics and American Institute of Physics's 4th Early Career Conference for Historians in the Physical Sciences will be in Donostia-San Sebastian, Spain, 17–21 October.

Yogyakarta State University, Indonesia, is hosting the 23rd Asian Technology Conference in Mathematics, 20–24 November. The theme is "Technological Creativity and Innovation in Mathematics Applications." Abstracts are due 1 June.

"Marginalia: Bibliography at the Margins," The Bibliographical Society of Australia and New Zealand's Annual Conference, will be held at the University of Queensland in Brisbane, 29–30 November. The conference seeks to explore the condition of being bibliographically "in, on, or at the margins" ranging from examples of significantly annotated copies of books to the relationship of bibliography to cognate disciplines such as history, literature, biography, and critical theory.

"Portraits and Poses: Representations of female intellectual authority, agency and authorship in early modern and Enlightenment Europe," the annual conference of the Dutch-Belgian Society for Eighteenth-Century Studies, will be held at KU Leuven, Belgium, 21–22 March 2019. Abstracts are due 15 May 2018. See `www.18e-eeuw.nl`.

The 15th International Conference of The Mathematics Education for the Future Project will take place at Maynooth University in Kildare, Ireland, 4–9 August 2019 with the theme, "Theory and Practice: An Interface or A Great Divide?"

Dartmouth College is considering razing Shattuck Astronomical Observatory, constructed in 1853, to make room for student dormitories. Rich Kremer has posted an online petition opposing this action, `goo.gl/jDruf8`.

The University of Chicago plans to transition Yerkes Observatory to a new 501(c)3 entity by 1 October.

The City of Stockholm is buying the Observatory Museum from the Swedish Academy of Science. A partnership between Stockholm University, KTH Royal Institute of Technology, and the City of Stockholm Schools will re-open the museum for educational purposes sometime after fall 2018. The instruments remain under Academy ownership, but future collaboration is possible.

H-NET is holding a fundraising drive to celebrate its 25th anniversary and upgrade its systems. Email lists, reviews, and anniversary content can now be accessed at `networks.h-net.org/`.

The Combined Membership List has ceased, due to new privacy requirements that prohibit sharing of members' information across organizations. The AMS will release a new Member Directory in 2019. Members may update their information by logging into `ams.org`.

The American Historical Association offers directories of history departments, graduate programs, dissertations, and history journals. See `https://www.historians.org` and scroll down to Directories under the Publications-and-Directories menu.

Reza Khadem, a frequent attendee at HPM Americas Section meetings, has developed ReZquare, Flat Puzzles with a Purpose, available from Amazon.

The University of Toronto's online catalogue of historic scientific instruments now includes 800–1000 objects. See `utsic.org/`.

A database of early modern printed editions of Sacrobosco's *De sphaera*, developed by Florian Kräutli, can be found at `sphaera.mpiwg-berlin.mpg.de`.

The Harry Ransom Center at the University of Texas exhibited early modern books with volvelles. See the 4 January entry in the blog for its magazine, `sites.utexas.edu/ransomcentermagazine/`.

The collection of scientific instruments of Landgrave Carl (r. 1677–1730), his Kunsthaus, has been reconstructed at the Museum Fridericianum, Kassel, Germany. See a trailer at `www.youtube.com/watch?v=TIsFKDkXQSw`.

Stories about women and sexual harassment in science were presented on the To the Best of Our Knowledge radio show in December 2017 and archived at `www.ttbook.org/show/harassment-lab`.

Annenberg offers the 13-part course *Mathematics Illuminated*, on the theories, history, and beauty of mathematics. See `learner.org`.

The January 2018 issue of the *Journal of Humanistic Mathematics* is available at `scholarship.claremont.edu/jhm`. Authors of articles include Man Keung Siu, Paolo Mancosu, and Viktor Blasjö. Amy Shell-Gellasch and John Thoo's *Algebra in Context* is reviewed.

Issue 8 of the *Science Museum Group Journal* is avail-

able at journal.sciencemuseum.org.uk. Submissions for a new writing prize for early-career scholars are due each March 1.

No. 33 (December 2017) of *Philosophy of Mathematics Education* is a special issue on "Mathematics Education and the Living World: Responses to Ecological Crisis." All issues are available through open access.

*Spontaneous Generations*, the IHPST journal and also open-access, had a special issue on "The Future of the Scientific Realism Debate: Contemporary Issues Concerning Scientific Realism" in vol. 9, number 1.

Nathan Oseroff has joined Michael Matthews and Paulo Maurício as the second assistant editor for the monthly HPS&ST newsletter. For recent issues, see hpsst.com/.

The Science Museum and the University of Leeds are offering a PhD studentship for the project "Instrumental learning? Object lessons in recapturing past science teaching," with coursework and research to begin on 1 October. Applications are due 30 April.

The Italian Society for the History of Physics and Astronomy received nominations for its Best Paper Prize for papers in the history of physics or astronomy until 30 April.

*Nexus Network Journal* is receiving submissions for a special issue on "Architecture and Mathematics in Palladio's Century: A Tribute to Carl and Sally Gable" until 1 June. See nexusjournal.com/.

Women in Technological History offers a travel grant of US$250 for the Society for the History of Technology annual meeting. Applications are due 15 August.

Applications for the 2019 Paul Bunge Prize for History of Scientific Instruments, awarded by the Hans R. Jenemann Foundation and administered by the German Chemical Society and German Bunsen Society for Physical Chemistry, are due by 30 September to Barbara Köhler, *b.koehler@gdch.de*. The prize is 7.500 Euro for outstanding publications in German, English, or French in the historiography of scientific instruments. In addition to the publication(s), applicants should submit a CV and complete list of publications.

Print Networks has established the Peter Isaac Essay Prize for the best essay on the history of the book trade in the Anglophone world by students, early career scholars, and independent scholars. Entries are due to Catherine Armstrong, *C.M.Armstrong@lboro.ac.uk*, by 1 October.

The Deutsches Museum in Munich offers 6- and 12-month scholarships for 2019. The ability to read German is a requirement. The application deadline is 12 October. For more details, see www.deutsches-museum.de/en/research/scholar-in-residence/.

Elsevier offers single-year grants to young mathematics researchers engaged in education or philanthropy through its Mathematical Sciences Sponsorship Fund. Applications are due 15 December. See the Awards section of elsevier.com.

