International Study Group on the Relations Between the HISTORY and PEDAGOGY of MATHEMATICS
An Affiliate of the International Commission on Mathematical Instruction

Nº 101   July 2019

A MESSAGE FROM THE CHAIR OF HPM

Dear friends,

Welcome to Newsletter 101! I will not prolong my introductory message with too many words since this newsletter is *absolutely full* of celebrations, conference information, and the regularly appearing content of the newsletter, including the **MAA *Convergence* update** (if you didn't notice, Janet Heine Barnett (a friendly and scholarly presence in HPM) is now one of the co-editors of the journal!) and **"Have you read these?"**

I will highlight, however, four items of note:

- A celebration of the life of Georgio Bagni, on the 10th anniversary of his death;
- Celebrating a wonderful honor bestowed on one of HPM's finest: Mr. Peter Ransom (*Congratulations, Peter!*);
- Announcements on the upcoming ICME-14 Topic Study Groups of particular interest to the HPM community (TSG 27 and TSG 55), as well as HPM 2020; and
- The beginning of a new, recurring feature of the HPM Newsletter: **"Practitioner's Corner,"** which will be led by Desiree van den Bogaart (and for which we hope to call on the HPM community in the near future to help maintain this feature).

Kathy
(kclark@fsu.edu)

HPM 2020
History and Pedagogy of Mathematics (HPM) 2020 – Satellite Meeting of ICME-14

First Announcement
21 – 25 July 2020
University of Macau

Please note that the Meetings of the affiliated international study groups of the International Commission on Mathematical Instruction (ICMI) typically take place just before or after the quadrennial International Congress on Mathematical Education (ICME). The 14th International Congress on Mathematical Education (ICME-14) will take place just before HPM 2020, from 12–19 July 2020 in Shanghai, China (see: icme14.org).

1. The HPM Group: Introduction, aim and focus

HPM 2020 is the tenth quadrennial meeting of the International Study Group on the Relations Between the History and Pedagogy of Mathematics – the HPM Group. The HPM Group is an affiliated study group of the International Commission on Mathematical Instruction (ICMI).

https://www.mathunion.org/icmi/organization/affiliated-organizations

By combining the history of mathematics with the teaching and learning of mathematics, HPM connects the past and the future of mathematics. Therefore, the group aims to stress the conception of mathematics as a living science, a science with a long history, a vivid present, and an as yet unforeseen future.

These quadrennial meetings are a major activity of HPM to bring together individuals with a keen interest in the relationship between the history of mathematics and mathematics education. They include:

- Researchers in mathematics education who are interested in the history of mathematics and mathematical thinking;
- Mathematics teachers at all levels who are eager to gain insights into how the history of mathematics can be integrated into teaching and how they can help students to learn mathematics;
- Historians of mathematics who wish to talk about their research;
- Mathematicians who want to learn about new possibilities to teach their discipline; and
- All those with an interest in the history of mathematics and pedagogy.

2. Main theme and topics

The program and activities are structured around the following topics:

1. Theoretical and/or conceptual frameworks for integrating history in mathematics education.
2. History and epistemology in students' and teachers' mathematics education: Classroom experiments and teaching materials.
3. Original sources in the classroom and their educational effects.

4. Mathematics and its relation to science, technology, and the arts: Historical issues and interdisciplinary teaching and learning.
5. Cultures and mathematics fruitfully interwoven.
6. Topics in the history of mathematics education.
7. History of Mathematics in China and Eastern Asia.

3. Activities during the 2020 HPM Conference

The HPM Conference is a place where mathematicians, educators, historians, researchers, and students can make presentations and participate in discussions.

The program includes:

- plenary lectures;
- panels;
- workshops;
- parallel sessions where participants present research reports, poster exhibitions; and
- exhibitions of books and other didactical material.

Plenary sessions and panels deal with the main topics of the conference. Plenary speakers and panelists are invited by the International Program Committee.

