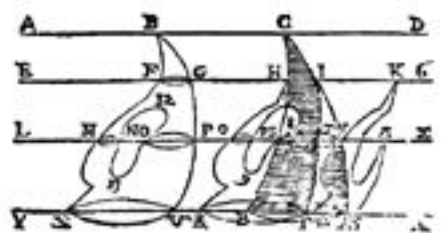


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SCHPM

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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: **Alexander Jones**, University of Toronto, Toronto, ON M5S 2E8, CA, alexander.jones@utoronto.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, 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

As I mentioned in my last report, although it was not officially a joint meeting with CSHPM, the Winter 2006 Meeting of the Canadian Mathematical Society, held at Toronto on December 9-11, featured a session on History and Philosophy of Mathematics for which our society was responsible. Tom Archibald again earned our thanks for organizing this session splendidly, lining up ten contributions ranging from the twentieth century all the way back to the third millennium BCE. (I am amused to realize that my own modest contribution on an ancient Greek topic turned out to be closer to the modern than to the ancient limit of the period covered!) It was good to see a healthy turnout of our own members as well as a sprinkling of mathematicians straying from the other sessions.

We are now looking ahead to our 2007 Annual Meeting at Concordia University (Montreal) on July 27-29. This will be a joint meeting with the British Society for the History of Mathematics. We began having joint meetings with the BSHM a decade ago, in 1997. The first one, at Oriel College, Oxford, was a "special" meeting for us, whereas the two we have had since then (in 1999 and 2004) served, like the upcoming one, as our Annual Meetings. The intervals between the joint meetings have been irregular, but so far we have been able to keep to an alternation between Canadian and British venues, giving members of each society in turn an opportunity to taste the remote and exotic pleasures of each other's home country. May this tradition long continue!

The program of the Montreal meeting will comprise four sessions: a general session, a special session to honour the three hundredth anniversary of Euler's birth, a special session to mark Charles Dodgson's one hundred seventy-fifth birthday, and a special session in memory of John Fauvel, whose sixtieth birthday would have been on July 21. These sessions are in the able hands respectively of Pat Allaire, Rob Bradley, Fran Abeles, and Raymond Flood. Ed Sandifer will deliver the May Lecture.

Though it is hard to imagine Euler receiving attention proportionate to the sheer magnitude and importance of his works, the historians among us are mak-

ing their best efforts. As I write, the AMS Eastern Section is holding its Spring meeting at Hoboken, NJ, with a generous special Euler session put together by our seemingly tireless Pat Allaire and Rob Bradley together with Lee J. Stemkoski. (It goes without saying that members of our society are very well represented on the program.) On May 31 and June 1, the University of Basel will celebrate their townsman with an international symposium, one highlight of which will be a public lecture by Craig Fraser. And on June 30, the Mathematical Institute of Oxford University will host an Euler day sponsored by the BSHM and the Open University.

Alexander Jones

Web Review: Images of Mathematicians on Postage Stamps

In the Spring 1999 issue of the *Bulletin*, Glen van Brummelen wrote a review of two websites created by Jeff Miller, a mathematics teacher at Gulf High School in Florida: “Earliest Uses of Various Mathematical Symbols”¹ and “Earliest Known Uses of Some of the Words of Mathematics”.² In addition to continuing to maintain these pages, Miller has added a third webpage which compiles images of mathematics and mathematicians on stamps and currency.³ Like the previous two websites, this page was constructed in collaboration with dozens of other mathematics teachers and scholars from around the world.

The page is very well organized and easy to navigate. It begins with an alphabetical list of mathematicians, from Niels Abel to Zu Chongzhi. After each mathematician’s name is a list of links to relevant stamps, with a brief summary before each link identifying country of origin and the year issued. The images of the stamps are all in JPG format and all appear to be of a very high quality. (Unfortunately, the high quality of the image occasionally only makes the low quality of the stamp itself glaringly obvious.) Although the title of the page is “Images of Mathematicians on Postage Stamps,” a few images of mathematicians

¹See <http://members.aol.com/jeff570/mathsym.html>

²See <http://members.aol.com/jeff570/mathword.html>

³See <http://jeff560.tripod.com>

from coins or paper money are also included.