Nominations for the 2020 ICMI Emma Castelnuovo Award, for outstanding achievements in the practice of mathematics education, are due 31 March 2019. The award will be conferred at ICME-14 in Shanghai, China, July 2020. See www.mathunion.org/icmi/awards/icmi-awards. Terezinha Nunes (Oxford) received the 2017 Hans Freudenthal Award for 35 years of research into children's mathematical learning. The 2017 Felix Klein Award for lifetime achievement in mathematics education research was given to Deborah Loewenberg Ball (Michigan) for her accomplishments, including Mathematical Knowledge for Teaching and TeachingWorks.

## *Proceedings* Update

The 2016 volume of the *Proceedings* was delayed an unusually long amount of time. I turned the completed book in to Birkhäuser in early June 2017 (there had been several author delays in finishing papers) and then for complicated reasons, it took Birkhäuser/Springer's production people in India 6 months rather than 8–10 weeks to finish the book. By now, you should have received the ebook code or any print copies you ordered with your 2017 CSHPM membership renewal. Please let me know if you were expecting the 2016 *Proceedings* but have not received it.

I spoke with my editor at Springer in January 2018 to identify ways to avoid having this kind of delay occur again. We have taken a few steps:

1. I have moved the author deadlines for the 2017 volume to Spring 2018 with the hope that the book can make it through India before what I have learned is the "June crunch" begins.
2. Our editor at Birkhäuser is checking to see if we can use a "fast track" process that they are setting up, which would mean that we can push papers though a process to publish online as soon as they

are through production. When all the papers are ready, the book will be printed. This "continuous production" has a chance of further speeding up the volumes for 2018 and beyond.

Additionally, here are metrics on our *Proceedings* as of February 2018:

- 2014 Volume: 3878 downloads of articles
- 2015 Volume: 3300 downloads of articles
- 2016 Volume (just released): 99 downloads

The numbers suggest that people are looking at the volumes—and hopefully reading what they've downloaded!

*Maria Zack*

## 2017 Financial Statements

The following financial statements cover the period 1/1/2017 through 31/12/2017.

| **Income** | $Can |
|---|---|
| Dues/Subscriptions | 15,083.94 |
| CFHSS speaker grant | 500.00 |
| TOTAL | 15,583.94 |
| **Expenses** | |
| *Proceedings*, 2016 | 2,075.43 |
| *Philosophia Mathematica* | 2,420.46 |
| *Historia Mathematica* | 5,101.19 |
| Postage, office expenses, *Bulletin* | 292.09 |
| BSHM reciprocal memberships | 1,302.75 |
| CFHSS dues for 2016 | 1,386.06 |
| May Speaker | 750 |
| CSHPM Student Prize | 1,322.90 |
| PayPal service charge | 469.30 |
| Bank fees | 56.13 |
| TOTAL | 13,873.56 |
| NET | 1,710.38 |
| Bank balance, 12/31/17 | 40,267.81 |
| PayPal balance, 12/31/17 | 7,820.27 |
| TD Mortgage Corporation GIC | 4,440.43 |
| TD Mortgage Corporation GIC | 4,558.49 |
| TOTAL ASSETS | 57,087.00 |

**Comments:**

The Society has three accounts: a TD Canada Trust account for Canadian funds (CDN), a TD Canada Trust account for American funds (USD), and a PayPal account (CDN). The two bank accounts are used to deposit income or pay expenses in the appropriate currency. For example, journal subscriptions are paid in US dollars. Memberships paid by cheque can be in CDN or USD. The PayPal account is used to collect membership dues and journal subscriptions via the Internet; the PayPal account is kept in Canadian dollars. At the request of the editors, we have combined the numbers for these accounts. The numbers given are in Canadian dollars. A conversion factor of 1.26 has been used to convert American dollars into Canadian ones.

Expenses such as BSHM reciprocal membership and the Congress 2017 invoice were paid in early 2018. The student award winner's bank cashed the check in US dollars instead of in Canadian dollars. The first GIC fund earns interest at 1,60% and matured 16 September 2016; the second has a 1,40% rate and matured 26 March 2017. Both funds automatically renew.

*Gregory Lavers*

## Docent Press

Docent Press, offering "thoughtful reading in the history of mathematics and computing," is seeking manuscripts. We try to publish four titles a year. While it isn't an explicit focus, we've had the best luck—from the author's, the reader's, and our own point of view—with theses and dissertations that were never published. There is much good research as well as many wonderful stories locked away in these works that I believe deserves to be put before the general reader of science and technology, where it would find a welcome reception.

We aren't a vanity press. I have turned down a number of manuscripts. On the other side of the coin, I have found unpublished dissertations that would make wonderful books but discovered that the academic author is reluctant to publish with us. I understand and respect that reluctance but regard it as a less than sterling characteristic of the history of mathematics community.

Our booklist includes *In Service to Mathematics: The Life and Work of Mina Rees*, by CSHPM member Amy Shell-Gellasch. Other authors known to the CSHPM audience include Salvatore Petrilli, Todd Timmons, and Scott Guthery. Fred Rickey and Peggy

Kidwell serve on our editorial board.

More often than not, the author is not in academia or has retired from academia, so not being an A-level publisher is not a showstopper. People just get a kick of seeing their book on Amazon. (I can assure you that neither they nor I are in it for the money!) The amount of work necessary on the author's part to move the work from a degree requirement to an enjoyable read isn't great. Sometimes it's just tempering the show of having reviewed the literature in the first chapter and removing the discussion of further research from the last chapter. Of course, authors are free to update and correct the intervening text at their discretion. To view our booklist or inquire about submitting a manuscript, please visit `www.docentpress.com/`.

*Scott Guthery*

## 2018 CSHPM/SCHPM Meeting Programme

The Annual Meeting of the Canadian Society for History and Philosophy of Mathematics will be held at Université du Québec à Montréal, 4–6 June 2018, in conjunction with the Canadian Philosophical Association. Except for the one-hour May Lecture, presentations are 20 minutes, with 5 minutes for discussion and 5 minutes of set-up before the next talk. Many thanks to the program organizers, Eisso Atzema and Dirk Schlimm, and the local organizer, Jean-Pierre Marquis.

