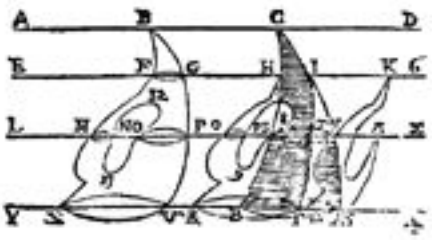
BULLETIN

CSHPM SCHPM



May/mai 2016 Number/le numéro 58

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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: **Elaine Landry**, UC Davis, Davis, CA 95616, USA, emlandry@ucdavis.edu
Vice-President: **Dirk Schlimm**, McGill University, Montréal, QC H3A 2T7, CA, dirk.schlimm@mcgill.ca
Secretary: **Patricia Allaire**, 14818 60th Ave., Flushing, NY 11355, USA, PatAllaire@gmail.com
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Past President: **Glen Van Brummelen**, Quest University, Squamish, BC V8B 0N8, CA, gvb@questu.ca

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Joel Silverberg, Roger Williams University, Bristol, RI 02809, USA, joel.silverberg@alumni.brown.edu

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**, Point Loma Nazarene University, San Diego, CA 92106, USA, mzack@plnu.edu. The Society's Archives are managed by **Michael Molinsky** (see above). **Hardy Grant**, hardygrant@yahoo.com, and **Amy Ackerberg-Hastings**, aackerbe@verizon.net, edit the CSHPM Notes column for *Notes* of the Canadian Mathematical Society. The position of CMS Liaison is currently vacant.

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

From the President

It is with great esteem and gratitude that I write this message; your support over the past two years, and especially in the last six months, has been both academically inspiring and personally comforting. I am so very proud and honored to have had the opportunity to represent you as your President. At the past CSHPM/MAA MathFest meeting in Washington, I was simply struck and deeply impressed by the range and depth of the talks—from history to philosophy, and pedagogical programs built up out of a proper concern for both. It is truly inspirational that academics with such varied interests can come together in the true spirit of sharing knowledge. It is also remarkable that we continue to respect our differences of interest with personal interactions that are not only helpful in our research aims but also friendly and supportive in their intent.

I am hopeful that the new PhilMath Achive, (which, hopefully, will be up and running before the summer's end), will continue in this aim and with the same good intention. Indeed, the archive is to be hosted by PhilSci Archive but will have an independent Board, with myself as coordinator and members of various other mathematical associations and societies as Board Members. The members will come from CSHPM, the Philosophy of Mathematics Association (PMA), the British Society for the History of Mathematics (BSHM), the Association for the Philosophy of Mathematical Practice (APMP), and the History of Mathematics (HOMSIGMAA) and Philosophy of Mathematics (POMSIGMAA) special interest groups of the Mathematical Association of America (MAA). I am very proud of this accomplishment, not only because it will be an invaluable resource for sharing our research ideas, but also because it brings together the interests of, and representation for, the various areas that are umbrellaed under the history and philosophy of mathematics.

At each CSHPM meeting that I have attended, I have noted that we always strive to build together a strong Society out of an honest appreciation for each other's interests in a way that reminds me always of the true value of academic conferences. And we do this for our members at all levels: whether they are just begin-

ning graduate students, retired faculty or independent scholars. There is a level of respect and camaraderie that we should all be proud of, and that we should hold up to all of our members, especially those just starting out, as an example of how academic interactions should work. I know, for example, I have sent many a graduate student our way. Indeed, I am sure that over the years you have all been able to tell where I am by the sudden influx of graduate students from a specific philosophy department!

In this regard, I take the opportunity to end at the beginning, so to speak. My very first professional talk was a CSHPM talk, twenty years ago in Montreal. I was terrified. Making matters worse was that I arrived to find that one programme had my talk time at 8am and the other at 8:30am, so I showed up at the end of the last CSHPM session the day before my talk to get the final programme. As I reached to take one from the front of the room, a member put his hand on top of the pile and said: "Young lady, this is a mathematics conference". When I attempted to explain that yes I knew that and that I needed to know what the time of my talk was, he replied: "I don't think you heard me, I said math-e-matics". Another member, whom I suspect overheard the conversation, stepped-up, saying: "Oh you must be Elaine Landry, welcome, I am so excited to hear your talk tomorrow". Needless to say, we have come a long way. And, most importantly, we have traveled well together!

I cannot end, however, without again thanking all of you for your continued support and kindness, and too, I would like to particularly thank: Tom Drucker, Duncan Melville, Eisso Atzema, and Richard Zach, for all of their work organizing our upcoming meeting in Calgary; Amy Ackerberg-Hastings, Patricia Allaire, Craig Fraser, Jean-Pierre Marquis, Michael Molinsky, Karen Parshall, Joel Silverberg, Glen Van Brummelen and Maria Zack, for gently guiding me through my duties; and, again, Maria Zack, for being the organizational glue (guru?) that holds us all together.

Elaine Landry

Announcements

Thanks to Federation Canada for $750 to defray expenses for Jamie Tappenden's Kenneth May Lecture and to the University of Calgary site within the Pacific Institute for the Mathematical Sciences for $200 towards coffee breaks (and to Richard Zach for securing these donations).

Figure 1: Irving Anellis' Gravestone

The fundraising effort to erect a tombstone for Irving Anellis (1946–2013) that was described in our November 2015 issue has come to fruition. In sending along a photo, Tom Drucker wrote: "As I was standing there I felt sure Irving would have been pleased that his friends had made sure his Earthly journey was duly memorialized. Thanks to you all for your advice and support in making this happen."

Hilary Putnam died on the 13th of March this year at the age of 89. He had a long and distinguished career in the philosophy of mathematics, as well as in other areas of philosophy. He was co-editor (with Paul Benacerraf) of the anthology in the philosophy of mathematics that defined the field for decades. He had an early volume on the philosophy of logic which raised many points about logic of philosophical interest. His name is joined with that of W.V.O. Quine in referring to an argument for the existence of abstract entities based on their indispensability in mathematics and science. His name is also linked with those of Martin Davis, Julia Robinson, and Yuri Matijasevich in coming up with a negative solution to Hilbert's Tenth Problem (about the existence of an algorithm for solving Diophantine equations). Putnam wrote more generally about realism in philosophy and was prominent in Marxist circles in his political activity.

Peace to the memory of Alphonse Buccino (1931–2015), who earned his PhD in mathematics in 1967 at the University of Chicago under Irving Kaplansky. His academic career included positions at Roosevelt University, DePaul University, and the University of Georgia, while his work in public policy included the National Science Foundation and the White House Office of Science and Technology. In the past few decades, he was frequently seen at history of mathematics meetings, particularly in the Washington, DC, region.

Peace to the memory of Charles Gillispie (1918–2015), known for editing the *Dictionary of Scientific Biography* and for countless other contributions to the history of science. An obituary may be read at `hssonline.org/wp-content/uploads/2012/07/Jan-2016-newsletter.pdf`.

Judy Grabiner's 16 June 2015 Distinguished Lecture at the MAA Carriage House, "How Geometry Has Influenced Everything," was profiled in the October/November 2015 MAA *Focus*.

Bonnie Gold received a Certificate of Meritorious Service for service to the New Jersey Section at MAA MathFest in August 2015.

On the afternoon and evening of 7 October 2015, the Museum of Mathematics in New York City presented two performances of Robin Wilson's original play, "Lewis Carroll in Numberland", starring Robin, Joe Dauben, Jennifer Beinecke, and Fran Abeles. About two hundred people watched (and a few participated). Witnessing this event were Victor Katz and Fred Rickey together with their wives. The program is available as a DVD in the museum's Math Encounters series. See `shop.momath.org/books-dvds/dvds/math-encounters/`.

Jim Tattersall delivered the Christie Lecture, "Two Late Nineteenth-Century Mathematicians," at the MAA Northeastern Section Fall Meeting on 20 November 2015. At the same meeting, Ed Sandifer received the Howard Eves Award. (See a reprint of the citation elsewhere in this issue.) What a great weekend for CSHPMers!

Karen Parshall spoke during the history session at the British Mathematics/Applied Mathematics Colloquium in Oxford, 5–8 April 2016.

Joseph Dauben will give the History of Science Society's 2016 Hazen Lecture on 27 April at The New York Academy of Sciences. His title is "Science and Art in China: Li Matou (Matteo Ricci), Lang Shining (Giuseppe Castiglione), and the Influence of Western Geometry and Mathematical Perspective on Early Qing Dynasty Mathematicians and Artists."

Congratulations—and best wishes for new endeavors—to David Bellhouse, who will retire from the University of Western Ontario on 30 June.

A fund for graduate students in the history of mathematics has been established in the History of Science department at Harvard University. For more information, contact Scott Guthery, *sbg@acw.com*.

Francine Abeles published "Mathematics: Logic and Lewis Carroll" in *Nature* 527 (19 November 2015): 302–304.

Alexander Jones, Christine Proust, and John M. Steele have edited *A Mathematician's Journeys: Otto Neugebauer and Modern Transformations of Ancient Science* (Springer, 2016).

Ronald S. Calinger has published *Leonhard Euler: Mathematical Genius in the Enlightenment* (Princeton University Press, 2015). Princeton has also released *Mathematics and Art: A Cultural History*, by Lynn Gamwell.

Kathleen Clark has published *Jost Bürgi's Aritmetische und Geometrische ProgreßTabulen (1620): Edition and commentary* (Birkhäuser, 2015).

Sara J. Schechner announces two books expanding on major exhibitions at Harvard's Collection of Historical Scientific Instruments: her own *Time and Time Again: How Science and Culture Shape the Past, Present, and Future*, which is a free download, and *Tangible Things: Making History through Objects* (Oxford University Press, 2015), by Laurel Thacher Ulrich, Ivan Gaskell, Sara J. Schechner, and Sarah Anne Carter.