We encourage participants to make submissions for the following activities: workshops, research reports, poster exhibitions, and exhibitions of books and other didactical material.

Research reports are intended to communicate new research results. They take place in parallel sessions of 25-minute oral presentations followed by 5-minute discussions.

Workshops focus on the exchange of ideas and discussion among the participants around some historical or didactical material prepared beforehand by the workshop organizer. The material usually includes original historical texts, didactical material, students' worksheets, etc. Workshops can be one hour or two hours in duration.

Posters present summaries of ongoing or completed research, new ideas, etc.

4. Time and place

The 2020 HPM Conference will be held from **21 to 25 July 2020** at the **University of Macau** in SAR **Macau, China**. With a fascinating history of 400 years of cultural exchanges between the East and the West, Macau is unique in its cultures and society. It boasts many cultural treasures of all types, including picturesque dwellings in traditional styles, ancient temples built during the Ming and Qing dynasties, buildings with Southern European architectural features, baroque style churches and impressive contemporary structures. In July 2005, the historic district collectively known as the "Historic Centre of Macau" was inscribed on the UNESCO World Heritage List. Today Macau is a Special Administrative Region (SAR) of the People's Republic of China, benefiting from the "one country, two systems" policy. Macau SAR is growing in the number and diversity of its attractions; the greatest of these continues to be Macau's unique society, with communities from the East and the West complementing each other. It offers a perfect environment for an international conference.

5. Official languages

The official languages of the conference are English and Chinese.

6. Submission of proposals

To submit a proposal for a research report, workshop, and/or poster, the following procedure must be followed:

(a) Register for an account and submit proposals via **Microsoft CMT** (https://cmt3.research.microsoft.com/User/Login).

(b) Submit an **abstract** of no more than 500 words (one A4 page) for each proposed activity, no later than **31 October 2019**.

Please note: An abstract in English *or* Chinese is required; however, you may also submit a proposal in English **and** Chinese. This has the advantage of enhancing the visibility of your proposal by making it accessible to all participants.

The members of the *International Program Committee* (IPC) will review the submitted abstracts. In case of acceptance, the abstract will appear in the *Conference Program*, and its author (or authors) will present the activity described in the abstract during the conference. However, this does not automatically imply that a full text based on this activity will be included in the HPM 2020 Proceedings, which will be published after the meeting, so that authors are given the opportunity to enrich their text as a result of the feedback they will gain during the meeting.

Full texts for inclusion to the HPM 2020 *Proceedings* will be submitted after HPM 2020 and will be further reviewed by members of the IPC by the usual international standards. In all other cases, abstracts that have been accepted and presented at the conference meeting in Macau will also be included in these *Proceedings*.

Details on the procedure and the deadline for submitting full texts, their size, the format guidelines, and the expected date by which the proceedings will be available to all registered participants, will be announced in due course in the HPM 2020 (available soon) and HPM websites (http://www.clab.edc.uoc.gr/hpm).

Summary of deadlines:
Submission of abstracts: **31 October 2019**

Notification of acceptance or not of the submitted abstracts (for presentation only): **30 December 2019**
The members of the 2020 HPM International Program Committee (IPC) will coordinate the peer-review process.

7. Registration fee

- *Early registration* **before 1 April 2020: 180 €** (students and K-12 teachers in mainland China, Taiwan, and Hong Kong: 90 €)
- *Regular registration* **before 1 June 2020: 230 €** (students and K-12 teachers in mainland China, Taiwan, and Hong Kong: 130 €)
- *Late Registration* **from 1 June 2020**, **or at the conference: 270 €** (students and K-12 teachers in mainland China, Taiwan, and Hong Kong: 160 €)

The conference fee includes: 5 lunches, 8 coffee breaks, as well as the gala dinner on the seaside and an excursion.