**Monday, June 4**

**9:00** PRESIDENT'S WELCOME (Dirk Schlimm)

**SESSION 1: MEDIEVAL PHILOSOPHY & ASTRONOMY**

**9:15** Glen Van Brummelen (Quest): "Jamshīd al-Kāshī's Tables of Planetary Latitudes"

**9:45** ~~Mohammad Saleh Zarepour (Cambridge): "Avicenna on Infinity: Revisiting the Mapping Argument"~~ Cancelled

**10:15** COFFEE BREAK

**SESSION 2: MATHEMATICS IN RUSSIA & UKRAINE**

**10:30** Mariya Boyko (Toronto): "The Reception and Criticism of the Soviet Mathematics Curriculum Reform in the Late 1970s: Factors that Led to Curriculum Counter-Reforms"

**11:00** Inna Tokar (CCNY): "History of Mathematics Education for Gifted Students in the Former Soviet Union"

**11:30** Maryam Vulis (CUNY): "Ukrainian Mathematicians of the 19th–20th Centuries and their Contributions to the Development of Mathematics and Mathematical Culture in Ukraine"

**12:00** LUNCH BREAK & CSHPM EXECUTIVE COUNCIL MEETING

**SESSION 3: PROOF AND PRACTICE**

**14:00** Bernd Buldt (IU–PU Fort Wayne): "Mathematical Practice and Phenomenology"

**14:30** Robert Hudson (Saskatchewan): "Conditional Independence and the Value of Diverse Evidence"

**15:00** Zoe Ashton (Simon Fraser): "Audience-Reflective Proof: A Case Study from Knot Theory"

**15:30** Robert Thomas (Manitoba): "Why Mathematical Style Does Not Need Philosophical Justification"

**Tuesday, June 5**

**SESSION 4A: HISTORY OF LOGICS**

**8:45** Dirk Schlimm (McGill): "What Was Boole's System of Logic About?"

**9:15** V. Frederick Rickey (USMA): "Professor Boleslaw Sobociński and Logic at Notre Dame"

**9:45** Daniel Lovsted (McGill): "Logical Incommensurability in the 20th Century: Fred Sommers and His Contemporaries"

**SESSION 4B: HISTORY OF SEVENTEENTH-CENTURY MATHEMATICS**

**8:45** George Heine (Independent Scholar): "Two Brothers and the Lemniscate"

**9:15** Christopher Baltus (SUNY Oswego): "Phillippe de la Hire: Was He Desargues's *Schüler*?"

**9:45** Maria Zack (Point Loma Nazarene): "Everyone's Favorite Curve: The Cycloid"

**10:15** COFFEE BREAK

**SESSION 5A: HISTORY OF LOGICS**

**10:30** Jean-Pierre Marquis (UQAM): "Bourbaki's Structuralism: Its Evolution and Impact"

**11:00** Greg Lavers (Concordia): "Carnap, Turing and the Paradox of Analysis"

**11:30** David Orenstein (Toronto): "Complementary Duality: The Bertrand Russell Archives at McMaster University and the Slater/Walsh Philosophy Collection at the University of Toronto"

**SESSION 5B: HISTORY OF EIGHTEENTH-CENTURY MATHEMATICS**

**10:30** Robert Bradley (Adelphi): "Did D'Alembert Really Believe in Limits?"

**11:00** Cameron Friend (Quest): "Carrying Across: A Translation and Analysis of Leonhard Euler's Text *Prolbematic Cuiusdam Pappi Alexandrini Constructio* and the Accompanying Text by Nicolaus Fuss"

**11:30** Craig Fraser (Toronto): "Euler and Divergent Series: Some Historiographical Reflections"

**12:00** CSHPM ANNUAL GENERAL MEETING (LUNCH PROVIDED)

**14:00** THE KENNETH O. MAY LECTURE, by Emily Grosholz (Penn State): "How Number Theory and Logic Benefit from Productive Ambiguity: Gödel, Mazur, Wiles and Macintyre"

**SESSION 6: SPECIAL SESSION: HISTORY OF PHILOSOPHY OF MATHEMATICS**

**15:15** Yousuf Hasan (Western Ontario): "Applying Carnap's Internal/External Distinction to Mathematics"

**15:45** Osama Eshera (McGill): "Theoretical Mathematics in Avicenna's Metaphysics"

**16:15** James T. Smith (San Francisco State) & Elena A. Marchisotto (Cal State Northridge): "Intermezzo"

**Wednesday, June 6**

**SESSION 7: HISTORY OF MATHEMATICS IN THE CLASSROOM**

**9:15** Janet Heine Barnett (Colorado State Pueblo): "A Gaussian Tale for the Classroom: Lemniscates, Arithmetic-Geometric Means, and More"

**9:45** Jonathan Seldin (Lethbridge) & Fairouz Kamareddine (Heriot-Watt): "Using the History of Mathematics to Teach the Foundations of Mathematical Analysis"

**10:15** COFFEE BREAK

**SESSION 8A: HISTORY OF NINETEENTH-CENTURY MATHEMATICS**

**10:30** Amy Ackerberg-Hastings (Independent Scholar): "Charles Davies as a Philosopher of Mathematics Education"

**11:00** Maritza Branker (Niagara): "Cauchy's Persuasive Appeal"

**11:30** Roger Godard (Royal Military College) & John De Boer (Royal Military College): "Gauss and the Forgotten Model of the Earth's Magnetic Field"

**SESSION 8B: ON THE AXIOM OF CHOICE**

**10:30** Valérie L. Therrien (Western Ontario): "The Axiom of Choice and the Road Paved by Sierpiński"

**11:00** Aaron Thomas-Bolduc (Calgary) & Eamon Darnell (Toronto): "Strengthening Truth"

**11:30** Elaine Landry (California Davis): "Mathematics is Not Metaphysics"

**12:00** LUNCH BREAK

**SESSION 9A: PHILOSOPHIE DES MATHÉMATIQUES EN FRANÇAIS**

**14:00** Aurélien Jarry (Bergische Universität Wuppertal): "L'Équivalence entre Catégories: A Third Way of Analogies?"

**14:30** Jean-Charles Pelland (UQAM): "Arithmetic, Culture, and Attention"

**SESSION 9B: ON APPLIED MATHEMATICS**

**14:00** José Perez Escobar (ETH Zürich): "Mathematical Modeling in Physics, Biology and Their Intersection: Differences in the Use of Mathematical Tools Across the Mathematical Sciences"

**14:30** Toby Reid (Toronto): "Early Pedagogy of General Relativity Theory in the USA for American Relativistic Cosmology in the 1920s and 1930s"

**15:00** CONCLUDING REMARKS

## Quotations in Context

"The moving power of mathematical invention is not reasoning but imagination."