Lorraine Daston, Sally Regep, and Jamil Ragep of the Islamic Scientific Manuscripts Initiative announce the launch of a website that is making available images of 123 scientific and mathematical codices from the Staatsbibliothek zu Berlin. See `ismi.mpiwg-berlin.mpg.de`.

ICMI awarded its 2015 Felix Klein Medal to Alan J. Bishop, Emeritus Professor of Education, Monash University, Australia, in recognition of his more than forty-five years of sustained, consistent, and outstanding lifetime achievements in mathematics education research and scholarly development. Jill Adler of University of the Witwatersrand, Johannesburg, South Africa, received the 2015 Hans Freudenthal Medal in recognition of her outstanding research program dedicated to improving the teaching and learning of mathematics in South Africa. For the full citations, see `www.mathunion.org/icmi/activities/awards/introduction/`.

Albert van Helden, a prolific and productive contributor to scholarship on telescopic astronomy and Galileo, received the tenth LeRoy E. Doggett Prize for Historical Astronomy, the highest honor awarded by the

Historical Astronomy Division of the American Astronomical Society.

Pamela M. Henson, director of the Institutional Division of the Smithsonian Institution Archives, received the American Historical Association's Herbert Feis Award.

Amy Sue Bix received the History of Science Society's Margaret W. Rossiter History of Women in Science Prize for *Girls Coming to Tech! A History of American Engineering Education for Women* (MIT Press, 2013), and Sally Gregory Kohlstedt was awarded HSS's Joseph H. Hazen Education Prize.

HOM SIGMAA News: Amy Shell-Gellasch was elected chair, and Colin McKinney was elected Electronic Resources Coordinator. Both will serve three-year terms. Program Coordinator Toke Knudsen announced that a session on "Writing and Preserving the Histories of Local Mathematics Departments" was proposed for JMM 2017. A committee is forming to select and present regular awards for books and articles in the history of mathematics. The deadline for the annual student paper contest was 4 April 2016.

BSHM News: Fenny Smith gave the talk, "From Fibonacci to da Vinci: The Italian Commerical Revolution" at the University of Derby on 23 March. The second year of "The History of Number Theory" is May 21 at Birkbeck College in London, and "Mathematics in the Enlightenment" returns to Rewley House, Oxford, on June 25. The half-day meeting, "Mathematical Communication during the Cold War" will be at the Mathematical Institute, Oxford, on 8 July. Bath Spa University will host "History of Mathematics in Education: An Anglo-Danish Collaboration" on 21–24 August. "Mathematical Biography: A Celebration of MacTutor" is 16–17 September, which is a change from previously announced dates. BSHM and Sociedade Portuguesa de Matemática have launched `www.mathematicalstamps.eu`.

FedCan News: The Federation has launched a 75th anniversary website, `www.ideas-idees.ca`. It expressed appreciation to the federal government for reinstating the long-form census, whose demise was discussed by David Orenstein in our November 2015 issue. The Digital Humanities Summer Institute, at the University of Victoria, June 6–10 and June 13–17, offers discounts to Congress attendees. The *Bookmark It!* blog profiles books that are significant to Canadian culture, society, and research. See also Hardy Grant's report on the HSSFC annual general meeting in this issue.

Speakers on the 2015–2016 schedule for the Philadelphia Area Seminar on the History of Mathematics (PASHoM) included: Karen Parshall (UVA) on September 17; Robin Wilson (Open U.) on October 5; Tom Drucker (UW-Whitewater) on October 15 and December 3; John Bukowski (Juniata) on November 19; Chris Rorres (Drexel) on January 21; Lawrence D'Antonio (Ramapo) on February 18; and Peggy Kidwell (NMAH) on March 17. Presenters are sought for 2016–2017; contact *alan.gluchoff@villanova.edu*.

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 2015–2016: Sloan Despeaux (W. Car.) on October 14; Laura Turner (SUNY New Paltz) on November 4; Alan Gluchoff (Villanova) on March 2; Robert Bradley (Adelphi) on April 6; and Fred Rickey (USMA) on May 4.

On December 1, Alexander Soifer delivered "The Scholar and the State: In Search of a Moral Compass" in Colorado State University's new history of mathematics seminar. Other sessions have included reading discussions. For more information, contact Tim Penttila, *penttila@math.colostate.edu*.

A monthly public lecture series on "History & Philosophy of Science in 20 Objects" began at the University of Leeds on 26 January. See `arts.leeds.ac.uk/museum-of-hstm/20objects/`.

On 14 February, David Kaiser delivered the 2016 George Sarton Lecture in the History and Philosophy of Science at AAAS 2016 in Washington, DC, "Einstein's Legacy: Studying Gravity in War and Peace." The theme of AAAS's annual meeting in 2017 will be "Serving Society through Science Policy."

Meetings at Caltech and the Huntington Library over 10–12 March honored Jürgen Renn, recipient of the 2014 Francis Bacon Award in the History and Philosophy of Science and Technology. Alexander Jones received this honor in 2006. Nominations for the 2016 prize will be due in December; contact Fran Tise, *ftise@hss.caltech.edu*.

University of Wuerzburg in Bavaria held a spring school for young researchers on "Perspectives on Research in Mathematics Education in the next Decade," 4–9 April. See `www.mathematik.uni-wuerzburg.de/springschool2016/`.

The Maryland-DC-Virginia section of the MAA celebrated its 100th birthday during the spring meeting at Montgomery College in Germantown, MD, 15–16 April, with a history session and other history events.

The Oughtred Society held its spring meeting at the Atomic Testing Museum on 7 May.

A History of Mathematics and Teaching of Mathematics Conference will be held 18–22 May in Eger, Hungary, chaired by Edmund Robertson of St. Andrews University. See `www.uni-miskolc.hu/hmtm`.

The 17th Berkshire Conference of Women Historians, 1–4 June, at Hofstra University, will have a session on Women, Gender and Science.

On 9-10 June, Royal Museums Greenwich and the Royal Institute of Navigation are hosting the latest in a series of joint conferences bringing together current research in the history of navigation. "From Sea to Sky" will explore the changes in practices and technologies associated with the transition from the sea to the "aerial ocean" following the development of powered flight at the beginning of the twentieth century. There will also be an opportunity to see some of the related collections at Greenwich. See `www.rmg.co.uk/see-do/exhibitions-events/sea-sky`.

The European Academic Heritage Network UNIVERSEUM will hold its 17th annual meeting at the University of Amsterdam and Utrecht University, 9–11 June. Themes include Connecting Collections, Connecting the Collections with Research and Education, and Connecting the Collections to the Public. See `www.universeum2016.nl`.

A Symposium on Languages and Mathematics will be held in Umeå, Sweden, 13–14 June. See `www.ufm.umu.se/english/events/slam`.

The annual Science in Public conference will be held at the University of Kent, 13–15 July. Organizer Rebekah Higgitt suggests this is a good alternative for those unable to travel to the Three Societies Meeting in Edmonton, 22–25 June (see our November 2015 issue). The website is `scienceinpublic.org`.

The Mini-Conference of the World Federation of National Mathematics Competitions (WFNMC) will be held at the University of Hamburg, Germany on 23 July (i.e., the day before registration opens for ICME-13, also in Hamburg).

The eighth YERME summer school for master's and doctoral students and postdocs in mathematics education will be held 13–20 August in Podebrady, Czech Republic. See `ocs.pedf.cuni.cz/index.php/YESS/YESS8`.

A Göttingen Spirit Summer School on Academic Collecting and the Knowledge of Objects, 1700–1900, will be in the historic observatory at the University of Göttingen, 5–10 September. Applications are due by 1 May.

The International Meeting of Historical Calculating Instruments will be held at the Science Museum of Trento, Italy, 16–18 September, around the theme, "Someone's Trash is our Treasure: The Collector as a Preserver of Material Culture." See `im2016.eu`.

The 7th International Conference of the European Society for the History of Science (ESHS) will be 22–24 September in Prague. The theme is Science and Power, Science as Power. See `www.7eshs2016.cz`.

The Scientific Instrument Commission Symposium will be in Istanbul, 26–30 September. The theme is Instruments between East and West. A sponsored session focuses on "The migration of objects and ideas between the Ottoman Empire and northern Europe in the period 1500-1700." See `www.sic2016.org`.

An ERME Topic Conference on mathematics teaching, resources, and teacher professional development will be held at Humboldt-Universität in Berlin, 5–7 October. See `hu.berlin/ERMETopicConference`.

The Americas Section of the International Study Group on Relations between History and Pedagogy of Mathematics will meet at Point Loma Nazarene University on 15–16 October. A special feature of the meeting will be the opportunity to attend a performance of *Equivocation* at Lamb's Player's Theatre in Coronado on Saturday evening, for an additional cost of $US20 (a deeply discounted price). The play is about telling the truth in difficult times and proposes the question: what if the government commissioned William Shakespeare to write the definitive history of a national crisis, the Gunpowder Plot, in one of his plays? See `hpm-americas.org`.

The workshop, "Charles Hutton (1737–1823): Being Mathematical in the Georgian Period," will be 17–18 December at All Souls College, Oxford. Ken Clements, Nerida Ellerton, Alex Craik, Jane Wess, and Shelley Costa are among the speakers on the program. See `www.benjaminwardhaugh.co.uk/workshops/`.

The University of Pennsylvania will host an interdis-

ciplinary conference on American and Muslim Worlds circa 1500–1900, 30 March–1 April 2017. Papers will be precirculated to participants. Abstracts are due by 16 May 2016. The forum will also feature a public exhibit at the Kislak Center for Special Collections, Rare Books and Manuscripts at Penn's Van Pelt Library. See `mceas.org/cfp-worlds2017.pdf`.

The 9th International Conference on Mathematics Education and Society will take place in Volos, Greece, 7–12 April 2017.

