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Canadian Society for History and Philosophy of Mathematics

Société canadienne d'histoire et de philosophie des mathématiques

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ABOUT THE SOCIETY

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

President: **Duncan J. Melville**, St. Lawrence Univ., Canton, NY 13617, USA, dmelville@stlawu.edu Vice-President: **Jean-Pierre Marquis**, Université de Montréal, Montréal, QC H3C 3J7, CA, jean-pierre.marquis@umontreal.ca

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The Society's Web Page (www.cshpm.org) is maintained by Michael Molinsky, University of Maine at Farmington, Farmington, ME 04938, USA, michaelmolinsky@maine.edu. The Proceedings of the Annual Meeting are edited by Antonella Cupillari, Penn State Erie, The Behrend College, Erie, PA 16563, USA, axc5@psu.edu. The Society's Archives are managed by Michael Molinsky (see above). Tom Archibald, Simon Fraser University, Burnaby, BC, V5A 1S6, CA, tarchi@math.sfu.ca, serves as CMS Liaison.

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

From the President

As we leave behind a winter that was either unseasonably warm or unseasonably cold, depending on whether you hail from Nunavut or Texas, I note that it was, as usual, a busy and productive time for our members and the field. We had a high and wide profile at the Joint Mathematics Meetings (JMM) in San Francisco in January. Amy Shell-Gellasch and Glen van Brummelen opened the conference with an MAA Short Course on Exploring the Great Books of Mathematics, featuring a powerful slate of speakers: Alex Jones, George Smith, Rob Bradley, Fernando Gouvêa, and Ivor Grattan-Guinness. Glen later gave an MAA Invited Address on "Reasonable effectiveness: Trigonometry, ancient astronomy, and the birth of applied mathematics."

During the course of the conference, there was an MAA minicourse on *The mathematics of Islam and its use in the teaching of mathematics*, organized by Victor Katz; an AMS-MAA Special Session on *History of Mathematics* organized by Craig Fraser, Deborah Kent, and Sloan Despeaux; an MAA Session on *Mathematical Texts: Famous, Infamous, and Influential*, organized by Fernando Q. Gouvêa and Amy Shell-Gellasch; an AMS Session on *History of Mathematics*; and an MAA Session on *Philosophy of Mathematics for Working Mathematicians*, organized by Bonnie Gold and Carl Behrens. There was also a HOM-SIGMAA meeting with a talk by Reviel Netz, and a SIGMAA on the Philosophy of Mathematics meeting with a guest lecture by Charles Chihara.

Altogether, there were some 65 talks on the history and philosophy of mathematics at the Joint Meetings, many of them given by members of our society. (Indeed, Craig Fraser provided a photo of a number of Saturday speakers in the AMS-MAA Special Session; almost everyone depicted is associated with CSHPM. From left: Janet Beery, Menolly Lysne, David Bellhouse, Amy Ackerberg-Hastings, Sandro Caparrini, Tom Archibald, Byron Wall, Allen D. G. Olley, and Josipa Petrunic.) This is a tremendous affirmation of the vibrancy of our discipline and the vigorous activity of our colleagues.

Additionally, the AMS Fall Western Section Meeting in November at UC Riverside featured a special session on *History and Philosophy of Mathematics*, organized by Shawnee McMurran and Jim Tattersall.

Looking ahead, I hope to be welcoming many of you to our Annual Meeting in Montréal, at Concordia University and in conjunction with the Canadian Federation for the Humanities and Social Sciences, from May 29 to 31. This year, the general session is being organized by Pat Allaire, and the special session on Mathematics and the Liberal Arts is organized by Sylvia Svitak. The local organizer is Gregory Lavers. They have all worked hard to put together an exciting conference at which more than forty of you will be speaking. I thank them for volunteering for these jobs. In keeping with the liberal arts theme, our May Speaker, a conference keynote event, will be Hardy Grant, talking on "Mathematics and the Liberal Arts: The Beginnings." We have a strong program that I am sure will connect with many of the delegates from other societies meeting concurrently with us.



Figure 1: Some of the JMM Speakers

Alongside these major meetings and events, there are numerous colloquium and reading group series that members have worked tirelessly to maintain. Our society is now well into its fourth decade, but some of these other organizations are developing solid histories themselves and putting down deep roots. For example, the Ohio River Early Sources in Mathematical Exposition (ORESME) Reading Group formed in 1998 and recently had its twenty-fourth meeting. The Frederick V. Pohle Colloquium in the History of Mathematics has also been running since 1998; the Philadelphia Area Seminar on the History of Mathematics (PASHoM) is celebrating 10 years of meetings;

the ARITHMOS reading group has been going since 2001, and even that relative newcomer, the Euler Society, is about to have its 9th conference. These are clear signs of the increasing maturity and depth of reach of the history of mathematics.

This coming meeting will see the end of my term as President. I have been honored to serve you and I am enormously grateful to the people who have done all of the work. Pat Allaire as Secretary and Nathan Sidoli as Treasurer do far and away the lion's share of the business side of running the society. Jean-Pierre Marquis, as Vice-President, and Alexander Jones, as Past-President, have been sources of support and wisdom, as have fellow Council members Francine Abeles, Gregory Lavers, Sylvia Svitak, and Adrian Rice. As both Webmaster and Archivist, Mike Molinsky ably maintains our public face and curates our past; Antonella Cupillari has selflessly carried the task of producing our annual *Proceedings*, and without the substantial efforts of the Bulletin production triumvirate of Amy Ackerberg-Hastings, Eisso Atzema, and Maria Zack, you would be bereft of reading matter. Thanks also go to the Nominating Committee of Rob Bradley, Greg Lavers, and Tom Drucker for twisting arms and finding volunteers to continue the hard work of the Society. That we have such a vibrant and successful society is due to the hard work of so many members in both scholarly creation and organizational maintenance. Thank you all and long may it remain so.

Duncan Melville

Announcements

Belated congratulations to Daryn Lehoux, who was awarded the History of Science Society's Derek Price/Rod Webster Prize in 2008 for his excellent research article published in *Isis*, "Observers, Objects, and the Embedded Eye: or, Seeing and Knowing in Ptolemy and Galen," 98 (2007): 447–467.