In January 1866, an obituary for the Irish mathematician and scientist William Rowan Hamilton appeared on pages 128–134 of *The Gentleman's Magazine*, a monthly London periodical founded in 1731. The name of the obituary's author was not provided in the magazine itself; however, when biographer Robert Perceval Graves published the third volume of his *Life of Sir William Rowan Hamlton* in 1889, he included some excerpts from the obituary, and on page 216 identified the author as Augustus De Morgan.

I found myself frequently bouncing back and forth between the works of De Morgan and Graves while researching this quotation. For example, at the end of the obituary De Morgan admitted to having drawn bi-

ographical details from an earlier article published in January 1842. Although De Morgan misidentified the source as *Fraser's Magazine*, his statement that the article "is accompanied by a portrait" as well as other details he provides identify the actual article as "Our Portrait Gallery No. XXVI: Sir William R. Hamilton" from pages 94–110 of *The Dublin University Magazine*, which was written by Graves.

I stumbled across another such connection in the January 4, 1884, edition of the weekly American journal *Science*. On page 20, a review of the first volume of Graves's *Life of Sir William Rowan Hamilton* clearly "borrows" from De Morgan's obituary of Hamilton without attribution. For comparison, here is the relevant text from *Science*:

> The name of William Hamilton has conferred a threefold distinction upon the kingdoms of Great Britain. An early article on the subject of this biography reminds its readers that each isle has its Sir William Hamilton. The Englishman was noted for his patronage of art, the Scotchman was among the first in philosophy, and the Irishman was among the first in mathematics.

And here is the related text from page 128 of the obituary, where the "old article in a review" is Graves's 1842 article (and it should be noted that De Morgan summarized the first paragraph of that article in his own words rather than copying it exactly):

> An old article in a review, written on the subject of this memoir, reminds its readers that each of the three kingdoms has its Sir William Hamilton. The Englishman was noted for his patronage of art; the Scotchman was among the first in philosophy; and the Irishman was among the first in mathematics.

The subject quotation of this column appeared on page 132 of the obituary, when De Morgan discussed the difficulty of providing details of all of Hamilton's life and work in a few pages:

> Our notice of Hamilton's scientific character must be brief: and it is not in our power to dwell on those parts which are not in evidence before the public. The scholar, the poet, and the metaphysician must be set forth in some large and well studied memoir, or not at all. Hamilton himself often said, "I *live* by mathematics, but I *am* a poet." Such an aphorism may surprise our readers, but they should remember that the moving power of mathematical *invention* is not reasoning, but imagination. We no longer apply the homely term *maker* in literal translation of *poet*: but discoverers of all kinds, whatever may be their lines, are *makers*; or, as we now say, have the creative genius.

Since De Morgan did not live to see Graves's three-volume biography published, we can only wonder if De Morgan would have found it a satisfactory response to his call for a "large and well studied memoir" of Hamilton.

*Mike Molinsky*

## May Lecture

The Kenneth O. May lecture at the 2018 Annual Meeting of the CSHPM will be given by Edwin Erle Sparks Professor of Philosophy, English, and African American Studies at Penn State University, Prof. Emily Rolfe Grosholz. The topics that Prof. Grosholz has pursued in her research show a remarkable breadth of interests, as can be easily gleaned from the titles of her publications. She has edited collections on topics such as: *W. E. B. Du Bois on Race and Culture: Philosophy, Politics, Poetics* (1997), *Leibniz's Science of the Rational* (1998), *The Growth of Mathematical Knowledge* (1999), *The Legacy of Simone de Beauvoir* (2004), *Logic and Knowledge* (2011), *Leibniz, Time, and History* (2013), and *Time and Cosmology: Philosophers and Scientists in Dialogue* (2013).

In addition, she has published monographs on *Cartesian Method and the Problem of Reduction* (1991) and *Representation and Productive Ambiguity in Mathematics and the Sciences* (2007). The latter book exemplifies the unique and groundbreaking ways in which Prof. Grosholz combines insights from the history and the practice of mathematics in her philosophical analysis of the development of mathematics—she argued convincingly that mathematical systems of representation can be ambiguous and that this ambiguity is the key to the development of new mathematical ideas.

Her most recent book, *Starry Reckoning: Reference*


Figure 2: Emily Grosholz

*and Analysis in Mathematics and Cosmology* (2016) was awarded the prestigious Fernando Gil International Prize for philosophy of science. And if that wasn't enough, she has written eight books of poetry, including *Proportions of the Heart: Poems that Play with Mathematics* (2014) and *The Stars of Earth: New and Selected Poems* (2017).

A new book, *Great Circles: The Transits of Mathematics and Poetry*, is due out in 2018. At our annual meeting in Montreal, Prof. Grosholz, will present her work on the development of mathematics in the context of logic and number theory with a talk on "How Number Theory and Logic Benefit from Productive Ambiguity: Gödel, Mazur, Wiles and Macintyre".

*Dirk Schlimm*

## Alex Jones and Ptolemy in Toronto

Ever since my undergraduate days in the early 1970s, I've been attending the departmental colloquia of the University of Toronto's Institute for the History and Philosophy of Science. So when I heard that Alex Jones, past president of CSHPM, was going to give the January 2018 colloquium, I *had* to be there. It was the capstone of an ideal Toronto day which started at my neighbourhood *Rooster Café*, where I've written many of my other *Bulletin* pieces. Suitably caffeinated, it was a further five kilometer westward walk on a cold sunny day with stops at Riverdale Farm, Allen's Gardens and lunch.

Alex's talk on "Ptolemy's Epistemological Arsenal" was introduced by the Institute's Yiftach Fahige, who recounted Alex's connections with Toronto and some of his many scholarly accomplishments. Alex focused on Ptolemy's astronomy but drew on a range of Ptolemy's works beyond the *Almagest* and other ancient authorities. In his introduction, Alex stated that Claudius Ptolemaius was the most important writer on mathematics and physics in Roman Imperial times, writing on Astronomy, Astrology , Harmonics, Optics, Geography and, in works now lost, on Mechanics and Natural Motion.