8. The International Program Committee (IPC)

The IPC includes the following groups:

HPM 2020 Chairs

Kathleen Clark, Florida State University (USA), Chair
Chuang Wang, University of Macau (Macau), Co-Chair
Xuhua Sun, University of Macau (Macau), Co-Chair

HPM Executive Committee

Évelyne Barbin, Université de Nantes (France)
Fulvia Furinghetti, Universita di Genova (Italy)
Uffe Thomas Jankvist, Aarhus University (Denmark)
Tinne Hoff Kjeldsen, University of Copenhagen (Denmark)
Constantinos Tzanakis, University of Crete (Greece)

HPM Advisory Board

Kristín Bjarnadóttir, University of Iceland (Iceland)
George Booker, Griffith University (Australia)
Renaud Chorlay, IREM, Université Paris 7 (France)
Ubiratan D'Ambrosio, Pontificia Universidade (Brazil)
Florence Fasanelli, American Association for the Advancement of Science (USA)
Gail FitzSimons, Warrandyte, Victoria (Australia)

Michael N. Fried, Ben-Gurion University of the Negev (Israel)
Wann-Sheng Horng, National Taiwan Normal University (Taiwan)
Sunwook Hwang, Soongsil University (South Korea)
Masami Isoda, University of Tsukuba (Japan)
Victor Katz, University of the District of Columbia (USA)
Ewa Lakoma, University of Technology Warsaw (Poland)
Snezana Lawrence, Middlesex University (UK)
Maria Rosa Massa-Esteve, Universitat Politècnica de Catalunya (Spain)
David Pengelley, New Mexico State University (USA)
Hélder Pinto, University of Aveiro and Piaget Institute (Portugal)
Luis Puig, Universitat de València (Spain)
Luis Radford, Université Laurentienne (Canada)
Leo Rogers, Independent Researcher (UK)
Anjing Qu, Northwest University (China)
Gert Schubring, Universität Bielefeld (Germany)
Man-Keung Siu, University of Hong Kong (Hong Kong SAR, China)
Bjørn Smestad, Oslo Metropolitan University (Norway)
Robert Stein, California State University, San Bernardino (USA)
Greisy Winicki-Landman, California State Polytechnic University (USA)

9. The Local Organizing Committee (LOC)

Co-Chairs: Chuang Wang, Pak Sang Lou

Co-Associate Chairs: Kong Chi Meng

UM Members: Kwok Cheung Cheung, Boby Ho-Hong Ching; Chunlian Jiang, Xiaoqing Jin

Macau School Members: Hong Yuan Hong, Ian Nam Wong, Tak Seng Lai, Sao Kei Si, Ka Lei Che

Mainland Committee:

Wang Xiaoqin (East China Normal University)
Ji Zhigang (School of History and Culture of science, Shanghai Jiao Tong University)
Xu Zelin (Donghua University)
Song Naiqing (Southwest University, China)
Zou Dahai (Chinese Academy of Sciences)
Zhang Hong (Sichuan Normal University)
Dai Qin (Inner Mongolia Normal University)
Cao Yiming (School of Mathematical Sciences, Beijing Normal University)
Pu Shuping (College of Elementary Education, Chongqing Normal University)

Taiwan Committee:

Liu Po-hung (National Chin-Yi University of Technology)
Jia-Ming Ying (National Taipei University of Education)
Tung-Shyan Chen (National Chin-Yi University of Technology)

Hong Kong Committee:

Chan Yip-Cheung (Chinese University of Hong Kong)
Wong Ka-Lok (University of Hong Kong)
Tang Mei-yue (formerly Hong Kong Education and Manpower Bureau)

10. Website
Follow us at: ***Website coming soon!***

11. Contact
For further information, please contact:

- Kathleen Clark (Chair), hpm2020conference@gmail.com
- Xuhua Sun (Co-Chair), hpm2020macao@gmail.com

14TH INTERNATIONAL CONGRESS ON MATHEMATICAL EDUCATION (ICME-14)

July 12 – 19, 2020
Shanghai, China

https://www.icme14.org

For details on the complete scientific programme of ICME-14 and its structure and time-schedule, as well as on practical details, the registration process, the venue and social events, visit the official ICME-14 website https://www.icme14.org .

