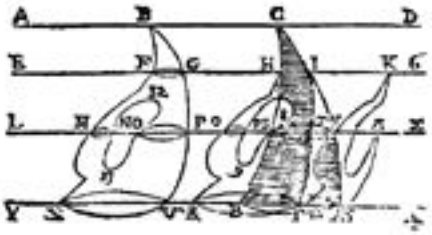
BULLETIN

CSHPM  SCHPM

November/novembre 2006 Number/le numéro 39

WHAT'S INSIDE

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 de philosophie des mathématiques (CSHPM/SCHPM) promotes research and teaching in the history and philosophy of mathematics. Officers of the Society are:

President: **Alexander Jones**, University of Toronto, Toronto, ON M5S 2E8, CA, alexander.jones@utoronto.ca
Vice-President: **Duncan J. Melville**, St. Lawrence University, Canton, NY 13617, USA, dmelville@stlawu.edu
Secretary: **Pat Allaire**, Queensborough Community College., Bayside, NY 11364 USA, pallaire@qcc.cuny.edu
Treasurer: **Nathan Sidoli**, Simon Fraser University, Burnaby, BC V5A 1S6, CA, nathan.sidoli@utoronto.ca
Archivist: **Amy Shell-Gellasch**, Dupont, WA 98327, USA, shellgae@plu.edu

Members of Council

Francine Abeles, Kean University, Union, NJ 07083, USA, fabeles@kean.edu
Jean-Pierre Marquis, Université de Montréal, Montréal, QC H3C 3J7, CA, jean-pierre.marquis@umontreal.ca
Adrian Rice, Randolph-Macon College, Ashland, VA 23005, USA, arice4@rmc.edu
Sylvia Svitak, Jamaica, NY 11432, USA, smsvitak@earthlink.net

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 **Antonella Cupillari**, School of Science, Penn State Erie, The Behrend College, Erie, PA 16563, USA, axc5@psu.edu

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

From the President

I would go without shirt or shoe,
Friend, tobacco or bread,
Sooner than lose for a minute the two
Separate sides of my head!
—Kipling, *The Two-Sided Man*

As the incoming president of the Society, my first duty is to warmly thank Rob Bradley for his Herculean exertions as CSHPM president. I will leave it to him to say which of the Twelve Labours best fits! I would also like to welcome to the executive committee Duncan Melville as our new vice president, Nathan Sidoli as our new treasurer, and Jean-Pierre Marquis and Sylvia Svitak as new members of council.

The CMS 2006 Winter meeting will take place at the Sheraton Centre, Toronto, on December 9-11; the University of Toronto is hosting the meeting. In keeping with our agreement with CMS to help them mount historical sessions at the Winter meetings, Tom Archibald is organizing a typically rich program. We hope many of our members can attend. (Information at http://www.cms.math.ca/Events/winter06/)

The next official meeting of our society will be a joint meeting with the British Society for the History of Mathematics (BSHM), at Concordia University, Montreal, on July 27-29, 2007. In addition to the general session, which is being organized by Pat Allaire, there will be two special sessions, in honour respectively of the Euler tercentenary and of the late John Fauvel. Rob Bradley is the organizer for the Euler session. Ed Sandifer will deliver the May Lecture. All in all, this should be an exceptionally good meeting, and I hope we will be seeing lots of members of both societies in Montreal. Our 2008 meeting will be part of the Congress of Humanities and Social Sciences (the former "Learneds") at the University of British Columbia, in late May or (more likely) early June.

Our special relationship with the CMS is, I think, the most important development in our society's recent history, entailing as it does not only the regular contribution of historical sessions to CMS meetings but also, on a less frequent basis, joint CSHPM/CMS meetings. Our meeting cycle thus links us to both the mathematical community and the humanistic community; this provokes some thoughts about the present situation of history of mathematics as a dis-

cipline.

Most historians of mathematics are also mathematicians, and this is as it should be. Depending on the period and civilization that one studies, one has to have a certain level of technical understanding of various kinds of mathematics–lacking this, one could try to be a historian of mathematicians, but that is something different–and I would maintain that one also has to recognize the existence of distinctively mathematical ways of thinking, without which the concept of "history of mathematics" loses meaning. Formal mathematical training is the most efficient means of acquiring these prerequisites. At the same time, and again subject to one's choice of period and civilization, one cannot do without a repertoire of historical knowledge and skills. Since one is fundamentally doing not mathematics but its history, one also has to have the ability to distance oneself from the mathematical texts while at the same time engaging with their logic.

If we go by where historians of mathematics tend to be employed and where they publish their work, it seems that our discipline is accepted for what it is by the mathematical community, and this will presumably be true as long as mathematicians sporadically mutate into historians. On the other hand, we have less and less real contact with other kinds of history, and this should be a concern. The natural connection between history of mathematics and history of science has become extremely tenuous: extremely few history of science programs now incorporate mathematics, and even historians of physics and astronomy whose work focuses on technical issues find it harder and harder to find positions. This trend will undoubtedly affect the shape of our discipline, inhibiting those fields of study, for example, that demand specialized linguistic and historical training. That it also amounts to a denial that mathematics is a significant part of general human culture goes without saying.

Alexander Jones

Announcements

Our condolences to Sylvia Svitak (Queensborough Community College, CUNY) and family on the passing of her husband, Joseph, in October 2006. Joe was a terrific supporter of Sylvia's work with CSHPM and an all-around wonderful man. Peace to his memory.

After 40 years of service, Len Berggren is now professor emeritus in the mathematics department at Simon Fraser University. He was feted by colleagues, friends, and family on August 10, 2006, and it is certain that those not in Vancouver missed an excellent party.

As noted at the AGM, Glen Van Brummelen has joined the founding faculty of Quest University Canada, an undergraduate liberal arts university north of Vancouver. The institutions' guiding philosophy is, "that the best education comes not from knowing the right answers, but in learning how to ask insightful questions."[1]

Dr. Chad Gaffield has been appointed the new President of the Social Sciences and Humanities Research Council of Canada (SSHRC). SSHRC is the national research agency that works alongside the Canadian Federation for the Humanities and Social Sciences (CFHSS) to secure travel funding, hold the Congress at which CSHPM usually holds its Annual Meeting, and raise awareness of the humanities and social sciences in Canada.[2]

Hugo Barrantes, Michael Josephy, and Angel Ruiz announce the web publication of their Spanish translation of Gauss's Disquisitiones Arithmeticae. The Disquisitiones was originally published in Latin in 1801, and is rightfully regarded as a seminal work in number theory. This translation was first published in 1995 as a paperback by the Colombian Academy of Sciences. That edition sold out rapidly, and the authors have now secured permission to make the work freely available at http://www.cimm.ucr.ac.cr/da at the web site of the Centre for Mathematical and Meta-Mathematical Research, at the University of Costa Rica, where the authors teach. The web site

[1] To learn more, visit http://www.questu.ca/. (And, be sure to read the AGM minutes for additional announcements.)

[2] For more information on Dr. Gaffield and SSHRC, visit the home page of the society (http://www.sshrc.ca) and go to /whatsnew/press_releases/2006/gaffield_e.asp.

includes a series of downloadable pdf files corresponding to chapters or parts of chapters of the Disquisitiones. The Latin edition is now available online at the Göttingen digital library. Translations into French, German, English, Russian and Catalan have also been published, but we believe our Spanish version is currently the only one freely available online.

IHMT (see article on its 10-year anniversary elsewhere in this Bulletin) will hold a reunion on Saturday, January 6, beginning at 6:30 p.m., during the Joint Mathematics Meetings in New Orleans. Although there will not be a formal program, all participants who wish to speak about their IHMT experiences should notify Victor Katz (vkatz@udc.edu). The reunion will include a memorial to Karen Dee Michalowicz. (See her obituary below.) All Institute participants, including those who participated in the Historical Modules Project, are welcome to attend, but so we can get an accurate count, please notify Herb Kasube (hkasube@bumail.bradley.edu) (preferably by December 1) if you are coming. More details will be posted on MAA Online, including the location.