The 2nd International Conference on Mathematics Textbook Research and Development will be held in Rio de Janeiro, 7–11 May 2017. One of the themes is analysis of historical textbooks. Ubiratan d'Ambrosio is honorary president of the International Programme Committee, which also includes Patricio Herbst, Alexander Karp, Jeremy Kilpatrick, Michael Otte, Johan Prytz, and Gert Schubring. See `www.im.ufrj.br/~ictm2`.

The International Congress of History of Science and Technology will meet in Rio de Janeiro 23–29 July 2017. A symposium on "Global Mathematics" has been proposed by Michael J. Barany and Rogério Monteiro.

The (London) Science Museum's new Dana Research Centre and Library has opened. See the website of the museum (`www.sciencemuseum.org.uk`) and search for Dana Centre.

The reading room for the Briscoe Center for American History at the University of Texas at Austin, which houses the Archives of American Mathematics, has been temporarily relocated. Space is limited, so contact Carol Mead (*carolmead@austin.utexas.edu*) to schedule an appointment for using the collections.

Due to an inability to identify successor editors, the *International Journal for the History of Mathematics Education* has ceased publication after ten years under the leadership of Gert Schubring and Alexander Karp.

The January 2016 issue of *Journal of Humanistic Mathematics* is now available. See `scholarship.claremont.edu/jhm/`.

The 4th and 5th issues of the Science Museum Group Journal are now available. See `journal.sciencemuseum.org.uk`.

Volume 26 of eRittenhouse is complete, with a special focus on museum collections. See `www.erittenhouse.org/articles/`.

Subscription access for *Isis* and *Osiris* has moved from JSTOR to `www.journals.uchicago.edu`.

The Institute for Research in Classical Philosophy and Science announces a new journal, *Interpretatio: Sources and Studies in the History of Science* Series A, edited by Alan C. Bowen and Francesca Rochberg. It seeks articles of less than 100 pages in length on topics in the history of premodern science. See `www.ircps.org/interpretatio`.

Heliyon is an open access journal from Elsevier that publishes robust research across all disciplines, indexed on ScienceDirect. See `Heliyon.com`.

The Hiroshima Journal of Mathematics Education solicits contributions. Luis Radford is on the editorial board. See `www.jasme.jp/hjme/`.

The exhibition "Scholar, Courtier, Magician: The Lost Library of John Dee" is open until 29 July in the Royal College of Physicians, London. See `www.rcplondon.ac.uk/johndee`.

The Corning Museum of Glass presents "Revealing the Invisible: The History of Glass and the Microscope," 23 April 2016 through 18 March 2017. The exhibition includes a rare original Antoni van Leeuwenhoek microscope, lent by the Museum Boerhaave in the Netherlands, that has never before been on display in the United States.

The Adler Planetarium is testing a prototype for crowd-sourcing the identifying of constellations and marking of stars in maps from the Adler's collections. See `www.zooniverse.org/projects/lboegen/mapping-historic-skies/`.

The Oughtred Society has added a new section to its website, Archive of Collections. See `www.oughtred.org/`. The initial collection is from Tom Wyman's estate and includes 18th-century slide rules and slide rule books dating back to Oughtred's 1633 volume. The group solicits photographs of additional slide rule collections.

Bonhams auction house has put its catalogs online. See `www.bonhams.com/departments/CAT-SCI/`.

For recent dissertations in the history of science see `www.hsls.pitt.edu/histmed/dissertations` and select the pertinent link.

A PhD course on "Educational implications of the History and Philosophy of Science and Mathematics" will be offered 19–23 September at the University of Copenhagen. Instructors include Helge Kragh and Jesper Lützen. The course is free of charge; registrations are

due by 1 July. See www.ind.ku.dk/hpscourse.

The program in History of Science, Medicine, & Technology at Oxford University invites master's and doctoral applications, particularly from students interested in research that crosses disciplinary and geographical borders. See www.ox.ac.uk/admissions/graduate/courses/humanities/history.

The Science Museum, London, and the University of York are offering a fully-funded 3-year PhD studentship on "Instruments and their makers: A study of experiment, collaboration and identity in seventeenth-century London." Applications are due 15 April.

The Alfred P. Sloan Foundation has a program in Public Understanding of Science, Technology, & Economics that develops books, theater, film, television, radio, and new media. See www.sloan.org/major-program-areas/public-understanding-of-science-technology-economics/.

Amy Ackerberg-Hastings received one of University of Maryland University College's 2016 Teaching Recognition awards.

SSHRC awarded Anila Asghar and Jamil Ragep a Partnership Development Grant for "Science Teaching in Pre-Modern and Modern Islamic Societies: Pedagogical Approaches in Religious, Institutional, and Geographical Contexts." Five workshops are to be held between 2015 and 2019. Also, Ragep and Taro Mimura edited and translated *Epistles of The Brethren of Purity: On Astronomia: An Arabic Critical Edition and English Translation of Epistle 3* (Oxford, 2015), in association with The Institute of Ismaili Studies.

The Science Museum of London is holding free public lectures to accompany its exhibition, "Leonardo da Vinci: The Mechanics of Genius": Jim Bennett, "How Leonardo Came to London in 1952," on 12 April; Claudio Giorgione, "Inside Leonardo da Vinci's Drawings: The Collection of Historical Models of the National Museum of Science and Technology in Milan," on 18 April; Matthew Landrus, "Leonardo and the Military," on 9 June; Eric Lapie, "Digital Humanities in Exhibits," on 14 June; and Juliana Barone, "Leonardo's Treatise on Painting: New Ideals in the *Editio Princeps*," on 6 July.

The Harvard-Smithsonian Center for Astrophysics in Cambridge, MA, is hosting "The Science of Time: Time in Astronomy and Society, Past, Present, and Future," 5– 9 June, with an optional tour of the Harvard Collection of Historical Scientific Instruments (CHSI) on 10 June. Seesot2016.cfa.harvard.edu/. The Putnam Gallery, home of CHSI, also now offers a mobile guided tour for Apple devices. Peter Galison, Museo Galileo, and the National Museum of American History helped provide videos for the tour. Instructions for downloading and using the app are linked from chsi.harvard.edu/putnam-gallery.

The Thomas Harriot Seminar will meet 11 July at Birkbeck, University of London. Sessions include early modern mathematics (Angela Axworthy), the history and archaeology of the Virginia colony, and early modern cosmology (James Christie). Registration for this event is free, but please email the Chairman, Dr Stephen Clucas, s.clucase@bbk.ac.uk, to secure a place. For more information, see www.bbk.ac.uk/english/ under Our Research, Reading and Seminar Groups, Thomas Harriot Seminar.

The Digital HPS Consortium will meet 26– 28 August at the University of Oklahoma. See digitalhps.org/meetings.

The Ohio Valley History Conference, Tennessee Technological University, Cookeville, TN, 6– 8 October, welcomes individual papers or complete panels on any and all area of historical inquiry. Abstracts and brief CVs are due 15 May. See www.tntech.edu/cas/history/ovhc.

During the 2017 ICHST in Rio de Janeiro (23– 29 July, see above), the Commission on Bibliography and Documentation will host a symposium on "Evolving Bibliography: Scholarly Tools for Sharing Knowledge in the Digital Era." Applications for the Agnodike Research Travel Fellowship, up to 1,000 Euros for ABD students and recent post-docs, are due 30 June. The awardee will be invited to present at a symposium organized by the Commission on Women and Gender Studies in History of Science, Technology, and Medicine. See wsc.hypotheses.org/.

The deadline for the 2017 International Union of the History and Philosophy of Science and Technology, Division of History of Science and Technology, Prize for Young Scholars is 31 August. See www.hpdst.gr/youngscholarsprize.

Applications for the Association for Computing Machinery History Fellowship, up to four awards of $4,000, will be due 1 February 2017. See history.acm.org, under ACM History Fellowship.

Applications for the Historic Deerfield Summer Fellowship Program for college juniors and seniors interested

in history and material culture will be due in early February. See www.historic-deerfield.org/sfp.

The Center for Mathematics Education at the University of Maryland, College Park, is now live streaming its monthly colloquiums. These are typically on 4th Fridays, 11:00 am. For a schedule and meeting link, see www.education.umd.edu/MathEd, under Colloquium. To watch a presentation later, contact Beatriz Quintos, bquintos@umd.edu.

Oxford's Museum of the History of Science will be packing off-site collections in preparation for their move to a new location from April 2016 to the beginning of 2018. Some parts of the collections will be unavailable for research, loans and new photography for image orders into 2018. For assistance, contact the Collections Manager, collections@mhs.ox.ac.uk. The move will be documented on the blog Inside MHS, blogs.mhs.ox.ac.uk/insidemhs/.

The *British Journal for the History of Science* seeks book reviewers. Please peruse the new and archived lists of Books Received, journals.cambridge.org/action/, submenu displaySpecialPage?pageId=7272. Then, contact the Reviews Editor, reviews.editor@bshs.org.uk to express interest in a volume.

The D. Kim Foundation offers a number of fellowships and grants for the study of the history of science and technology in modern East Asia, with an emphasis on the 20th century. The next round of applications should be due 1 December 2016. See dkimfoundation.org.

2016 Meeting Local Information

After the CSHPM meeting in Calgary, my wife and I, along with one of our daughters, are planning a vacation in and around the Calgary area. I highly recommend that you look into doing something similar. What got us going is that my daughter wanted to see the Rockies and the dinosaurs. My wife and I have visited Alberta before, mainly Banff years ago (second most popular tourist destination in Canada, a drive of an hour and a half from Calgary); as a teenager my wife studied violin at the Banff School of Fine Arts and separately I attended some statistics conferences held in Banff. We have never seen Jasper (the most popular tourist destination in Canada, a drive of three and three quarters hours from Banff by car). We are making the trek to Jasper stopping at the Columbia Icefield between Banff and Jasper. These are some of the most beautiful places in Canada. For Banff see www.banff.ca/; for the icefield see www.pc.gc.ca/eng/pn-np/ab/jasper/activ/explore-interets/glacier-athabasca.aspx; for Jasper see www.jasper-alberta.com/64/Visitors; and for the national parks that contain all these places see www.pc.gc.ca/eng/pn-np/ab/jasper/index.aspx. Everything from Banff to Jasper is a feast of wildlife, beautiful natural scenery, hiking and miles of the Rocky Mountains. More travel information is at travelalberta.com and travelalberta.com/Trip%20Essentials/Vacation%20Guides.aspx.