The Canadian Federation for the Humanities and Social Sciences moved in January 2010; the new address is: 275 Bank St, Suite 300, Ottawa ON K2P 2L6. All phone numbers and email addresses remain the same. Jean-Marc Mangin has been appointed the Federation's new executive director.

The Taylor & Francis Group is pleased to offer

all CSHPM/SCHPM members discounted annual subscriptions to three of their journals: Annals of Science (US\$99/year), History and Philosophy of Logic (US\$72/year) and History and Technology (US\$50/year). Taylor & Francis is making this offer on the strict condition that such subscriptions are for the private use of each member and are received at the private address of that individual member. Personal copies are not to be placed in a library nor in any way used to substitute for an existing or potential library subscription. Discounted subscriptions apply to print copies only—online access is not included in the offer. Additional details about the offer can be found on the Society website (www.cshpm.org/Taylor Francis flyer.pdf).

A response by Jens Høyrup to the review of his book, Jacopo da Firzenze's Tractatus' Algorismi and Early Italian Abbacus Culture, prepared by Jeff Oaks for the November 2009 issue of the Bulletin, now appears in the Archives section of the CSHPM web site. For an ongoing discussion of the philological and other issues raised, please refer to Oaks's and Høyrup's own web sites.¹

The latest International History & Philosophy of Science Teaching Group newsletter is available on the web at: www.ihpst.org/newsletters.html.

CSHPM members who read Russian might be interested in the forthcoming article by G. M. Polotovskii, containing reminiscences of Nikolai Nikolaevich Bogolyubov (1909-1992), the Ukrainian-Soviet mathematician and theoretical physicist whose work included mathematical physics, statistical mechanics, quantum mechanics, and non-linear systems. The article appears under the title of "Shtrikhi k Portretu" (Traits to the Portrait) in the History of Mathematics & Personalia section of the Nizhni Novgorod journal Mathematics in General Education (Matimatika v Vysshem Obrazovanii) no. 7 (2009): 161–172. There is an English summary on p. 172.

Personal perspectives in the physical sciences for the Royal Society's 350th anniversary, an open access, commemorative issue of Philosophical Transactions A is now available online.² In this freely available landmark issue, compiled specifically to mark the 350th

anniversary of the Royal Society, leading scientists offer a personal perspective on the current status of their own area of research. Highlighted articles cover the status and potential of nuclear fusion; the revolution in theoretical chemistry over the past half century; and the challenges associated with energy security, climate change and sustainable consumption in the built environment.

The first international conference exclusively on ongoing research in the history of mathematics education, was held 20–24 June 2009 in Garþabær, in the vicinity of Reykjavik, Iceland. (See the November 2009 Bulletin for a report on the presentations.) The proceedings of the conference, Dig Where You Stand, have now been published. A copy may be purchased by contacting the bookstore of the School of Education, University of Iceland, boksala@khi.is. The price is IKR 2785, which by the current rate is 15,50 Euros. The mailing cost will be added. The bookstore will send an invoice.

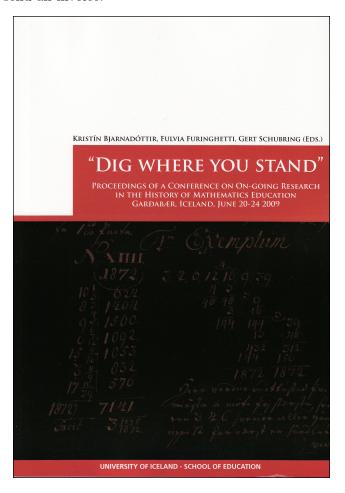


Figure 2: Dig Where You Stand

¹See pages.uindy.edu/~oaks/Articles/ResponseHoyrup.pdf as well as www.akira.ruc.dk/~jensh/.

²See http://rsta.royalsocietypublishing.org/seefurther

The Smithsonian collections include 80 mathematical paintings by the cartoonist and children's author, Crockett Johnson (known to some as author of *Harold and the Purple Crayon*). These paintings are inspired by the work of historically important mathematicians, such as Euclid, Archimedes, Newton, and Gauss; others relate to Johnson's own mathematical endeavors. Images of the paintings, brief descriptions, and scans of related documentation are now available online.³

Livia Giacardi maintains a website on the history of the teaching of mathematics in Italy (in Italian and in English).⁴

The History of Education Society facilitates research in the history of education, encourages cooperation among specialists in the field, and promotes the relevance of historical perspective to educational policymaking. The Society also publishes *The History of Education Quarterly*. A committee of The Society annually reviews nominees for an Outstanding Book of the Year award. The author of the winning publication receives a US\$1,000 cash prize. Works are eligible which consider any aspect of the history of education, formal or informal, whether in the U.S. or abroad, provided they bear a 2009 copyright date. The deadline is 31 May 2010; for more information, see www.historyofeducation.org.

The Frederick V. Pohle Colloquium in the History of Mathematics, hosted by the Department of Mathematics & Computer Science at Adelphi University, presented the following speakers this past year: Daniel E. Otero (Xavier), "Determining the determinant" on 7 October 2009; Ethan Coven (Wesleyan), "The origins of modern symbolic dynamics" on 18 November 2009; Karen Parshall (Virginia), "Algebra: Creating New Mathematical Entities in Victorian Britain" on 10 February 2010; Erik Tou (Carthage), "Navigation in the Time of Euler" on 3 March 2010; John Clagett (Center for Ecumenical Research in the Arts and Sciences), "A Case Study of Applied Projective Geometry" on 7 April 2010; and Janet Barnett (Colo. St. Pueblo), "Abstract awakenings in algebra: Teaching and learning group theory through the works of Lagrange, Cauchy, and Cayley" on 5 May 2010.

The Korean Society of Mathematical Education will host the 44th National Meeting of Mathematics Edud-

cation in Daejeon 16–17 April 2010. Papers written in English and accepted for publication will be printed in Journal of the Korean Society of Mathematical Education Series D: Research in Mathematical Education.

