

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

*President:* Craig Fraser, University of Toronto, Toronto, ON M5S 1K7, CAN, craig.fraser@ utoronto.ca

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#### Volunteer Positions

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

## President's Message

The CSHPM's mission is to encourage and sponsor research and teaching in the history and philosophy of mathematics. We offer a different vision of mathematics from the one presented by Otto Becker, who wrote "Mathematical thought combines the highest rationality with—in principle—a complete lack of historical sensibility." We take to heart the old Russian saying "the past is unpredictable," and embrace the words of L. P. Hartley, "The past is a foreign country; they do things differently there."

The three-day online BSHM/CSHPM meeting in July was highly successful by the standards of virtual meetings. Isobel Falconer, Sarah Hart and Mark McCarthy as well as others in St Andrews and in the BSHM did a superlative job in putting it all together. On the CSHPM/HOMSIGMAA side, Maria Zack, Dirk Schlimm and Amy Shell-Gellasch contributed to the planning for the meeting. The format of having pre-recorded videos of each presentation available on YouTube worked very well. Participants could rewind and watch parts of the presentation over again. The live Q&A sessions provided motivation to go back and rewatch selected talks. Having the chat function available during the plenary addresses was also something that was fairly novel and added an interesting dimension to the conference experience. CSHPM member Christopher Baltus observed: "I am glad the BSHM went ahead with the meeting and did such an impressive job of organizing. I would guess that as a Zoom event, we had many participants who would not have come to an in-person meeting."

The Congress of the Humanities and Social Sciences 2022 will be held May 12-20. All activities will be held virtually. CSHPM's annual meeting will be held virtually on May 13-15 as part of Congress. The call for papers appears in this issue.

CSHPM Council member Andrew Perry will be program chair for our 2022 annual meeting.

The special topic session for the 2022 meeting is "Original sources in the history and philosophy of mathematics." This subject can be approached from several different historical and philosophical perspectives. Nic Fillion and Tom Archibald organized a session on the history of mathematics at the 2021 CMS annual meeting in June. Nic's monthly series of CSHPM online talks will be continued in academic year 2021-2022. In addition, Nic and Maritza Brantzer are organizing a session on the history of mathematics for the CMS winter meeting in December, which was to take place in Vancouver but which now will be held virtually.

David Orenstein has taken over as Treasurer from Greg Lavers.

Sylvia Nickerson continues as editor of the *Bulletin*, assisted by Eisso Atzema (Layout Editor), and Maria Zack (Production Editor). In the spring the new team published a fine edition of the *Bulletin*.

Under the stewardship of Amy Ackerberg-Hastings and Hardy Grant, the CSHPM has continued its informative and interesting columns on the history and philosophy of mathematics in the *Notes of the Canadian Mathematical Society.* 

In the past year there have been 38 new members who have joined the CSHPM, compared to 7 the year before that (there was no meeting in 2020). This increase has likely been the consequence of Nic Fillion's series of Friday colloquia, of interest spurred by the joint BSHM/CSHPM meeting in the summer, and simply a desire in COVID times to stay engaged with disciplinary activity in the field.

Craig Fraser

## Announcements

Karen Hunger Parshall (UVA) was inducted as a Fellow of the American Association for the Advancement of Science on 13 February 2021 for "outstanding contributions to the history of mathematics, combined with extraordinary services to the mathematical and historical sciences." Congratulations, Karen!

June Barrow-Green is the first historian of mathematics to be awarded the Royal Society's Wilkins-Bernal-Medawar Medal and Lecture, which recognizes her research in 19th- and 20th-century mathematics, including the histories of modern computing, dynamical systems, the three-body problem, and the underrepresentation of women.

Jambugahapitiye Dhammaloka Thero, a student of Clemency Montelle, received a 2021 dissertation prize from the International Union of History and Philosophy of Science and Technology, Division of History of Science and Technology (DHST), for his 2019 project at the University of Canterbury, "Śrīpati's Arithmetic in the Siddhāntaśekhara and Gaṇitatilakac: Edition, Translation, and Mathematical and Historical Analysis."

HOM SIGMAA News: A new First Wednesdays Virtual Speaker Series, organized by Jemma Lorenat, featured the following presentations: Robert Bradley (Adelphi), "Who Wrote l'Hôpital's Calculus Book?" on March 3; Deborah Kent (St Andrews), "Mathematics at the Old Course: P. G. Tait and the Magnus Effect" on April 7; Jessica Otis (George Mason), "For to Avoide Mistaking': Trust and the Function of Numbers in Early Modern England" on May 5; and Fred Rickey and Wendy Alexander, "Continued Fractions, Differential Equations, and Euler's Proof of the Irrationality of e" on June 2.

HOM SIGMAA contributed £1000 to the funding of "People, Places, Practices," the joint BSHM-CSHPM-HOM SIGMAA meeting, and US\$2000 toward an endowment to permanently fund an archivist at the Archives of American Mathematics. Megan Ferguson (Adelphi) won the 2021 Student Writing Contest for her paper, "The Suan shu shu and the Nine Chapters on the Mathematical Art: A Comparison." Adrian Rice will deliver the annual invited address at the 2022 Joint Mathematics Meetings in Seattle on the topic, "Beyond the strength of a woman's physical power: Mathematics, Machines, and the Mind of Ada Lovelace."

BSHM News: Submissions for the Taylor & Francis Biennial Early Career Research Prize are due by 31 December. The second online Black Heroes of Mathematics conference was held 5–6 October. The annual meeting co-organised with Gresham College is scheduled for 20 October, and the Christmas Meeting and AGM will be 11 December. The latter includes a celebration of BSHM's 50th birthday! The meeting on History of Mathematics and Flight has been postponed again until 2 July 2022. For more upcoming events, see www.bshm.ac.uk.

**HSS News:** The History of Science Society appointed John Paul Gutierrez this summer as the Executive Director to succeed Jay Malone. In late September, Karen Rader resigned from her role as Vice President; the HSS Council will appoint a replacement. The Annual Meeting scheduled for November 18–21

has been moved entirely online. Adjustments to the program were in process at press time; history of mathematics and computing originally on the program included sessions on: Standardization and measurement from the ancient world to the early 20th Century; Dueling with Data: Fairness by Calculation in the Law; Building Race into the Machine: The Ongoing Challenges of "Big Data"; History of Interpretations of Quantum Physics; Gender and work in the mathematical sciences; Fairness by Calculation: Four Centuries of Algorithmic Aspirations; Libraries and Mathematics: Rethinking "the mathematician's laboratory"; and Naturalness as an Epistemic Virtue: Case Studies from the History of Mathematics.

Gregory H. Moore passed away in spring 2021. Tom Drucker is working on a remembrance for the next *Bulletin* and welcomes recollections about Moore from members, particularly those who knew Moore during his active days in the society. Contact Tom at druckert@uww.edu.

Tom Drucker retired from the Departments of Mathematical and Computer Science at the University of Wisconsin-Whitewater, after 20 years of service.

#### Conferences, Talks, & Workshops

The ARITHMOS Reading Group held the following virtual reading sessions in 2020: Leibniz's *Nova methodus pro Maximas et minimas* (May 17); Leibniz's *De geometria*... (June 13); Leibniz's 1693 paper on the Fundamental Theorem of Calculus (July 18); Barrow's *Geometrical Lectures* (August 8 and 22); E271 (September 26); and E71 (November 14). Discussions in 2021 included E271 (January 30) and E53 (March 6).

The Philadelphia Area Seminar on the History of Mathematics (PASHoM) offered a full virtual schedule in the 2020–2021 academic year. Speakers included: Laura Turner (Monmouth) on E. V. Huntington on September 17; Chris Rorres, "Olympic Starting Lines, Pistons, and Black Holes," on October 8; John Mc-Cleary (Vassar) on November 19; Larry D'Antonio (Ramapo) on December 10; Maria Zack (Point Loma), "The Cycloid, A Very Popular Curve," on February 18; Ellen Abrams (Cornell), "Which shall be regarded as the best?': Axiom Systems and American Mathematics," on March 19; and Brenda Davison (Simon Fraser) on George Stokes's work on the pendulum on April 15.

CSHPM's Online Colloquium resumed with a presen-

tation by James Robert Brown (Toronto, emeritus), "Mathematical Evidence," on September 17.

The 48th Annual Miami University Mathematics Conference, with a theme of History of Mathematics and keynote speakers Glen Van Brummelen and David Richeson, that was scheduled for September 24–25 has been postponed until 2022.

The 2021 Fields Medal Symposium, held online October 25-29, examined the past, current, and potential impact of 2018 Medalist Peter Scholze. Look under Activities at www.fields.utoronto.ca/.