Simplicius (fl. 500 CE) cited Geminus' (fl. 100 BCE) *Introduction to the Phenomena* to contrast the more qualitative Physics with more mathematical Astronomy. While physicists argued from the essences to determine the true nature of things, astronomers using contingent circumstances could put forward such crazy ideas as the Sun standing still and the Earth moving.

In the beginning of *Almagest*, Ptolemy prioritized the mathematical methods, *arithmeticê* and *gêometria*, as the only road to sure and unshakeable knowledge. However, it was in his *Harmonics* that Ptolemy made explicit his epistemology. He contrasted sense perception, which relies on exact knowledge but obtains inexact knowledge, with reason, which proceeds from the inexact to the exact. His *Kanôn*, a way of dividing the monochord, shows that the simple ratios 2:1 (the octave), 3:2 (the fifth) and 4:3 (the fourth) are aesthetically-satisfying intervals (*symphonoi*). But you have to set up the ratios first to hear the effect, as nothing is perfect.

Citing the example of a complex tuning exercise from the followers of Aristoxenus, Ptolemy demonstrated that from one point of view you would expect an octave, but if you follow the successive divisions the ratio is 9 <6:8 <6 = 531,441:262,144 = 2.02728653:1 >2:1. This approach could then be used in studying the motions of the planets by starting with the observational phenomena and obtaining the radii of the circles and

the rates of revolution. Ptolemy argued that the model should explain all the phenomena, including planetary visibility.

Alex concluded by summarising the weapons in Ptolemy's epistemological arsenal and explaining how they might be applied to his Solar Theory. For example, deductive reasoning derived from arithmetic and geometry could assume a great circle (the ecliptic) through the Zodiac. Its intersections with the Equator would then form a natural reference frame.

As is the Colloquium's standard practice, one of the Institute's graduate students had been assigned to prepare a response. Gwyndat Garbutt (then ABD, but probably as you read this article now Doctor Garbutt) emphasised how Ptolemy's pseudo-empirical claims backed an epistemic and rhetorical construction of reality using the privileged status of mathematical arguments.

I got to ask the first question: "Would Ptolemy's contemporary readers have been aware that he had fudged his data?" Alex answered that it was hard to determine the nature of Ptolemy's audience, but it was probably very philosophical and familiar with the Platonic-Aristotelian cosmology. Also, they probably couldn't see the fudging. But readers at Ptolemy's level of sophistication in mathematical astronomy would have been shocked because these pseudo-observations would have been used by other astronomers as data positions.

After further discussion we broke for coffee, tea and cookies out in the hallway presided over by a larger-than-life portrait of Margaret Atwood, a Victoria College Alumna. I attended with a friend, Glenn Kelly, another Vic Alumnus. Glenn remarked, "I took an astronomy course in this very room around 1985! It brings back fond memories, as well as being an interesting and thoughtful presentation."

*David Orenstein*

## Ebook Review: Philosophical Breakfast Club

*The Philosophical Breakfast Club*, by Laura J. Snyder. Broadway Books, 2011, 457 pp. ISBN 978-0-307-71617-0. Hardcover: US$27.00. Ebook: US$7.99.

This example of well-executed popular history looks at the lifelong interactions of four men who briefly gathered as a student society at Cambridge: William Whewell, Charles Babbage, John Herschel, and Richard Jones. Snyder mostly follows the events of the men's lives in chronological order, while focusing each chapter on a specific theme, such as "dismal science" (mainly on Jones's contributions to economics, along with the others' understandings of political economy) or "a divine programmer" (the dispute between Whewell and Babbage over natural theology, particularly the role of a creator God, which Snyder claims was one of the factors that led Babbage to begin work on the Analytical Engine, whose development comprises the other major topic of the chapter).

Snyder's anecdotal style provides a fast read to those who have already perused many of the secondary sources she cites, but the popularization is careful enough that it serves as a solid introduction to 18th- and 19th-century science for newcomers to the subject. The notes and bibliography take up 19% of the text; Snyder consulted archival and published correspondence as well as the men's publications and standard academic works by Menachem Fisch, Niccolò Guicciardini, Jack Morrell and Arnold Thackray, Roy Porter, and others.

I noticed no egregious factual errors, but some of her conclusions about cause and effect seemed stretched. For instance, she repeatedly suggests that Charles Darwin would not have arrived at the theory of evolution by natural selection without reading Whewell's and Babbage's works on the nature of science. Even after pointing out several other contributing factors, she blames Herschel's loss in the 1831 election of president of the Royal Society on Babbage's "ill-judged intervention" (p. 139). Perhaps because I had just read *The Thrilling Adventures of Lovelace and Babbage*, I found Sydney Padua's depictions of how the calculating machines were supposed to work easier to comprehend than Snyder's verbal description.

One thing I like about good popularizations is that they pull together facts and events that one might already know but had not thought about as unfolding in the same timeframe or as being linked to other facts and events. Snyder makes it very clear that these four men were extremely concerned with what it really means to engage in a given activity on multiple fronts, for instance explicitly connecting their efforts to define "science" with their endeavors to state the content of "political economy". A philosopher who received training in the history and philosophy of science

while she was earning her PhD at Johns Hopkins and who subsequently pursued a typical academic career at St. John's University, Snyder is now presumably in so much demand as a popular writer and lecturer that she retired from her professorship in 2017.

Discussion of a 7-year-old book might usually appear in our Off the Shelf column, but 1) the *Bulletin* has never addressed the growth of ebooks, despite its Content Editor's 6 years of devotion to a Kindle Paperwhite; and 2) I wanted to mention services that help consumers navigate ebooks' frequently fluctuating pricing.

1) An Internet search will reveal the full gamut of opinions in the print books vs. ebooks debate. I find my ereader most useful for novels and nonfiction I am reading for personal reasons; I still prefer to take research notes by hand and type them up later, so history generally is not as portable as the other types of reading. One thing I would never have done with paper books is tackle authors' collected works, particularly those who knew or were read by the mathematicians I study, such as Maria Edgeworth. These are generally compiled by vendors from the freely available scans at sites such as the Internet Archive. For a low price (generally a couple dollars for thousands of pages of text) and guaranteed Kindle compatibility, I am willing to accept OER-introduced typos and limited navigation within and between texts. I use the highlighter and bookmark features of the ereader to keep track of references to history of mathematics in British literature.