A major part of the scientific program of the ICMEs consists of Topic Study Groups (TSG). These are mini conferences designed to gather a group of the Congress participants who are interested in a particular area of Mathematics Education. During ICME-14, there will be 62 TSGs in total.

***Summary of deadlines*:**
Please notice the following deadlines for submitting contributions to TSGs:
June 1 - September 15, 2019: Submission of papers & posters.
December 1, 2019 - February 29, 2020: Submission of the extended papers if applicable.
December 1, 2019 - February 29, 2020: Second-round submission of posters (submissions in this round have no chance to apply for a solidarity fund).
All proposals for paper and poster presentations will be submitted via the ICME 14 website. For more details visit the webpage for Topic Study Groups.

Two of ICME 14 TSGs are directly related to the HPM perspective, constituting an important activity of the HPM Group, namely:

TSG 27: The role of the history of mathematics in mathematics education

Chair: K. M. Clark (USA),
kclark@fsu.edu
Co-Chair: C. Tzanakis (Greece),
tzanakis@edc.uoc.gr

TSG 27 aims to provide a forum for participants to share their research interests and results, as well as their teaching ideas and classroom experience in connection with the integration of the history of mathematics in mathematics education. Special care is taken to present and promote ideas and research results of an as broad as possible international interest, while still focusing due attention to the national aspects of research and teaching experience in this area. Every effort will be made to allow researchers to present their work, get fruitful feedback from the discussion, and stimulate the interest of newcomers by giving them the opportunity to get a broad overview on the state-of-the-art in this area. This TSG refers to all levels of education – from primary school to tertiary education, including in-service teachers' training – preferably on work and conclusions based on actual classroom experiments and/or produced teaching and learning materials.

The program of TSG 27 will be structured around the following main themes:
1. Theoretical and/or conceptual frameworks – in particular from general mathematics education research – for

integrating history in mathematics education;

2. History and epistemology implemented in mathematics education: Classroom experiments and teaching materials, considered from various perspectives; e.g., cognitive, didactical, pedagogical, affective, etc.;

3. Surveys on the history of mathematics as it appears in curriculum and/or textbooks;

4. Original sources in the classroom, and their educational effects;

5. The role of history of mathematics in relation to the use of digital technologies in the teaching and learning of mathematics;

6. History and epistemology as a tool for an interdisciplinary approach in the teaching and learning of mathematics and the sciences by unfolding their productive interrelations; and

7. Cultures and mathematics fruitfully interwoven.

TSG 55: The history of the teaching and learning of Mathematics

Chair: W. Rodrigues Valente (Brazil), wagner.valente@unifesp.br
Co-Chair: A. Karp (USA), apk16@columbia.edu

TSG 55 is designed to bring together scholars interested in research on the history of mathematics education. The aim of the TSG is to provide a forum for the discussion of findings and unsolved problems in the history of mathematics education as well as of issues in methodology of research in this field. During the last years research in the history of mathematics education has been actively developed – important books and articles, specialized conferences, specialized journals, and special issues of some major serials have been devoted to the relevant topics. Still, it is very clear that many themes are not explored sufficiently and sometimes almost nothing is known about some periods and regions. Additionally, the history of mathematics education is often explored from a local (or national) point of view only. Often connections with similar processes happening elsewhere need to be revealed and understood. This TSG is supposed to help researchers in identifying new topics and new techniques for studies and in establishing fruitful collaboration in their work.

Meetings of the TSG will offer presentations on a variety of topics including the following (but not limited to them):

• History of reforms in mathematics education
• History of teaching different mathematical subjects (Algebra, Geometry, Calculus, Probability, etc.)
• History of tools in mathematics education (including textbooks, manipulatives, calculators, etc.)
• Mathematics teachers: history of professionalization
• Local, national, and international dimensions in the history of mathematics education
• History of mathematics education journals and conferences
• Heroes and actors in mathematics education: lives and contributions
• Research methodology in the history of mathematics education.