The list of mathematicians is followed by a compilation of other miscellaneous mathematical topics. For example, the page includes links to stamps honoring Arabic numerals (issued by Iran), the golden section (issued by Switzerland, San Marino, Australia and Japan), Pascal’s triangle (issued by Liberia) and quaternions (issued by Ireland). The page concludes with some links to other mathematical stamp websites around the world, such as Chris Rorres’s collection of stamps of Archimedes.

Jeff Miller, together with his many collaborators, has again created an outstanding web resource. I highly encourage you to check it out, both for your own enjoyment and as a great source of images for use in the classroom.

Mike Molinsky

Meeting Accommodations and Registration

As noted elsewhere in this *Bulletin*, our 2007 annual meeting, a joint meeting with the BSHM, will be held July 27-29 at Concordia University in Montreal. Concordia has two campuses: Sir George Williams and Loyola. The meeting itself will be held on the Sir George campus, which is in downtown Montreal, albeit towards the western end of the city center. There are *many* hotels within a short distance of the building where our meeting will be held, some of them even within an easy walk. So those inclined to see as much of the city as possible might want to consider staying in a hotel. For the purposes of searching for a hotel, the address of the building where we will meet is 1455 De Maisonneuve Blvd. W., Montreal, Quebec H3G 1M8.

Dormitory accommodation is at the Loyola campus, which is 4 miles from the Sir George campus and as such well removed from the center of town, although hardly in the suburbs. There will be shuttle bus service between the dormitories and the meeting site, but probably only one bus in each direction per day. At press time, reservations for dormitory accommodation were not yet available. Please monitor the So-

ciety's web site, <http://www.cshpm.org>, for changes in booking status.

Similarly, please monitor the web site for information on meeting registration. The registration fee will cover coffee at the opening session as well as classroom space and other meeting costs. We encourage all attendees to take part in discussing the activities and direction of the CSHPM at the Annual General Meeting. For up-to-the-minute information on the joint meeting at Concordia, you may wish to join the [cshpm] Yahoo! email list. Instructions on how to sign up are posted on our web site. You may also contact Webmaster Mike Molinsky (michael.molinsky@maine.edu).

2006 Financial Statements

The following financial statements cover the period 1/1/2006 through 12/31/2006.

	\$ Can.
Income	
dues/subscr.	11690.68
SSHRC travel grant	4134.00
Springer Royalties	1894.15
TOTAL	17718.83
Expenses	
<i>Philosophia Mathematica</i>	2072.30
<i>Historia Mathematica</i>	3687.98
<i>Bulletin</i>	704.61
<i>Proceedings</i>	239.66
Postage etc.	68.44
Travel claims	4320.34
Bank charges	103.84
CUMC meeting grant	300
TOTAL	11497.17
NET	6221.66
Balance	20298.67
TD Mortgage Corp.	3626.54
TOTAL	30146.87

Comments:

Because the Society has 2 accounts, one in US dollars, we keep two different accounting systems. At the re-

quest of the editors, we have combined the numbers for these accounts. The numbers given are in Canadian dollars. A conversion factor of 1.15 has been used to convert American dollars into Canadian ones.

Due to a delay in changing signing authority, the Society's 2006 dues to CFHSS were paid in 2007 and will appear on the 2007 financial statements. Because of the change in billing practice of *Philosophia Mathematica* mentioned with the 2005 financial statements, that expense includes both 2005 and 2006 charges. The amounts of the 2006 CFHSS dues and the 2005 *Philosophia Mathematica* subscriptions nearly cancel each other out.