Let's back up and start in Calgary where the conference takes place. The Glenbow Museum (www.glenbow.org) has a variety of exhibits. For those visiting Western Canada for the first time, you may find superb displays of artifacts of the indigenous peoples of the area and of the Mounties (formerly Royal Northwest Mounted Police, now Royal Canadian Mounted Police). These were the police who kept the Canadian West relatively tame. (After Little Big Horn, Sitting Bull and his followers came to Canada for a four-year stay. On their making camp, a group of five Mounties went to Sitting Bull in his camp to tell him to keep the peace, which he did for his entire stay in Canada.) For the history buffs who want some non-mathematical history, there is the Heritage Park Historical Village (www.heritagepark.ca). The park features attractions and exhibits from the 1930s back to the 1860s, when the area's industry was the fur trade (no cowboys), and the entire province of Alberta was "owned" by the Hudson's Bay Company (founded in 1670 as the Governor and Company of Gentlemen Adventurers Trading into Hudson's Bay, now morphed into a department store chain across Canada with an American company as owner). Getting away from things historical there is the Calgary Zoo (www.calgaryzoo.com) with a range of animals from penguins to pandas and crocodiles to snakes. There is also the Aero Space Museum of Calgary (www.asmac.ab.ca), which contains displays of several Canadian-made airplanes including a 1916 Sopwith Triplane (Snoopy flew a Sopwith Camel, at least in our imaginations).

You will need to rent a car for destinations outside Calgary such as Banff and Jasper.

The dinosaurs are in Drumheller, an hour and a half northeast of Calgary, where they are housed in

the Royal Tyrrell Museum (www.tyrrellmuseum.com). You can see the largest collection of dinosaur skeletons in the world as well as laboratories that prepare for research and display the specimens that have been unearthed in Alberta. The museum goes as modern as mastodons and the Ice Age. If you are fanatic about dinosaurs, drive to Dinosaur Provincial Park two hours and ten minutes southeast of Calgary or an hour and three quarters from Drumheller (/www.albertaparks.ca/dinosaur.aspx).

South of Calgary, two and a half hours by car, is Waterton Lakes National Park. This is a place we visited a few years ago (www.pc.gc.ca/eng/pn-np/ab/waterton/index.aspx). It is a beautiful area where the prairies meet the mountains. There are plenty of opportunities for nature walks or hikes; even if you stay in the town there are plenty of deer roaming the streets. You can also take in a traditional afternoon tea at the Prince of Wales Hotel. A short detour on the way to Waterton Lakes is Head-Smashed-In Buffalo Jump. This is one of the places where the indigenous peoples of the prairies hunted bison for over 6000 years. It is now a UNESCO World Heritage Site (www.history.alberta.ca/headsmashedin/).

Of course, if you are not completely worn out by mathematics during the conference, you can go to Banff and attend one of the mathematics workshops at BIRS (Banff International Research Station for Mathematical Innovation and Discovery), the Canadian attempt to replicate Oberwolfach. More information including a schedule can be found at www.birs.ca.

David Bellhouse

Sandifer Citation for Eves Award

The Howard Eves Award was first given in 1990 by the Northeastern Section of the Mathematical Association of America in honor of Howard Eves, one of the prime movers in the founding of the section 60 years ago and its first chair. The Howard Eves Award is given in years divisible by five, and this year's winner (presented on 21 November 2015 at Gordon College in Wenham, MA) was chosen in part for his long history of contributions to the success of the Northeastern Section, but also for his Howard Eves-like qualities.

This year's Howard Eves Award recipient, C. Edward Sandifer, is Professor Emeritus of Mathematics at Western Connecticut State University. The guidelines for choosing the Eves Award winner state: "The recipient should reflect those characteristics of Howard Eves that placed him at a level of high esteem by the entire mathematical community. In particular, he was a spellbinding and entertaining lecturer, an enthusiastic and caring teacher and administrator, an outstanding mathematician geometer, and a respected historian of mathematics. He was a person with a great sense of humor who went out of his way to pass on his skills and knowledge to his students and colleagues." Ed is the living embodiment of that description. His students at Western Connecticut were dazzled by Ed's brilliance and remarked often in evaluations about the high quality of his bad jokes. They praised him for his fairness, his love of the material, and his willingness to help students succeed. Those of us who have had Ed in class, or seen him deliver talks at section meetings, at various paper sessions during national meetings, or, especially, to large audiences, know what a riveting, enthralling speaker he can be. In particular, many of us here were fortunate enough to hear the after-dinner talk Ed gave at the opening banquet of MathFest 2009 in Portland, OR, which revealed Ed at the height of his powers.

The topic that has made Ed most enthusiastic over the past several years, of course, has been the history of mathematics and, in particular, the works of Euler. For many years, Ed authored a column for the MAA on "How Euler Did It," a detailed walk through Euler's writings that presented the work to a new audience. These columns were eventually compiled into two MAA books. Ed also wrote several other books on Euler, gave countless talks at section and national meetings on him, and was an in-demand speaker at many universities. He has been a driving force in the Euler Society and instrumental in MAA celebrations of Euler's 300th birthday in 2007. He also brought his historical research into the classroom at Western Connecticut State, leading well-regarded classes in the History of Mathematics and on Great Ideas in Mathematics that were accessible to all students.

The second guideline for choosing an Eves Award Winner reads, "Howard Eves was instrumental in founding, organizing, promoting, and providing the necessary leadership for the Northeastern Section in its early existence. The recipient should be recognized by his or her outstanding contributions to the Section." Ed Sandifer became Contributed Papers Coordinator after the Fall 1988 meeting through the Spring 1999 meeting.

Figure 2: Ed Sandifer and Eric Johnson

Ed was elected Vice Chair of the Section in November 1998, and then served as Section Chair from November 1999 through November 2001, and finished the cycle as Past Chair from November 2001 to November 2003. Ed's leadership style as chair matched his personality: casual and humorous as needed, but he definitely kept the section running well. Ed also served as our section's governor from 2009 till 2011. He also participated in and chaired countless program and local arrangement committees. Ed reported during one of his "Chair's Messages" in the newsletter that, at the time he was chair, the MAA nationally was going through a membership downturn. However, in the Northeastern Section, Ed got many young faculty and colleagues to join and participate in the section due to his exuberance and his enthusiasm. Often this encouragement happened on morning runs at various section or national meetings. You just never wanted to turn Ed down.

For all these reasons, it is our great pleasure to present C. Edward Sandifer with the 2015 Howard Eves Award.

Rob Poodiack and Ockle Johnson, read by Eric C. Johnson

Figure 3: Sharon and Noah Kunoff in 2015

Sharon Kunoff (1932–2016)

Sharon Kunoff, a CSHPM member since 1989, passed away on February 15, 2016. Her always-youthful spirit, sense of adventure, and joy of life can be seen in the photo with her husband Noah, taken last June when they celebrated their second Bar/Bat Mitzvah at age 83.

Born on June 7, 1932, Sharon grew up in Coney Island because her parents believed the air there was better for the asthma she endured from childhood. She never let asthma or other obstacles stop her from doing the things she loved. That included doing mathematics and traveling. In the 1990s she and I took trips almost every year to Canada that centered on the CSHPM annual meetings, visiting seven of the nine provinces, these trips being in addition to her many other ones around the world.

For five years, Sharon served as a co-editor of the *Bulletin*, starting in 1997 with Hardy Grant and then from 1999 until 2002 with Tom Drucker. Sharon's farewell message as co-editor and Tom's tribute to her is in the CSHPM archives online (May 2002 *Bulletin*). Tom summed up her editorial accomplishments by writing that "It was the Society whose star was lucky when Sharon offered her talents to the editing of the bulletin." But Sharon knew that her value came from joining her organizational and technical talents with those of her co-editors, especially their deep knowledge in the history and philosophy of mathematics and in their knowledge about and connections with writers and researchers around the world.

Figure 4: Sylvia Svitak and Sharon Kunoff in 2005

Well before she discovered CSHPM, Sharon naturally used the history of mathematics in her teaching. In 1986 she and Sylvia Pines, a colleague from Hofstra University had their often quoted paper, "Teaching Elementary Probability Through its History" published in *The College Mathematics Journal* (17, no. 3: 210–219), describing how and what they used in history to motivate student learning. They included classic examples from historical uses of mathematics in Judaism. Their paper also served as a reference for Sharon's presentation at the 1992 annual meeting, "Some Inheritance Problems in Ancient Hebrew Literature." Her other talks drew from a variety of topics that engaged her interest: Hilbert's contributions to 19th-century mathematics, history and women in mathematics, and the 3-body problem, to name a few.

Sharon's recruiting for the Society began immediately after she joined—she simply insisted I join. Barbara Bohannon (the third member of our friendship trio begun in graduate school in the 1970s) also joined and presented papers, including two presentations with Sharon (in 1994 and 1997). Other joiners trace their memberships back to Sharon, as her recruits became recruiters and CSHPM gained active and productive members; two are Pat Allaire and Rob Bradley.

During the 1980s Sharon was busy as a Long Island University professor at the Post campus. In 1983 she proposed that LIU Post establish an honor society for its mathematics students. With her colleague Andrew Rockett, she co-founded NY Lambda as the LIU Post chapter of the national society, Kappa Mu Epsilon. From 1989 to 1995 Sharon and Andrew produced Kappa Mu Epsilon's publication, *The Pentagon*, with Andrew as editor and Sharon as business manager, while also continuing to mentor the NY Lambda chapter and taking their students to the national KME conventions. Andrew recalled that about the same time, Alan Tucker at SUNY-Stony Brook started putting together the NSF "Long Island Consortium for Interconnected Learning" (LICIL). Sharon was on board for that from the beginnings and was the LIU project director until her retirement in 1998.