ESU-9, the European Summer University on the History and Epistemology in Mathematics Education, will be held 18–22 July 2022 at the University of Salerno, Italy. Themes include Theoretical and/or conceptual frameworks for integrating history and epistemology of mathematics in mathematics education; History and epistemology in students and teachers of mathematics education: Curricula, courses, textbooks, and didactical material of all kinds - their design, implementation and evaluation; and Original historical sources in teaching and learning of and about mathematics. Abstracts were due 31 October. For more information, see esu9.unisa.it/. If you plan to attend and would like to write a summary for the Fall 2022 Bulletin, please contact the editor.

### Publications

Jim Smith's book, co-authored with Elena Anne Marchisotto and Francisco Rodriguez-Consuegra, *The Legacy of Mario Pieri in Foundations and Philosophy of Mathematics*, was published by Springer after more than 30 years of research. For more information, see www.springer.com/gp/book/9780817648220.

The International Mathematical Union News has been redesigned by Yoshiharu Kohayakawa and is now delivered by a third-party provider. As per EU data protection regulations, all subscribers must renew to continue to receive the newsletter. Please visit www. mathunion.org/organization/imu-news and enter your email address.

Glen Van Brummelen's book *The Doctrine of Triangles: A History of Modern Trigonometry* was published in 2021 by Princeton University Press. For more, see press.princeton.edu/books/hardcover/ 9780691179414/the-doctrine-of-triangles.

Della Dumbaugh and Deanna Haunsperger are offering a 9-episode podcast, "Count Me In," on the MAA's Math Values blog. The focus is on conversations with women mathematicians about their experiences. Check All Featured Posts at www.mathvalues.org for the most recent episode.

The Mathematicians of the African Diaspora website raised over US\$11,000 to fund additional improvements. See the current collection of profiles at www.mathad.com.

Colm Mulcahy highlighted 55 of the first Irish women in mathematics on his blog, www.mathsireland.ie.

Volume 1, issue 2 of *Euleriana* is now available at scholarlycommons.pacific.edu/euleriana/. Contributions of articles, translations, and reviews are welcomed.

The most recent newsletter of the CSHPS may be found at www.yorku.ca/cshps1/.

The July 2021 issue of the *HPM Newsletter* may be viewed at grouphpm.wordpress.com/.

The July 2021 issue of the *Journal of Humanistic Mathematics* is available at scholarship.claremont. edu/jhm. Historians of mathematics who contributed to the issue include Paolo Mancosu and Uffe Jankvist, and a memorial of Ubiratan D'Ambrosio is provided.

#### **Funding Opportunities**

As noted above, the Briscoe Center at the University of Texas has at last officially launched a fundraising drive to establish an endowment of US\$2,000,000 so the Archives of American Mathematics will have a permanent, dedicated archivist. To donate, look under Giving Opportunities at briscoecenter.org/ support/.

# Remembering Ubiratan D'Ambrosio

One way to say farewell to Ubiratan D'Ambrosio (8 December 1932–12 May 2021) is to use his own words and thoughts. Those who had the good fortune to discuss the philosophical ideas of Ethnomathematics and futurism in Ubi's family's gracious home in Sao Paulo know what a long conversation that can be.

He held the position that there are several different histories of mathematics, presenting these thoughts for the first time at an International Congress on Mathematics Eduction (ICME) satellite meeting of the International Study Group on the History and Pedagogy of Mathematics (HPM) at the South Australian College of Advanced Education in Adelaide in 1984. There, he outlined a sequence which demonstrated the place of Ethnomathematics in history of mathematics courses, having apparently used the term at the AAAS session on Ethnoscience in 1977. The importance of this is known by those who work with historians in other fields because mathematics is not culture free; "learned mathematics" is different from "scholarly mathematics" or "practical mathematics."

Soon after being appointed Co-chair of HPM at that satellite meeting, Ubi gave the Opening Plenary Lecture at ICME V, "Socio-cultural Bases of Mathematics Education." He said his theoretical reflections and the examples he presented culminated into the concept of ETHNO+MATHEMA+TICS. He argued that there is little interaction between society and learned mathematics—creating a time lag—so it is of little use in motivating students' interest in mathematics, whereas Ethnomathematics is transmitted by cultural groups informally. These concepts later developed with many followers into a robust mechanism to learn about the broadness of mathematics. The inclusionary ideas triggered the organization of the International Study Group on Ethnomathematics (IS-GEm). A few of the results showing the fertility of Ubi's mind in this regard can be traced easily on the HPM Newsletter #107 web-site (http://www.clab. edc.uoc.gr/HPM/HPM%20News107\_final.pdf) where one of his three PhD Advisees, Sergio Roberto Nobre, Universidade Estadual Paulista Rio Claro, has listed his published works following details of his life. Ubi finally began to take time to write long after giving many talks and enticing listeners to think about mathematics more broadly.

Having completed his doctoral studies at the University of San Paulo at age 31, he continued post graduate studies in Italy and Brown University. In the 1960s, while Director of Graduate Studies in Pure and Applied Mathematics at SUNY Buffalo, Ubi acknowledged that some commonly-held political values were not what he wanted for the education of his son and daughter. He accepted the invitation in 1972 to move back to Brazil when a new university was being established. His deep thinking about the living and working environment is well illustrated with clarity in the design of the mathematics department at the State University of Campinas (UNICAMP), where he was a founding faculty member, retiring as Pro-Reitor of Universidade Estadual de Campinas. As one enters the open-air circular building the whole department can be seen with faculty offices situated around the second-floor balcony. Classrooms and the library below are all set around a great flowered plaza which is used for many kinds of gatherings. From there a student can easily see if his professor was having office hours because the door would be open. Like Ubi, the building simply said welcome.

As an articulate leader, Ubi found singular ways to take the ideas of both organizations, HPM and IS-GEm, to increasingly broader audiences at meetings of the National Council of Teachers of Mathematics, at the Joint Mathematics Meetings, AAAS, at the ICM and at smaller local organizations in many countries. He was never in a hurry but gave willingly of interviews, both formal and informal. His many highly regarded awards are listed in the obituary about his life (URL above) by his collaborators Milton Rosa, (Universidade Federal de Ouro Preto (UFOP)-Ouro Preto-Minas Gerais-Brazil) and Daniel Clark Orey (Universidade Federal de Ouro Preto).

His belief and joy in humankind, his unbeatable wish to teach, his untiring work for peace especially with Pugwash, and his expanding intellect means we have lost a giant.

Florence Fasanelli and V. Frederick Rickey

## Review: The Doctrine of Triangles

In May 2021 the Bulletin announced publication of Glen Van Brummelen's Trigonometry: A Very Short Introduction. Van Brummelen also published The Doctrine of Triangles: A History of Modern Trigonometry, earlier this year. This latter book completes a two-volume history of trigonometry, the first volume being The Mathematics of the Heavens and the Earth: The Early History of Trigonometry (2009). The The Doctrine of Triangles is dedicated "to the memory of Joel Silverberg: gentleman, scholar, friend." Silverberg's research on history of trigonometry, all papers delivered at CSHPM annual meetings, appear in the bibliography (p. 317–362).

Van Brummelen offers homage to predecessor Anton von Braunmühl's two-volume Vorlesungen über Geschichte der Trigonometrie (1900 and 1903, in English, Lectures on the History of Trigonometry) in the preface. Also mentioned is Raphe Handson's 1614 eponymous English translation of Bartholomew Pitisicus's Trigonometrie: Or, The Doctrine of Triangles. The main text consists of five parts with section titles: European Trigonometry Comes of Age, Logarithms, Calculus, China, and Europe After Euler. Part one maintains trigonometry's deep connection to astronomy by looking at the work of Regiomontanus and Reinhold in the middle of the sixteenth century. François Viète (1540-1603) is also recognized as a pioneering algebraist who "compile[d] a table of coefficients... for  $\cos n\theta$ , going as far as n=21.... [H]e illustrated... effectively the power of combining symbolic algebra with trigonometry." Original text from Viète is translated and explained in today's mathematical idioms. In fact, twenty-four examples appear in the volume, starting with "Regiomontanus, Defining the Basic Trigonometric Relations" and ending with "Vincenzo Riccati, The Invention of the Hyperbolic Functions."

Part two demonstrates the impact of logarithms. Almost immediately from their first publication in 1614 by John Napier in *Mirifici logarithmorum canonis descriptio* they were being used both for the further development of trigonometric tables and detailed calculations using trigonometry as in astronomy. Napier was a Scottish landholder and served as baron of Merchiston. One of the first users of logarithms was the noted astronomer Johannes Kepler, who, publishing his own tables in 1624, applied logarithms in the *Tabulae Rudolphinae*. Between 1614 and 1633 the logarithms of sines went from a precision of seven significant figures to fifteen figures and increments of one arc minute to that of ten arc seconds.