Nathan Sidoli

BSHM/CSHPM Joint Meeting Programme

Please note that abstracts for all of the talks are available on the Society's website (<http://www.cshpm.org>).

Friday, July 27

8:15 COFFEE

8:30 PRESIDENTS' WELCOME

PARALLEL SESSION IA

9:00 Nathan Sidoli (with J. L. Berggren), *Ptolemy's "Planispaerium": Reflections Arising in Editing the Arabic Text*

9:30 Josipa G. Petrunic, *In the Wake of Empiricism: British Empiricist Traditions in Mathematical thought (1860-1880) and Felix Klein's Erlanger Program as Local Responses*

10:00 Dirk Schlimm, *From Domains of Being to Systems of Axioms, and Vice versa: On the Role of Axiomatics in the Discovery of Lattices*

10:30 Elaine Landry, *How To Be a Structuralist All the Way Down*

11:00 Michel Serfati, *From Marshall Stone to Saunders Mac Lane: Elements for an Epistemology of Contemporary Mathematics*

11:30 Jean-Pierre Marquis, *The Early History of Categorical Logic in Montreal*

PARALLEL SESSION IB

9:00 Janet Beery, *Navigating Between Triangular Numbers and Trigonometric Tables: How Thomas Harriot Developed His Interpolation Formulas*

9:30 Roger Godard, *Some Examples of Symmetry and Mathematics in the XVIIth, XVIIIth, XIXth Centuries*

10:00 David Orenstein, *The Archival Record of Education and Research in the Mathematical Sciences in Nouvelle France and Bas Canada*

10:30 David Bellhouse, *The Problem of Waldegrave*

11:00 Antonella Cupillari, *Precalculus and Calculus, the old-fashioned way*

11:30 Gavin Hitchcock, *The Many Faces of "Analysis" in the Making (1750-1850)*

12:00 LUNCH BREAK & CSHPM EXECUTIVE COUNCIL MEETING

PARALLEL SESSION IIA

2:00 Bart Van Kerkhove, *The Historicity of Mathematics: Computer Proof*

2:30 Makmiller Pedroso, *Realism and Mathematical Truth*

3:00 Jason Douma, *Philosophical Intelligences: a Potential Model for Teaching Mathematics*

3:30 Giovanni S Queiroz, *Paraconsistency and Mathematical Pluralism*

4:00 Miriam Lipschutz-Yevick, *Poetic Metaphor and Mathematical Proof: A Shallow Analogy*

PARALLEL SESSION IIB

2:00 Charlotte Simmons, *Observations on Sir William Rowan Hamilton and George Boole*

2:30 Sloan Despeaux, *Mathematics Sent Across the Channel: Nineteenth-Century British Mathematical Contributions to International Scientific Journals*

3:00 Joel Silverberg, "Circles of Illumination," "Parallels of Equal Altitude," and "le Calcul du Point Observé": *Nineteenth-Century Advances in Celestial Navigation*

3:30 Israel Kleiner, *Richard Dedekind (1831-1916): A Path-breaking Mathematician*

4:00 Jean-Philippe Villeneuve, *From Cauchy's Integral to Lebesgue's Integral Axiomatization: When a New Interpretation becomes a Reinterpretation*

Saturday, July 28

PARALLEL SESSION IIIA

9:00 Duncan Melville, *Fields and Reciprocals: Some hints from Sargonic Mathematics*

9:30 Gregg De Young, *Quīb al-Dīn al-Shīarazī's "Demonstrations" of Euclid's Postulates: Mathematical and Metamathematics Issues*

10:00 Glen van Brummelen, *Telling Time in 10th-Century Baghdad: A New Instrument for Solar Timekeeping Comes to Light*

10:30 Edward L. Cohen, *Important Indian Calendars*

11:00 Marina Vulis, *Arabic contributions to Cryptography*

11:30 Munibur Chowdhury, *T. Vijayaraghavan (1898-1955) and A. Weil (1906-1998): A Tale of a Friendship*