Figure 5: Barbara Bohannon and Sharon Kunoff in 2005

Traveling with Sharon involved daunting moments (for me, at least), that also showed the essence of her vibrant being. One such moment occurred in 1992 on Prince Edward Island. After the meetings were over and our talks were history, we looked for what we were told was the only white sand beach on PEI near the town, Souris. For proof that we found it, Sharon took my picture on the beach. Not until we arrived at a port to catch a ferry did she realize her purse was missing, most likely left at the beach. She quickly decided she could drive back and return to port in time to catch the ferry. At daunting speeds of 80 mph the scenery blurred past me, but I did glimpse a church sign warning, "Be prepared to meet your maker." Well, to get to the point, we did not meet our maker but we did board the ferry on time. Sharon firmly believed that most things most likely turn out OK, and her example is now firmly planted in my brain that they do. I am very grateful for Sharon's friendship and for her sharing her knowledge of mathematics with me.

Sylvia M. Svitak

2016 CSHPM Meeting

The 2016 annual meeting of the CSHPM will be held May 29-31, 2016, in Calgary (AB) and is part of the annual meeting of the Congress of Humanities and Social Sciences. Below is the latest schedule:

Sunday (2016-05-29):

9:00-9:15 Welcome

Session 1: Philosophy of Mathematicians

9:15-9:45 Connor Mayo-Wilson (University of Washington), "Descartes' *Géométrie* and Non-Propositional Meta-Theory"

9:45-10:15 Jeremy Shipley (McHenry County College), "Poincaré on the Foundations of Geometry in Understanding"

Coffee Break

Session 2: Basic Notions in Geometry

10:30-11:00 Amy Ackerberg-Hastings (University of Maryland University College), "John Playfair and his Misnamed Axiom"

11:00-11:30 Maritza Branker (Niagara University), "A comparison of Cauchy and Hamilton's treatment of complex numbers"

11:30-12:00 Sandra Visokolskis (National University of Cordoba), "Greek Geometrical Analysis and a Plausible Oriental Source in the Method of Single False Position: A Discussion"

Lunch Break

12:00-14:00 Executive Council Meeting

Session 3: Special Session on Logic and Mathematics in the 19th and 20th Centuries in Honour of Aldo Antonelli

14:00-14:10 Welcome

14:10-14:35 Dirk Schlimm (McGill University), "Frege's Begriffsschrift Notation: Design Principles and Trade-offs"

14:35-15:00 Rachel Boddy (University of California Davis), "Reconsidering Frege's View of the Foundation of Arithmetic"

15:00-15:25 Aaron Thomas-Bolduc (University of Calgary), "Between Logicism and Neo-Logicism"

15:25-15:50 Richard Zach (University of Calgary), "The Decision Problem and the Model Theory of First-order Logic"

Coffee Break

16:00-16:25 Andrea Pedeferri (George Washington University), "The Situation of Logic in Italy from Peano to WWII"

16:25-16:50 Teppei Hayashi (University of Calgary), "Categorical Interpretation of Peirce's Continuum"

16:50-17:15 Edward Shear, Jonathan Weisberg, Branden Fitelson (University of California Davis), "Two Approaches to Belief Revision"

17:15-17:40 Jonathan P. Seldin (Lethbridge University), "Some Philosophical Results on Incompleteness"

Monday (2016-05-30):

Session 4a: Biography

9:15-9:45 Henryk Fukś (Brock University), "Open problems from the 17th century: Adam Adamandy Kochański and his mathematical works"

9:45-10:15 George Heine (Indep. Scholar), "Mathématiques: Une Promenade Parisienne"

Session 4b: Philosophy of Mathematicians

9:15-9:45 André Curtis-Trudel (University of Calgary), "Is Church's Thesis an Explication?"

9:45-10:15 Paul McEldowney (University of Notre Dame), "Bolzano against Kant's Pure Intuition"

Coffee Break

Session 5a: History of Mathematics in a New Light

10:30-11:00 Roger Godard (Department of National Defense), "A Convolution on the Convolution as a Mathematical Tool"

11:00-11:30 Rob Bradley (Adelphi University), "Polar Ordinates in Bernoulli and L'Hôpital"

11:30-12:00 Joel Silverberg (Roger Williams University), "Napier, Torporley, & Menelaus — A closer look at Augustus De Morgan's observations on early Seventeenth-century restructuring of planar and spherical trigonometry"

Session 5b: Mathematical Logic

10:30-11:00 Michael Cuffaro (Ludwig Maximilian University, Munich), "Quantum Reflections on Computational Geometry"

11:00-11:30 William D'Alessandro (University of Illinois-Chicago), "Intertheoretic Reduction and Explanation in Mathematics"

11:30-12:00 Matthias Jenny (MIT), "The 'If' of Relative Computability"

Lunch Break

12:00-14:00 Annual General Meeting

14:00-15:00 Annual CSHPM Kenneth O. May Lecture: James Tappenden (University of Michigan), "Frege, Carl Snell and Romanticism; Fruitful Concepts and the 'Organic/Mechanical' Distinction"

Session 6: 18th-Century Mathematics

15:15-15:45 Eisso Atzema (University of Maine), "Lexell on Spherical Geometry"

15:45-16:15 David Bellhouse (University of Western Ontario), "The Case of the Laudable Society for the Benefit of Widows"

16:15-16:45 Lawrence d'Antonio (Ramapo College of New Jersey), "'A Debate over Words': d'Alembert and the Vis Viva Controversy"

17:00-19:00 President's Reception

Tuesday (2016-05-31):

Session 7: Objects Mathematical and Otherwise

9:45-10:15 Valerie Allen (John Jay College of Criminal Justice, CUNY), "What is a Symbol?"

Coffee Break

Session 8a: Mathematical Logic

10:30-11:00 Fabio Lampert (University of California, Davis), "Actually, Tableaux, and Two-Dimensional Logic"

11:00-11:30 Corey Mulvihill (University of Ottawa), "Proofs of intermediate logics from Intuitionistic Logic plus Epsilon and the Ontological Status of Multivalent Concepts"

11:30-12:00 Jared Richards (University of Western Ontario), "Category Theory for the Philosophy of Mathematics"

Session 8b: History of Modern Algebra

10:30-11:00 Janet Barnett (Colorado State University at Pueblo), "Is the Disjunctive Form Really Normal? Teaching Boolean Algebra via Original Sources"

11:00-11:30 Fernando Gouvêa (Colby College), "The Mystery of the Extra Divisors"

11:30-12:00 Jean-Pierre Marquis (Université de Montréal, Montréal), "Foundations of Mathematics: A Science"

Lunch Break

Session 9: Presenting Mathematics in the 20th Century

14:00-14:30 Craig Fraser (University of Toronto), "Mathematics Subject Classification — 1880 to Present"

14:30-15:00 Mariya Boyko (University of Toronto), "Mathematical School Reforms in Post-War America and the Soviet-Union: A Comparative Study"

Coffee Break

Session 10: Euler

15:15-15:45 William Hackborn (University of Alberta, Augustana Campus), "Euler's Method for Computing the Movement of a Mortar Bomb"

15:45-16:15 V. Frederick Rickey (West Point), "E228"

16:15-16:30 Concluding Remarks

2016 CSHPM Nominating Committee Report

The nominating committee (comprising Duncan Melville, Robert Bradley, and Glen Van Brummelen) 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: Dirk Schlimm, McGill University
Vice-President: Maria Zack, Point Loma Nazarene University
Secretary: Patricia Allaire, Queensborough Community College, CUNY
Treasurer: Greg Lavers, Concordia University
Council:
Craig Fraser, University of Toronto
Jean-Pierre Marquis, Université de Montréal
Karen Parshall, University of Virginia
Joel Silverberg, Roger Williams University

We thank the candidates for their willingness to serve the Society. Terms are two years and thus run from the 2016 AGM to the 2018 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 7 April 2016. After April 7, 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 Monday, May 30.

Duncan Melville

Revue de livre : L'École Polytechnique de Montréal

Histoire des mathématiques et du génie industriel à l'École Polytechnique de Montréal. Par Mahdi Khelfaoui et Pauline Huet. Montréal : Presses Internationales Polytechnique, 2016. 159pp. $29.95.

Pour la SCHPM, tout livre ou témoignage concernant l'histoire des mathématiques au Canada est bienvenu. C'est un petit livre de 149 pages, édité par les Presses Internationales sur l'histoire des mathématiques et du génie industriel à l'École Polytechnique de Montréal (ÉPM). Le livre comporte trois chapitres : 1) le département de mathématiques jusqu'à 1994, 2) l'émergence et le développement du génie industriel 1966–1994, 3) la fusion et l'évolution du département depuis 1994. Le livre est bien documenté avec 31 figures et 18 tableaux. Il concerne surtout l'organisation et l'administration du département de mathématiques et celui du département du génie industriel puisque ces départements fusionnérent en 1994. Le sujet est donc étroit et comporte certaines lacunes notamment sur les thémes de recherche et les liens avec l'industrie ou avec le département de mathématiques de l'université de Montréal et l'IRM.

Bien sûr, l'ÉPM est une école d'ingénieurs et les auteurs indiquent que contrairement aux autres facultés de génie au Canada, l'ÉPM administre elle-même ses cours de mathématiques. Les auteurs soulignent que »pour justifier leur autonomie, les professeurs se sont forgés une identité dans les mathématiques appliquées et ont adopté une position double en enseignement et en recherche«. Au début des années 1970, trois pôles de recherche vont avancer: les probabilités et statistiques appliquées, l'analyse numérique, et la recherche opérationnelle (RO).