In part four on China the early strands of trigonometry are examined through indigenous Chinese developments, influence of Indian and Islamic mathematics and the arrival of Jesuit missionaries. The last part looks at issues of trigonometry in mathematics education and in non-Euclidean geometries especially hyperbolic trigonometry. The bibliography includes recent historical studies such as Silverberg's as well as period histories such as J. B. J. Delambre's six publications from 1804 to 1827 and original sources such as Johannes Kepler's Tabulae Rudolphinae as well as other works by Kepler from 1609, 1617, and 1624, both in both modern editions and translations. Many scholars and members of the CSHPM or BSHM are credited here as well including Amy Ackerberg-Hastings, Stillman Drake, Ivor Grattan-Guinness, Victor Katz, Kim Plofker and Benjamin Wardhaugh. Raymond Archibald, Florian Cajori and Louis Karpinski are cited. Four of John Napier's books on logarithms from the early seventeenth century are used as references as is Napier's 1593 *A Plain Discoverie of the Whole Revelation of Saint John* in addition to three later editions and translations. Thirty-four of Leonhard Euler's works also appear.

Doctrine of Triangles is recommended to all scholars of history and philosophy of mathematics, especially if used in conjunction with Van Brummelen's first volume and the VSI. These books serve as useful materials for any teacher of high school mathematics. They demonstrate where our math topics come from and illustrate connections between various branches of mathematics and fields of applications. Evident are the significant contributions to mathematics provided by many cultures. These books can also help direct students to resources for their project work. A class set of the VSI would be of great value as a supplementary textbook in high school mathematics classrooms.

At universities the pair could be the text for a focused undergraduate course in the history of trigonometry. The chapters on China, India and Islam could form a substantial part of a course on non-Western mathematics or science. The extensive footnotes and the exhaustive bibliography could support the core of a graduate level methods course. The Doctrine of Triangles will serve many members of our community because of its engaging storytelling, the depth of scholarship, and wealth of resources it displays for use in teaching at both secondary and post-secondary levels.

#### David Orenstein

#### Bibliography

Glen Van Brummelen, (2009) The Mathematics of the Heavens and the Earth: The Early History of Trigonometry. Princeton University Press, Princeton, New Jersey. xvii+ 329 pp., 36 pp. ref., 7 pp. index. Glen Van Brummelen, (2020) Trigonometry: A Very

Short Introduction. xxii+ 170 pp., 5 pp. ref., 5 pp. index.

Glen Van Brummelen, (2021) The Doctrine of Triangles: A History of Modern Trigonometry. Princeton University Press, Princeton, New Jersey. xvi + 372 pp., 46 pp. ref., 10 pp. index

Anton von Braunmühl, (1900/1903) Vorlesungen über Geschichte der Trigonometrie. Teubner Verlag, Leipzig, Germany (also available at archive.org).

## Remembering George Rosenstein

Some years ago I was seated next to George Rosenstein at a meeting of the Philadelphia Area Seminar on the History of Mathematics (PASHOM). I introduced myself to him and asked him to please not feel slighted if he spoke to me and I didn't respond immediately, explaining that I am deaf on my left side and I might not hear him. George responded that he understood completely since he was also deaf on his left side. We then spent a few minutes commiserating over our mutual ailment before the talk began.

A few weeks later at the MAA's Carriage House I sat down next to an older gentleman and had essentially the same conversation. Near the end George and I finally, and simultaneously, recognized each other and we had a good laugh over our status as absent-minded professors who couldn't remember the person we'd met only a few weeks before. Thereafter it became a ritual. Whenever we met up one of us would say "I'm deaf on one side. Please be patient," and the other would respond "No kidding! Me too."

I've enjoyed telling that story ever since and I recently learned that George apparently did too. His neighbor (and my colleague) tells me that George and I told him the same story, verbatim, within the space of a few days.

Sadly our little amusement ended on Wednesday, July 21 this year when George M. Rosenstein, Jr. passed away from complications due to a head injury.

As an undergraduate George attended Oberlin College. He earned both his master's and PhD from Duke University. At the time of his passing George was an Emeritus Professor of Mathematics at Franklin and Marshall College (F&M) in central Pennsylvania, having taught mathematics there from 1967 to 2002. Over the years he took sabbaticals at the University of Pittsburgh, the Smithsonian Institution, the US Military Academy at West Point, and Cambridge University. In addition to teaching at F&M George served several terms as chair of the mathematics department and one stint as interim Dean of Faculty and acting Vice President.

George was beloved by his students and he always thought of himself first as a teacher. He was always interested in improving his own teaching and helping colleagues improve theirs. In 1993 he was awarded the Linback Distinguished Teaching Award and he used the funds he received with the prize to buy graphing calculators for any of his colleagues who wanted to learn how to integrate this technology into their teaching.

George and his wife Harriet traveled widely and frequently. They visited every continent save one. Harriet taught Calculus at the Lancaster Country Day School so mathematics infused their lives. He told how one evening at dinner when his daughter Beth was a child she became frustrated with the conversation and shouted, "For one dinner can't we talk about something other than math!"

According to a long time friend and colleague George "inspired loyalty in colleagues and students. Pleasing George was not easy, but he made sure that you knew when you were meeting his standards and was always willing to help to ensure you met them. Students reported 'doing well for Professor Rosenstein' because they understood how much he cared about them," and also that "it was impossible to walk anywhere with George at a national meeting," because every few steps someone would interrupt to speak to George for a few minutes.

As a mathematician George described himself as "always chasing the numbers." He amused himself with Sudoku puzzles but as with all mathematicians his amusement eventually became a problem to solve. At the time of his passing he had been trying to solve the following: For any given starting set in a Sudoku puzzle, how many different solutions are possible?

George will be missed by all who knew him.

Eugene Boman

# CSHPM Members Support MAA Convergence

MAA Convergence is both an online journal on the history of mathematics and its use in teaching, and an ever-expanding collection of online resources to help its readers teach mathematics using its history. Several of its newest articles have been written by CSHPM members or friends of the Society.

In particular, Adrian Rice shows how to use problems that troubled Ada Lovelace in her correspondence course with Augustus De Morgan in "Helping Ada Lovelace with her Homework: Classroom Exercises from a Victorian Calculus Course," while Mike Molinsky looks at an impressive mathematical library and the murky origins of a rare edition of Euclid in



Figure 1: Ada Lovelace

"The Life of Sir Charles Scarburgh." The winner of the 2021 HOM SIGMAA undergraduate paper contest was a student of Robert Bradley (Megan Ferguson, who wrote "The Suan shu shu and the Nine Chapters on the Mathematical Art: A Comparison.") The completion of the effort to index the problems in Educational Times, long pursued by Jim Tattersall and then Sloan Despeaux, was reported on by Robert M. Manzo in "The Educational Times Database: Building an Online Database of Mathematics Questions and Solutions Published in a 19th-Century Journal."

*Convergence* also featured "Mathematical Mysteries of Rapa Nui with Classroom Activities," by Ximena Catepillán, Cynthia Huffman, and Scott Thuong, which appears in both English and Spanish versions; began a new series on "Keys to Mathematical Treasure Chests" with an inaugural installment on 19thcentury String Models by Peggy Aldrich Kidwell; and provided a translation of a paper on a new derivation of Cardano's formula by a high-school-aged Mark Kac, "Mark Kac's First Publication: A Translation of 'O nowym sposobie rozwiązywania równań stopnia trze-



Figure 2: The English Euclide, 1705

ciego,"' by David Derbes.

In the ongoing "Series of Mini-projects from **TR**ansforming Instruction in Undergraduate Mathematics via **P**rimary **H**istorical **S**ources," the TRIUMPHS team has added two more mini-Primary Source Projects (mini-PSPs):

- "Bhāskara's Approximation to and Mādhava's Series for Sine: A Mini-Primary Source Project for Second-Semester Calculus Students," by Kenneth M Monks;
- "The Logarithm of -1: A Mini-Primary Source Project for Complex Variables Students," by Dominic Klyve.

Interested in joining fellow members by contributing? We'd love to hear from you at convergence@maa.org! *Convergence* publishes expository articles on the history of topics in the grades 8–16 mathematics curriculum; translations of primary sources; classroom activities, projects, or modules for using history to teach mathematics; and classroom testimonials after applications of such activities, projects, or modules. Find Guidelines for Authors as well as ad-



Figure 3: Hare paenga dwelling on Rapa Nui

ditional teaching resources from the journal's home page: maa.org/press/periodicals/convergence. Janet Heine Barnett & Amy Ackerberg-Hastings

# CSHPM/SCHPM Executive Council Meeting

The meeting of the Executive Council of CSHPM-SCHPM took place on 6 July, 2021, being held virtually via Zoom and called to order by Craig Fraser, President at 3:00 pm EDT. The following members were present: Amy Ackerberg-Hastings, Patricia Allaire, Nicolas Fillion, Craig Fraser, Greg Lavers, Duncan Melville, Mike Molinsky, Sylvia Nickerson, David Orenstein, Andrew Perry, Amy Shell-Gellasch, Richard Zach, and Maria Zack.