PARALLEL SESSION IIIB

10:00 Jonathan P. Seldin, *More Thoughts on the Teaching of Elementary Mathematics*

10:30 Andrew Perry, *The Advent of Conceptual Instruction in Nineteenth Century American Textbooks*

11:00 George P. H. Styan, *A Philatelic Introduction to Magic Squares*

11:30 Hardy Grant, *The Prehistory of "Experimental" Mathematics*

12:00 CSHPM ANNUAL GENERAL MEETING

SPECIAL SESSION – JOHN FAUVEL: IN MEMORIAM

2:00 Raymond Flood, *John Fauvel: Life, Labours and Legacy*

2:30 Tom Archibald, *On Broadening the Sources for the History of Mathematics: Variations on a Theme of John Fauvel*

3:00 Snezana Lawrence, *John's Legacy: History of Mathematics in Mathematics Education*

3:30 THE KENNETH O. MAY LECTURE, by C. Edward Sandifer, *Five Pearls of Euler*

SPECIAL SESSION – LEONHARD EULER

4:30 Jordan Bell, *Euler's Summation of a Divergent Series Involving the Pentagonal Numbers*

5:00 Craig Fraser, *Euler's Use of Divergent Series*

5:30 Lawrence D'Antonio, *How Euler Built the Britannia Bridge*

Sunday, July 29

SPECIAL SESSION – LEONHARD EULER

9:00 Rob Bradley, *Euler's Resolution of Cramer's Paradox*

9:30 Munibur Chowdhury, *A Birthday Gift for Euler*

10:00 Christopher Baltus, *Euler's Continued Fractions*

10:30 Adrian Rice, *What is the "birthday" of elliptic functions?*

11:00 Amy Ackenberg-Hastings, *Euler and the Enlightenment Mathematicians: A Scottish Perspective*

11:30 Charles Rocca, *Philosophy to a German Princess*

12:00 LUNCH BREAK

SPECIAL SESSION – CHARLES L. DODGSON

2:00 Tony Crilly, *Being a Mathematics Undergraduate at Oxford and Cambridge in the Nineteenth Century*

2:30 Eugene Seneta (read by Adrian Rice), *The "Inverse Probability" Controversy and Lewis Carroll*

3:00 George Englebretsen, *The Dodo and the DO: Lewis Carroll and the Dictum de Omni*

3:30 Amirouche Moktefi, *"My Logical Friends": Lewis Carroll and His Contemporary Logicians on the Barber Shop Problem*

4:00 Francine F. Abeles, *The Tangled Tale of Dodgson's Condensation of Determinants*

4:30 CLOSING REMARKS

AGM of CFHSS

The Annual General Meeting of the Canadian Federation of Humanities and the Social Sciences took place in Ottawa on 24-26 November 2006. Members of CSHPM might be interested in the following:

- **Publications.** Jean-Claude Guédon (U. of Montreal), vice-president of Research Dissemination, reported that 161 electronic journals, some tables of contents and some full-text, are supported by the Social Sciences and Humanities Research Council (SSHRC).
- **Research Ethics & Scholarly Integrity.** A CFHSS committee's study of this topic has been posted at <http://www.fedcan.ca>.
- **Upcoming Meetings.** In 2008, CFHSS will meet at the University of British Columbia in Vancouver; in 2009, at Carleton University in Ottawa; in 2010 in Montreal at a site to be determined.

Ed Cohen

Announcements

The Mathematical Association of America (MAA) is issuing several books in 2007 to celebrate Euler's 300th birthday. CSHPM authors and editors of works already in print or soon to appear include Edward Sandifer, *The Early Mathematics of Leonhard Euler* and *How Euler Did It*, and Lawrence D'Antonio, *300 Years of Euler*. Additionally, the MAA's newsletter, *Focus*, printed a substantial article on the efforts by Lee Stemkoski and Dominic Klyve to build an online Euler Archive:⁴ Don Albers, "Building the Euler Archive: An Interview with the Founders," *Focus* 27, no. 1 (2007): 4-9. Victor and Phyllis Katz will lead

⁴At <http://www.math.dartmouth.edu/euler>

an Euler Mathematical Study Tour to Basel, St. Petersburg, and Berlin 1-14 July 2007.