Comparativement, des cours de génie industriel furent crées par le génie mécanique en 1966. Un département autonome de génie industriel vit le jour en 1970. Le génie industriel devint populaire chez des étudiants motivés par la gestion des entreprises et la production. Une option en RO sera transférée au département de mathématiques appliquées en 1984.

De mon point de vue, le troisième chapitre est le plus important, et le plus intéressant car il concerne les difficultés et les espoirs d'un département de mathématique dans un environnement d'ingénierie. En 1999, Marc Moore préside un comité de réflexions sur les mathématiques. Le rapport Moore souligne que »l'ingénieur est de moins en moins appelé à effectuer des calculs et de plus en plus impliqué dans la conception, la modélisation, l'analyse et la validation«. Cela nécessite des professeurs formés en mathématiques et ouverts à l'ingénierie. Entre 2002 et 2005, 12 nouveaux postes professeurs seront engagés, et permirent de donner une nouvelle impulsion au département de mathématiques et génie industriel. Comme dans tout département de mathématiques, l'apport des logiciels informatisés comme MAPLE et Matlab a bouleversé la pédagogie.

En conclusion, je ne crois pas que ce livre aura une grande audience mais il reste un témoignage sur certains problèmes universitaires au Québec. Peut-être que les lettres manuscrites, des examens passés et surtout une description plus détaillée sur le contenu des cours d'analyse numérique et de recherche opérationnelle, ou sur la politique des livres de classe, ou sur la création de cours innovateurs auraient enrichi le livre.

Roger Godard

2015 Financial Statements

The following financial statements cover the period 1/1/2015 through 31/12/2015.

	$ Can.
Income	
dues/subscriptions	14,410.40
exchange rate differential	348.55
TOTAL	14,758.95
Expenses	
Proceedings , 2013–14	2,792.33
Historia Mathematica	4,090.10
Philosophia Mathematica	3,256.03
Postage, office expenses, *Bulletin*	327.78
BSHM reciprocal memberships	4,621.83
CFHSS dues for 2015	1,889.97
MathFest honoraria, etc.	1,403.29
CSHPM Student Prize	750.00
PayPal service charge	360.24
Bank fees	6.83
TOTAL	19,498.40
NET	(4,739.45)
Bank balance, 12/31/15	35,158.50
PayPal balance, 31 December 2015	9,218.68
TD Mortgage Corporation GIC	4,194.75
TD Mortgage Corporation GIC	4,202.85
TOTAL ASSETS	52,774.78

Comments:

Because the Society has 3 accounts, two in Canadian dollars and one in US dollars, we keep two different accounting systems. 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 1.38 has been used to convert American dollars into Canadian ones.

The exchange rate differential reflects a net gain due to fluctuations in the relative value of Canadian and US dollars over the course of 2015; it arises in part from transferring $8,300.00 from the Canadian bank account to the American account. The amount for the *Proceedings* includes both production and mailing expenses for the 2013 volume ($Can1,543.82) and a transfer to Springer of monies paid by members for the 2014 volume ($US904.72). The amount for BSHM reciprocal memberships includes resolution of a three-year backlog as well as dues for the current year. The bank fee was charged when the balance of the US bank account accidentally fell below $US10,000 one month. The first GIC fund earns interest at 1,60% and matures 16 September 2016; the second has a 1,40% rate and matures 26 March 2017.

David Bellhouse

CSHPM Session at CMS in Montreal

Sylvia Nickerson received the 2014 CSHPM Student Award and applied the financial prize toward presenting at this meeting.

The Winter meeting of the Canadian Mathematical Society took place in Montreal on 4–7 December 2015. The CSHPM-sponsored session within the CMS program was organized this year by Tom Archibald (SFU), Dirk Schlimm (McGill) and Jean-Pierre Marquis (Université de Montréal).

On the history front, Tom Archibald (Simon Fraser) gave an interesting talk on the role of counterexamples in Weierstrass's development of analysis. Mariya Boyko (Toronto) looked into the political and educational rationales behind the reform of mathematical curriculum in the USSR during the Cold War. Sylvia Nickerson (York) discussed how the John Tyndall Correspondence Project could be used for history of mathematics research. Duncan Melville (St. Lawrence) surveyed how mathematical computations were performed in third millennium Mesopotamia. Nicolas Fillion (Simon Fraser) traced concepts within game theory back to the 18th century. Craig Fraser (Toronto) presented on the concept of contact transformation and how it appeared as a central feature of celestial mechanics and Hamilton-Jacobi theory.

On the philosophical front, Michael Hallett (McGill) discussed how Hilbert dispensed with the 'naturalness' of logical primitives within his geometry and how this work foregrounded his reverse proof theory. Dirk Schlimm (McGill) showed how philosophy and cognitive psychology come together to analyze the question of whether there are cognitive advantages to some notational formalisms. Oran Magal (McGill) gave a provocative talk about to what degree we are justified in deriving metaphysical insights into the universe from mathematics and its use in physics. Gwennaël Bricteux (Montréal) spoke on the process of substitution within the construction of formalisms while Jean-Pierre Marquis (Montréal) argued that a new form of epistemological dualism has arisen within contemporary mathematics exhibited by canonical maps and the specific fields or domains in which people work.

On the whole a dominant presence from the philosophical community was notable in the orientation of talks

and in the persuasion of audience members. If I am not mistaken several philosophers were attending other CMS sessions during the conference, which I took to be a healthy sign for the ongoing relevance of philosophical work and its overlap with what mathematicians contemporarily do.

The Plenary Lecture was given by Jamie Tappenden (Michigan) on contrasting styles of mathematical reasoning and approach within elliptic function theory. In this talk Tappenden asked: between the geometric and series-based approach to elliptic functions, which approach was more fruitful? He proceeded to contrast the Weierstrassian approach with Riemann's, which, according to researchers Tappenden had consulted, has recently proved newly useful over the Weierstrassian one.

Upon concluding this talk, Tappenden took a question from Caroline Series (Warwick). Her question was: the beauty of mathematics is that multiple approaches dovetail perfectly, so why do we need to know which of them is best? This question, I thought, perfectly highlighted the tension that exists between historians and philosophers as appreciators of mathematics, and the practitioners, who do mathematics. Also, having been a witness to this exchange, I reflected that beauty—as well as our desire to peer into it, to access it, or to create it—may be the fascination that draws us together as historians, philosophers and practitioners into a common devotion to mathematics.

Sylvia Nickerson

Quotations in Context

> "He is not a true man of science who does not bring some sympathy to his studies, and expect to learn something by behavior as well as by application. It is childish to rest in the discovery of mere coincidences, or of partial and extraneous laws. The study of geometry is a petty and idle exercise of the mind, if it is applied to no larger system than the starry one. Mathematics should be mixed not only with physics but with ethics, *that* is *mixed* mathematics. The fact which interests us most is the life of the naturalist. The purest science is still biographical."
> – Henry David Thoreau

Henry David Thoreau published *A Week on the Concord and Merrimack Rivers* at his own expense in 1849. The book relates events from a trip taken a decade earlier by Thoreau and his brother John through Massachusetts and New Hampshire, combined with selections of poetry and Thoreau's views on a wide range of topics. Although the actual trip lasted two weeks, the book itself is organized around a single week, starting with the last Saturday in August of 1839 and proceeding through the following Friday.

It is on this last day, Friday, that Thoreau's thoughts turn to mathematics. On the previous Sunday, Thoreau and his brother had encountered a "lover of mathematics" who was called away from his book and a "vast sunny problem" in order to let their boat through the locks onto the Merrimack, and on Friday they meet the same individual again on their return trip. This meeting apparently inspires Thoreau to consider mathematics and science, and particularly their relation to truth and beauty, stating that appreciation of the beauty of scientific truth is much rarer than the appreciation of moral truth. He then switches specifically to mathematics:

> We have heard much about the poetry of mathematics, but very little of it has yet been sung. The ancients had a juster notion of their poetic value than we. The most distinct and beautiful statement of any truth must take at last the mathematical form. We might so simplify the rules of moral philosophy, as well as of arithmetic, that one formula would express them both.

Thoreau extends this claim, stating that all "moral laws are readily translated into natural philosophy," and argues for strong interaction and connection between scientific and ethical truth. It is at this point in the book that the quotation at the beginning of this column appears.

In the following paragraphs, Thoreau explores additional topics, such as the process of scientific discovery and the particular need for genius, arguing that "the power to perceive a law is equally rare in all the ages of the world." Before returning to the description of the final stages of his journey down to Concord, Thoreau briefly relates an account of the voyage of Sir James Clark Ross to Antarctica, including the fact that the crews were given additional rations of grog as a reward for reaching further south than any before. Thoreau concludes by using this story to return to his point of

the importance of genius over the mere collection of facts:

> Let not us sailors of late centuries take upon ourselves any airs on account of our Newtons and our Cuviers; we deserve an extra allowance of grog only.

Mike Molinsky

Off the Shelf: Cajori's *Teaching and History*

The Teaching and History of Mathematics in the United States, by Florian Cajori, Washington, DC: Government Printing Office, 1890, 400 pp.

When I conceived of this column, this was the book I had in mind to revisit. I borrowed the idea from retired *Washington Post* book editor Jonathan Yardley, who for several years read anew the literature that shaped him as a young man in a feature called "Second Reading". *Teaching and History* was one of the first works I read when I started to research the history of American mathematics education, so I wanted to find out how my thinking about it had changed over time. But, as they say, life intervened. In the meantime, David Orenstein has ably carried the torch for the column, discovering older and newer overlooked books as well as taking a fresh look at some volumes from his past. See our May 2013, May 2014, and May 2015 issues.