The Agenda for the meeting was approved, and minutes from the 2020 Executive Council meeting were accepted as printed in the November 2020 *Bulletin*.

**Treasurer's Report:** Greg Lavers presented a report for the calendar and fiscal year 2020. The 2020 financial statements were published in the May 2021 issue of the *Bulletin*. Greg noted that since there was no meeting this year savings were realized and that FedCan reimbursed the society for a duplicate payment.

Secretary's Report: Patricia Allaire presented comparative membership data for 2020 and 2021:

	2020	2021		
Total Members	132	161		
Members By Address or Organization				
Members Dy Au	uress c	or Organization		

US	82	91			
Other	17	29			
BSHM	13	24			
CSHPS	8	9			
Complimentary	0	0			
Membe	Members By Status				
Active	65	66			
Retiree	46	48			
Student	3	6			
Developing Nations	2	4			
Student Associate	1	1			
Unknown	13	33			
Members by Pay Method					
Online	95	113			
Snail Mail	15	14			
Reciprocal Members	21	33			
Complimentary	1	1			
New Members	7	36			
Reciprocal Memberships					
To BSHM	44	52			
To CSHPS	17	25			
Journal Subscriptions					
Historia (paper)	43	33			
Historia (electronic)	6	9			
Philosophia	15	12			
SCIAMVS	6	3			
Proceed	dings/Annals				
Federation	1	1			
Hardcover	8	8			
Paperback	9	11			
Electronic	14	15			
I	Bulletin				
Paper	26	36			
D	onations				
No. Donors	21	29			
Amount	\$761.50 CAN	\$2047 CAN			
	\$222.50 US	\$101.47 US			

Pat noted that the total donation amount was larger than usual for two reasons. The society received one very large donation last year. Additionally, several members who had paid for the *Annals* a second time opted to have those extra payments become donations. Pat also pointed out that the number of new members increased. Because most requests for new memberships happened immediately after Zoom talks, Pat conjectured those talks piqued the interest of potential new members. **Bulletin** Editor's Report: Sylvia Nickerson reported that she had followed Amy's lead in fulfilling the *Bulletin* with her first issue as content editor in fall 2020. Amy congratulated Sylvia on the smoothness of the transition. Sylvia noted a change was made in delivery mode. An electronic PDF was sent to all members for the fall 2020 issue because mailing the printed version was delayed by several months due to interruptions in the postal service.

In December council decided distributing a link via email to all members for the electronic *Bulletin* would become regular practice for each issue starting thereafter. This change will help members get timely access to the content. Pat and Mike will send out the link via an announcement from the list-serve. Paper copies will continue to be sent to members who prefer it.

Compiling the spring 2021 *Bulletin* coincided with filing end of term grades and a third wave lockdown in Ontario which posed some challenges to the editor. Some emails of appreciation for the content of the spring issue were received. A few errors in the issue also escaped notice. The program listing for the joint meeting did not state the time zone in which session hours were given. Sylvia regretted missing this detail and a few other errors. At time of reporting planning for the fall issue was underway.

**CSHPM Notes Editors' Report:** On behalf of co-editor, Hardy Grant, Amy Ackerberg-Hastings reported that columns were planned and seen through to publication for all six *CMS Notes* issues in 2020. Little significant impact was observed from the COVID-19 pandemic except for some slowing in production and publication due to the shift to remote work at CMS. An excellent working relationship has formed with CMS's Fundraising and Communications Officer and contributions for the remaining columns of 2021 have been found.

Forty-two columns have appeared, supplied by thirtyfour authors, including seven jointly authored submissions. Two members have provided four individual or collaborative columns, two have written three pieces, and five members have each prepared two columns. Eleven of the thirty-four authors are women, and six of the thirty-four were students at the time of their first submission. The ratio between philosophical and historical topics remains around one to three. As a strategy to increase philosophical submissions the editors have been reaching out to speakers from the CSHPM virtual colloquium series where the ratio of philosophical to historical talks is roughly even. The possibility of publishing a collected volume has been considered but an accumulation of at least fifty columns is required, from which such a volume could be organized.

Members are invited to contact the editors with submission ideas, whether they plan to write the pieces themselves or want to recommend a potential author. At least one author of submissions must be a current member of CSHPM. Submissions should be aimed at a general audience of mathematicians. Topics typically provide an intriguing taste of a larger research project or raise a methodological point and put it in an accessible context. Submissions can also take the form of a discussion on the current state of historiography in a particular subfield or suggest a classroom application for a story from the history or philosophy of mathematics. We prefer that contributions remain within the range of 1200–1800 words and we ask for a brief biographical note. It is helpful if authors suggest possible images given the visual nature of the CMS Notes online format.

Following the editors' report David Orenstein asked whether any members have submitted articles in French.

Annals Editors' Report: On behalf of co-editor Dirk Schlimm, Maria Zack reported the 2019/2020 edition of the Annals was nearing completion. It was reported that Dan Curtin assisted in finishing Joel Silverberg's last paper. Pat reported that members who paid for the 2019 Annals were contacted to inform them that their payment would cover the two-year volume when issued. The contract with Birkhauser has been extended for another three years covering the volumes for 2019/2020, 2021 and 2022. The terms of the contract remain the same.

Greg Lavers resigned as a co-editor with Dirk Schlimm stepping up for the 2019/2020 volume after his significant experience assisting with the 2018 papers. Maria reported that a philosopher is sought for a co-editorship position on the 2021 volume. Maria continues to do the bulk of the editing work but a co-editor philosopher would review the philosophy papers and help proofread the galleys prior to publication. 1 October is the deadline for contributions to the 2021 Annals.

**CSHPM Student Award:** Maria Zack reported a lack of papers resulted in a decision not to present a student award this year. The award was divided and the money sent to student members of the society in keeping with the goal of aiding graduate students.

Webmaster's Report: Mike Molinsky reported that he continued to maintain the website including the online membership form as well as updating the Council and Announcement Google Group mailing lists. He thanked Amy Ackerberg-Hastings for posting useful information to the CSHPM Facebook page.

As noted in last year's webmaster's report a replacement webmaster continues to be sought. However, if there are no volunteers willing to take over the position Mike will continue in the role for 2021–2022.

Archivist's Report: Eisso Atzema reported that no requests for materials were received this year. The archives' inventory was updated to include the most recent *CMS Notes*.

Phil Math Preprint Archive: Elaine Landry reported that the PhilMath-Archive section of philsciarchive went live on the morning of 11 May 2017. It was a new section of the archive with goals matching those of philsci-archive, but dedicated to philosophy of mathematics and curated by philosophers of mathematics. Landry coordinates and moderates the new section. Several societies co-sponsor the section, including the International Association for the Philosophy of Mathematics (PMA), the Canadian Society for History and Philosophy of Mathematics (CSHPM), The British Society for the History of Mathematics (BSHM), the Association for the Philosophy of Mathematical Practice (APMP) and the Philosophy of Mathematics Special Interest Group of Mathematical Association of America (POM SIGMAA).

The new section is frequently in use, with new postings added to the existing mathematics subject headings. The following table and graph show the growth of entries under the subject heading "Mathematics."





Figure 4: Cumulative Growth

Date	Math Entries	Increment
5/2014	173	25
5/2015	206	33
5/2016	225	19
5/2017	234	9
5/2018	299	65
5/2019	383	84
5/2020	449	66
5/2021	535	86

The opening of PhilMath-Archive has had a marked effect on postings. Prior to its opening the section attracted roughly twenty preprints a year. More recently after opening it has attracted three to four times as many. Landry reported smooth operation over the past year, with little need to moderate postings.

Coordinating with moderation in the philsci-archive proceeded smoothly. Some trouble has been observed from fringe authors contributing to both archives. Quality of preprints may not be apparent if preprints are taken in isolation and moderation does not provide a thorough refereeing. However, consultation among the editors of both archives rapidly resolved emerging issues with fringe contributions. Coordination between the two archives is currently done via email by the two moderators 'manually' checking with one another when a possible fringe case arises. Although this is somewhat cumbersome the number of cases is sufficiently low that implementing an automated system is currently unnecessary.

**SCIAMVS** Journal: No report received from Nathan Sidoli.

**CMS Liaison:** No report received from Maritza Branker.

Nominating Committee and Appointment of Interim Treasurer: Craig Fraser reported a nomination committee of three is required and volunteers will be sought for this committee at the AGM. Fraser reported that a motion to approve appointment of David Orenstein as interim Treasurer is planned for the AGM.

**Future Meetings:** Craig Fraser reported that usually CSHPM meets as part of Congress with the Federation for the Humanities and Social Sciences. A location for the 2022 meeting has not yet been determined and it is not yet known if Congress will be in person, virtual or hybrid. CSHPM has many non-

Canadian members and border crossing could pose an issue. Fraser suggested that there be a special session topic on the use of original sources in history and philosophy of mathematics.