Trust in Science, an interdisciplinary workshop to be held in Toronto, 15-16 October 2007, has issued a call for papers. The multiple senses in which there is and is not "trust in science," are on-going topics of interest for researchers in Science and Technology Studies and History and Philosophy of Science. At issue are mechanisms that produce, promote, and destroy trust within science and among scientists, as well as those that produce, promote, and destroy trust of science by outsiders. The envisioned sessions include discussions of the origins of trust and distrust in science, how science stories get made, information explosions and their consequences, public vs. private spaces of knowledge, and science in the private interest. Send questions and abstracts of 500 words to Sergio Sismondo (sismondo@queensu.ca) by January 31, 2007.

Patricia Allaire (Queensborough Community College, CUNY) and Robert E. Bradley and Lee J. Stemkoski (both Adelphi University) are organizing a Special Session on History of Mathematics on Leonhard Euler's Tercentenary for the Spring Eastern Section Meeting of the AMS, to be held April 14-15, 2007, in Hoboken, New Jersey.

HOM SIGMAA will once again sponsor its Student Paper Contest in the History of Mathematics. Winners will receive a one-year student membership to the MAA, including one-year subscriptions to Math Horizons Magazine and one journal. The grand prize winner will also receive a 30$US gift certificate to the MAA bookstore. Undergraduates, including students who graduated less than a year ago, may submit a paper on any field of mathematics. Submissions should be approximately 5000 words in length and be fully cited. Include a cover sheet with the student's name, the paper's title, the institution, supervising instructor if applicable, and email and permanent postal addresses. To enter, single authors should email their papers to Dr. Amy Shell-Gellasch (amy.shellgellasch@us.army.mil) no later than March 31, 2007. Instructors interested in serving as judges should contact Amy via email.

The 5th European Summer University on History and Epistemology in Mathematics Education will be held at Charles University in Prague, July 19-24, 2007.[3]

A one-day meeting for Karl Pearson's Sesquicentenary will be held at the Royal Statistical Society in London on March 23, 2007. Contact Dr. Eileen Magnello (MeileenMagnello@aol.com) for more information.

The Midwest History of Mathematics Conference, organized by Antonella Cupillari, was held at Penn State Erie, The Behrend College, October 13-14, 2006. The keynote address was delivered by William Dunham, "Euler in Three Acts." Daniel Curtin (N. Kentucky) delivered the banquet address, "A Preliminary History of the MHMC, the Varnished Truth." Other speakers included: Byron Wall (York U.), "Ellis and Venn on Probability as Frequency"; Antonella Cupillari (Penn State Erie), "Artemas Martin: A Local Mathematician and Math Historian"; Francine Abeles (Kean U.), "Henry J. S. Smith's Papers on Crystallography: Part 1"; Paul R. Bouthellier (U. of Pittsburgh-Titusville), "The Quaternion Debate– From Hamilton to Computer Graphics"; Mike McConnell (Clarion U.), "Teaching Mathematics History for High School Teachers"; Chris Christensen (N. Kentucky), "Alan Turing, Statistician"; Dale McIntyre (Grove City College), "The God-Fearing Life of

[3]See http://www.pedf.cuni.cz/kmdm/esu5 for more information.

Leonhard Euler"; and Ramon Voltz (Grove City College), "Mayan Math." Grove City College students Jana Kucharik and Cassandra Cisek also presented talks, on "Babylonian Math" and "Egyptian Math," respectively.

There were several philosophy and history events at MAA MathFest, held in Knoxville, Tennessee, August 10-12, 2006. Michael D. Resnik (UNC-Chapel Hill) delivered the POM SIGMAA Invited Address, "Some Problems and Solutions in Contemporary Philosophy of Mathematics." William W. Dunham (Muhlenberg College) and Edward C. Sandifer (W. Conn. St. Univ.) organized a Short Course on "Euler." HOM SIGMAA co-sponsored a panel on "Gödel's Contributions to the Foundations of Mathematics," including panelist John Dawson. David Bressoud (Macalester College) delivered an Invited Address on "Stories from the History of Mathematics" and organized an Invited Paper Session on "Stories from the History of Mathematics as a Tool for Teaching." Speakers included: John McCleary (Vassar), "Euler's Easy Solutions to Difficult Geometric problems"; Rob Tubbs (U. of Colorado-Boulder), "From e^{π} to $2^{\sqrt{2}}$, Motivating the Solution to Hilbert's 7th Problem"; Fred Rickey (West Point), "Some Tested Examples for Using History in Your Classroom"; and Ed Sandifer (W. Conn.), "Theorem First, or Example First: Newton vs Leibniz Again."

Long-time friend of CSHPM, Karen Dee Michalowicz, died on July 17, 2006, at the age of 63. Among many other activities, she co-directed the MAA's Historical Modules for the Teaching and Learning of Mathematics Program, which was funded by the National Science Foundation and is mentioned in the article on IHMT in this issue of the Bulletin. She also collected an enormous number of historical mathematics textbooks which she was always willing to share and describe. She will be greatly missed by numerous friends and colleagues.

Irving Kaplansky died on June 25, 2006, at the age of 89. He earned undergraduate degrees from the University of Toronto and a Ph.D. from Harvard under Saunders Mac Lane, whose autobiography is reviewed in this issue. Kaplansky was on the winning team in the first Putnam Competition, taught at the University of Chicago for nearly forty years, and directed the Mathematical Sciences Research Institute in Berkeley, CA. A brief biography can be found at the MacTutor History of Mathematics site, http://www-history.mcs.st-and.ac.uk/history/.

MathPath: The History of Mathematics, Bright and Early

I: The lecture hall gradually fills up at 8:55 AM with the bustle and energy of enthusiastic expectation. Audience members buzz among themselves eagerly as they await John Conway's appearance, ready to participate in the rollicking parade of restless mathematical ideas for which he is famous. When the show begins he quickly delves deeper and deeper into the theory, but the crowd is not lost. Indeed, they pepper him with perceptive questions and observations, sometimes prodding Conway to fill in gaps, other times revealing insights new even to him.

It's the kind of scene we hope for every time we attend a conference, and in our fonder moments we dream of it happening in some of our classes. We've seen it before. But this experience is unique in one astonishing way: the average age of the audience is 13 years old.

MathPath, a summer camp for precocious 7th- and 8th-grade students, is the brainchild of George Thomas. Founder of the similar MathCamp for high school students, Thomas decided several years ago that a "bright and early" intense summer experience for the best math students in North America could reinforce their skills, build their social confidence, and most crucially give them a taste of the real mathematical experience, all too often so different from their experiences in their local schools. The same dedication, boundless energy, and sheer passion that brought MathCamp into being two decades ago is now sending MathPath into its sixth year. The camp is beginning to get national attention; this summer, it received a write-up on the front page of the Wall Street Journal.

Thomas feels that his efforts are shaping the next generation of mathematicians in North America, and it is hard to disagree. It is for this reason that I found myself on a flight to sunny (to put it mildly) Black Hills State University in Spearfish, South Dakota, in July 2002, a place where tumbleweeds outnumber the

Figure 1: Glen getting thrashed at chess

local human population. When asked why I devote two to four weeks of my summer to an activity that does nothing to enhance my scholarly or internal college reputation, I usually think back to a conversation I had with my algebra professor in grad school, in the hallways of Simon Fraser University.

As an enthusiastic young student myself, I was eager to share my historical perspective with him–but was shocked to hear that he despised my chosen field. To my face, he said that he considered the history of mathematics to be a waste of time: mathematics is a timeless subject that grows incrementally, and thus historical studies are of no value. He didn't stop there; he went on to tell me that historians of mathematics were failed mathematicians looking to salvage something of their academic careers. History was a mark of intellectual failure, or even worse, a likely career in pedagogy. Perhaps he was practicing reverse psychology on me; in fact, his disdain for my subject motivated me to be the top student in his class. But we've all heard these attitudes, either directly or indirectly. I don't need to rebut them here; I'd be preaching to the choir. However, I've always wanted to do something fundamental to educate the mathematical community regarding the value of our field, and MathPath is my chance to do it.