Teaching and History was Cajori's first book; he compiled information for it in between teaching positions at Tulane University (1885–1888) and Colorado College (1889–1918). [1; 3] Although he was ill at the time and searching for a climate more favorable than that of New Orleans, Cajori collected data from and about 24 institutions and simultaneously processed survey responses on "mathematical teaching at the present time" from 168 colleges and universities, 45 normal schools, and 181 academies, institutes, and high schools. His work was published as an issue of the U.S. Bureau of Education 127-volume series published between 1870 and 1903, *Circular of Information*, although today the Library of Congress catalogues it as a stand-alone book. The Department (1867–1869)/Office (1869, 1929–1972)/Bureau (1870–1929) of Education was part of the Department of the Interior until 1939, when it was moved to the New Deal Federal Security Agency, which was reorganized and renamed as the Department of Health, Education, and Welfare in 1953. The current, separate Cabinet department for education was established in 1979.

In the main text, Cajori divided American mathematics and mathematics education into three eras: colonial (1636–ca 1792); "influx of English mathematics" (1776–1820); and "influx of French mathematics" (ca 1807–1888). In each chapter, he briefly treated elementary schools and other areas of mathematical activity, including self-taught mathematicians, government surveying, journals, and the U.S. Coast and Geodetic Survey. His chief interest, however, was the college. The bulk of each chapter consists of anecdotal accounts, treating selected colleges in turn: 4 in the colonial section, 11 under the "English" heading, and 21 in the "French" section. Harvard and Yale appeared in all three chapters. The University of Pennsylvania, Princeton, Dartmouth, Bowdoin, Georgetown, North Carolina, South Carolina, Kentucky, and West Point appeared in two chapters—Penn in the first and second sections, and the rest in the second and third.

While Cajori placed it as chapter 4 in the table of contents, the survey effectively functioned as an appendix since the responses, which were all qualitative, were published verbatim. Cajori prefaced the responses with three pages of prose, but he discussed only his own opinions about current topics, textbooks, and teaching methods. He made no effort to analyze the massive amount of data that followed. Indeed, even today, few scholars besides Dave Roberts [6, pp. 47–54] have attempted to identify patterns in the information that might enhance our understanding of American mathematics education near the turn of the 20th century.

Cajori then included five more appendices or "historical essays": infinite series, parallel lines, the foundations of algebra, differences between Napier's and natural logarithms, and circle squarers. While his stated aim was to show how Americans fit into these stories, the essays also come across as items Cajori had on his desk that he thought should be shown to mathematics teachers. Finally, Cajori provided a chronological annotated bibliography of fluxions and calculus textbooks printed in the United States, ending with Simon Newcomb's 1887 *Elements of the Differential and Integral Calculus*.

Its wealth of information has made *Teaching and History* an essential starting point for historians of Amer-

ican mathematics education since its publication. For instance, until the widespread digitization of 18th- and 19th-century books, scholars had to depend on Cajori's descriptions of rare textbooks such as Isaac Greenwood's 1729 *Arithmetick* (p. 14) or the 1845 *American Statistical Arithmetic* by Francis H. Smith, assisted by R. T. W. Duke (p. 188). Cajori's discussions of influential institutions such as Harvard and West Point are lengthy. The book also compiles a number of conclusions scattered through the works of other scholars, including the significance of Scottish Common Sense philosophy for American higher education, which radiated out particularly from Princeton (p. 78). Besides Louis Karpinski's 1940 *Bibliography of Mathematical Works Printed in America Through 1850*, few have approached Cajori's encyclopedic range.

Yet, since at least the late 1980s, historians have critiqued Cajori's interpretations. For instance, Helena Pycior [5] challenged his central claim that American textbook authors initially drew exclusively on English textbooks and then dropped those texts entirely to consult French works, finding that only John Farrar's 1818 *Elements of Algebra* fit Cajori's model of relying solely on the French style. I argued for a nuanced view of foreign influences on American mathematics education in my own dissertation. Karen Parshall [4] saw *Teaching and History* as an artifact illustrating the turning point in the emergence of the American mathematical community. Meanwhile, scholars such as Ken Clements and Nerida Ellerton [2] have discovered additional primary sources and added to our knowledge base, thus rendering obsolete such Cajori statements as, "On the study of mathematics in elementary schools of the American colonies but little can be said" (p. 9).

Many of my notes on this re-reading fall into the same categories of responses to Cajori as these examples of scholarship: conclusions that can be argued, incomplete evidence or facts Cajori did not know, and the book's value as a primary source. After all, the book is 125 years old and our discipline has evolved tremendously since 1890. Still, we can recognize some aspects of professional historical practice. For instance, in addition to carrying out extensive research, Cajori made an effort to document his source material. In fact, I have used his footnotes with my historical research and writing methods students as examples of continuity and change in citation practices. Attempting to trace his bibliographic trails is an excellent exercise.

Even taking into account the age of *Teaching and History* and Cajori's prolific scholarly production, his methodology left much to be desired. (John Fauvel's reaction [3] was more favorable.) In its style and in its historiography, the book is a data dump. I did not get far this time around before I remembered how tedious it is to read straight through. The succession of accounts of different institutions also lends itself to repetition of information (see, for example, pp. 55 and 60). Even though theoretical approaches to historical interpretation were starting to emerge in the historical profession in efforts to take empirical or "scientific" views of the past, there is surprisingly little systematic or synthetic analysis. Despite using the "English, then French" framework to organize the book, Cajori made little effort to apply the theme consistently throughout the entire text. If he found information, he included it, regardless of whether he had information on that topic for other colleges. He also generally avoided comparing institutions, seeming to let his data speak for itself.

Nonetheless, some opinions about what mattered in mathematics history are evident, although discussion of why those things mattered was typically lacking. In particular, I was struck by the centrality of textbooks in Cajori's account. In almost every anecdotal mini-history, the curriculum was the textbooks. This, of course, is still often the default assumption about the history of mathematics education, although historians are currently casting a wider net in gathering information about teaching and learning practices. Furthermore, as with his definitions of "analysis" and "synthesis" (such as p. 56), Cajori implied that how he understood the terms in 1889–1890 was sufficient for making sense of the past; stating definitions explicitly or ascertaining the definitions utilized by historical actors was not necessary.

Like any history, then, *Teaching and History* is a mix of strengths and weaknesses. It is not often, though, that a volume endures as the starting point for scholars of its subject for over a century. Even now, I thought about potential directions for further research while I was reading, such as tallying up references to textbooks and comparing the resulting groupings with publication patterns in the *National Union Catalog*. For this column series, David continues to read histories he had not previously consulted, but additional analyses of older works—as well as reconsiderations of works on history or philosophy that scholars once found influential—are also always welcome for future

installments of "Off the Shelf".

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Amy Ackerberg-Hastings

Annual General Meeting HSSFC

At the request of the CSHPM Council I showed our Society's flag last November 17, in Ottawa, at the annual meeting of the HSSFC, the Federation for the Humanities and Social Sciences. An excellent record of those proceedings—the agenda, the dramatis personae, and a full account of what was said, complete with photographs—can be found on the Federation's website, `http://www.ideas-idees.ca/events/annual-conference`, so I'll mention here just a few highlights.

The Federation's current president, Stephen Toope of the University of British Columbia, set out what he took to be the organization's top four "priorities": (i) a greater focus on interdisciplinary enterprises, (ii) greater international and intercultural engagement, (iii) building a "more open and inclusive knowledge society", and (iv) "helping to develop a more engaged and active citizenry". (Hard to argue with any of *that*!) In connection with (i) he said that at the annual "Congress"—which some of us diehards still insist on calling "the Learneds"—making "space" for interdisciplinary innovations meets resistance from established associations; he named no particular culprits. In the panel discussion that followed the presidential address someone made the interesting observation that in academia interdisciplinary initiatives are hampered much more by departmental structures than by intellectual boundaries.

Unsurprisingly, a fair bit was made of the fact that Canada had a brand new government, then not quite one month old, headed—as in this gathering was sure to be pointed out, sooner or later—by a sometime drama teacher. President Toope noted that in the eyes of the previous regime the role of science was much "diminished", and he hailed Mr Trudeau's very quick reversal of the "muzzling" of its practitioners, which had aroused international concern. He rejoiced in the prospect of a return to government policy "supported by evidence and expertise"— non-Canadians in the Society may not realize that under Mr Harper those two worthy things mostly cowered in corners for a decade. Very little was said about the *financial* implications of the election result; one panelist noted that historically HSSFC funding has been essentially independent of the party in power, but another cited the outgoing Tories' reduction of money for the CBC, the public broadcaster—which the incoming Liberals have promised to restore. The president cautioned that the new government's "sunny ways" are not guaranteed in perpetuity.

The meeting's main focus was prompted by the release last year of the landmark "Truth and Reconciliation" report of a commission struck to probe the often ugly history of Canada's relations with its indigenous people. The keynote speaker was Wab Kinew, well known as an activist in that sphere and as an academic (Associate Vice-President, Indigenous Affairs, University of Winnipeg), who took as his theme "Reconciliation and the Academy". I can't vouch for his first couple of minutes, delivered with total straightness of face in (I don't doubt) flawless Ojibway; but the rest was superb, in manner and matter alike. His suggestions included better commemoration of the survivors of the notorious residential schools, due recognition of the aboriginal perspective during the nation's coming (2017) anniversary observances, and courses giving a "baseline" of relevant awareness to "mid-career professionals". He also reported that U of Winnipeg—whose very name, he reminded his hearers, is Cree—is moving toward making a (half-)course on indigenous issues manda-

tory for *all* students, notwithstanding some "pushback" from various quarters. His talk, on the Federation's website, is well worth checking out.

Hardy Grant

Book Review: Cardano's *De Subtilitate*

The De Subtilitate *of Girolamo Cardano.* Edited by John M. Forrester, with an Introduction by John Henry and John M. Forrester. 2 vol. Tempe, Arizona: ACMRS (Arizona Center of Medieval and Renaissance Studies), 2013. 1058 pp. US$125.