**Other Business:** Nic Fillion reported plans to continue organizing the series of virtual talks on behalf of the society. Pat noted these talks have been instrumental in attracting new members to the society. The AGM will be held virtually on 13 July 2021 at 3:00 pm EDT. The meeting was adjourned at approximately 2:55 pm EDT.

Patricia Allaire, Secretary

# Karl Pearson: Evolution of My View of Him as a Racist

Karl Pearson is one of the great pioneers of statistical theory and methods. He developed and promoted the theory of correlation, the chi-squared test of fit, the method of moments for estimation, and the theory of skew distributions. He also coined such statistical terms as histogram and kurtosis, among others. His work inspired the development of statistical courses in North America beginning in the 1920s. Recently, he has fallen from grace, along with his mentor, Sir Francis Galton (Charles Darwin's cousin). Buildings and rooms named for them at University College London have been renamed because of their racist views related to eugenics.

Last year, another famous statistician, geneticist and eugenicist, Sir Ronald Fisher took the same tumble. His name was removed from a high profile lecture sponsored by the Committee of Presidents of Statistical Societies (COPSS). I was invited to be part of a panel at the 2020 Joint Statistical Meetings (JSM) to discuss the history of statistics and eugenics. As it was my first serious foray into the subject, I did a lot of reading and researching within the time constraints I was given. Apparently, it was not enough. The point I made last year was that the three main characters in eugenics, Galton, Pearson and Fisher, needed to be considered within their historical contexts. The context was British imperialism, the British Empire, and the British class system. A general tone of empire and the sensibility of British superiority is exemplified in many past works; for instance, the adventure novels of G. A. Henty. A mild form, if you can call it that, of racism would be expected of most people of that time period, the trio of statisticians included. I have experienced personally the class system, and my status as a colonial, on early trips to the United Kingdom that included a six-month sabbatical leave there several years ago.

My knowledge of the eugenics movement within statistics was a little dated. It was mainly based on the 1981 book by Donald A. MacKenzie, Statistics in Britain, 1865-1930: The Social Construction of Scientific Knowledge. In the book MacKenzie laid out how the early eugenics movement in Britain was related to the class system. The lower classes were seen as having low genetic worth. The original intention of the British eugenics movement was to get those with higher genetic worth (the professional classes) to have more children and to discourage those at the bottom end to have children thus "improving" the British population. This would be done through education. MacKenzie took Galton's verbal descriptions of the worth of various classes and set them out with a nice picture given below.



Figure 5: Galton on Classes

I sat there, relatively complacent, until recently when our *Bulletin* editor, Sylvia Nickerson challenged me with Part I of a paper by Karl Pearson and Margaret Moul that appeared in the *Annals of Eugenics* (now the *Annals of Human Genetics*). Pearson had founded the journal in 1925 and was its editor. The very lengthy complete paper (424 journal pages) entitled, "The problem of alien immigration into Great Britain, illustrated by an examination of Russian and Polish Jewish children" appeared over six issues of the journal, with the first part appearing as the only article in the first issue of the journal in 1925. The paper is replete with statistics and Pearson's statistical methods to analyze the data. The basic problem tackled in the paper is one that is with us today. Which groups should the state admit as immigrants? One of Pearson and Moul's answers was that the immigrants should be of "good physique and high mentality." They studied the problem by examining the children of Jewish immigrants who came to Britain between the turn of the century and the beginning of the Great War. These immigrants came as a result of pogroms carried out in the Russian Empire between 1903 and 1906. Pearson and Moul stated in their paper that they had been hampered by the Great War in completing their work, which accounts for its completion only in 1925.

When I first looked at Pearson and Moul's paper, I thought it confirmed what MacKenzie had written about eugenics and the class system. On the surface, the paper appears to be anti-Semitic. But digging deeper, it appeared to be more anti-Semitic towards eastern European Jews. According to Pearson and Moul, the physique of the Jewish immigrant child compared favourably with Gentile children in Britain, but the immigrant children were inferior intellectually when compared to Gentile children. Fitting in well with MacKenzie's insights, the parents of the immigrant children from eastern Europe all had working class jobs. Pearson and Moul recommended that higher standards in physical and mental abilities should be set for immigrants. They raised the bar to 25% higher than the averages for the native British. On the other hand, Jews who had immigrated from German areas of Europe to Britain during the nineteenth century were generally successful in British society. They also seemed to have had better traits than the newer immigrants from Poland and Russia. Again, this fit into MacKenzie's class system analysis. The more malignant reason for the differences was clarified a decade later by Pearson.

Curiously, I could find only one newspaper report on what seemed to be a blockbuster finding by Pearson and Moul. It appeared in *The Shields Daily News* for 5 November 1925. This was a local newspaper for the Tyneside area of England. Perhaps it was a slow news day in Newcastle. Then I looked at Pearson and Moul's paper more closely, looking into the historical backgrounds of the subject material and of the authors. Margaret Moul was Pearson's assistant at UCL and probably did most of the statistical calculations for the paper. And there were a lot of them, done on Pearson's favourite brand of mechanical calculator, the Brunsviga. The field work was probably done before the war. Moul is an obscure person; there is much more information on Pearson. The best background on Pearson's eugenic work appears in the 1992 book by Elazar Barkan entitled, *The Retreat of Scientific Racism: Changing concepts of race in Britain* and the United States between the world wars.

At the time when Pearson's work was coming into prominence, the 1890s to the early twentieth century, the field of biology was in a state of upheaval. Pearson and his school were promoting the new statistical methodology; and several biologists were interested. Of greater import, the study of genetics was beginning to blossom and becoming better understood. Pearson could not come to terms with genetics. To him, genes were unobservable and therefore not quantifiable. As a result of his lack of understanding of the newly emerging field of genetics, Pearson was on the losing end of the upheaval. Pearson's school, the biometricians, was pitted against the new geneticists, the Mendelians whom Pearson vehemently opposed. Following his mentor Galton, Pearson was committed to evolution through continuous variation, while geneticists came to see evolution though genetic mutations. Like Galton, Pearson believed that the vast majority of human characteristics were inherited. He definitely favoured nature over nurture. His early work confirmed these views in him and he brought these beliefs to his later scientific studies, including his work with Moul.

Over the six issues of Annals of Eugenics, Pearson made some statistical errors in his analysis of the Jewish immigrant children. They were not errors on the technical side of the formulae he had developed. Rather, they were errors in the application of his methodology and his study design. In his 1983 book *Hen's Teeth and Horse's Toes*, Stephen Jay Gould points out one of Pearson's most egregious methodological errors. He used short and subjective scales for his measurements. For intelligence, his seven-point scale was based on teachers' judgements of their students rather than on any test performed on the students. He claimed his scores were correlated with Binet scores for IQ; but he did not administer a Binet test to any of the students. To bolster his belief in nature over nurture, he found no correlation between intelligence as he measured it and some environmental factors.

Gould was not the first to criticize Pearson's methods. Soon after the Pearson and Moul article first appeared, Dr. William Moses Feldman, an expert on child health in Britain, wrote to the British Medical Journal (BMJ, 23 January 1926, pp. 166 – 167). With respect to intelligence, Feldman pointed to the Whitechapel Foundation School, a grammar school in East London where the Jewish immigrants lived. Feldman quoted statistics showing that 56% of the Jewish boys from the school won scholarships while only 25% of the Gentile boys did so. He also criticized Pearson and Moul's use of several anthropometric values as a measure of fitness. To Feldman, the one relevant measure was average life expectancy. In several studies across the world, Jews had a greater average life expectancy than non-Jews. Further, in Britain infant mortality among Jews was less than that among Gentiles even in the slums. Pearson and Moul, probably just Pearson, seem to have neglected to investigate other relevant studies before designing their own.

Another criticism came from a reviewer known only by the initials F.S. The review of Pearson and Moul's paper appears in Journal of the Royal Statistical Society (JRSS, 1926, Vol. 89, pp. 147–151). The reviewer began by describing the Annals of Eugenics as "a home for otherwise homeless papers by trained scientists on problems of race in man." From their study, Pearson and Moul had concluded: "The standard of the Jewish aliens in the matter of personal cleanliness is substantially below that of even the poor Gentile children." To that F.S. responded: "[The conclusion] does not accord with the common view held by social workers and school teachers who labour among Jewish children." Once again, Pearson appears to have neglected doing much background investigation before designing the study.

One error for which Pearson and Moul might be forgiven is that they claimed to have a random sample of the alien Jewish population. Random sampling was not well understood in the 1920s; in 1988 I wrote an article "A brief history of random sampling" that appeared in *Handbook of Statistics*, Vol. 6, pp. 1–14, that explains how early sampling methods evolved. I might take away my might. Pearson and Moul did not randomly select their children; instead, they were after a representative sample. What they actually got was a convenience sample. With the permission of the school, they examined children at the Jews' Free School in London's East End, the largest of its kind in Britain. The reviewer named F.S. also spoke to that issue. He pointed out that Pearson and Moul examined only the Jewish immigrants in the East End and commented that, "The more capable parents probably soon left Whitechapel for better residential parts."