Attitudes are formed early. Prying them loose is a lot harder than preventing them in the first place. Giving the next generation of mathematicians a chance to taste the excitement of history, its importance for the business of doing mathematics and for understanding its significance for their prospective careers–at an age where messages from elders (sometimes) stick–this is a chance of a lifetime. It's worth our commitment, and I'm proud to say that four CSHPM members have already contributed. Since my summers in South Dakota in 2002 and 2003 (and again in 2005 at Colorado College), Tom Drucker, Michael Molinsky, and Ed Sandifer have taught history at camps in 2004 at Roger Williams University, 2005 at CC, and 2006 at University of California Santa Cruz. They recount their experiences below. In 2007 MathPath will return to Colorado College, where Tom and I will reprise our 2005 appearances.

The camp experience is like none other. These kids are young–so young that teaching can feel like sitting on a keg of gunpowder. They are adolescents, after all. They do love math, and they love what it is we're offering up. Questions and comments pepper the classes. Ideas come so quickly that you sometimes forget you're conversing with kids as young as your own. After class they come up to you with thanks, and often with thoughts of value and significance. They're willing to give up a sunny afternoon with their peers to sit with a professor 30 years their senior to work through the issues. In university life there are few experiences more rewarding than that. Then there are the non-academic times: field trips to tourist sites, soccer games, chess tournaments, late-night historical astronomical star tours. There are times when I forget that I'm working and playing with kids, and even more uniquely, times when they forget they're playing with an adult.

Twenty years from now, the mathematics community will be more receptive to the importance of cultural perspectives and historical developments than it is now. Leading the vanguard of change will be some of the brightest young minds in mathematics, graduates from this innovative program. Our efforts now, as enjoyable as they are, will be repaid richly in the shape of mathematics in the next generation.

Glen Van Brummelen

II: I have been lucky enough to teach history of mathematics on a regular basis at my home university. The audience has been prospective elementary teachers, and it is not clear that they understand why they should be required to take history of mathematics in order to get a minor in mathematics. They tend to be interested only slightly in mathematics, the mi-

nor being more a way of improving their employment prospects than an expression of preference. They are expected to have had pre-calculus but they are allergic to the idea of proof.

MathPath was intriguing because it offered the opportunity to reach students who are fascinated in mathematics itself, the chance to confront students who have not yet learned that it is less than fashionable to become excited about mathematics or history. When I look for answers to a question among my college student audience, it is like pulling teeth. When I ask something of the MathPath audience, it's usually a matter of having to pick from a cluster of hands that go up in the air. The students in the college course can gain extra credit for trying to answer questions. The MathPath crew just don't like letting others do their thinking or their talking for them.

The first year I had the chance to teach in MathPath, Mike Molinsky had done the first half and I had to try to follow in his footsteps. I figured that one thing I could do distinctively was take advantage of the piano in the room to get the discussion started each morning. If I was talking about French mathematicians, I could use the 'Marseillaise'. My high point was probably covering the invention of calculus and contrasting the styles of Newton and Leibniz. The piano gave me the chance to play 'God Save the King' and 'Deutschland über Alles' as contrasting melodies. (I recognize that the latter was anachronistic, but I thought it most recognizable.) There were exceptionally gifted students in mathematics, but I was also impressed by their scholarship in other areas. The quality of the music played at the end-of-camp talent show was impressive, and Oscar Hyde (who came with his parents from England to attend that year) was able to supply etymologies for all the terms that I introduced.

The next year I was following Glen Van Brummelen, and I was well aware that my shortcomings in soccer would be evident to the students. As a result, I stuck to table tennis. The way I prepared for my lectures was to draft outlines before I came to MathPath, and then use the library each day to do some fine-tuning. In particular, since there would be distinguished mathematicians like Robin Hartshorne speaking at other times during the day, what they had to offer to the students could frequently be given a historical spin. I was pleased to benefit from Hartshorne's comments after my lectures, both for my teaching and for points of scholarship. Finally, in the current year I tried the experiment of starting off the history sessions, and leaving it to Ed Sandifer to pick up the pieces after I had left the students in disarray. It's easier to give a sense of mathematicians over the past few hundred years as colleagues to youngsters than it is to do the same with even the Greeks. As a result, I felt that I had more of an obligation to say something about cultural history than I had done before. Perhaps the result was my not covering quite so much of the mathematics that was done as in previous years, but I hope the students started to think about why Euclid put his distinctive textbook together. John Conway sat through my lectures this summer, and once again I was the beneficiary of comments on history as well as mathematics.

Figure 2: Tom and his Piano.

I have talked about history of mathematics at an International Congress for the History of Science and at an ICM. One would not necessarily expect as much interaction with the audience at such a gathering as in a classroom. I think, however, that I can say that I have learned rather more in the setting of MathPath than at international congresses, and I owe thanks to the students, colleagues and administrators who made the experience possible.

Tom Drucker

III: I was given the privilege of teaching the history of mathematics for the first two weeks of MathPath in 2004, and it will always be one of the most rewarding experiences of my life. I feel that the others have

already done an outstanding job of relating the MathPath experience, and so I will limit myself to a single anecdote.

At the end of my first real presentation, which was a summary of the history of numerals and number systems, I closed by mentioning the name of a book where the students could look for more information on the topic. In a college class, students would have rolled their eyes at the notion of reading additional material that wasn't required for a grade. At MathPath, I hoped that some of the students would at least write down the title and perhaps look for it in their local libraries when the camp was over. Instead, three days later, I saw a student reading the book in the cafeteria during lunch. She had spoken to her parents the evening after my lecture, mentioned to them that she wanted the book and they had ordered it and had it shipped directly to the camp. It was a joy to work with students with such an incredible thirst for learning.

Michael Molinsky

IV: I've seen the future of mathematics, and it will be in good hands. Some of those hands can't drive yet, because they belong to 71 middle school kids who spent four weeks last summer at MathPath, a mathematics summer camp for really talented kids, mostly ages 12 to 14, mostly from the United States and Canada, but some from Europe and Asia as well. Most of them placed very high in, or even won, their state and regional problem solving competitions like MathCounts or the American Mathematics Contest; one of the goals of MathPath is to help them place even higher.

One episode demonstrates the talent of these kids. Adam was one of the smallest and skinniest kids there, though not the youngest. (The youngest was 10). One of the instructors, Kip Sumner, was leading Adam through the proof that the 4-3 Ramsey number, denoted R(4,3) is 9. In case you forgot, this is a topic from graph theory. If K(r) is a complete graph on r vertices, and if each edge is colored either red or blue, then R(m,n) is the smallest value of r such that a colored complete graph K(r) is guaranteed to contain either a complete K(m) with all red edges or a complete K(n) with all blue edges. (Ramsey's brother was the Archbishop of Canterbury, one of several examples of mathematicians with famous relatives.) Kip had proved a theorem that guaranteed that R(4,3) was either 9 or 10, and Adam understood the theorem, so he began correctly with "Well, it's either 9 or 10." Kip gave the hint "What if there's a vertex connected to exactly two red edges?" and Adam was off and running. After that, all Kip did was keep track of what cases Adam had examined, and, when it was time for the punch line, ask "What's that tell you?"

I don't know about you, but when I learned this, it took me most of an hour to understand it, and I thought it was one of the most amazing things ever. Adam pretty much discovered it himself. And the rest of the kids, except for being bigger and mostly older, were just like Adam: smart, enthusiastic, friendly.

I got to participate in a similar program in the 1960s. When I was 16, the National Science Foundation helped me learn Fortran at the University of Pennsylvania. They devoted one of the first classes to "behavior." We were supposedly scary-smart and capable of great high-tech mischief that would have frightened "normal" people. MathPath campers weren't like that (and we probably weren't either). They are normal, happy, well-behaved middle school students who are really good at math. Of course, some of them are a little shy, one or two are slobs of legendary magnitude (only one or two?), and most groups of 71 middle school kids don't include 60 who can clobber me at chess.

George Thomas, the founder and director of MathPath, believes that people who do mathematics should know its history, so every day since the very beginning, history of mathematics has been part of the MathPath program. I got to give ten days of hour-long talks on Euler and his mathematics. The kids loved it. Of course, these kids love anything about mathematics.

Like I said, the future of mathematics will be in good hands, and those hands will value and respect the history of mathematics. The future of history looks bright, too.