The annual Southern regional conference for the history of science, technology, and medicine, So-HOST, will be held 17–18 April 2010 at Mississippi State University. For more information, see www.msstate.edu/dept/history/southernhost.htm.

The International Society for Educational Biography will meet 22–24 April 2010 in St. Louis. The website is www.isebio.org.

The History of Mathematics and Teaching of Mathematics Conference will be held 20–23 May 2010 in Szeged, Hungary. Edmund F. Robertson, who operates the MacTutor History of Mathematics database together with John O'Connor, is chairman of the conference. Snezana Lawrence is also an invited speaker. The conference website is www.uni-miskolc.hu/hmtm/.

The PratiScienS research group at the Archives Henri Poincaré, University of Nancy, France, is organizing a conference on "From Practice to Results in Logic and Mathematics" to be held 21–23 June 2010. Invited Speakers include Jessica Carter, Karine Chemla, Jeremy Gray, Danielle McBeth, Catarina Dutilh Novaes, Marco Panza, Dirk Schlimm, Henrik Kragh Sørensen and Jean-Paul Van Bendegem. The meeting website is located at: poincare.univnancy2.fr/Activites/?contentId=6803.

The ARITHMOS seminar will meet at Western Connecticut State University in Danbury, Connecticut, on June 26–27. This seminar will discuss selections from L'Hospital's *Analyse des infiniment petits*, section 3, and Johann Bernoulli's *Lectiones de calculo differentialium*. For more information, see www.arithmos.org.

Proposals are invited for papers to be presented at the 2010 Euler Conference, to be held at Adelphi University in Garden City, New York, from July 21–23, 2010. As always, we encourage that papers be relevant to Euler's life and work, including Euler's contributions to mathematics, science, technology, philosophy, religion or education. However, papers related tangentially to Euler's life, times, or work are also welcome. Please send proposals, including title and abstract, along with the presenter's name and contact information, to Robert Bradley, bradley@adelphi.edu no

³See http://americanhistory.si.edu/collections/groups.cfm.

⁴See http://www.subalpinamathesis.unito.it/risorse.php

later than 15 May 2010. The conference website is www.eulersociety.org.

The 4th International Conference on Ethnomathematics will be held 25–30 July 2010 at Towson University, near Baltimore. The website is icem-4.org.

MAA MathFest 2010 is August 5–7 in Pittsburgh. Herbert Kasube (Bradley), John Lorch (Ball State), and Joanne Peeples (El Paso CC) are organizing a contributed papers session on "The History of Mathematics and Its Uses in the Classroom."

An International Conference on the History of Modern Mathematics will be held 11–17 August 2010 in Xi'an, China. The meeting is organized by Northwest University in association with REHSEIS (SPHERE), CNRS & University Paris Diderot, and IASCUD Commission of the DHST. The Scientific Committee and plenary lecturers include Tom Archibald, June Barrow-Green, Karine Chemla, Leo Corry, Joe Dauben, Jose Ferreiros, Jeremy Gray, Tinne Hoff Kjeldsen, Eberhard Knobloch, Li Wenlin, Karen Parshall, Ted Porter, Qu Anjing, David Rowe, Reinhard Siegmund-Schultze, and Ueno Kenji. For more information, contact yuanmin@nwu.edu.cn.

There will be a Special Session on the History of Mathematics: A Transnational Discourse at the fall Southeastern Section Meeting of the American Mathematical Society in Richmond, VA, on November 6–7, 2010, organized by Della Fenster (Richmond) and Frédéric Brechenmacher (Lille).

The 4th International Conference of the European Society for the History of Science will be held in Barcelona 18–20 November 2010. The theme is "The Circulation of Science and Technology." For more information, see 4eshs.iec.cat. Travel grants for young scholars are available from the ICHST Commission on Women in STM; contact Annette Vogt, vogt@mpiwgberlin.mpg.de.

Tom Archibald (Simon Fraser), Alan Richardson (UBC), and Glen van Brummelen (Quest) are organizing a session on History and Philosophy of Mathematics for the Winter Meeting of the Canadian Mathematical Society, to be held 4–6 December 2010 at the University of British Columbia.

Educational Research and Reviews (ERR) is currently accepting manuscripts for publication. The journal publishes high-quality solicited and unsolicited arti-

cles, in English, in all areas of education including education policies and management. All articles published in ERR will be peer-reviewed. ERR is fully committed to providing free access to all articles as soon as they are published. ERR is also seeking qualified reviewers as members of its editorial board. More details are found at www.academicjournals.org/err2. Prospective authors should send their manuscript(s) to err.acadjourn@gmail.com.

2010 GTA STS Symposium

The third annual Greater Toronto Area Science and Technology Studies Symposium is going to be held at downtown Toronto's Ryerson University on Tuesday, May 4, 2010.

There will be a total of six presenters, three each in the morning and afternoon. The speakers hail from six institutions in or relatively near Toronto.

This year's symposium will lean more towards the physical and mathematical sciences. For example, Ryerson's Ingrid Hehmeyer will show us how she's preparing an exhibit for a German museum on "The Cultural History of Water." Her work emphasizes the relationship between water and mechanics, especially automata. York's Ernie Hamm will present on the History of Geology.

At the time of writing other speakers were still to be confirmed, but there are plans for a philosophy talk.

The symposium's organiser, Jennifer Hubbard (History, Ryerson), invites you to "find out what your science and technology, history and philosophy colleagues are up to. Come and help build a local community of scholars in this field via a day of informal presentations and discussions of history and philosophy of science and technology and STS studies."

It will be a day-long affair, with coffee at 9:00 am. The sessions will start at 9:30 am and continue to 4:30 pm. Lunch will be provided on site. There is no registration fee.

All sessions take place at Ryerson's Oakham House, 63 Gould Street. Oakham House is near the Dundas subway stop on Toronto's Yonge Street. The location is a couple of blocks northeast of the stop, at Church and Gould Streets, one block north of Dundas Street.

For more information contact Jennifer Hubbard at *jhubbard@ryerson.ca*.