Despite evidence to the contrary. Pearson stuck to some of his beliefs. Three years prior to the first of the Annals of Eugenics articles, Pearson gave a talk at UCL on "alien Jewish children" and the study he was carrying out (The Times, 10 May 1922). The talk was sponsored by the Union of Jewish Literary Societies. From the newspaper report, it is evident that part of Pearson's research on the subject had been funded by the first Baron Rothschild. During the talk Pearson recommended that, based on his research, Jewish immigration be restricted to those whose physical and mental abilities were 25% higher than the average abilities for the native British. The only silver lining to Rothschild's cloud was that he did not live to hear the talk or read Pearson and Moul's paper; he died in 1915. The other thing to take from the report in The Times is that Pearson was not overtly anti-Semitic, at least in about 1910 when he received Rothschild's funding. There were further criticisms of Pearson's study design. About two months after his lecture, there was a conference held by the Jewish Memorial Council that had been established in 1919. One of the speakers was Laurence Bowman, the headmaster of the Jews' Free School. The report of his talk in The Times (4 July 1922) is telling: "Much of Professor Pearson's data, [Bowman said], was obtained by observers in the Jews' Free School, and by comparing Professor Pearson's figures with those of the London County Council observers he maintained that no reliance could be placed on the professor's conclusions." In his paper with Moul, Pearson does not appear to have used any data collected by the London County Council.

Between the Annals of Eugenics paper and the early 1930s, Pearson appears to be silent on Jewish eugenics. When he next uttered a word on the subject, it was disturbing. At his retirement dinner on 23 April 1934, Pearson spoke about his efforts to develop and promote biometry (L.N.G. Filon and others, 1934, Speeches Delivered at a Dinner Held in University College, London in Honour of Professor Karl Pearson 23 April 1934). Galton defined the use of the word biometry in the first issue of the journal Biometrika in 1901: "The primary object of Biometry is to afford material that shall be exact enough for the discovery of incipient changes in evolution which are too small to be otherwise apparent." Galton was the patron for the new journal and Pearson was one of the editors. After describing at his retirement dinner how the study of biometry grew and spread, Pearson went on to say:

The climax culminated in Galton's preaching of Eugenics, and his foundation of the Eugenics Professorship. Did I say "culmination"? No, that lies rather in the future, perhaps with Reichskanzler Hitler and his proposals to regenerate the German people. In Germany a vast experiment is in hand, and some of you may live to see its results. If it fails it will not be for want of enthusiasm, but rather because the Germans are only just starting the study of mathematical statistics in the modern sense!

This needs to be put in its historical context. Hitler had been in power for only about a year and so the full ugliness and evil of his regime was only beginning to take shape at this time. Pearson read The *Times.* He must have as he wrote letters to the editor of that newspaper. The Times reported some disturbing news about the treatment of German Jews. In late March and early April 1933, The Times reported on the Nazi-imposed boycott of Jewish businesses that ran for two weeks, as well as some of the violence associated with it (The Times 28 and 30 March and 5 April). The next year, a week prior to Pearson's retirement dinner, The Times gave a one-year update on what had happened to Jews in Germany since the boycott (18 April 1934). Jews had been banned from certain professions—The Times described it as "all walks of life in which he [Jews] might exercise an influence on the character of the nation." I believe that these events are related to the experiment to which Pearson was alluding.

Whatever the exact experiment Pearson had in mind, it did not turn out the way he had hoped. Pearson's last written statement on the issue appeared in *Biometrika* in June 1936, about two months after his death. It clarifies why Pearson preferred German Jews to Polish or Russian Jews, as he had done in his Annals of Eugenics paper. It had nothing to do with the class system, but everything to do with race. Pearson saw that Jews in Germany were frequently intermarrying with Gentile Germans. This was a positive development for Pearson; Jews were being assimilated into the German population and so racial distinctions between Jews and Germans would soon disappear. In the Biometrika article, Pearson responded to a news report he had read in *The Times* (16 November 1935) on new restrictive marriage laws for Jews in Germany. He wrote: "If tyranny must interfere to hasten a natural process, it would be more successful in its purpose if, instead of forcing Jew to marry Jewess, it had forced every Jew and Jewess to marry a Gentile." It was more than the class system that shaped Pearson's work in eugenics, much more. Pearson was a racist. Delving into Pearson led me to read a recently published book, Caste: The Origins of Our Discontents by Isabel Wilkerson. The book is about the caste system in the United States with comments on the caste systems in India and Nazi Germany. It made me think seriously about, and come to understand a bit, the caste system that we have in Canada. It also opened my eyes to the insidiousness of the early eugenics movement in Britain and how it was related to the class system as a caste system.

There is more to this story, but I don't have the resources to get them for you. The Pearson Papers in the UCL Archives has several papers and letters relating to Pearson's work with the Jews' Free School and other connected items. Likewise, the London Metropolitan Archives holds records of the Board of Deputies of British Jews. Tucked in the sub-fonds labelled "Education and Youth Committee/Correspondence" is material related to the controversy that Pearson started in 1925.

David Bellhouse

# Karl Pearson A Racist? A Commentary

When *Bulletin* editor Sylvia Nickerson asked me to comment on David Bellhouse's "Karl Pearson: Evolution of My View of Him as a Racist," I was flattered to be asked, knowing David's excellent work in history of statistics for many years. She was also asking to consider a new turn in my research: Eugenics in Canada before WWII as refracted through the international scientific congresses held here.

She also shared the key documents David refers to. Part 1 of Pearson and Moul's "... Examination of Russian and Jewish Children," from the *Annals of Eugenics*, the subsequent short news report, "Unfit Aliens," from the *Shields Daily News*, and Feldman's letter in response from *The British Medical Journal*.

Pearson and Moul seemed to have put a lot of erroneous effort into a misguided attempt to confirm their *a priori* antisemitic prejudices. Their immediate goal was to encourage restrictive immigration policies. It was published in 1925, only eight years before the accession to power in Germany of Adolph Hitler and the Nazi Party. Such policy would thus have a monstrous deadly effect, as it certainly did in Canada and the United States.

The News reflects the anti-immigrant nativism in England that delivered Brexit, whose self-defeating idiocy we see revealing itself as I write in early October in the ongoing collapse of the British supply system. It does give fair summary of the noxious approach of Pearson and Moul: while some Jewish immigrant children are successful academically, it's doubted ["w]hether they have the staying powers of the native race." Furthermore, it's denied "that a lessening of poverty" will do any good. What spineless pandering to the wealthy élite!

Feldman is surprisingly polite in his criticism of Pearson and Moul. For example, "[They] have done me the honour of referring... to a paper of mine on 'Tuberculosis and the Jew'." But Pearson and Moul cite this paper that demonstrates the much lower Jewish death rate from tuberculosis only to erroneously (I'd say maliciously) conclude "Jews are more anxious and visit the dispensary with slighter symptoms...." Sadly, Feldman feels he still has to discuss "fitness," but "I... protest... against accepting certain anthropological measurements as evidence of physical fitness. The only [valid] measurement ... is... susceptibility to death."

David starts his paper reminding us of today's iconoclasm in statistical circles, even referring to one of my heroes, Sir Ronald Fisher. Fisher was in Toronto for the August 1924 overlapping International Mathematical Congress and the British Association for the Advancement of Science Meeting, giving important papers at each. Here for the BAAS was also Cyril Burt, the infamous twin studies fraudster.

Re-evaluating historical figures is always in order, but it should be done using serious scholarly methods, as David does, both setting the scene and providing welldocumented evidence, much of which, because of the electronic availability of period publications, is easily checked out.

The case is certainly made that Karl Pearson was a racist.

David Orenstein

# AGM of CSHPM/SCHPM

The Annual General Meeting of the Canadian Society for the History and Philosophy of Mathematics took place virtually on Zoom on 13 July 2021. The meeting was called to order at 2:05 pm EDT by Craig Fraser, President, with thirty members in attendance.

### Agenda for the General Meeting

- 1. Approval of the Agenda
- 2. Approval of the minutes of the 2020 AGM
- 3. Treasurer's report
- 4. Secretary's report
- 5. Bulletin Editor's report
- 6. CSHPM Notes Editor's report
- 7. Annals Editor's report
- 8. Colloquia
- 9. Webmaster's report
- 10. Archivist's report
- 11. Phil Math Preprint Archive report
- 12. CMS Liaison report
- 13. Nominations Committee
- 14. Election of Interim Treasurer
- 15. 2022 Annual Meeting
- 16. Other business
- 1. The agenda for the general meeting was approved.
- 2. Minutes from the 2020 AGM were accepted as printed in the November 2020 *Bulletin*.
- 3. Greg Lavers noted that society assets have increased for several reasons. Expenses associated with an in-person meeting were not incurred. There was no payment for *Historia* because the society was billed twice and paid twice last year. Greg reported that periodically money was moved from PayPal into the Canadian account. Robert Thomas asked if a better investment might pay more than the GICs cur-

rently earning 1-2%. Greg replied the society makes generally only very conservative investments. The 2020 financial statements were published in the May 2021 issue of the *Bulletin*.