Ed Sandifer

IHMT 10-Year Anniversary

Summer 2006 was the tenth anniversary of the first of three graduating classes from the Institute in the History of Mathematics and Its Use in Teaching (IHMT), offered by the MAA. Held at American University (1995-97) and Catholic University of America (1998-99) in Washington, D.C., IHMT included three classes of about 40 college and university faculty members each, the first during the summers of 1995 and 1996, the second during 1996-97, and the third in 1998-99. Institute directors were Victor Katz, of the University of the District of Columbia; Steven Schot, of American University; and Fred Rickey, then of Bowling Green State University, Ohio, and now of the United States Military Academy, West Point, New York. Florence Fasanelli served as MAA liaison and was instrumental in obtaining the National Science Foundation grants that funded IHMT.

The goal of IHMT was to increase the presence of history in the undergraduate mathematics curriculum by preparing participants to teach undergraduate courses in the history of mathematics and to incorporate historical issues in all of their teaching. Although participants ranged from neophytes (like myself) to experts (Kim Plofker was in the first class), the typical IHMT participant was a college or university mathematics or mathematics education professor who had been teaching an undergraduate mathematics history course, but whose knowledge of mathematics history came mainly from secondary sources. IHMT exposed us to new research in mathematics history; introduced us to original sources; got us started on using mathematics history in all of our courses; and inspired many of us to do our own original research in mathematics history.

Indeed, beyond incorporating mathematics history into our own classrooms and creating teaching and performance opportunities for our students, IHMT participants have exerted a significant impact on the history of mathematics as a discipline. These activities have included numerous examples of cross-fertilization with CSHPM, as is probably clear from the names that have already been mentioned in this article. We can mention a few other connections here, although space constraints will result in the omission of numerous other activities and names. For example, Tom Archibald, Marcia Ascher, Ubi D'Ambrosio, and Judy Grabiner were among the invited speakers at IHMT and the MAA follow-up, Historical Modules Project.

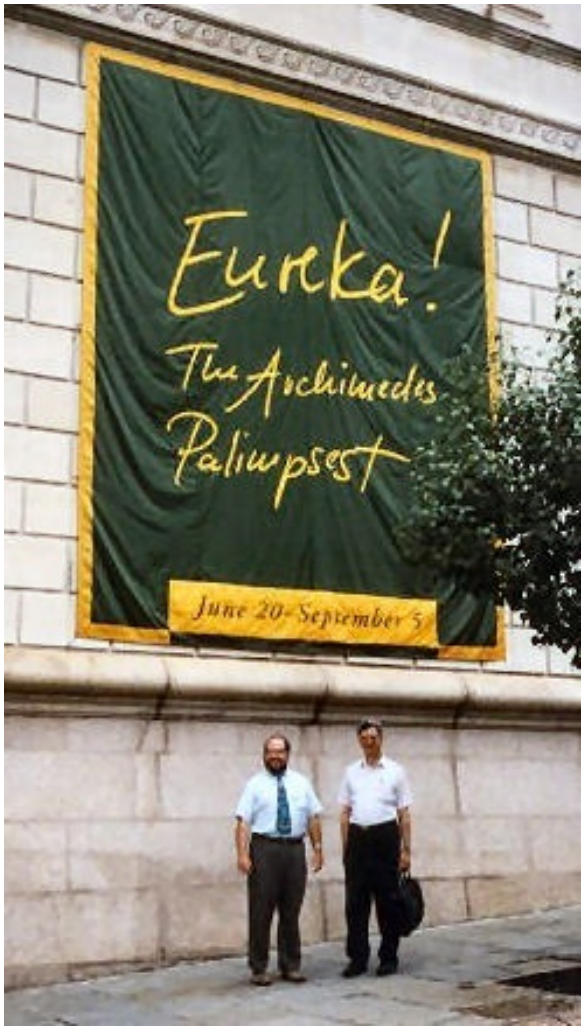


Figure 3: Fred and Victor on a field trip

Among graduates, Ed Sandifer, Dan Curtin, and Danny Otero have organized primary source reading groups. Rob Bradley and Patricia Allaire started the Frederick V. Pohle Memorial Colloquium Series in the History of Mathematics at Adelphi University. Pat and Antonella Cupillari have also published on Artemas Martin in The College Mathematics Journal and elsewhere. Bob Stein is currently serving as president of the HPM Americas Section. Amy Shell-Gellasch, with Dick Jardine, co-edited *From Calculus to Computers: Using the Last 200 Years of Mathematics History in the Classroom* for the MAA Notes series. Herb Kasube will be taking Bradley University

history of mathematics students to England in summer 2007. JoAnne Peeples guided a team of El Paso College students through the writing and production of "Count Her In!," a play about historical and modern women in mathematics. Fernando Gouvea, with William Berlinghoff, wrote the MAA textbook *Math Through the Ages: A Gentle History for Teachers and Others*. Janet Beery helped design an activity-based mathematics history course for non-science majors at the University of Redlands.

For further information on the IHMT's achievements, please see: Janet Beery, "IHMT: Ten Years After," *HPM Newsletter* No. 62 (July 2006): 17-20.[4] For information and photos, see also pages 4-5 of the debut newsletter of the History of Mathematics Special Interest Group of the MAA (HOMSIGMAA).[5]

Janet Beery

Urania Goes to School

Mathematical astronomy serves as a major enrichment in my high school mathematics programme. I use it to demonstrate the development of mathematical astronomy as a driving force for the development of pure mathematics, to open students' minds to the wide range of astronomical phenomena and their deep and subtle mathematical dependence, to introduce students to the rich lore of astronomy over a wide range of cultures, to share my passion for observational astronomy, and to revolt against curriculum narrowing.

Mathematical astronomy matches standard instructional topics incredibly well. For example, when covering Proportionality with Grade 7, we consider planetary oblateness, which is usually expressed as a fraction: Obl = (1 - Polar diameter/Equatorial diameter). Astronomical applications may be introduced in Scientific Notation and in Trigonometry.

In Grade 11, students learn Transformation of Coordinates. Modern astronomical positional observations are measured in a spherical co-ordinate system: r =(Radial Distance, Right Ascension, Declination)= (r, α, δ). These coordinates can be very productively transformed to three-dimensional rectilinear coordinates by the transformation equations:

$$\begin{aligned} x &= r\cos\delta\cos\alpha \\ y &= r\cos\delta\sin\alpha \\ z &= r\sin\delta \end{aligned}$$

with: $r = \sqrt{x^2+y^2+z^2}$ or vectorially: $r = (r, \alpha, \delta) = r(\cos\delta\cos\alpha, \cos\delta\sin\alpha, \sin\delta) = (x, y, z)$.

A sample classroom problem would be: The epoch 2000.0 celestial coordinates for Arcturus (Alpha Boötis) - the brightest star in the Canadian spring evening skies - are 37 ly, 14h 16.0m, + 19^o 09'. What are its rectilinear coordinates?

We also study the Conics in Grade 11. Kepler told us 400 years ago that planets travel in elliptical orbits around the Sun. We also know of comets that follow parabolic or hyperbolic orbits. (Of course, this is to ignore Newtonian perturbations by other bodies in orbit.) Students were asked to find the rectilinear geocentric positions for Mars and the Sun on a given date. The whole class then pooled their results to plot the geocentric Martian orbit. They discovered this was definitely not a simple ellipse! This would be especially so in the alternate years with opposition and the retrograde loop.

Luckily, a simple vector subtraction gives the heliocentric position:

$$h_{Mars} = r_{Mars} - r_{Sun}$$

while

$$(x_h, y_h, z_h) = (x_{Mars} - x_{Sun}, y_{Mars} - y_{Sun}, z_{Mars} - z_{Sun})$$

Plotting the transformed data over a sufficiently long period (at least one year) yields the expected ellipse.

To introduce observational astronomy, we use the Beginner's Observing Guide with its slow and steady approach organised around observing seasons. Students soon become adept in using a planisphere (which is an analogue computer, after all) on their own.

I have also been acquiring copies of the Royal Astronomical Society of Canada's Observer's Handbook. Using these, students get used to a real science book that moreover is Canadian. As a long-term member

[4] See also http://www.clab.edc.uoc.gr/hpm/
[5] See http://www.maa.org/HOMSIGMAA/

of the Society, I can share my acquaintance with the editor and one-third of the fifty contributors with my students. This helps them realise that science and math are created by real, regular people and that they, too, could contribute.