Elsevier has published *Euler's Life, Work and Legacy*, edited by Robert E. Bradley and C. Edward Sandifer. CSHPM contributors include David Bellhouse, "Euler and Lotteries"; Robert E. Bradley, "Euler, D'Alembert and the Logarithm Function"; Florence Fasanelli, "Images of Euler"; Victor J. Katz, "Euler's Analysis Textbooks"; Kim Plofker, "Euler and Indian Astronomy"; Edward Sandifer, "Some Facets of Euler's Work on Series"; Jeff Suzuki, "Euler and Number Theory: A Study in Mathematical Invention"; Rüdiger Thiele, "Euler and the Calculus of Variations"; and Homer White, "The Geometry of Leonard Euler."

Patricia R. Allaire, Robert E. Bradley, and Lee J. Stemkoski organized a Special Session exploring the History of Mathematics on Leonhard Euler's Tercentenary at the 2007 Eastern Section Spring Meeting of the American Mathematical Society (AMS) at Stevens Institute of Technology in Hoboken, NJ. The speakers in the session and the titles of their talks were as follows: Robert E. Bradley (Adelphi U.), "Euler and the Prehistory of Statistics"; Thomas Drucker (U. of Wisconsin-Whitewater), "Euler and the Search for Foundations"; Hardy Grant (York U.), "The Prehistory of 'Experimental' Mathematics"; Paul R. Wolfson (West Chester U.), "Topology Visits Algebraic Invariant Theory"; Francine F. Abeles (Kean U.), "Henry J. S. Smith's Papers on Mathematical Crystallography"; Peggy A. Kidwell (Smithsonian Inst.), "Brainpower for the Cold War: Mathematics Education in the Age of Sputnik"; Edward Sandifer (W. Conn. State U.), "Late Euler"; Amy Ackerberg-Hastings (U. of Md. Univ. College), "Euler and the Enlightenment Mathematicians: A Scottish Perspective"; Lawrence D'Antonio (Ramapo College of N. J.), "Euler on the Buckling of Columns"; and Brian Hopkins (St. Peter's College), "Euler, Generating Functions, and Partitions."

The 2006-2007 program of the Philadelphia Area Seminar on the History of Mathematics (PASHoM) included the following speakers: Alexander Soifer (Princeton U., Rutgers U., U. of Colorado), "In Search of Van der Waerden" on 21 September 2006; Ed Sandifer (W. Conn. State U.), "Some Number Theory that Gauss Learned from Euler" on 12

October 2006; Adrian Rice (Randolph-Macon College), "The Life and Legacy of Augustus De Morgan (1806-1871)" on 16 November 2006; Paul Wolfson (West Chester U.), "Topology Visits Algebraic Invariant Theory" on 14 December 2006; Jeff Suzuki (Brooklyn College, CUNY), "The Fundamental Theorem of Algebra, or Why Did Gauss Title His Dissertation a 'New' Proof?" on 18 January 2007; Lawrence D'Antonio (Ramapo College), "Euler's Contributions to Diophantine Analysis" on 15 February 2007; Dave Richeson (Dickenson College), "Euler's Polyhedron Formula: A Prehistory of Topology" on 15 March 2007; and D. Florence Fasanelli (AAAS), "Portraits of Euler: The Provenance of Those Made When Euler Sat for Portraits and Other Images" on 19 April 2007.