PRACTITIONER'S CORNER

Episode 1

Let me start with shortly introducing myself and the context I work in. I'm a mathematics teacher educator at the University of Applied Sciences in Amsterdam (The Netherlands). I've been working at the university for the past eight years, after working as a mathematics teacher in secondary school for ten years. I teach a variety of classes on mathematics, but also on pedagogy and professional development as a teacher. In this series I will focus on my experiences with teaching history of mathematics, within the context of teacher education for both lower and upper secondary levels.

At my university, the amount of time I have with my students is limited to seven 90-minutes sessions in a single semester. In my preservice lower secondary level teacher group we rapidly go through the history of mathematics up until Descartes' analytical geometry and in my in-service upper secondary level teacher group I have to address the history of mathematics roughly from the emergence of calculus in the seventeenth century to the Millennium Problems in the year 2000. In this episode I will describe two different activities: one from a session on the history of calculus and one session on Euler.

Session 1: The history of calculus

When my students entered the classroom, I handed out nametags in random order (tags are shown on photo on the left). The students adjusted their tag to their shirt and took a seat. All students tagged Newton formed a group, so did the Leibnizs, Lagranges, Cauchys and Weierstrass.

I handed them a single translated piece of mathematics, originally written by their namesake, on the derivative of $y = x^p$ and asked them to closely read it and discuss it in their groups.

Newton
De *fluents* x en y zijn gerelateerd volgens de vergelijking $0 = y - x^p$. Het moment van de fluent x is het product $\dot{x}o$ van de *fluxion* $\dot{x}$ en een oneindig kleine hoeveelheid o. Net zo is het moment van de fluent y gelijk aan $\dot{y}o$. Aangezien de momenten (zeg $\dot{x}o$ en $\dot{y}o$) van fluents (zeg x en y) de oneindig kleine toevoegingen zijn waarmee de hoeveelheden toenemen gedurende een oneindig kleine tijd, zal de fluent x en y na een oneindig kleine tijd gelijk zijn aan $x + \dot{x}o$ en $y + \dot{y}o$. Aangezien $0 = y - x^p$ geldig is *op alle tijdstippen*, geldt ook $$0 = (y + \dot{y}o) - (x + \dot{x}o)^p = y + \dot{y}o - x^p - px^{p-1}\dot{x}o - \frac{p(p-1)}{2!}x^{p-2}\dot{x}^2 o^2 - \cdots.$$ Nu geldt volgens aanname $y - x^p = 0$ en als je deze term weghaalt en vervolgens deelt door o, krijg je $$0 = \dot{y} - px^{p-1}\dot{x} - \frac{p(p-1)}{2!}x^{p-2}\dot{y}^2 o - \cdots.$$ Maar aangezien o oneindig klein is, zijn termen die dit als een factor hebben gelijk aan niets in vergelijking tot de andere. Daarom haal ik ze weg en houd ik over: $$0 = \dot{y} - px^{p-1}\dot{x}.$$
Leibniz
Neem een infinitesimale verandering dx van x. De infinitesimale toename dy van y is dan $$dy = (x + dx)^p - x^p = px^{p-1}dx + \frac{p(p-1)}{2!}x^{p-2}(dx)^2 + \cdots.$$ Maar aangezien $(dx)^2$ en hogere machten infinitesimaal veel kleiner zijn dan dx, geldt: $$dy = px^{p-1}dx.$$
Lagrange
De afgeleide $f'(x)$ van een functie f in x is *per definitie* de coëfficiënt B in de Taylor-ontwikkeling van f rond x: $$f(z) = A + B(z - x) + C(z - x)^2 + \cdots.$$ Schrijf $y = f(x) = x^p$. Dan geldt: $$f(z) = \big(x + (z - x)\big)^p = x^p + px^{p-1}(z - x) + \binom{p}{2}x^{p-2}(z - x)^2 + \cdots$$ en dus $f'(x) = px^{p-1}$.
Cauchy
De afgeleidefunctie van f is de limiet van $[f(x + i) - f(x)]/i$ als i tot nul nadert. In dit geval geldt: $$\frac{f(x+i) - f(x)}{i} = px^{p-1} + \binom{p}{2}x^{p-2}i + \cdots.$$ Door i nu steeds dichter bij 0 te nemen, kan het rechterlid van deze vergelijking zo dicht bij px^{p-1} komen als je wenst. Daarom geldt $f'(x) = px^{p-1}$.
Weierstrass
Per definitie: $\qquad\qquad f'(x) = \lim\limits_{\delta \to 0}\dfrac{f(x+\delta) - f(x)}{\delta}$.   Om nu aan te tonen dat als $f(x) = x^p$ dat dan $f'(x) = px^{p-1}$ gaat men als volgt te werk: Gegeven x. Gegeven $0 < \varepsilon < 1$. Zij $\delta < \frac{\varepsilon}{p2^p X}$ met $X = \max(1, \lvert x^p \rvert)$. Er geldt: $\left\lvert \dfrac{f(x+\delta) - f(x)}{\delta} - px^{p-1} \right\rvert = \left\lvert \sum_{i=2}^{p}\binom{p}{i}x^{p-i}\delta^{i-1} \right\rvert \qquad\qquad$ *[binomium]* $\leq \sum_{i=2}^{p}\binom{p}{i}\lvert x^{p-i} \rvert \delta^{i-1} \qquad$ *[driehoeksongelijkheid]* $< \varepsilon, \qquad\qquad$ *[iedere sommand is kleiner dan $\frac{\varepsilon}{p}$].*