- 4. Patricia Allaire presented comparative membership data for 2020 and 2021. (Please refer to the CSHPM Executive Council minutes in this issue of the *Bulletin* for the data.)
- 5. Sylvia Nickerson was not able to attend this meeting. (Please refer to the CSHPM Executive Council minutes in this issue of the *Bulletin* for her report.) Pat said that all members will receive the link to the *Bulletin* by email, even if they will be receiving a paper copy.
- 6. Amy Ackerberg-Hastings, on behalf of herself and and Hardy Grant, presented a report. (Please refer to the CSHPM Executive Council minutes in this issue of the *Bulletin* for the report.) Amy remarked that these columns help maintain the society's profile among mathematicians. She thanked Sylvia for the smooth transition as *Bulletin* editor.
- 7. Maria Zack, on behalf of herself and Dirk Schlimm, presented their report. (Please refer to the CSHPM Executive Council minutes in this issue of the *Bulletin* for the report.) Maria noted the name of the publication was changed from *Proceedings* to *Annals* to make publishing in its pages more useful to early-career members. David Waszek will be the new co-editor of the *Annals*. Since this year's annual meeting was jointly held with the BSHM and HOM SIGMAA, any member of the three organizations is eligible to submit an article to the *Annals*.
- 8. Nic Fillion reported that average attendance at online colloquia was about thirty-five and that time slots for talks are chosen to be convenient for the greatest number of people. Steve Weintraub asked if the talks were recorded. Nic said recording was not possible for a number of reasons. Speakers might wish to use the talk again in the future and most talks included images.
- 9. Mike Molinsky expressed his wish to step down as Webmaster but has not been able to find a replacement. He asked if we might consider a professional, paid webmaster. Craig suggested that a replacement might be found by posting to our social media accounts.
- 10. Eisso Atzema presented a report. (Please refer to

the CSHPM Executive Council minutes in this issue of the *Bulletin* for the report.) Pat noted that she and Eisso had arranged for him to update the archives with membership lists from several much-earlier years.

- 11. Elaine Landry presented a report. (Please refer to the CSHPM Executive Council minutes in this issue of the *Bulletin* for the report.) Preprints are available just prior to publication.
- 12. Maritza Branker observed the May 2020 Bulletin contained a write-up by Sylvia of the December 2020 meeting. The 2021 CMS Winter Meeting will be virtual. The society will try to participate in the 2022 CMS summer meeting.
- 13. A committee of three is required and members are asked to email Craig with suggestions or to volunteer to serve.
- 14. In keeping with the by-laws the Executive Committee nominated David Orenstein to serve as Interim Treasurer until the 2022 election. A motion was made and seconded. A virtual vote was taken with 28 of 30 votes in the affirmative. The motion was passed.
- There was a discussion as to whether the society 15.should meet with CMS or join the Federation at Congress. CMS is meeting at St. John's, Newfoundland and there are expenses for most members to travel to St. John's. It is not known what border-crossing restraints will still be in place. It was decided that the society would meet with Congress. The location is to be determined. It is not yet known if the meeting will be in person, virtual, or hybrid. (At time of printing of this Bulletin, it has been determined the 2022 Congress will be held entirely online.) Craig will inform the membership as soon as he receives information. Anyone wishing to volunteer as program chair for the general session should contact Craig. Craig suggested the special session theme could focus on the use of original sources for research. David suggested that the use of archives could be part of this theme. David volunteered to chair the special session.
- 16. David noted that there are two significant events worth commemorating in 2024—the centennial of the 1924 Toronto International Mathematical Congress with Fields as president as well as the semi-centennial of the 1974 Vancouver International Congress of Mathematicians under Cox-

eter's presidency. The meeting was adjourned at 3:05 pm. *Patricia Allaire, Secretary* 

## Quotations in Context

"When a philosopher says something that is true, then it is trivial. When he says something that is not trivial, then it is false."

The statement above is sometimes attributed to the mathematician Carl Friederich Gauss (1777–1855). Rather than a direct quotation, this appears to be a significant (and misleading) paraphrase of Gauss from a letter written to the astronomer Heinrich Christian Schumacher (1780–1850).

On October 29, 1844, Schumacher sent a letter to Gauss which contained a variety of astronomical and mathematical observations. The letter also contained a brief complaint about the philosopher Christian Wolff (1679–1754). Schumacher noted that he had recently examined a copy of Wolff's Anfangsgründe aller mathematischen Wissenschaften (Elements of All the Mathematical Sciences), published in 1710, and Schumacher was surprised by the poor quality of definitions he found in the work, particularly citing examples concerning the center of gravity of an object.

On November 1, Gauss wrote a reply letter to Schumacher. After a brief discussion of comets, Gauss addressed Schumacher's concerns about Wolff, as shown below in the original German and in English translation:

Dass Sie einem Philosophen ex professo keine Verworrenheiten in Begriffen und Definitionen zutrauen, wundert mich fast. Nirgends mehr sind solche ja zu Hause, als bei Philosophen, die keine Mathematiker sind, und Wolf war kein Mathematiker, wenn er auch wohlfeile Compendien gemacht hat. Sehen Sie sich doch nur bei den heutigen Philosophen um, bei Schelling, Hegel, Nees von Esenbeck und Consorten, stehen Ihnen nicht die Haare bei ihren Definitionen zu Berge. Lesen Sie in der Geschichte der alten Philosophie, was die damaligen Tagesmänner Plato und andere (Aristoteles will ich ausnehmen) für Erklärungen gegeben haben. Aber selbst mit Kant steht es oft nicht viel besser; seine Distinction zwischen analytischen und synthetischen Sätzen ist meines Erachtens eine solche, die entweder nur auf eine Trivialität hinausläuft oder falsch ist [Peters, p. 337].

That you believe a philosopher ex professo to be free of confusion in concepts and definitions is something I find almost astonishing. Nowhere else are they more common than in philosophers who are not mathematicians, and Wolff was no mathematician, though he put together many compendiums. Just look around at the modern philosophers, at Schelling, Hegel, Nees von Esenbeck and consorts-don't their definitions make your hair stand on end? Read in the history of ancient philosophy what the men of the day, Plato and others (I except Aristotle), gave as explanations. And even in Kant matters are often not much better; his distinction between analytic and synthetic propositions seems to me to be either a triviality or false [Ewald, p. 293].

Gauss clearly expressed plenty of contempt for a wide range of modern and ancient philosophers, excluding only Aristotle from his criticism. But it should still be noted that the final sentence did not assign the exclusive values of "triviality or false" to all statements by any philosopher (as the modern "quotation" would have it), but instead it was applied specifically to the contrast of analytic and synthetic propositions made by Kant.

Mike Molinsky

#### References

Ewald, William Bragg, Jr., and William Bragg Ewald. From Kant to Hilbert Volume 1: A Source Book in the Foundations of Mathematics, Oxford University Press, 2007.

Peters, Christian A. F., editor. Briefwechsel Zwischen C.F. Gauss Und H.C. Schumacher Vol. 4. Altona: Esch, 1862.

# Help (Still) Wanted

The Society is looking for an ongoing volunteer: Webmaster.

The responsibilities of the webmaster include hosting and maintaining the CSHPM website (www.cshpm. org), updating the online membership form each year, moderating the Council and Announcement list-servs, creating the online ballot for biennial elections, and supervising the CSHPM Facebook and Twitter accounts. For more information or to volunteer, contact Mike Molinsky, *michael.molinsky@maine.edu*.

# Remembering Noel Swerdlow

Noel Swerdlow died in July at the age of seventynine. He had received his bachelor's degree in history at UCLA and his doctorate at Yale in mediaeval studies. His graduate work was originally intended to be in musicology but he moved to the history of science instead. He spent almost his entire academic career at the University of Chicago, first in the history department, later in the astronomy and astrophysics department. He had two stints at the Institute for Advanced Study. After retiring in 2010 he moved out to Pasadena where he continued his academic work with colleagues at Cal Tech. In 1985 he received the Pfizer Award from the History of Science Society and in 1988 he received a MacArthur Fellowship.