David Orenstein

2010 Kenneth O. May Lecturer: Hardy Grant

CSHPM is proud to announce that fellow CSHPM member, Hardy Grant, Professor Emeritus, Department of Mathematics, York University, Toronto, will be the keynote speaker for the Special Session, *Mathematics and the Liberal Arts*, at the May 2010 annual meeting at Concordia University, Montréal, Quebec. He will present his talk, "Mathematics and the Liberal Arts: The Beginnings," at 2:00 pm on Sunday, May 30. The abstract for this lecture is available on the Society's website, www.cshpm.org.



Figure 3: Hardy Grant

Dr. Grant comes from Ottawa. His formal training at Queen's University (Kingston, Ontario) and McGill University (Montréal) was in mathematics, but he has always loved history as well. He was able to combine the two during his teaching career at York University in Toronto. His specialty there was an undergraduate course on the role of mathematics in the history of (western) culture. His publications are all on that theme.

Since retiring in 1994, he has indulged his passion for travel to faraway places ("anywhere, but with special fondness for Latin America"). His other enthusiasms include birding, bridge, and music of many kinds.

CSHPM looks forward with great anticipation to gather at Congress with Hardy Grant and to hear his presentation.

 $Sylvia\ Svitak$

Book Review: La Révolution Symbolique

La révolution symbolique: La constitution de l'écriture symbolique mathématique, by Michel Serfati, with a preface by Jacques Bouveresse. Paris: Éditions PÉTRA, 2005, ix + 427 pp. ISBN: 2-84743-006-7. EUR 32,00.

For most of human history, mathematics was done rhetorically. However, by the middle of the 17th century, a symbolic language had been developed that was rich enough to express most of the body of mathematical knowledge at the time. Even more importantly, this new symbolism seems to have subsequently helped mathematicians in the process of discovering new mathematics. Michel Serfati's book, La révolution symbolique, is a historical and philosophical examination of the birth of mathematical symbolism, as well as an examination of how this new system affected mathematical invention.

Serfati's book is divided into two parts. The first, based on his doctoral thesis, is called "The Establishment of Symbolic Writing in Mathematics," which is also used as the subtitle of the entire book. In this section, he traces the development of mathematical symbolism in ancient and medieval times and then through the brief and productive period in which mathematics came to be written in a recognizably modern form, a period of about half a century, stretching from Viète's *Isagoge* in 1591 to Descartes' *Géométrie* in 1637. The second part, "Symbolism and Invention," examines the role of the new mathematical symbolism in the discovery of new mathematics, from the time of Leibniz up to the 20th century.

The bookends for the first part are chapters analyzing Euclidean mathematical writing and the symbolic system of Descartes. In between, Serfati considers the development of six essential features of the new symbolism:

1. The representation of the unknown

- 2. The representation of the given(s)
- 3. The representation of the elementary operations, including the operations of arithmetic and the extraction of roots
- 4. The representation of the aggregation of operations, including use of delimiters
- 5. The representation of equality and adequation
- 6. The representation of composition of concepts (concepts composés), most importantly the powers of a variable

He devotes a chapter to each of these "figures," tracing the development of the notation in question in the post-Euclidean period. With the exception of Diophantus, this is mostly a matter of contributions by late medieval Europeans. Each chapter has an appendix giving illustrative excerpts from the texts of those who contributed to the new symbolism or who struggled with the old. We see, for example, Cardano and Bombelli confronting the problem of delimiters as they sought to express the solutions of the cubic and quartic equations. There are illustrations from Recorde, Harriot, Stevin and Clavius, to name but a few.

In contrast, excerpts from Viète, and especially Descartes, seem clear and clean, even if their typography does not. "After 1637," writes Serfati, "the writing certainly changes and improves, but it has definitively acquired the constituent features of its modern form."

Although both parts of Serfati's book address historical and philosophical issues, the second part is probably more interesting to philosophers. In it, he considers how the new symbolism assists mathematicians in the process of creation and discovery. He calls this "spontaneous Platonism." For example, when the process of repeated multiplication becomes represented by an exponent attached to a variable, and the numerical exponent is subsequently represented by a symbol, the idea of substituting something other than a natural number in place of that symbol may present itself. Serfati devotes an entire chapter to the extension of exponentiation after Descartes, from fractional and negative exponents to Newton's binomial theorem and Euler's extension of the exponential function to complex numbers.

Serfati considers many other examples of the fecundity of the new symbolism, including Leibniz's differential and integral calculus (think of the analogy

between the binomial theorem and the higher differentials of a product), the gamma function, and distribution theory in the 20th century.

This book can be read on many levels. Even those whose command of French is limited can probably make good use of the first part as a reference on the development of modern mathematical notation. Those who can appreciate the text more fully will find a philosophically satisfying account of mathematical evolution, with deep insights into the role of symbolism in the process of discovery.

Rob Bradley

HES Meeting

About a year ago, I received an email out of the blue from Jonathan Zimmerman of NYU and the History of Education Society. The idea of networking with scholars with whom I rarely cross paths at mathematics or history of science meetings was intriguing. I did not want to schlep up to Philadelphia by myself, though, so I recruited Peggy Kidwell (the Smithsonian's mathematics curator) and David L. Roberts (Prince George's CC) to join me. We ultimately decided to assemble a session honoring Benjamin Peirce's 200th birthday (April 4, 2009) and recruited John Rudolph (UW Madison) to serve as commentator.

The submission process was different from what we had previously experienced: we had to prepare abbreviated CVs, write a narrative of our proposed session, and provide a selected bibliography. The materials were then refereed by two readers. They suggested we try harder to appeal more broadly to historians of secondary and higher education, but our proposal was accepted and we were soon headed to the History of Education Society annual meeting, held October 22–25, 2009, in Philadelphia.

There were some other presentations of interest to historians of mathematics. For example, there was a session on science education in America which dealt with some of the same issues that have arisen in Dave's work on the laboratory method at the turn of the twentieth century and in Dave's and Peggy's research into the New Math and education after Sputnik. There was also an entire session on Sputnik

and science teaching, chaired by Babak Ashrafi of the Philadelphia Area Center for History of Science. Similarly, I heard a number of familiar questions in the ways scholars asked their history textbooks about how memory was recorded. Julie Reuben (Harvard), a frequent participant in History of Science Society meetings, chaired a session on "The American University and the Problem of Elitism." Kim Tolley (Notre Dame de Namur) gave the featured lecture at the American Philosophical Society, "Mathematics and the Science Education of American Girls, 1781–1814."