David Orenstein

Quotations in Context

> "I have hardly ever known a mathematician who was capable of reasoning."
> —Plato

In 1871, Benjamin Jowett, the master of Balliol College, Oxford, published a new English edition of the collected dialogues of Plato. The seventh book of Jowett's translation of the Republic is the source of the quotation above. Taken alone, the quotation certainly appears to claim that mathematicians are incapable of any kind of reasoning. Paul Shorey, a Greek scholar at the University of Chicago, referred to this line as "Jowett's wicked jest." When the quotation is placed within the context of Plato's arguments in the sixth and seventh books of the Republic, it is clear that Plato's intended meaning is very different.

In the sixth book, it is argued that the world can be divided into the visible and the intellectual. Socrates tells Glaucon that the intellectual world can be broken further into two categories:

There are two subdivisions, in the lower of which the soul uses the figures given by the former division as images, the enquiry can only be hypothetical, and instead of going upwards to a principle descends to the other end; in the higher of the two, the soul passes out of hypotheses, and goes up to a principle which is above hypotheses, making no use of images as in the former case, but proceeding only in and through the ideas themselves.

The "lower" subdivision of the intellectual world uses hypotheses to engage in deductive reasoning. This subdivision is specifically identified with arithmetic, geometry and other mathematical sciences, which make use of the visible world as models for understanding the invisible world of thoughts and ideas. This is separated from the dialectic, the sphere of the intellect that uses tools such as dialogue to delve into the realm of ideas without making any use of the world of the visible.

The seventh book of the Republic explores the best way to train minds to understand the visible and the intellectual. For the subdivision of the intellectual that is concerned with deductive reasoning, the appropriate training is rigorous preparation in arithmetic, plane and solid geometry, astronomy and harmonics. But Socrates suggests that this training is not enough to fully prepare a student, and the quotation that is the topic of this column appears in Glaucon's reply:

> Do you not know that all this is but the prelude to the actual strain which we have to learn? For you surely would not regard the skilled mathematician as a dialectician?
>
> Assuredly not, he said; I have hardly ever known a mathematician who was capable of reasoning.

Glaucon's statement, in the context of the surrounding material, clearly was not intended to mean that mathematicians are incapable of all kinds of reasoning; instead, the implication was that expertise in deductive reasoning does not necessarily translate into mastery of the reasoning identified as dialectic.

Later translators seem to have avoided Jowett's witty but potentially misleading phrasing. For example, in Shorey's translation of the Republic (first published in two volumes in 1930 and 1935), Glaucon's reply was given as: "No, by Zeus," he said, "except a very few whom I have met."

Bibliography:

- Plato. *The Republic.*, Trans. Benjamin Jowett. New York: P. F. Collier & Son, 1901.
- Plato. *The Republic.*, Trans. Paul Shorey. Loeb Classical Library, 1930-1935.[6]

Mike Molinsky

[6] Also available electronically at the Perseus site (http://www.perseus.tufts.edu).

Book Review

Saunders Mac Lane: *A Mathematical Autobiography.* (Wellesley, Massachusetts: A.K. Peters, Ltd., 2005.)

An autobiography written by a mathematician at the end of his career can offer a variety of data to a historian. There are the biographical details generally omitted by the standard reference works. There is the account of how the mathematical ideas for which the writer is famous came together in his mind. There are the aper cus on the mathematical institutions and the colleagues with which the individual was concerned. Not likely to be included in the list is any definitive assessment of a life's work, since the mathematician is bound to lack a certain sort of perspective. As a result, autobiography can be a useful mine but will seldom be analytical history.

Saunders Mac Lane's autobiography, published shortly before his death last year, has many of the characteristic features of the genre. By the time it was put together, Mac Lane's health was already failing and the editorial credit for the completed work is assigned to Dr. Janet Beissinger. As a result, it is sometimes difficult to know at whose door to lay the responsibility for errors of which one suspects Mac Lane himself would not have been guilty (regularly misspelling J. Barkley Rosser's middle name, for example). On the other hand, it is unfair to assess this kind of work by the standards of historical scholarship, or one might never find autobiographies emerging from the press.

Mac Lane (and he explains how the spelling of his last name evolved into two words) was a mathematician, a teacher, and a contributor to mathematical policy. Various parts of his book (which is divided into fifteen parts and 64 chapters) look at the aspects of his career. It is hard to say whether the audience Mac Lane had in mind was a general one or a specifically mathematical one, as the level of exposition is not quite uniform. His treatment of exact sequences and the applications of algebra to topology would be challenging to a novice. As Colin McLarty observes in his account of Mac Lane's life and works, some of the material in the autobiography is harder going than Mac Lane's textbook Mathematics: Form and Function (Philosophia Mathematica 13 (2005), p. 237).

Mac Lane's account of his career paints a picture of the American mathematical community for a large part of the twentieth century. His description of his undergraduate education at Yale can read like an indictment of its parochialism, but Yale would have had plenty of company in such an attitude and the preparation was sufficient to start Mac Lane on his academic pilgrimage that encompasssed Göttingen, Harvard, and the University of Chicago. The reminiscences of Germany in the 1930s are a reminder that the collapse of the Weimar Republic did not come without warning and left the mathematical community at Göttingen in ruins. He refers to Witt's Nazi-influenced behaviour, but does not bring up the same features with regard to Teichmüller, despite discussing the latter's mathematical work.

One feature of American mathematical life to which Mac Lane draws attention is the extent to which logic was conceived as not centrally part of the discipline of mathematics. As a result, Mac Lane himself did not proceed along the lines of his thesis (which had to do with simplifications in *Principia Mathematica*) but turned to algebra instead. It is hard to know how different the mathematical landscape would have been if Mac Lane and Eilenberg had not gotten together to launch the enterprise unsympathetically characterized as 'abstract nonsense'. Even though he turned away from the explicit pursuit of logic, Mac Lane's influence has turned out to be substantial through his work on categories and topoi.

Mac Lane prides himself on the breadth of his mathematical studies, of which the applied mathematics in which he was involved during World War II was only a part. He looks back on periods in his life where his dream was a kind of encyclopedic knowledge, and his willingness to supervise dissertations in a variety of areas indicates that he never quite gave up on that dream. When he was responsible for reviewing proposals for funding, he was disinclined to trust to second-hand judgments and made an effort to learn the relevant material himself.

One area in which Mac Lane admits to failure was administration, especially in his role as chair of the department at Chicago following Marshall Stone. His picture of the environment at Chicago in the 'Stone Age' offers a view of what constituted important mathematics in the USA during the 1950s. He also describes the care with which Stone put the depart-

ment together. By contrast, during his own time as chair, Mac Lane did not make a single tenured appointment and lost some of the figures who had made Chicago so distinctive. This era is perhaps not a chronicle of Mac Lane's failure but a reminder of the difficulties of departmental politics when 'leading' figures in a discipline are involved.

Readers might be especially interested in what Mac Lane has to say about the history and philosophy of mathematics. 'The history of mathematics offers considerable and often neglected prospects.' So Mac Lane writes on page 315 amid his description of the various graduate students he advised, including Ronald Calinger (whose co-adviser was Alan Debus). The historical work on Mac Lane's own part to which he refers involved the algebra of the school of Emmy Noether, of which he and Garrett Birkhoff were among the first expositors in a textbook in English.

With regard to philosophy, Mac Lane aligns himself squarely with those who want mathematicians to be the arbiters of mathematical philosophy. He displays a distaste for those whose philosophical speculations are based on elementary mathematics. Despite his criticism of Wittgenstein, he agrees with him on the protean nature of the discipline. He also argues that philosophy of mathematics is not taken seriously by mathematicians, while he does not make a similar complaint about the history of mathematics. This is perhaps related to the prevalence of historical work within mathematical departments, while philosophy of mathematics is carried on more within philosophy departments.