It may not be clear from the above why he should be the subject of a memorial in the Bulletin of the CSHPM, but the centrality of mathematics in his work was a theme for his entire career. He was a sabbatical replacement for the year 1976–1977 at the Institute for the History and Philosophy of Science and Technology at University of Toronto where he offered a course on the history of Babylonian astronomy. The story is that Plato's Academy had over the door an inscription warning those ignorant of geometry against entering. In the same way Swerdlow's approach to the topic of the course did not encourage those without an extensive mathematical background to stick with it. There was also the large German shepherd who played the role of sentinel at his office that might have been a little of a deterrent. Of course, smoking was not banned in those days, so there was some concern for venturing into the atmosphere inside the office. When he offered the history of mediaeval science course, there was quite a contrast with Stillman Drake's version from the year before.

Swerdlow's academic lineage was impeccable, being the 'grandson' of Otto Neugebauer via Asger Aaboe. He and Neugebauer put together a two-volume account of Copernicus's use of mathematics (*Mathematical Astronomy in Copernicus's* De Revolutionibus).

### PRELIMINARY CALL FOR PAPERS / APPEL DE COMMUNICATIONS PRÉLIMINAIRE

## Canadian Society for History and Philosophy of Mathematics Société canadienne d'histoire et de philosophie des mathématiques

Annual Meeting / Colloque annuel Online May 12–20, 2022 / 12-20 mai 2022

Special Session / Séance Spéciale Original Sources in the History and Philosophy of Mathematics / Sources originales en histoire et philosophie des mathématiques

> Kenneth May Lecturer / Conférence Kenneth May To Be Announced / À venir

The CSHPM will be holding its 2022 Annual Meeting online in conjunction with the 2022 Congress of the Humanities and Social Sciences. The meeting will be sometime during the time period of May 12–20, 2022. The exact dates are unknown at this time but likely will be May 13–15 or May 14–16.

Members are invited to present papers on any subject relating to the history of mathematics, its use in the teaching of mathematics, the philosophy of mathematics, or a related topic. Talks in either English or French are welcome, as are presentations about work in progress. Graduate students are especially welcome to present their work. All graduate students who present are eligible for the CSHPM Student Award.

Please send your title and abstract (200 words or less) in Word, (non-scanned) PDF, or in the body of an email by February 1, 2022, to:

#### GENERAL SESSION / SÉANCE GÉNÉRALE:

Andrew Perry Department of Mathematics, Physics, and Computer Science Springfield College Springfield, MA 01109, United States aperry@springfieldcollege.edu La SCHPM organise son colloque annuel de 2022 à l'University of British Columbia, dans le cadre du Congrès des sciences humaines et sociales 2022. Le colloque aura lieu au cours de la période allant du 12 au 20 mai 2022. Les dates exactes ne sont pas encore connues, mais elles seront probablement du 13 au 15 mai ou du 14 au 16 mai.

Les membres sont invités à faire une présentation sur n'importe quel sujet portant sur l'histoire des mathématiques, son utilisation dans l'enseignement des mathématiques, sur la philosophie des mathématiques, ou sur tout autre sujet connexe. Les présentations en anglais ou en français sont bienvenues, comme le sont celles sur des travaux en cours. Les doctorants, en particulier, sont invités à présenter leurs recherches. Tout doctorant qui fait une présentation est admissible au Prix des Étudiants de la SCHPM.

Veuillez envoyer le titre de votre exposé, ainsi qu'un bref résumé de 200 mots ou moins en format Word, PDF (non-scanné) ou à l'intérieur d'un courriel avant le 1 février 2022 à:

SPECIAL SESSION/SÉANCE GÉNÉRALE

Amy Ackerberg-Hastings 5908 Halsey Rd Rockville, MD 20851, United States aackerbe@verizon.net This was published in 1984 to great acclaim, although certainly a slog for those with limited mathematical background. Swerdlow published extensively, both books and articles, and left unfinished a magisterial treatise *The Renaissance of Astronomy in the Age of Humanism*, which there are plans to publish after additional work by colleagues. It says something about his excruciating thoroughness that at the time of his MacArthur award he was already working on that book. Among his co-authors was Chandrasekhar.

His many students at the University of Chicago bear witness to his skills in and out of the classroom. He brought to light 'underappreciated' mathematics in work of the past. He encouraged others to put the same effort into digging into a text even after there had been some sort of consensus about its significance and role in history. The resulting insights may not have made for easy reading but they were certainly not the product of superficial writing.

It is impossible to take leave of Noel Swerdlow without making reference to the many polemical articles he wrote in the course of his career. We know that some Renaissance scholars had rich stores of invective they used against intellectual opponents. Swerdlow, by contrast, did not feel obliged to resort to namecalling but allowed his arguments to speak for him. Those looking for an example could turn to his "Pseudodoxia Copernicana" published forty-five years ago in the Archives Internationales d'Histoire des Sciences in which he takes on Edward Rosen's arguments about whether Copernicus believed in solid spheres. The effectiveness of Swerdlow's approach makes the point quite definitively. It is worth mentioning that in many cases. Swerdlow's opponents in scholarly arguments subsequently became friends and colleagues. Those in search of fine argumentation will join the community of historians of astronomy and the exact sciences in paying tribute to Noel Swerdlow's memory.

Thanks to Sharon Kingsland and Anthony Grafton for their assistance preparing this note. *Tom Drucker* 

## New Members

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

William Branson Clearlake, MN

USA Megan Ferguson Smithtown, NY USA Matthew Haines Saint Paul. MN USA Alexei Kojevnikov Vancouver, BC Canada Stuart Litobarski Southsea, Hampshire UK Shawn McMurran San Bernadino, CA USA Quan Nguyen Irving, TX USA Ramon Quintana Los Angeles, CA USA Abdur-Raheem Malik London UK

## From the Editor

This issue of the *Bulletin* is unusual for several reasons. It contains two articles that may be more about racism than history of mathematics, although the point is to examine the intersection. Fostering greater inclusion in academia and redressing systemic injustice was a priority last year in the aftermath of the Black Lives Matter movement. The article in last fall's issue about fostering inclusivity in logic was one example amid a wider trend. The articles in this issue arose from present sensitivities to historical issues.

In May I was preparing a course syllabus drawing on TRIUMPHS projects in probability and statistics. The project "Regression to the Mean" has a section for instructors that references Francis Galton's connection to eugenics. It is stated "This project does not touch on any of these topics, but instructors should be aware of these issues, in case a student asks about them."[1] I decided I would talk to students about the political dimensions of how we reflect on the statistical pioneers, so I began looking into it. As Michael Molinsky's column, Quotations in Context, frequently reflects, our heroes often show themselves as both dark and brilliant.

Our issue commemorates the passing of important members of the history of math community. I hope you may enjoy reflecting on the history of trigonometry in David Orenstein's review of Glen Van Brummelen's *Doctrine of Triangles*. Unfortunately no report was written on the joint BSHM-CSHPM conference People, Places, Practices, but I wish to congratulate the organizers and participants on carrying out these professional activities seamlessly in the virtual medium. I'd also like to thank Amy Ackerberg-Hastings who compiled the majority of announcements in this issue.

Our newsletter's next submission deadline is 1 April 2022. The editors continue to seek news items of interest to historians and philosophers of mathematics and personal and professional announcements. We also welcome suggestions for memorials, reports on conferences relevant to historians and philosophers of mathematics, book and web reviews, and informative or thought-provoking column-style articles. I will continue to honor submissions for ongoing column series including Models of Mathematics, Off the Shelf, and Mathematical Ephemera. I am open to new lines of investigation as well that members may wish the Bul*letin* to take up. I would be interested to hear from vounger scholars who are pursuing new lines of research or re-evaluating well travelled paths in new ways. Contributions of opinion or editorial style articles offering arguments or particular perspectives on the state of the field would be welcome. I am certainly open to the contributions of philosophers and encourage them to make this space their own. Write me your proposals.

Microsoft Word (please turn off its auto-formatting features such as "curly quotes") and LaTeX data files (not compiled PDFs) are easiest for the editors to deal with. We also prefer that image files be sent separately, rather than embedded into a Word or PDF document. Submissions may be sent to *s.nickerson@utoronto.ca*. The *Bulletin* reaches your hands or screen due to the continued labors of Eisso Atzema, Layout Editor; Maria Zack, Production Editor; Pat Allaire, Secretary; and Mike Molinsky, Webmaster.

Sylvia Nickerson

# About the Bulletin

The *Bulletin* is published each May and November by a team of 3 volunteers: Content Editor Sylvia Nickerson (s.nickerson@utoronto.ca), Layout Editor Eisso Atzema (eisso.atzema@maine.edu), and Production Editor Maria Zack (Maria-Zack@pointloma.edu). Material without a byline or other attribution has been written by the editors. Les pages sont chaleureusement ouvertes aux textes soumis en français. Comments and suggestions are welcome and can be directed to any of the editors; submissions should be sent to Sylvia Nickerson at the above email address. Members, readers and prospective contributors may also contact Sylvia by post. Direct correspondence to 115 Mary Street, Hamilton, Ontario, L8R 1K4, CANADA.