Mathematicians are well aware of the important place of Girolamo Cardano (1501–1576) in their subject: his *Ars Magna* is a key publication in the evolution of algebra. Though few today have read this work in its original Latin, there is an accessible and inexpensive English translation. But the same cannot be said for the majority of Cardano's many works, which remain available only in his challenging Latin. Though known as a physician and part-time mathematician, this description of Cardano does not do justice to his range and importance in the history of Renaissance science. The *De Subtilitate*, first published in 1550, is arguably the most substantial, wide-ranging and influential of all his works, rivalled only by his late autobiography *De vita propria.*

John Henry and John M. Forrester write that "It is in a modest effort to speed Cardano studies along that this translation is offered here." But this too-modest description belies the effort required to translate and provide a detailed commentary on such a diverse and difficult work, as accomplished by John Forrester. Cardano's intimate knowledge of classical literature, and his wide interests in natural philosophy, require a similarly qualified editor.

The translated titles of the twenty-one "Books" of Cardano's *De Subtilitate* are:

I. The Principles, Matter, Form, the Vacuum, the Resistance of Bodies, Natural Motion, and Position
II. The Elements, and Their Movements and Actions
III. On Heaven
IV. On Light and Illumination
V. On Mixture, and Incomplete or Metallic Mixed Things
VI. On Metals
VII. On Stones
VIII. On Plants
IX. On Animals that are Generated from Decay
X. On Perfect Animals
XI. On the Necessity and Form of Man
XII. On Man's Nature and Temperament
XIII. On the Senses, What Can be Sensed, and Pleasure
XIV. On the Soul and the Intellect
XV. On Useless Subtleties
XVI. On the Sciences
XVII. On the Arts and Artefacts
XVIII. On Marvels, and the Way to Represent Diverse Things Beyond Belief
XIX. On Demons
XX. On Primary Substances or Lives
XXI. On God and the Universe

Book I begins: "The aim of our undertaking in this work is to discuss subtlety. It is the feature by which things that can be sensed are grasped with difficulty by the senses, and things that can be understood are grasped with difficulty by the intellect." The work encompasses natural philosophy, natural history, geography, biology, medicine, magic and theology: a virtual sixteenth-century cornucopia and encyclopaedia. Cardano's wide knowledge of, and sometimes disagreement with, Greek and Latin authors is prominently displayed, but he also incorporates later discoveries and mentions works of mediaeval and recent scholars. Though some alleged facts are fanciful, he sometimes expresses scepticism, as in "Stones" and "Marvels", where he describes deceptions in manufacturing fake precious stones and performing apparent miracles. As the informative Introduction by Henry and Forrester makes clear, Cardano's work, despite its popularity, was criticised even in his own day as "little more than a declamation, a hotchpotch of disparate and uncoordinated facts, explanations, and erroneous beliefs" (p. xv): but therein lies much of its fascination. The editor's copious and informative footnotes resolve many textual difficulties (though, as he freely admits, not all), and he often supports his translation by citing the original Latin. Original woodcut diagrams are reproduced in the text (several geometrical ones are noted as not quite correct). Overall, the

two handsome hardcover volumes are well produced and remarkably free of misprints. Though the not-unreasonable recommended price is more than most readers will wish to afford, this work will be indispensable to many scholars of the European Renaissance, and a "must have" item for university libraries.

As to mathematics, there are fairly slim pickings; but as these are unlikely to be known to many historians of mathematics, a short account may be useful. As well as those mentioned below, less substantial geometrical and numerical calculations are scattered throughout Books I–IV, XVII and XVIII.

Treatment of motion in Book I includes hydrostatical and water-lifting devices, scales and steelyards. This ends with a discussion of centres of gravity, including a geometrical demonstration that the lines from vertices of a triangle to the midpoints of opposite sides are concurrent, "though Archimedes turns out not to have proved this" (p. 67). Archimedes' result for the centre of gravity of a section of a parabola is then stated without proof.

In Book III (pp. 206–207), the portion of the heavenly sphere unknown to Ptolemy is stated as "nearly one part in thirteen of what is known", based upon "the proof of Archimedes" since only 31 degrees around the South Pole could not be seen. No calculation is given but the editor notes that integration gives about 12.99 to 1 (in fact 13.002). Discussion follows of refraction of light, both at a water surface and, for stellar observations, by the Earth's atmosphere. This, and reflection in mirrors, involves geometrical arguments and diagrams, sometimes unclear (pp. 208–212). Cardano then describes Ptolemaic estimates of the diameters of Earth, Sun and Moon, and some other astronomical magnitudes.

A Book IV discussion of burning mirrors describes a parabola as a section of a cone, and some of its properties. Cardano adds that such mirrors are no longer useful military devices (pp. 246–248).

Mathematics does not reappear until Book XV, quaintly titled "On Useless Subtleties". His first example is a puzzle involving interlinked rings and rods that must be disentangled. Though the account is obscure, the editor notes that this puzzle is described in W. W. Rouse Ball's *Mathematical Recreations* (1940 edition). Cardano moves on to "a method taken from the secrets of Arithmetic" (pp. 755–756). Again unclear, this describes the number of ways in which 20 objects may be distributed into two piles: he reasons correctly, calculating and summing what we now call the binomial coefficients and arriving at a total of 1,048,575 that is just one less than the correct value (which he did not realise was equal to 2^{20}).

He continues: "The four *Geometrical Books* of Proclus on the *Elements* of Euclid do not actually teach anything new ... [but] should not be entirely discarded and despised as of no use. ... It was thus with a similar aim ... that I and Ludovico Ferrario discovered in a few days the way in which everything proved by Euclid could be perfectly shown by us, by altering the breadth of the compasses " (pp. 760–761). As Cardano believed, rightly, that the version published by his ex-pupil Ferrario "for the purpose of a competition" would not survive, "I would reckon it worth the effort, in order to prevent the demise one day of such a rare instance of subtlety, to add this here once more. But how? With brief proofs, in case those who recoil from Geometry get bored." In fact, Cardano gives no proofs, merely indicating how the numbers of their propositions correspond to those of the *Elements* (pp. 761–771). Though the principles of this reworking seem unclear, it may repay more detailed scrutiny.

Book XVI, "On the Sciences", begins with geometry in two and three dimensions (pp. 774–800), giving many results of Euclid, Apollonius and Archimedes on conic sections, Archimedean spirals, equiangular pentagons, hexagons and heptagons, spheres and cones. Several pages are devoted to "incomplete proofs" and fallacies, and to "reflex proportion, which we invented". The last is used to calculate the side of a regular heptagon inscribed in a circle (which he had treated in an earlier work). Though far from clear, this is the most substantial mathematical section in the whole work. He then turns to Arithmetic (pp. 800–803), "which we call the *Great Art*, discovered and published by us; others have called it algebra". He describes several results but uses no algebraic notation. He then moves on to ratios and proportions in music, and briefly to optics and sundial clocks, storms and causes of plague. "But if I aim to cover everything, I am never going to reach a conclusion" (p. 814).

He then lists top scholars (pp. 816–821): Archimedes, Aristotle, Euclid, John Duns Scotus, Richard Swineshead, Apollonius of Perga, Archytas of Tarentum, al-Khwarizmi, al-Kindi, Geber or Jabir ibn Aflah, Galen and Vitruvius. "These were all men of outstanding tal-

ent. But those who surpassed human powers and are regarded as closer to some divinity are three: Ptolemy of Alexandria, Hippocrates of Cos, and Plotinus. To the last I owe my belief that I can understand many things; to the second my knowledge of the Art [of medicine]; I admire the first because I can barely understand him" (pp. 820–821).

These volumes reveal the many facets of Cardano, a true Renaissance Man: scholarly, widely-read, accomplished, combative, verbose, sometimes credulous, disorganised and obscure. He has been well served by his translator and editor.

Alex D.D. Craik

New Members

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

Steve DiDomenico
Park Ridge, IL
USA

Ioanna Georgiou
St. James Senior Girls' School
London
UK

Rebecca Morris
Pittsburgh, PA
USA

Aaron Thomas-Bolduc
Calgary, AB
Canada

Aida Sandra Visokolskis
Cordoba
Argentina

From the Editor

Sylvia Svitak mentions the stellar standard Hardy Grant, Sharon Kunoff, and Tom Drucker set with the *Bulletin*, beginning with Hardy's "resurrection" of the publication in November 1995. I have benefitted directly from the role models they established for style, tone, and content. In preparing this issue's Announcements column, which appears to have decided to grow without end, I also reflected on the editors who predated universal availability of email and the web (Roger Herz-Fischler, Marshall Walker, Craig Fraser); collecting information must have been a monumental task in those days. Now, although I sometimes have little to no memory of asking for these things, news about history and philosophy of mathematics, history and philosophy of science, mathematical instruments, mathematics education, and women's history appears in my inbox. In part, this symbolizes the ever-increasing interconnectedness of our community.

Elaine Landry's first CSHPM meeting, 1995 at UQAM, was also my first meeting. While I did not encounter the initial, open opposition she reports, I did sense a vibe of "A young, blonde woman—what an exotic creature." (Indeed, I believe that Rebecca Adams and Fran Abeles were the only other women on that year's program.) However, very quickly I fell into the clutches of Hardy, Sharon, and others, and they immediately began laying a foundation of collegiality on which an edifice of friendship has now grown for over twenty years. Sharon's talent for serving as an ambassador for the Society will be sorely missed.

I hope to reconnect with many of you at our 2016 gathering in Calgary. In addition to meeting and Council election information, business reports, and our usual array of columns, you will find in this issue that our members are also exceptionally active (and recognized for that activity) in other organizations. I suspect I speak for many other CSHPMers when I say that each person in our Society is appreciated not only for what you do, but for who you are.

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. The next submission deadline for the *Bulletin* is 1 October 2016. 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. Microsoft Word (please turn off its auto-formatting features such as "curly quotes") and LaTeX data 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 (atzema@math.umaine.edu), and Production Editor Maria Zack (Maria-Zack@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.

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