Mac Lane regrets the extent to which mathematical specialization has stalled progress within specific areas of mathematics. He refers to a Berkeley conference in 1993 that was intended to bring universal algebraists and category theorists together for fruitful collaboration, and to his discouragement over the shortage of subsequent interaction. My recollection is that speakers in both areas gave polished talks as though to demonstrate why it was worth following their particular approach. Neither side could claim victory, and so each discipline went its own way. Perhaps the mathematical legacy of which Mac Lane was most proud was the extent to which category theory could offer unifying insights to many disciplines, even if there is a danger of its being treated as yet another area for specialization.

Tom Drucker

Web Review: Google Book Search

In December of 2004, Google announced a partnership with the New York Public Library and libraries from Oxford, Harvard, Stanford and the University of Michigan. The goal of this partnership was to scan an estimated 15 million volumes in their combined collections over the course of ten years. The digitized collections would allow for increased access and easy electronic searches of this vast amount of material. The following year, Google began to solicit publishers around the world to submit their works to be scanned and included in the searchable database. In 2006, the University of California also joined the partnership.

These projects have not been without controversy. Although some libraries, such as the New York City Public Library, are only allowing public domain works to be scanned, others are scanning all of their volumes, regardless of copyright ownership. Google claims that their use of copyrighted material falls into the "fair use" category. The company argues that, even though the entire works are open to search, only "snippets" of a few lines of actual text are displayed to users as search results if the document is still protected by copyright. Despite these restrictions on access, several lawsuits accusing Google of copyright infringement are still pending.

In August 2006, Google began to allow users to download entire works that were in the public domain in PDF format. The files contain a "Digitized by Google" watermark in the lower right-hand corner of each page, but the mark does not obscure the text in any of files that I examined. The quality of the page scans varies widely even within the same document, with some pages being crystal clear and other pages shadowed, dark, or even completely black. The page is occasionally slanted or photographed while still in the process of being turned. In a few cases, thumbs, fingers or even entire hands are visible in the scan, holding a page down or turning the page. Despite these problems, the text of each page was al-

most always still legible. If the volume has an index or a table of contents, those pages will usually contain hyperlinks allowing you to more easily navigate the document.

The following are a few examples of available files that relate to the history or philosophy of mathematics:

- *A Mathematical Dictionary*, by Joseph Raphson and Jacques Ozanam, 1702
- *The Doctrine of Chances*, by Abraham de Moivre, 1718
- *Select Parts of Professor Saunderson's Elements of Algebra*, by Nicholas Saunderson, 1761
- *A Royal Road to Geometry*, by Thomas Malton, 1774
- *The Mechanical Euclid*, by William Whewell, 1837
- *The Philosophy of Mathematics*, by Auguste Comte and William Mitchell Gillespie, 1851
- *The Logic of Chance*, by John Venn, 1876
- *A History of the Study of Mathematics at Cambridge*, by W. W. Rouse Ball, 1889
- *A History of Mathematics*, by Florian Cajori, 1894
- *The Collected Mathematical Papers of Arthur Cayley*, by Arthur Cayley and Frederick Howard Collins, 1897

In some cases, works that are not available for download can still be viewed in their entirety on the Google website, if the copyright holders have given their permission. For example, the third volume of *Ancient Egyptian Science: A Source Book* by Marshall Clagett, which deals with Egyptian mathematics, can be viewed one page at a time.

Mike Molinsky

HOM at CMS

Tom Archibald (Simon Fraser University) organized a special session in History of Mathematics for the CMS Winter Meeting, hosted by the University of Toronto on December 9-11, 2006. Scheduled speakers included:

Len Berggren (SFU), Rob Bradley (Alelphi), Craig Fraser (Toronto), Deborah Kent (SFU), Shawnee McMurran (US Military Academy), Duncan Melville (St. Lawrence), Frederick Rickey (US Military Academy), Dirk Schlimm (McGill), and Nathan Sidoli (SFU).

Tom also organized a special session on Recent Work in History of Mathematics for the CMS Summer Meeting, hosted by the University of Calgary on June 3-5, 2006. The speakers in his session (in alphabetical order) and the titles of their talks were as follows: Tom Archibald (SFU), "Picard and Integral Equations"; Marcus Barnes (SFU), "John Charles Fields as Student, Researcher, and Scientific Organizer"; June Barrow-Green (Open University, Milton Keynes, UK), "Mathematics and Pacifism in Cambridge 1915-1916: A Student Perspective"; Branko Grünbaum (Washington), "Polygons: Meister was Right and Poinsot was Wrong but Prevailed"; William W. Hackborn (Augustana Faculty Camrose, Alberta),"Mathematical Ballistics up to World War I"; Deborah Kent (SFU),"Fractions, Plants, and Planets: Extending the 19th-Century Law of Phylotaxis"; Reinhard Siegmund-Schultze (Harvard; Agder University College, Norway), "German Refugee-Mathematicians in Canada"; Laura Turner (SFU), "The Origins of the Mittag-Leffler Theorem".

AGM of CSHPM/SCHPM

The Annual General Meeting of the Canadian Society for History and Philosophy of Mathematics took place at York University, Toronto, ON, on May 29. The meeting, with approximately 40 members in attendance, was called to order at 12:30 pm by Rob Bradley, President.

Agenda for the General Meeting:

- Approval of minutes of 2005 AGM
- Treasurer's report
- Secretary's report
- Election results
- President's report
- Webmaster's report
- Proceedings Editors' report
- Bulletin Editor's report
- 2007 meeting
- 2008 meeting

- Old business
- New business

1. **Motion:** To approve the minutes of the June 2005 Annual General Meeting as printed in the November 2005 Bulletin. Carried unanimously.

2. The Treasurer, David Bellhouse, was unable to attend, but sent an official report for 2005. This report was summarized in the May 2006 Bulletin.

   Comments:

   - The Society is in excellent financial shape. We show a net gain of approximately $3200 since the last report.
   - The apparent loss in the $US side is due to the fact that all subscriptions to Philosophia and Historia are paid for in $US.

   Motion: To receive the Treasurer's report as distributed. Carried unanimously.

3. The Secretary, Pat Allaire, reported that, as of May 26, 185 members have enrolled for 2006. Included are 4 Student Associates, 44 reciprocal members from BSHM, zero from CSHPS. Forty-five members requested reciprocal membership in BSHM, 20 in CSHPS. Four members paid the "developing nations" rate. Eighty-three members ordered *Historia*, and 36 ordered *Philosophia*. Eighty-three copies of the *Proceedings* were distributed. Twenty-three people made donations for a total of $436. Some retirees and students prefer to pay for their complimentary issue of the *Proceedings*. These funds have been treated as donations.

   - Pat noted that members who do not have $US or $Can checking accounts find it expensive to purchase money orders to pay dues. She solicited ideas for facilitating payment by these members. Suggestions included using PayPal and asking if BSHM could process payments for us. Byron Wall said that he is able to accept credit card payments and would be willing to process payments from members outside North America who have no other alternative.
   - There has been no contact from CSHPS about reciprocal members in 2 years. Pat has been sending the names of our members requesting reciprocal membership, but has received neither responses nor a list of their members requesting membership during this time. Further, our treasurer not been able to exchange funds with them during the same period. The concern is that CSHPM members requesting reciprocal receive the service for which they have paid. During this conference, we will try to speak with an officer of CSHPS to clarify our relationship.
   - Pat reminded conference speakers that they must be members of CSHPM to publish in the Proceedings and/or to apply for partial travel reimbursement.

4. Pat Allaire announced the results of the 2006 Council election. Twenty-two ballots were received (10 electronic and 12 paper). Elected were:

President:	Alexander Jones
Vice-President:	Duncan Melville
Secretary:	Patricia Allaire
Treasurer:	Nathan Sidoli
Council Members:	Francine Abeles
	Jean-Pierre Marquis
	Adrian Rice
	Sylvia Svitak

5. The President, Rob Bradley, thanked:

   - Len Berggren, who is finishing his term as Past President, for his many years of service to the Society.
   - Amy Ackerberg-Hastings and Roger Godard who are leaving the Council.
   - Webmaster Mike Molinsky for working out the invisible transition between servers.
   - Secretary Pat Allaire.
   - Session organizers Chris Baltus and Sylvia Svitak.
   - Local arrangements chairs Byron Wall and Trueman MacHenry.