Our session focused on the evolution of mathematics education at Harvard in the nineteenth century. I looked at John Farrar as a precursor to Peirce in terms of instigating curricular reform and of producing textbooks. Peggy talked about the material culture of mathematics education during Peirce's tenure: blackboards, textbooks, written exams, geometric models, and calculating devices. Dave examined the increasing professionalization at universities by pointing out the various ways in which Peirce's student, Simon Newcomb, better fit within older career patterns. We had a small but very lively audience. The 2010 HES conference will be in Cambridge, MA. For information, visit www.historyofeducation.org.

Amy Ackerberg-Hastings

Epistemology & History of Mathematical Ideas

The annual seminar on Epistemology and History of Mathematical Ideas is held throughout the academic year on Wednesdays at 2:00 pm at the Institut Henri Poincaré in Paris. The schedule for the spring semester included the following presentations.

On March 17, Maurice Nivat of Academia Europea discussed "Algorithmique et programmation." He argued that these two disciplines are not only at the base of data processing but also share the study of calculation. On March 31, Michel Serfati of IREM-Université Paris VII and Michel Waldschmidt of Institut Mathématique de Jussieu presented talks on the subject of "L'irrationalité de nombres transcendants." Serfati focused on Lambert's 1761 proof of the irrationality of pi, while Waldschmidt traced the story from Lambert

and Euler through Taylor, Fourier, Liouville, Hermite, Lindemann, and Weierstrass.

On April 14, Rached Mneimne of Institut Mathématique de Jussieu presented "La géométrie affine, une géométrie à la généalogie évasive." The history of affine geometry was reviewed, and the use of analytical tools for projective geometry in modern programs of secondary education was examined. On May 19, Dirk Schlimm of McGill University will discuss "Pasch and Klein on intuition and proof." He will look at how these men agreed that mathematics should ultimately be grounded empirically and at how they disagreed over the role that intuition plays in mathematical proofs.

Christian Bracco of Université de Nice will speak about "Poincaré et la relativité en 1905: un pionnier de la physique théorique du XXe siècle" on May 26. He will respond to historian of physics Arthur Miller's analysis of Poincaré's *Mémoire de Palerme* by arguing that the *Mémoire*'s logic is in fact modern. On June 16, Serfati will lecture on "L'algébrisation des logiques à plusieurs valeurs de Post (1920-1970) (II). Des algèbres aux treillis, de Rosenbloom à Epstein." He will continue a previous talk by developing the first definitions of Post algebras by Paul Charles Rosenbloom in 1942 and by George Epstein in 1960.

For further information on the seminar, please see www.iremp7.math.jussieu.fr/sections/epistemologie/.

Michel Serfati

2010 CSHPM Nominating Committee Report

The nominating committee consists of Rob Bradley (chair), Greg Lavers and Tom Drucker. We have prepared a full slate of candidates, all of whom are willing to serve.

President: Jean-Pierre Marquis, Univ. de Montréal Vice-President: Glen van Brummelen, Quest U. Secretary: Patricia Allaire, Queensborough CC Treasurer: Dirk Schlimm, McGill University

Council:

Francine Abeles, Kean University Gregory Lavers, Concordia University Adrian Rice, Randolph-Macon College Sylvia Svitak, Queensborough Community College

We thank the candidates for their willingness to serve the Society. The other positions (Past President, various editors, Webmaster, Archivist, CMS Liaison) do not require elections.

On or about May 1, the Secretary will distribute ballots electronically to those members with an email address and by postal mail to those without such an address.

Respectfully submitted,

Rob Bradley

HPM Americas Section

The Americas Section of the International Study Group on the Relations Between History and Pedagogy of Mathematics held its annual meeting at the MAA Carriage House in Washington, DC, on March 13–14, 2010. The Friday afternoon before the meeting, Peggy Kidwell arranged a visit to the Dibner Library within the Smithsonian's National Museum of American History, where Mary Kavanaugh had organized a rare book exhibit around the theme of "incunabula."

Thirty-one registrants participated in one-and-a-half days packed with nineteen talks on all aspects of the history of mathematics, the pedagogy of mathematics, and the history of the pedagogy of mathematics. For example, Bob Stein and Roger Rosenkrantz opened and closed the meeting by presenting materials from their historically-oriented textbooks for training mathematics teachers and for teaching physics, respectively. Uffe Thomas Jankvist described the content and process of preparing teaching modules for Danish high schools on graph theory and on Hilbert's 1900 lecture on mathematical problems. Jerry Lodder shared from teaching modules for encountering logic through primary sources. Bob Brabenec outlined his organizing principles for an introductory course in philosophy of mathematics.

Chris Rorres gave an illustrated presentation on the Archimedes screw, while John Snygg ruminated on whether Copernicus rediscovered a mathematical device or borrowed it from Islamic astronomers. Bud Boman analyzed Berkeley's reasons for writing *The*

Analyst and those who responded to the pamphlet. Ilhan Izmirli traced the evidence of unit fractions in Egyptian papyri.

Victor Katz asked of quadratic equations, "Can We Really Apply Them?" Fred Rickey walked us through "Machin's Formula for Computing Pi," while Jim Propp pointed out "Dedekind's Forgotten Axiom and Why We Should Teach It." We heard several papers on the history of the American college curriculum: my own presentation on John Farrar of Harvard (1779-1853); Andy Fiss's exploration of "The Effects of the Civil War on College-Level Math Education"; George Rosenstein looked for the fundamental theorem of calculus in Granville's and other calculus textbooks; Walter Meyer gave a progress report on the Cajori Two project, which is attempting to survey the twentieth-century curriculum at approximately 20 representative universities.

Jim Tattersall reported on "The Mathematical Department of the Yates County Chronicle." Roman Sznajder described several early contributors to the Polish School of Mathematics. Dave Roberts psyched us up to revisit the mathematical games stored in our closets with "WFF 'N PROOF and the Climate for Mathematical Recreations in the 1950s and 60s."