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 in 2006-2007: James Tattersall (Providence College), "The Early Lucasians" on 4 October 2006; Shawnee McMurrin (Cal. State, San Bernardino, and U. S. Military Academy), "The Impact of Ballistics on Mathematics" on 1 November 2006; Robert E. Bradley (Adelphi U.), "Theory of Equations from Leonhard Euler to Etienne Bézout" on 6 December 2006; Jeff Suzuki (Brooklyn College, CUNY), "Euler and Number Theory" on 7 February 2007; Haishen Yao (Queensborough Community College, CUNY), "A Few Mathematical Problems and Methods in Ancient China" on 7 March 2007; Richard Jardine (Keene State College), "Linking Euler to Taylor: Connecting Discrete and Continuous Mathematics" on 11 April 2007; and Joel Silverberg (Roger Williams U.), "Mathematics in the Service of Transoceanic Navigation: From Eastings to Lunars and Lines of Position" on 2 May 2007.

The International Study Group on the Relations Between History and Pedagogy of Mathematics (HPM), Americas Section, convened in Atlanta on 23 March 2007, during the National Council for Teachers of Mathematics meeting. Brief talks were given by Lisa Lavelle ("Viète"), Gina McGovern ("Putting Descartes Before the Source"), Mia Abeles ("Copernicus"), Kathryn Proscope ("History of Geometric Thinking in Africa"), and Greisy Winicky-Landman ("The Harmonic Triangle"). Bob Stein also presented

“John Wallis and Interpolation.” The session was dedicated to Karen Dee Michalowicz.

Griffith Baley Price (1905-2006), who served on the faculty at the University of Kansas from 1937 to 1975, died on November 7. While he was best known for his many leadership positions in the AMS and MAA, Price also compiled a *History of the Department of Mathematics of the University of Kansas 1866-1970* in 1976. He participated in the founding of the “New Math’s” School Mathematics Study Group and in the creation of *Mathematical Reviews*. He earned his Ph.D. under G. D. Birkhoff at Harvard University in 1932.

The Millennium Mathematics Project,⁵ a mathematics education initiative for school students and the general public on which the BSHM is collaborating, is seeking short articles linking mathematics education with the history of mathematics. News, games, problems, and projects are also welcome. Please contact Snezana Lawrence (snezana.l@hotmail.com) for more information about how to submit a contribution.

The 5th European Summer University on the History and Epistemology in Mathematics Education will be held 19-24 July 2007 at Charles University in Prague. See <http://www.pedf.cuni.cz/kmdm/esu5> for more information.

Asger Aaboe (1922 – 2007)

Asger Hartvig Aaboe, emeritus Professor of the History of Science, of Mathematics, and of Near Eastern Languages and Literatures at Yale University, passed away on January 19, 2007, at his home in North Haven, Connecticut.

Born in Copenhagen, Denmark, in 1922, Aaboe attended the University of Copenhagen from 1940 to 1947, earning a master’s degree in mathematics with a thesis on Archimedes—thus showing an early interest in the history of mathematics. Otto Neugebauer had been at the University of Copenhagen from 1934 until his departure for Brown in 1939. His student and research assistant, Olaf Schmidt, had followed him to Brown, earning a Ph.D. under Neugebauer’s

tutelage in 1943. Schmidt returned to Copenhagen after the war and was to remain there until his retirement. These strong connections between Copenhagen and Brown made the latter a natural destination for a young scholar interested in ancient mathematics.

Aaboe spent the year 1947-1948 teaching at Washington University in St. Louis before returning to Denmark to the Birkerød Staatsskole. He returned to the United States in 1952, taking a position in the mathematics department at Tufts while studying with Neugebauer and Abe Sachs at Brown. In the 1950s, Brown University’s History of Mathematics department was the center of the burgeoning field of Mesopotamian astronomy. Neugebauer’s three-volume *Astronomical Cuneiform Texts* and Sachs’ *Late Babylonian Astronomical and Related Texts* both appeared in 1955. Aaboe received his Ph.D. under Neugebauer in 1957 for the dissertation, “On Babylonian Planetary Theories.” The direction of his life’s work was set.