*Philosophical Breakfast Club* was formatted simultaneously for print and ereaders, so the electronic version provides page numbers as well as the location numbers that style guides suggest utilizing in citations of ebooks. The Kindle Paperwhite is designed for glare-free reading in any lighting conditions, so it can only display black-and-white text with limited imagery—children's picture books, for instance, must be read on a tablet—but it was able to show the book's special section of portraits and other illustrations. Tapping on a footnote indicator brings up the note in a separate box; readers can also navigate back and forth between individual notes and the whole collection of endnotes.

2) Amazon, in particular, exhibits a certain unpredictability in its ebook pricing—the cost of a volume might change from $5.99 to $1.99 to $11.99 over several weeks or months. One can use the Wish List to monitor changing prices for a desired book, but a number of services are available to foster more serendipitous discoveries of cheap ebooks. The one I find most convenient and reliable is BookBub.

BookBub sends a daily email with book recommendations that are currently low-priced, generally ranging from free to $2.99, although better-known books might cost a little more. The recommendations are customized according to the genres chosen by the recipient when signing up for the newsletter. Users may also select favorite authors and receive notifications when they have new releases or their existing books are deeply discounted. Links accompanying each title in the email message connect to vendors: Amazon, Barnes & Noble, Apple, Google, and Kobo. The site makes money from marketing fees paid by publishers and authors. I have a large backlog of ebooks and print books waiting to be read, so I resist temptation as often as possible. About a year ago, though, I couldn't pass up *Philosophical Breakfast Club*; I finally read it this past winter. After my download, I discovered that I had set aside the publisher's flyer when the book appeared in paperback, so BookBub allowed me to cross an item off my "things I ought to read" list.

*Amy Ackerberg-Hastings*

## All Souls Seminar

A seminar in the history of the exact sciences (broadly construed) was held throughout Hilary Term (Jan.–Mar.) at All Souls College, organized by Philip Beeley, Benjamin Wardhaugh, Christopher Hollings, and Yelda Nasifoglu, all of the University of Oxford. The talks presented were:

- 17 January 2018, "'Black strokes upon white paper": changing attitudes towards symbolic algebra from the 19th into the 20th century', by Christopher Hollings (Oxford)
- 24 January 2018, 'Justification of axioms: a neglected topic in the history of mathematics?' by Ralph Krömer (Bergische Universität Wuppertal)
- 31 January 2018, 'Gauss's diary, Riemann's Hypothesis, and Klein's letters: the central archive for mathematics bequests in Göttingen', by Katharina Habermann (Universität Göttingen)
- 7 February 2018, 'Insights into the long "genesis" of Dedekind's lattice theory', by Emmylou Haffner (Bergische Universität Wuppertal)

- 14 February 2018, 'Speaking, reading, writing and printing numbers in seventeenth- and eighteenth-century England', by Natasha Glaisyer (York)
- 21 February 2018, 'Forms of proofs for algebraic equations in medieval China', by Karine Chemla (CNRS Paris)
- 28 February 2018, 'Geometry and mathematics for the technical and visual arts at the turn of the sixteenth century', by Matthew Landrus (Oxford)
- 7 March 2018, 'Reading mathematics in the eighteenth century: Montesquieu and young d'Alembert', by Jeanne Peiffer (Centre Alexandre Koyré)

I report this not only because I enjoyed attending the seven I was able to get to, but also to draw attention to the non-obvious content of the third presentation. Dr Katharina Habermann is a subject librarian at the Göttingen State and University Library and, in particular, contact person for the Central Archive for German Mathematics Bequests. A link to it and her e-mail address are at `wwwuser.gwdg.de/~khaberm/`. I knew that Hilbert material was in Göttingen, but this archive was begun with bequests of C. F. Gauss and B. Riemann and put on a continuing footing by Felix Klein. It is a gold mine for visiting historians, now containing material from dozens of other mathematicians, including among many others a few easily identified by surname for brevity: E. Artin, Bieberbach, Cantor, Dedekind, Hölder, Herglotz, Kästner, König, A. and H. Kneser, Osgood, Plücker, Runge, Schwarz, and Zassenhaus. No one studying modern mathematics should be unaware of this resource.

*Robert Thomas*

## The Grattan-Guinness Archival Travel Grant

We are delighted to announce that the 2018 recipient of a Grattan-Guinness Travel Grant is **Dr. Thomas Morel** of the École Supérieure du Professorat et de l'Éducation, Lille Nord de France, for a project entitled "Underground Mathematics: writing a comprehensive history of subterranean geometry (from c.1500 to c.1800)". The grant will help to fund research visits to Germany to examine archival materials about the work of underground surveyors, including information on court mathematicians, instrument makers, cartographers, field books and calculation techniques, housed in various archives in Hanover, Clausthal, Dresden and Freiberg. The goal of Dr. Morel's project is to assemble material for an intended monograph on the history of subterranean geometry, which will provide a series of case studies about the scientific, technical and cultural significance of this discipline. We wish Dr. Morel the very best of luck with his research.

Doctoral students and scholars with no more than six years of post-doctoral experience are invited to apply for future grants of up to US$3000. To apply, submit a CV and project proposal of no more than 3000 words to *ggart.grant@gmail.com* by 31 December 2018. A confidential letter of recommendation from the applicant's research supervisor should be submitted separately. Proposals must include: title page, abstract, background, objectives, significance, justification, budget, previous work, other support, and references/bibliography. The bibliography is excluded from the maximum word count. A final report summarizing the work undertaken with the support of the grant must be submitted to the administrators within sixty days of the proposed date of the project's completion. Publications, presentations, exhibits, or subsequent external funding resulting from work undertaken using this grant must acknowledge its support.

*The Grattan-Guinness Grant Committee*

## CMS in Waterloo

CMS Liaison Maritza Branker organized a scientific session on History of Mathematics for the CMS Winter Meeting at the University of Waterloo, 9 December 2017. Speakers included: Mariya Boyko (Toronto), "The role of socialist competition in the Soviet mathematics curriculum reform of the 1960s and 1970s"; Craig Fraser (Toronto), "Demonstration and Analysis in Euler's Mathematics"; James T. Smith (San Francisco State), "Overloading and Information Hiding in 1907"; and Valerie Therrien (Western Ontario), "The Axiom of Choice and the Road Paved by Sierpiński." Craig Fraser chaired the session in Maritza's unexpected absence.