6. The Webmaster, Mike Molinsky, announced that he will add to the website an easy-to-navigate calendar of history and philosophy of mathematics events.

   Comments:

   - In view of the French name of the Society, Ed Sandifer asked if the domain name

www.schpm.org was available. Rob will check and will purchase if it is available.

- Pat asked members to verify their email addresses and URLs as listed on the web site.

7. Proceedings editor, Antonella Cupillari, thanked those who contributed to the 2005 issue.

   The deadline for contributions to the 2006 Proceedings will be Sept. 30. Because of computer issues at her university, Antonella asks that contributions be submitted in Word. Directions are on the web page, www.cshpm.org.

   As per our discussion last year, it is desirable that Proceedings articles contain abstracts in both English and French, to reflect the bilingual nature of the Society. Only some of the articles in the 2005 Proceedings had bilingual abstracts. For 2006, all contributors are asked to include abstracts in both languages. Tom Drucker knows of someone who will proofread as well as upgrade translations for those who cannot write French with native-speaker fluency, until we are able to find a member of the Society to assume that responsibility.

8. Bulletin co-editor, Amy Ackerberg-Hastings, thanked contributors to the Bulletin. Please send photos, announcements, articles, etc., to her.

   Timely production of the Bulletin is necessary for dues collection, society elections, and timely dissemination of information for our meetings, the AMS/MAA joint winter meetings, CMS meetings, etc. Therefore, Amy should receive material by Oct. 1 for the November issue and by April 1 for the May issue

   For the present, we will continue to publish the Bulletin in paper, as the only tangible benefit of membership.

   The production of the Bulletin involves 3 steps: (1) collecting and editing of material, (2) mark-up for formatting, and (3) printing, and collating and mailing. The first step has been handled by Amy, the second and third by Eisso Atzema. Collating and mailing is a problem because of limited clerical help available at Eisso's institution. Therefore, it is suggested that the 3 steps be separated; Rob and Pat volunteered to handle the printing, collating, and mailing.

9. The President reported that we plan to meet jointly with BSHM, in Canada, in 2007.

   Because of the British academic calendar, the meeting must be scheduled for July. Also to be considered is the timing of Canadian and US holidays, the Prague conference, Mathematician Fest and Euler events. We would like to avoid overlap and, if possible, allow for easy movement from one conference to another.

   BSHM suggested meeting in Montreal or Halifax. CSHPM met recently in Halifax, and flying there from the UK is more expensive than to Montreal. Therefore, we chose Montreal for the meeting.

   Rob researched the possible venues in Montreal and found Concordia College to be the most desirable. Housing is available at the suburban campus. We must decide whether to hold the sessions at the downtown campus or at the suburban campus. Rob suggests holding the meetings at the downtown campus: many hotels are nearby, shuttle bus service is available from the suburban campus, and participants would be easily able to avail themselves of the attractions of Montreal.

   Rob suggested "The Life and Mathematics of Leonhard Euler" as the Special Session topic.

   Ed Sandifer suggested that a financial incentive might help to maximize British participation. He suggested a $50-$100 cash rebate to BSHM members participating.

   Comments, questions, and other suggestions:

   - An accommodations rebate.
   - Reduced registration fee.
   - How would any incentive be applied to reciprocal members?
   - Is an incentive necessary?
   - Target students and members in need for incentives.
   - Is this an unwise precedent?
   - Increase attendance by inviting speakers individually.
   - Francine Abeles noted that 2007 is Dodgson's 175th anniversary. Robin Wilson, Singmaster, Tony Crilly, and Ivor Grattan-Guinness of BSHM all have recent publications on him. We could have a mini-session on Dodgson which might be of particular interest to BSHM.

Motion: Tom Archibald moved to authorize the Executive Committee to spend up to $2000 to promote international participation at the 2007 meeting. Carried unanimously.

Motion: Rob Bradley moved that we hold the 2007 meeting at Concordia in Montreal. Carried unanimously.

The arrangements will be handled by Rob Bradley, Tom Drucker, and Jean-Pierre Marquis, with Craig Fraser as an advisor.

10. **Motion:** Rob moved that in 2008 we meet with the Humanities and Social Sciences Federation of Canada (the Learneds) in Vancouver, BC.

    There was discussion as to whether we should meet with CMS, instead. In response, it was noted that our aim is to meet jointly with CMS on the average of every three years. Therefore, meeting with the HSFFC will not be in conflict with that goal. What is important is that we join CMS regularly, but not on a fixed rotation. CMS mainly desires that our members will organize history and philosophy of mathematics sessions on a regular basis at CMS meetings.

    Question called: The motion was passed, 25 yea, 1 nay.

11. **Old Business:** In 2005, Tom Archibald, David Bellhouse, Alexander Jones, and Robert Thomas formed a subcommittee to look at the future of the Proceedings. Tom requested that the matter be tabled until 2007. Present policies will be continued until then.

12. **Other Business:** Tom Drucker announced that Peirce Publishing of Fort Dodge, IA, is offering a 20% discount on its publications to CSHPM members. Information will be posted on the web. Such posting does not constitute an endorsement by the society.

    Glen Van Brummelen is participating in the founding of Quest University, which will admit its first class in 2007.

    Fred Rickey announced new publication outlets:

    - *Convergence, an electronic journal in the history of mathematics*, edited by Victor Katz and Frank Swetz. (See the November 2005 Bulletin.)
    - *International Journal of the History of Mathematics Teaching*, edited at Columbia University. This journal publishes scholarly papers focused on teaching of mathematics at the high school and (especially) the college level.

    Ed Sandifer is the history of mathematics editor of the *International Journal of Mathematics and Computer Science*.

    Representatives of Federation Canada arrived to discuss their programs of Aid to Scholarly Publication and Open Access (to scholarly work). They discussed funding of inter-society meetings at future Congresses.

The meeting was adjourned at 1:45 pm.

Patricia Allaire, Secretary

Joint AMS/MAA Meeting

Once again, a full slate of events in history and philosophy of mathematics have been planned for the Joint Mathematics Meetings, to be held in New Orleans, January 3-8, 2007. More information can be found on the MAA or AMS websites: http://www.maa.org or http://www.ams.org:

- Wednesday, 3 January, 9:00-16:45, and Thursday, 4 January, 9:00-17:00: MAA Short Course on "Leonhard Euler: Looking Back after 300 Years," organized by Ed Sandifer and Rob Bradley. Abstracts and program of the lectures can be found at http://www.profbradley.com/MAAEulerCourse2007. (NOTE: You must preregister for this course.)
- Friday, 5 January, 8:00-10:55: MAA Session on "Euler in the Classroom," organized by Rob Bradley and Amy Shell-Gellasch.
- Friday, 5 January, 14:15-16:15, and Saturday, 6 January, 13:00-15:00: MAA Minicourse #13, "Teaching a Course in the History of Mathematics," organized by Victor J. Katz and V. Frederick Rickey. (NOTE: You must preregister for this course.)

- Friday, 5 January, 15:50-17:40: HOM SIGMAA Panel Discussion on "The Practice of Math History," organized by William Branson and Amy Shell-Gellasch.
- Friday, 5 January, 18:00-19:00: HOM SIGMAA Annual Meeting and Guest Lecture by Robin Wilson, "Hardy's Oxford Years."
- Saturday, 6 January, 8:00-11:55 and 13:00-15:45: MAA Session on "Philosophy of Mathematics," organized by Bonnie Gold and Charles R. Hampton.
- Saturday, 6 January, 8:30-9:50: MAA Panel Discussion on "Euler's Continuing Influence," organized by Ed Sandifer.
- Saturday, 6 January, 10:05-10:55: MAA Invited Address by Jan van Mannen, "The Bernoulli Brothers in the Arena of the Early Calculus."
- Saturday, 6 January, 17:45-18:30: HOM SIGMAA Special Guest Lecture by Edward Sandifer, "Euler and His Word Problems."
- Saturday, 6 January, 17:45-19:15: POM SIGMAA Annual Meeting and Guest Lecture by Klaus Peters, "Does a Proof Exist If Nobody Has Read It?"
- Saturday, 6 January, 18:30-???: Institute in the History of Mathematics and Its Use in Teaching Reunion (RSVP to Herb Kasube (hkasube@bumail.bradley.edu))
- Sunday, 7 January, 8:00-10:55 and 13:00-17:55, and Monday, 8 January, 8:00-10:55 and 13:00-17:55: AMS-MAA Special Session on History of Mathematics, organized by Joseph W. Dauben, Patti Hunter, Victor J. Katz, and Karen H. Parshall.
- Sunday, 7 January, 13:00-13:50: MAA Student Lecture by Della D. Fenster, "Mathematics: A Question of History."
- Sunday, 7 January, 13:00-15:00, and Monday, 8 January, 13:00-15:00: MAA Minicourse #15, "Geometry With History for Teaching Teachers," organized by David W. Henderson and Daina Taimina. (NOTE: You must preregister for this course.)