Aaboe taught at Tufts until 1962, becoming an associate professor in 1959. In 1962, he went to Yale with a joint position as associate professor in Mathematics and History of Science. In 1967, he was promoted to full professor, serving as chair of the department of the History of Science and Medicine from 1968 to 1971. In 1977, he added his third position, professor in Near Eastern Languages and Literatures. He remained at Yale until his retirement in 1992.

Although probably best known for the classic, *Episodes from the Early History of Mathematics*, which first appeared in 1964 and is still available from the MAA, Aaboe primarily worked in astronomy and was particularly pleased when the companion volume, *Episodes from the Early History of Astronomy*, finally emerged in 2001. Over the course of his career, continuing well past his ostensible retirement, he published some three dozen articles and monographs, principally on Mesopotamian astronomy of the second half of the first millennium BCE. Cuneiform computational astronomy operated without an explicit geometric model and was concerned with computing times and positions of significant astronomical phenomena, such as the first or last visibility of Venus. The cuneiform record largely comprises tablets bearing columns of numbers with little explanation of their meanings or derivations. Aaboe contributed sig-

⁵See <http://mmp.maths.org>.

nificantly towards understanding the models underlying these computations, a task not yet fully completed.

Aaboe approached his field with great energy, insight and clarity; he also took great care in passing on what he had learned, both through publications and teaching. I have fond memories of afternoons with Asger patiently leading a group of Assyriologists and a lone mathematician through the early intricacies of cuneiform planetary and lunar theory before a well-deserved break for refreshments. Asger had a great gusto for life and a deep concern for his students, friends and colleagues. He was pre-deceased in 1990 by his wife of forty years, Joan, and is survived by four children, Anne, Kirsten, Erik and Niels; two grandchildren, Samuel and Tyler; and his second wife, Izabela.

A longer *éloge* by Len Berggren, complete with bibliography, will appear in *Centaurus*. A memorial service was held at Yale on April 27.

Duncan Melville

Quotations in Context

But there is another reason for the high repute of mathematics: it is mathematics that offers the exact natural sciences a certain measure of security which, without mathematics, they could not attain.

As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality.

—Albert Einstein

The two Albert Einstein quotations above appear frequently without citation. For example, the first quotation appears in the “They Say, What They Say, Let Them Say” pages at the beginning of E. T. Bell’s *Men of Mathematics*, and the second appears in the third volume of James R. Newman’s *The World of Mathematics*. The quotations, placed side-by-side, might look somewhat contradictory at first glance, since one seems to indicate that mathematics is a boon to natural science, while the other appears to say that mathematics is of no use in describing the real world; however, both of these quotations actually originate from

the same source and occur only a few sentences apart.

On January 27, 1921, Albert Einstein presented a lecture to the Prussian Academy of Sciences entitled “Geometry and Experience.” His complete paper was printed later that year. In his paper, Einstein discusses the geometric model of the universe and how to best determine what that model must be. He also considers ways to visualize non-Euclidean concepts such as sets that are finite, but unbounded. Both of the quotations above, however, appear at the beginning of the paper, when Einstein sets out to distinguish between “axiomatic” and “practical” mathematics.

The paper begins by separating mathematics from science by means of certainty: mathematical propositions are not subject to debate, whereas scientific propositions, even when supported by all current facts, may be falsified by later data. It is at this point that the first quotation appears (although Sonja Bargmann’s translation of the paper, which appears in the book *Ideas and Opinions*, replaces the word “security” with “certainty”). Einstein points out that, while the natural sciences may not be completely certain, their use of mathematics introduces at least some level of certainty to the mix.