Maritza has submitted a session proposal for the 2018 CMS Winter Meeting, which will be in Vancouver December 7–10. Please watch for details on participating in the program.

## AHA in DC

Since I joined in 2008, the American Historical Association's annual meeting has typically overlapped with the Joint Mathematics Meetings. Since this year's gathering was not only a week earlier than JMM but was conveniently at the Marriott Wardman Park and neighboring hotels, I was able to attend for three half-days. The two conferences are comparable in size (5000–6500 attendees; 200–300 sessions), and indeed the venues appeared to be overrun with historians. Audiences for particular sessions ranged from 25 to more than 50 people. Numerous affiliate societies sponsor paper sessions and panels, including the History of Science Society and Society for the History of Technology. I heard a set of papers on "subscription publishing as a [US] business model" delivered by members of the Society for the History of Authorship, Reading and Publishing. Unsurprisingly, there was quite a bit of overlap with my interest in how A. S. Barnes marketed Charles Davies's textbooks.

The other sessions I chose related to education and communicating history with wider publics. For instance, Patrick Jones talked about the events the University of Nebraska (Lincoln) has held since 2010 to collect data to populate History Harvest (`history-harvest.unl.edu/`), a digital archive of objects owned and described by Nebraskans. Other speakers explained how they have adapted the project to their own localities. I compiled a list of reputable podcasts in history while learning about the ins and outs of the process from the creators of Memory Palace, Doing History, Ben Franklin's World, the University of Kentucky's Long Story Short, and BackStory. Historians who work for think tanks with a range of ideologies shared their experiences. Laura Kamoie, co-author of *America's First Daughter* and *My Dear Hamilton*, described her transition from academia to writing historical fiction.

I had somehow missed the emergence of the Big History Project, a course written by David Christian that covers the entire history of the universe from the Big Bang to today and caught the attention of Bill Gates, but American and Australian academics, history and social science schoolteachers, and policymakers conducted a roundtable discussion of the pros and cons of teaching Big History in middle schools. Finally, a panel of faculty and archivists shared digital primary source projects available to educators: activities for students including transcription and XML markup, rearrangement of data from business documents to see what new patterns are revealed, lesson plans from the Stanford History Education Group and the National Archives, exhibit creation, and graphic organizers for comparing experiences with media over time.

AHA's teaching and learning resources, professional guides, and monthly *Perspectives on History* have been incredibly valuable to me for training history majors and are all freely available at `www.historians.org`. While the historical content of its annual meetings may not be relevant for many researchers in the history and philosophy of mathematics, mathematicians and historians do have considerable common ground in educational practices and the concerns of academic life.

*Amy Ackerberg-Hastings*

## 2018 CSHPM Nominating Committee Report

In keeping with the by-laws of CSHPM/SCHPM, the nominating committee (comprising Chris Baltus, Dan Curtin, and Larry D'Antonio) has contacted the following people who agree to stand for the positions below. It is the recommendation of this committee that the following people should stand for election:

**President:** Maria Zack, Point Loma Nazarene University

**Vice-President:** Craig Fraser, University of Toronto

**Secretary:** Patricia Allaire, Queensborough Community College, CUNY

**Treasurer:** Greg Lavers, Concordia University

**Council:**

- Elaine Landry, University of California, Davis
- Duncan Melville, St. Lawrence University
- Andrew Perry, Springfield College
- Richard Zach, University of Calgary

We thank the candidates for their willingness to serve the Society. Terms are two years and thus run from the end of the 2018 AGM to the beginning of the 2020 AGM. The other executive positions (Past President, various editors, Webmaster, Archivist, CMS Liaison) do not require elections.

The slate was previously announced via the CSHPM announcements email list. Additional nominations were to be submitted to the committee before 25 April 2018. After April 25, the Secretary distributed ballots

electronically to those members with an email address, along with instructions for voting online. For those who prefer to vote by postal mail or hand delivery, a paper copy of the ballot is included with this *Bulletin*. The Secretary must receive ballots before the AGM begins on Tuesday, June 5.

Respectfully submitted,
*Chris Baltus, Dan Curtin, and Larry D'Antonio*

## *Philosophia Mathematica* Update

Oxford University Press has reinstated individual subscriptions for *Philosophia Mathematica* on an online-only basis. Even better news is that OUP has lowered the price from US$72 to US$50. That's not unreasonable when you consider that it's all found money, as I pointed out to them. However reasonable, it has the effect of putting *PM* in the position *Historia Mathematica* has been in for years: it's cheaper to join CSHPM and subscribe to *PM* through it than it is to buy a freestanding subscription at US$99. (I had hoped that this would be the case in the first place, but it was not.) This is an attractive fact that I think ought to be widely publicized. So, please share the information with any philosophical associations to which you belong.

[*Editor's Note:* For information on OUP's previous decision to offer only institutional subscriptions, see our November 2017 issue. A hearty thanks to Robert for advocating for *PM* with OUP until they reversed the decision.]

*Robert Thomas*

## *MAA Convergence* Offers Interactivity

*MAA Convergence* 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 well-known mathematics historians and educators 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 resources for use in your classroom.

"Trisecting an Angle Using Mechanical Means" is one of our many articles with interactive features. You and your students can use author Keith Dreiling's interactive applets to trisect angles using the methods of Hippias, Archimedes, and Nicomedes.

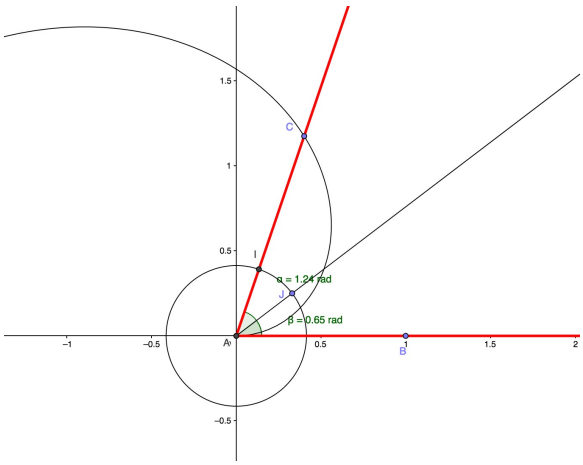



Figure 3: Spiral of Archimedes for trisecting angles

Ever wonder how the integer number line made its way into elementary school classrooms? In "Descriptions of the Integer Number Line in United States School Mathematics in the 19th Century," author Nicole Wessman-Enzinger reports very slow acceptance of the now-ubiquitous tool.