Section officers Bob Stein, David L. Roberts, and Amy Ackerberg-Hastings served as meeting organizers and session chairs, with helpful advice from Florrie Fasanelli and Victor Katz. The past three years at the Carriage House have seen such steady growth that we are planning to add a second annual meeting on the West Coast. The first conference is scheduled for 23–24 October 2010 at Caltech with host Moti Feingold and featuring a tour of the Huntington Library and Botanical Gardens. The section would also like to be represented at the 6th European Summer University on the History and Epistemology in Mathematics Education in Vienna, 19–23 July 2010. To be added to an email list and receive information about future meetings, or to volunteer as a delegate to ESU-6, please contact Dave Roberts, robertsdl@aol.com.

Amy Ackerberg-Hastings

Quotations in Context

A mathematician is a blind man in a dark room looking for a black cat which isn't there.

Today, this quotation is commonly attributed to Charles Darwin. It is very popular among modern authors, frequently appearing at the beginning of chapters in mathematics books. Unfortunately, there is no real evidence that Darwin ever said this. The quotation certainly does not appear in any of Charles Darwin's published books or papers. There isn't even as much as an apocryphal story of where and when Darwin might have made such a statement.

The oldest publication that mentions Charles Darwin as the source of a similar quotation appears to be an address at a dinner meeting of the Southeastern Section of the Mathematical Association of America on March 29, 1940. The address was given by Tomlinson Fort, and was published in the American Mathematical Monthly in November of that year. Although Fort provides citations for every other quotation used in the speech, he provides no citation for his reference to Darwin, and even expresses doubt that Darwin is really the source:

I have heard it said that Charles Darwin gave the following. (He probably never did.) "A mathematician is a blind man in a dark room looking for a black hat which isn't there."

Notice the slight difference in this quotation, with "hat" instead of "cat."

Variations on this metaphor were apparently very popular in the eighteenth and early nineteenth centuries, making comparisons to members of the clergy, pessimists, artists and other subjects instead of mathematicians. For example, in the book "Pie Powder", Being Dust from the Law Courts: Collected and Recollected on the Western Circuit, by a Circuit Tramp, published in 1911, author John Foote talks about the British judge, Charles Bowen:

Another famous example, which the present writer was fortunate enough to hear personally, was addressed to a barrister arguing a bad point in the Court of Appeal on the ground of an 'equity' in the case. "When I hear of an 'equity' in a case like this," Bowen said with judi-

cial gravity, "I am reminded of a blind man—in a dark room—looking for a black hat—which isn't there." Within the last few months I have seen this misquoted in the press as a search for a 'black cat'—a variation which I feel assured that the late Lord Justice would have strongly disapproved.

Another version of the quotation, which is also attributed to Charles Bowen, appears in the book *Old* and *Odd Memories*, published in 1908 by Lionel Tollemache. The author reminisces about his time in Balliol College at Oxford University, including his memories of both Charles Bowen and the Master of Balliol, Benjamin Jowett:

Bowen followed the example of Jowett in thoroughly distrusting metaphysics...Bowen defined a metaphysician as 'a blind man groping in a dark room for a black cat which is not there.'

The similarities ("metaphysician" and "mathematician"; "Bowen" and "Darwin") make it at least reasonable to suggest that this quotation by Bowen might be the actual source of a misattribution to Darwin. In any case, even if Darwin did actually make such a statement about mathematicians, it appears that it would not have been very original on his part, simply following the vogue of the times in comparing practically everything to "a blind man in a dark room" searching for something that did not exist.

Mike Molinsky

AGM of CFHSS

The Annual General Meeting of the Canadian Federation of Humanities and the Social Sciences took place in Ottawa on 27-28 March 2010.

President Noreen Golfman reported: 1) The CFHSS is continuing to press the government to raise more dollars for research; 2) The copyright bill (mentioned in the May 2009 *Bulletin*) was dissolved when parliament prorogued; 3) Failures of academic integrity, such as plagiarism, falsification, and fabrication of results, are major concerns.

CSHPM members employed by Canadian universities should be aware of the availability of funding:

1) The Canadian Institutes of Health Research offer health/medical grants for those with interests in mathematics, statistics, and biology; see www.cihr.ca;

2) The Social Sciences and Humanities Research Council of Canada offers grants in the social sciences and humanities; see www.sshrc.ca. These grants are hard to receive because there are so many applications; however, if your proposal is applicable, you have as good a chance as the other fellow.

Membership Renewal System: Managing renewals can take up significant time for the Secretary/Treasurer. That has been made easier by a system set up by the CFHSS. However, there are some costs: a one-time set-up-fee of \$350, an annual license fee of \$150, and either a monthly fee of \$16 by Ticketmaster or a no-fee option offered by Desjardins, which only deals with Canadian dollars. The treasurer of the CFHSS will look into the whole matter about fees and might give a talk at the Montréal Congress.

Ed Cohen

From the Archives: CSHPM/SCHPM Bylaws

On June 3, 1974, the first annual meeting of the Canadian Society for History and Philosophy of Mathematics began at the University of Toronto. The meeting took place as part of the Conference of Learned Societies (the precursor to the Canadian Federation for the Humanities and Social Sciences). In addition to a contributed paper session and a joint session with the Canadian Society for History and Philosophy of Science, there was also an organizational meeting to discuss the bylaws and to hold elections.