Einstein then asks a familiar question: why should mathematics, based on axioms and independent of experience, be so useful as a tool for modeling reality? The second quotation thus appears in response to the idea that human beings might be able to determine the properties of the world by thought and reason alone. Although the quotation itself only says “mathematics,” the following sentences make clear that, in this context, the mathematics being referred to is “axiomatic” mathematics. Using geometry as an example, Einstein proceeds through the familiar argument that, in its purely axiomatic form, the expressions “straight line” and “point” have no connections to concrete objects or to properties of the real world. Any properties they have proceed from the axioms and only from the axioms.

Einstein then defines “practical geometry,” which takes axiomatic geometry and adds a proposition about how it relates to reality; for example, that solid bodies in the real world behave just like solid bodies in Euclidean Geometry. He points out that this propo-

sition is not accepted as an axiom, but rather as a scientific premise, to be tested through experience and experimentation. This is clearly the intended context of the first quotation: that while science benefits from a degree of certainty through the use of “practical” mathematics, it cannot provide full certainty, because future experience may demonstrate that a proposed correspondence between a mathematical object and a property of the universe will be found to be invalid.

Mike Molinsky

BSHM Bulletin: Journal of the British Society for the History of Mathematics

The BSHM Bulletin is the journal of the British Society for the History of Mathematics (BSHM), whose aims are to promote research into the history of mathematics and to encourage its use at all levels of mathematics education.

The BSHM Bulletin publishes articles, reports, and book reviews on a range of historical topics. Articles on local mathematical history, the use of history of mathematics in education, and those reflecting individual interests and research are particularly encouraged.

Now published by Taylor & Francis on behalf of the BSHM, the BSHM Bulletin is available online. The complete back archive is currently being digitized and will be placed online in due course.

For further information about this journal and to view instructions for authors, including Word and LaTeX style guides, please visit the journal’s homepage at www.tandf.co.uk/journals/titles/17498430.asp.

Katie Chandler

New Members

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



Figure 1: The cover of the new BSHM Bulletin

Stephen Chrisomalis
Montreal, QC
Canada

Graham Eaton
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From the Editor

The emphasis of this issue is on this summer's joint meeting with BSHM. We have attempted to share every bit of information that can be confirmed, including the happy news that we have a full program of 50 speakers scheduled. Although the print medium permits us to save and savor the words in each issue, it is not flexible for incorporating late and changing information. Therefore, let me encourage you once again to check your email and the Society's web site for information on registration and accommodation at the meeting.

Please join me in thanking our 2007 arrangements committee—Rob Bradley, Jean-Pierre Marquis, Greg Lavers, Dirk Schlimm, and Tom Drucker—for their ongoing efforts in what has proven to be an arduous process to coordinate with the Conference Services office at Concordia, which has numerous other demands on its time.

As you can see from the preliminary meeting program in this issue, session organizers Pat Allaire, Rob

Bradley, Raymond Flood, and Fran Abeles have made preparations to maximize our intellectual engagement for the meeting. CSHPM also has a strong tradition of informal socializing at its meetings. Plans for more formal opportunities to enjoy the company of our BSHM colleagues, such as receptions or performances, have not been finalized at this writing. Suggestions for such events—or volunteers to organize events or display one's talents—would be welcomed by the arrangements committee. (Rob's email address is bradley@adelphi.edu.)

I also appreciate all of the people who provided the news and articles you have just read. While there are some faithful contacts working behind the scenes (yes, I am looking in the invaluable Hardy Grant's direction) and I have found some rocks to turn over in two years as content editor, I always need more. Please remember to send announcements, such as your publications or other professional milestones, history of mathematics encounters in the media or in your travels, and reports of meetings.

Research tidbits and feature ideas are also needed. The Bulletin would be much slimmer without the wonderful Mike Molinsky, but he would be happy to share the "Quotations in Context" duties once in a while. I can place items in my Bulletin file at any time, but the submission deadline for the November issue will be October 1, 2007. Finally, thanks to layout editor Eisso Atzema and to Pat Allaire and Queensborough Community College, which provided production supplies and staff to ensure timely mailing.

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.

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