Exec. Council CSHPM/SCHPM

The meeting of the Executive Council of the Society took place at York University, Toronto, ON, on May 28. The following members were present: Francine Abeles, Amy Ackerberg-Hastings, Patricia Allaire, Rob Bradley, Antonella Cupillari, Thomas Drucker, Mike Molinsky, and Sylvia Svitak. Rob Bradley, President, called the meeting to order at 6:30 pm.

Secretary's Report: Patricia Allaire reported that there are 185 members as of May 26. Broken down by payment method, 41 pay in $Can, 95 pay in $US, 44 are reciprocal members from BSHM, 5 are complimentary members, and zero are reciprocal members from CSHPS. Forty-five members requested reciprocal membership in BSHM, 20 in CSHPS. Broken down by status, 141 members are active, 30 are retirees, 6 are students, 4 requested the "developing nations" rate, and 4 are student associates. Eighty-three members ordered Historia; 36 ordered Philosophia. Fifty-four members paid for the Proceedings, in addition to 28 copies distributed on a complimentary basis to student and retired members and 1 copy provided to the Federation. Twenty-three people made donations for a total of $436.

Pat noted that "payment method" is a rough approximation of nationality. However, members from outside the US and Canada, usually pay in $US. She also noted that some of the donations result from retirees and students preferring to pay for their complimentary issue of the Proceedings. These funds have been treated as a donation.

There has been no contact from CSHPS about reciprocal members in 2 years. Pat has been sending the names of our members requesting CSHPS membership, but has received neither responses nor a list of their members requesting CSHPM membership during this time. Further, our treasurer has not been able to exchange funds with them during the same period. The concern is that CSHPM members receive the service for which they have paid. During this conference, we will try to speak with an officer of CSHPS to clarify our relationship.

Proceedings Editor's Report: Antonella Cupillari reported that the deadline for contributions to the 2006 Proceedings will be Sept. 30, 2006.

As per our discussion last year, it is desirable that Proceedings articles contain abstracts in both English and French, to reflect the bilingual nature of the So-

ciety. Only some of the articles in the 2005 Proceedings had bilingual abstracts. For 2006, all contributors are asked to include abstracts in both languages. Tom Drucker knows of someone who (until we enlist a member of the Society to help with this matter) will proofread as well as upgrade translations for those who cannot write French with native-speaker fluency.

In 2005, a subcommittee was formed to look at the future of the Proceedings. Since no member of that committee was present, the matter will be deferred to the general meeting.

Bulletin Editor's Report: Amy Ackerberg-Hastings reported that she has been receiving suggestions for articles, features, etc for the Bulletin.

Timely production of the Bulletin is necessary for dues collection, society elections, and timely dissemination of information for our meetings, the AMS/MAA joint winter meetings, CMS meetings, etc. Therefore, Amy should receive material by Oct. 1 for the November issue and by April 1 for the May issue

The production of the Bulletin involves 3 steps: (1) collecting and editing of material, (2) mark-up for formatting, and (3) printing, and collating and mailing. The first step has been handled by Amy, the second and third by Eisso Atzema. Collating and mailing is a problem because of limited clerical help available at Eissos institution. Therefore, it is suggested that the 3 steps be separated; Rob and Pat volunteered to handle the printing, collating, and mailing.

Webmaster's Report: Mike Molinsky announced that he will add to the website an easy-to-navigate calendar of history of mathematics events.

2007 Meeting: Rob Bradley reminded the council that in 2007, we plan to meet jointly with BSHM, in Canada. There are several points to consider: Because of the British academic calendar, the meeting must be scheduled for July. Also to be considered is the timing of other significant meetings. Montreal is the most desirable location for BSHM.

Rob researched the possible venues in Montreal and found Concordia College to be best. Housing is available at the suburban campus. We must decide whether to hold the sessions at the downtown campus or at the suburban campus. Rob suggests holding the meetings at the downtown campus: many hotels are nearby, shuttle bus service is available from the suburban campus, and participants will be easily able to avail themselves of the attractions of Montreal.

Rob suggested "The Life and Mathematics of Leonhard Euler" as the Special Session topic.

2008 Meeting: Rob noted that, most likely, we will be meeting with the Humanities and Social Sciences Federation of Canada (the Learneds) in Vancouver, BC.

Other Business: Tom Drucker asked if he could announce that Peirce Publishing of Fort Dodge, IA, is offering a 20% discount on its publications to CSHPM members. It was agreed that we could post the information on our web site with the caveat that such posting does not constitute an endorsement.

The agenda for the Annual General Meeting was planned.

The meeting was adjourned at 7:20 pm.

Patricia Allaire

New Members

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

Andreea Ceausu
Markham, ON
Canada

Jason Gary
San Clemente, CA
USA

Alexander F. Kleiner
Drake University
Des Moines, IA
USA

Pam Ogampo
Beaconsfield, PQ
Canada

Paolo Rocchi
Foligno
Italy

Nathan Sidoli
Vancouver, BC
Canada

Ruth Whitmore
Jefferson, WI
USA

From the Editor

We offer a mix of holiday reading, news, and CSHPM business in this edition of the Bulletin. Please pay special attention to the AGM Minutes, which report on our excellent meeting at York last May. Do not misplace the inserts, either. The 2007 Dues Letter and Membership Renewal Form gives you an opportunity to support the Society and continue to receive mailings without interruption.

You will also find a Call for Papers for our joint meeting with the British Society for the History of Mathematics, which will be held from Friday to Sunday, July 27-29, 2007, at Concordia University in Montreal. Ed Sandifer will be delivering next year's Kenneth O. May Lecture, on Euler. Pat Allaire is organizing the General Session, Rob Bradley is organizing the Special Session with the theme,"Leonhard Euler's Tercentenary," and BSHM will provide a plenary lecture and organize a second Special Session in honor of the late John Fauvel's 65th birthday.

It takes considerable effort and time to plan a meeting when we cannot work under the umbrella of the CFHSS Congress, so there are still some details to be worked out as I write this note in October. If registration information does not appear with this mailing, please monitor the Web site, http://www.cshpm.org, and your email for the meeting and accommodation essentials and fees. (To join the [cshpm] Yahoo! email list, please contact Mike Molinsky (michael.molinsky@maine.edu).)

We owe ongoing appreciation and thanks to Rob Bradley and the rest of the 2007 arrangements committee: Jean-Pierre Marquis (U. Montreal), Dirk Schlimm (McGill), Greg Lavers (Concordia), and Tom Drucker (Wisconsin-Whitewater). Thanks also to Eisso Atzema, who works behind the scenes to turn this Bulletin from a mess of word processing and image files to the attractive periodical you are thumbing through. To join the fun of being a Bulletin contributor, please send your articles; columns on "Quotations in Context," "How I Learned to Love the History of Mathematics," and the like; and personal and professional news to me by April 1, 2007. See you in Montreal!

Amy Ackerberg-Hastings

About the Bulletin

The *Bulletin* is published each May and November, and is co-edited by Amy Ackerberg-Hastings (aackerbe@verizon.net) and Eisso Atzema (atzema@math.umaine.edu). Material without a byline or other attribution has been written by the editors. Les pages sont chaleureusement ouvertes aux textes soumis en français. Comment and suggestions are welcome, and can be directed to either of the editors; submissions should be sent to Amy Ackerberg-Hastings and Eisso Atzema at the above e-mail address, or by snail mail to Amy Ackerberg-Hastings, 5908 Halsey Road, Rockville, MD 20851.