A committee had been formed in January 1974 to write a preliminary draft of the bylaws before the meeting. The members of the committee included the chair, Tom Settle (Department of Philosophy, University of Guelph), as well as J. L. Berggren (Department of Mathematics, Simon Fraser University) and E. S. Keeping (Department of Mathematics, University of Alberta). The initial plan had been to send the bylaws out by mail to be approved before the meeting took place, but it was decided that it would be better

to vote on the bylaws at the meeting itself, in order to allow an in-person opportunity for debate and for the proposal of changes. After two hours of discussion at the organizational meeting, the bylaws were approved and signed by the eleven charter members of the Society:

- V. Linis (Department of Mathematics, University of Ottawa)
- R. S. D. Thomas (Department of Computer Science, University of Manitoba)
- P. C. Enros (Institute for the History and Philosophy of Science and Technology (IHPST), University of Toronto)
- W. S. H. Crawford (Department of Mathematics and Computer Science, Mount Allison University)
- J. L. Berggren (Department of Mathematics, Simon Fraser University)
- Loic Thérien (Department of Mathematics, Université de Sherbrooke)
- Fred Ustina (Department of Mathematics, University of Alberta)
- Maurene Flower (Library, University of Toronto)
- Kenneth O. May (Department of Mathematics, University of Toronto)
- Gregory H. Moore (IHPST, University of Toronto)
- Charles V. Jones (IHPST, University of Toronto)

In the years since they were officially adopted, the bylaws have been amended at eight different annual meetings. (Technically, in eight different years, but only seven actual annual meetings: in 1975, when the first amendments to the bylaws were proposed, a quorum of members did not attend the annual meeting. The amendments were instead distributed and voted upon by mail after the meeting was over. That method would appear to be a violation of the bylaws, which state in Article IX that amendments can only be passed during the annual meeting itself, but there are no indications that anyone in the Society raised any concerns at the time about this impromptu procedure.) Some of the amendments have included:

• increasing the number of Council Members from three to four, as well as adding the editors of the *Bulletin* and *Proceedings* and the Webmaster to the Executive Council

- adding, and then eliminating, a requirement that new candidates for membership to the Society must be nominated by two current members
- changing the fiscal year from April 1–March 31 to January 1–December 31
- changing the terms of officers from one year to two years
- allowing ballots to be submitted electronically, as well as in person or by mail

A fully updated version of the bylaws can be found on the CSHPM/SCHPM website, www.cshpm.org.

Mike Molinsky

2009 Financial Statements

The following financial statements cover the period 1/1/2009 through 12/31/2009.

	\$ Can.
Income	
dues/subscr.	12687.05
SSHRC travel grant	3480.00
TOTAL	16167.05
Expenses	
CFHSS dues (2008)	1799.62
Historia Mathematica	3187.64
Proceedings	980.28
Postage etc.	406.16
May speaker	250.00
Travel claims	4205.10
Bank charges	6.99
TOTAL	10835.79
NET	5331.26
Balance	34603.80
TD Mortgage Corp.	3838.43
(matures 23/2/'11)	
TOTAL	38442.23

Comments:

Because the Society has 2 accounts, 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 1.05 has been used to convert American dollars into Canadian ones.

We have not paid for *Philosophia Mathematica* in the 2009 year, which means that the next payment will be large. (The payment for 2008 was \$2,318.40.)

Nathan Sidoli

2010 CSHPM/SCHPM Meeting Programme

Please note that abstracts for all of the talks are available on the Society's website (www.cshpm.org). Presentations are 20 minutes, with 5 minutes for discussion and 5 minutes of set-up before the next talk.

Saturday, May 29

9:00 PRESIDENT'S WELCOME

GENERAL SESSION IA (Faubourg B040; Presider: Larry D'Antonio)

- **9:15** David Orenstein (OSSTF, Toronto): "High School History and Philosophy of Mathematics: An Action Research Project"
- **9:45** Andrew Perry (Springfield): "Nicholas Pike's New and Complete System of Arithmetic (1788)"

10:15 BREAK

- 10:30 Antonella Cupillari (Penn St. Erie): "Elisha Scott Loomis and Proof Techniques"
- 11:00 Emil Sargsyan (Indiana): "Mathematical Models and the Mechanical Philosophy in Seventeenth-Century Physiology: Comparing the mathematical theories of muscle contraction of Giovanni Alphonso Borelli and Johannes Bernoulli"
- 11:30 Sandro Caparrini (IHPST & Lille): "Relativity and electromagnetism in the correspondence between T. Levi-Civita and A. Righi"

GENERAL SESSION IB (Faubourg B050; Presider: Robert Thomas)

- 9:15 Mark C R Smith (Queen's): "Constraint and the Outskirts of Practice"
- **9:45** Scott Dixon (UC Davis): "Concrete Modal Structuralism"

10:15 BREAK

- 10:30 Emerson P. Doyle (W. Ontario): "Ramsey's Little Argument"
- 11:00 Michael Cuffaro (W. Ontario): "Wittgenstein on Prior Probabilities"
- 11:30 Elaine Landry (UC Davis): "The Genetic Versus the Axiomatic Method: Responding to Feferman '77"
- **12:00** LUNCH BREAK & CSHPM EXECUTIVE COUNCIL MEETING
- **GENERAL SESSION II** (Faubourg B040; Presiders: Chris Baltus & Janet Heine Barnett)
- **14:00** Gregory Lavers (Concordia): "On the Quinean Analyticity of Arithmetical Truths"
- 14:30 Amy Ackerberg-Hastings (UMUC): "What is a Great Book? A Case Study of Legendre's Éléments de Géométrie (1794) and Playfair's Elements of Geometry (1795)"
- **15:00** Larry D'Antonio (Ramapo): "Did Quadratic Forms Spring Full-Blown out of the Head of Gauss?"
- **15:30** BREAK
- **15:45** Jim Tattersall (Providence): "E. B. Escott: Mathematician or Actuary"
- **16:15** Bruce Petrie (IHPST): "Leonhard Euler's Use and Understanding of Mathematical Transcendence"
- **16:45** Roger Godard (Royal Military College): "La Géométrie des Formes: The Paths to Computational Geometry"

Sunday, May 30

- **GENERAL SESSION IIIA** (Faubourg B040; Presiders: Amy Ackerberg-Hastings & Jean-Pierre Marquis)
- **9:00** Jean-Pierre Marquis (Montréal): "The metaphysics of homotopy types"
- **9:30** Charlotte Simmons (Central Oklahoma): "Yesudas Ramchundra: De Morgan's Ramanujan?"
- 10:00 Janet Heine Barnett (Colo. St. Pueblo): "Mathematics is a Plural Noun: The Case of Oliver Byrne"
- 10:30 Marina Vulis (USMAPS): "The Life and Work of Andrei Markov"