One of *Convergence*'s themes throughout the past year has been the history of medieval mathematics and its use in the classroom. Our three newest articles on this theme are:

- "The Mathematical Cultures of Medieval Europe," in which *Convergence* founding editor Victor Katz presents mathematics of Muslim, Jewish, and Catholic scholars and discusses how culture influenced it.
- "Recreational Problems in Medieval Mathematics," where Katz traces the "men buying a horse" and "men finding a purse" problems across time, place, and culture.
- "The Mathematics of Levi ben Gershon in the Classroom," in which Shai Simonson shares his translations of works by Levi (1288–1344) on the value of pi, calculation of square roots, and selected word problems.

*Convergence*'s series of articles originally published in the National Council of Teachers of Mathematics's *Mathematics Teacher* magazine continues with "Historical Reflections on Teaching Trigonometry," by David Bressoud, in which the author argues that circle trigonometry should be emphasized in high school

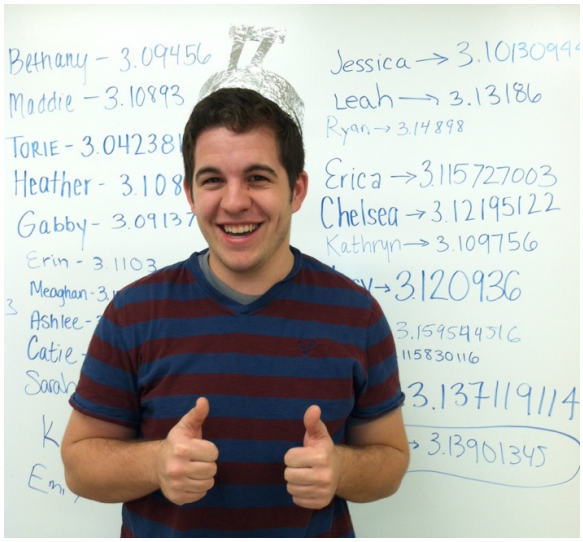



Figure 4: "Pi King" from Shai Simonson's class.

classes and that it appeared before triangle trigonometry historically.

The **TR**ansforming **I**nstruction in **U**ndergraduate **M**athematics via **P**rimary **H**istorical **S**ources (TRIUMPHS) team has two new mini-Primary Source Projects (mini-PSPs): "Connecting Connectedness" (by Nicholas Scoville) and "Generating Pythagorean Triples" (by Janet Barnett). Watch for new projects to be posted!

In "Math Origins," a new series in which author Erik Tou traces the historical development of concepts seen in today's undergraduate curriculum, we have two articles so far, "The Totient Function" and "Orders of Growth." Watch for new topics in this series!

Our "Index to Mathematical Treasures" includes hundreds of images for use in your classroom from dozens of libraries and sources. Our chief "treasure hunter" is *Convergence* founding editor Frank Swetz. Watch for new treasures!

Join us at the *Convergence* of mathematics, history, and teaching, `https://www.maa.org/press/periodicals/convergence`, for all of these articles and more!

*Janet Beery*

## New Members

*Congratulations to the following new members who have joined the Society since our last Bulletin. We look forward to your contributions.*


Figure 5: Math Treasure *Trevelyon Miscellany* (1608).

Hasan Amini
Institute for the History of Science
Tehran
Iran

Sean Ebels-Duggan
Northwestern University
Evanston, IL
USA

Cameron Friend
Quest University
Squamish, BC
Canada

Marcus Giaquinto
London
UK

Anna-Sophie Heinemann
Potsdam
Germany

Montgomery Link
Suffolk University
Boston, MA
USA

Johan Egerhall
Norrköping
Sweden

Stephen Pollard
Truman State University
Kirksville, MO
USA

Lukas Verburgt
Utrecht
The Netherlands

## From the Editor

As you read in Dirk Schlimm's column, we will soon gather together with the Canadian Philosophical Association in Montréal. The link for registration can be found on our website, `www.cshpm.org/meeting/`. Early registration rates are available until May 15, with a smaller deduction from the on-site rates offered until June 4. For booking information for Lord Berri Hotel, the preferred hotel, as well as other meeting information, see the CPA's website: `www.acpcpa.ca/cpages/current`. I am not sure whether I assumed CSHPMers are already familiar with Montréal or I was distracted with other responsibilities; in either case, I forgot to ask Jean-Pierre Marquis to prepare an article on the local attractions. In lieu of an article in this issue, a useful one-stop website is `ville.montreal.qc.ca`, which has both French and English versions. Click on "Activities and recreation" and then on "Tourist information".

The *Bulletin* reaches your hands or screen due to the continued efforts of Eisso Atzema, Layout Editor; Maria Zack, Production Editor; Pat Allaire, Secretary; and Mike Molinsky, Webmaster. Eisso has been working on a mobile-friendly layout, but he has yet to find a workable solution. For instance, ePub converters fail with longer documents. Members' suggestions are welcome.

The next submission deadline for the *Bulletin* is 1 October 2018. As always, the editors seek news items of interest to historians and philosophers of mathematics, reports on conferences attended, and personal and professional announcements. We also welcome suggestions for memorials, book and web reviews, and informative or thought-provoking column-style articles. Our ongoing column series include Off the Shelf, Models of Mathematics, and Mathematical Ephemera. Microsoft Word (please turn off its auto-formatting features such as "curly quotes") and LaTeXdata files (not compiled PDFs) are easiest for the editors to deal with. Submissions may be sent to *aackerbe@verizon.net*.

*Amy Ackerberg-Hastings*

## About the Bulletin

The *Bulletin* is published each May and November by a team of 3 volunteers: Content Editor Amy Ackerberg-Hastings (aackerbe@verizon.net), Layout Editor Eisso Atzema (eisso.atzema@maine.edu), and Production Editor Maria Zack (MariaZack@pointloma.edu). Material without a byline or other attribution has been written by the editors. Les pages sont chaleureusement ouvertes aux textes soumis en français. Comments and suggestions are welcome and can be directed to any of the editors; submissions should be sent to Amy Ackerberg-Hastings at the above email address, or by postal mail to 5908 Halsey Road, Rockville, MD 20851, USA.

Printed courtesy of: POINT LOMA NAZARENE UNIVERSITY