- 11:00 Francine F. Abeles (Kean): "The Early History of Quasi-determinants"
- 11:30 Craig Fraser (Toronto): "Thirty-five Years in the Historiography of Mathematics"
- **GENERAL SESSION IIIB** (Faubourg B050; Presider: Jim Tattersall)
- 9:30 Jonathan P. Seldin (Lethbridge): "Logical Algebras as Formal Systems: H. B. Curry's Approach to Algebraic Logic"
- 10:00 James T. Smith (San Francisco): "Definitions and Non-definability in Geometry: Legacies of Mario Pieri and Alfred Tarski"
- 10:30 Ximena Catepillán (Millersville) & Waclaw Szymanski (West Chester): "Maya Calendars"
- 11:00 Ed Cohen (Ottawa): "The Roman Calendars"
 12:00 CSHPM ANNUAL GENERAL MEETING
 (LUNCH PROVIDED) (Faubourg B040)
- SPECIAL SESSION IV MATH AND THE LIBERAL ARTS (Faubourg B040; Introduction: Duncan Melville; Presiders: Craig Fraser & Sylvia Svitak)
- **14:00** THE KENNETH O. MAY LECTURE, by Hardy Grant (Ottawa): "Mathematics and the Liberal Arts: The Beginnings"
- **15:00** BREAK
- **15:15** Thomas Drucker (Wisc. Whitewater): "What Makes Mathematics a Liberal Art?"
- **15:45** Robert Thomas (Manitoba): "Why a mathematician might be (a bit) interested in Theodosio's *Spherics*"
- **16:15** David Bellhouse (W. Ontario): "The Mathematics Curriculum at the British Dissenting Academies in the 18th Century"
- 16:45 Michael Molinsky (Maine Farmington): "Mathematics at Amherst College in the Nineteenth Century"
- 17:30–19:00 CFHSS PRESIDENT'S RECEPTION (Grey Nuns Residence)

Monday, May 31

SPECIAL SESSION V — MATH AND THE LIBERAL ARTS (Foubourg B040; Presider: Thomas Drucker)

9:00 William Lindgren (Slippery Rock) & Thomas Banchoff (Brown): "Flatland and Plato's parable of the cave"

9:30 George Styan (McGill): "Philatelic Latin Squares"

GENERAL SESSION VIA (Foubourg B040; Presider: Rob Bradley)

10:00 Michel Serfati (Paris): "Irrationality of pi, Squaring the circle, and establishment of the concept of transcendence in Lambert's report (1761)"

10:30 Kosla Vepa (Indic Studies Fdn.): "The Occident Ignores Historical Contributions to Science from other Geographies & Epistemes"

11:00 Josipa Petrunic (UCL): "Identifying with the English: Sir William Rowan Hamilton's effort to identify with English symbolical algebraists in the 'Preface' to the *Lectures on Quaternions* (1853)"

11:30 Menolly Lysne (Simon Fraser): "Why do we not remember Laplace's work on singular solutions?"

GENERAL SESSION VIB (Foubourg B050; President Thomas Dansley)

sider: Thomas Drucker)

10:30 Katherine Skosnik (McGill) & Dirk Schlimm (McGill): "The Many Sides of Zero in Babylonian Context"

11:00 Alex Koo (IHPST): "The Middle Road to Nominalism: A Response to Colyvan"

11:30 Michael Cuffaro (W. Ontario): "Kant and Frege on the Ontological Argument for the Existence of God"

12:00 LUNCH BREAK

GENERAL SESSION VII (Foubourg B040: Presiders: Craig Fraser & Patricia Allaire)

14:00 Theodore R. Widom (McGill) & Dirk Schlimm (McGill): "Methodological Reflections on Classifying the World's Numeral Systems"

14:30 Rob Bradley (Adelphi): "Series Summation in Cauchy's Algebraic Analysis"

15:00 Christopher Baltus (SUNY Oswego): "Central Collineations in 1674: Les Plani-coniques of Philippe de la Hire"

15:30 Bill Hackborn (Alberta): "Newton's (Flawed?) Analysis of Motion Resisted in Proportion to Velocity"

New Members

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

Ryan Allaire Yardville, NJ USA

Duane Broline Indianapolis, IN USA

Chuck Garner Conyers, GA USA

Richard Hunt Littleport, Cambridgeshire UK

Robert L. Knighten The Dalles, OR USA

Alex Koo IHPST, University of Toronto Toronto, ON Canada

David Manchi Pakefield, Lowestoft Suffolk UK

Dr. Clemency Montelle University of Canterbury Christchurch New Zealand

James T. Smith San Francisco, CA USA

Leigh Van Valen University of Chicago Chicago, IL USA

Jean-Philippe Villeneuve Rimouski, QB Canada

From the Editor

We have considerable Society business requiring your attention in this issue, including reports from the Nominating Committee and Treasurer and the full and varied program for our annual meeting, to be held in conjunction with Congress 2010 at Concordia University in Montréal, May 29–31. If you have not registered or secured housing, be sure to visit www.congress2010.ca right away. We know the area around Concordia to be pleasant for walking and for eating from our joint meeting with the British Society for the History of Mathematics in 2007, and I am looking forward to seeing you all there again.

We are due for our next joint meeting with BSHM in 2011. John Earle, Adrian Rice, Noel-Ann Bradshaw, and Raymond Flood are organizing the conference to be held at Trinity College in Dublin, 15–17 July 2011. As with our past meetings on the east side of the Atlantic, expect to be asked for a commitment of attendance relatively early on. Details will be distributed by email and posted on www.cshpm.org and www.bshm.org as they become available.

If you attend other meetings with a history or philosophy of mathematics component, please consider putting together a brief account to share via the *Bulletin*. Personal and professional news, columns and similar submissions, and photos are also always welcome. The next submission deadline is October 1, 2010. I believe this May 2010 issue will be the first that is available in electronic form for those who join CSHPM through BSHM and the Canadian Society for the History and Philosophy of Science. Thanks to the officers of those societies as well as to our own hardworking Pat Allaire and Mike Molinsky for making that transition happen.

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.