After about twenty minutes, the students split up and formed new groups, in which all of the historical figures and sources were represented. They shared their findings on their own source and then discussed similarities and differences, tried to see a development through time of the concept of a derivative and its notation. (This took about 40 minutes.) The activity ended with a class discussion. The names of the mathematicians were shown on a digital "wheel of fortune." Using this tool, I selected students to report their findings to the whole group.

Jigsaw technique

This type of classroom activity is called "expert-method" in Dutch terminology, or "jigsaw technique" in American educational literature. It relies on dependability between students. It breaks classes into groups and breaks assignments into pieces that the group assembles to complete the (jigsaw) puzzle. The Dutch title refers to the effect that a student becomes an expert on a specific piece of theory or part of the assignment.

I use this structure often in my history of mathematics classes, because I believe it fits the contents in a very natural way. It can be used to let students identify with an actual expert from the past, such as Newton or Leibniz, and they become that expert in a discussion. The students become the historical figure, who was an expert in their own time and obviously is an expert on his own written material. Roleplaying is a strong gaming mechanic. This way they engage more deeply in the process of doing mathematics, finding arguments, debating their work with other students. The roleplaying has a natural connection with the use of primary sources. The primary sources are actual artifacts to the character

and add to the historical atmosphere. On the use of primary sources, much has been written, for instance, by Janet Barnett and colleagues.

The jigsaw-technique or expert-method can be used in a regular mathematics class as well, as long as the subject can be divided into several distinct pieces or tasks. For instance when you discuss geometrical shapes, probability distributions, or different ways of solving an equation. The next example is also from my history of mathematics class, but here the different pieces of the puzzle are not mathematicians, but pieces of mathematics.

Session 2: The expertise of Euler

When I prepared my lecture on Euler for the first time, I immediately knew I wanted to use the expert-method on this one as well. The number of different types of mathematical activities that Euler did, on such a groundbreaking level, still amazes me. He was an expert on just about everything in mathematics in his time and I wanted my students to get a glance of this great achievement.

I came across Ed Sandifer's brilliant archive, "*How Euler did it*." This made things rather easy for me. I selected seven of the columns from the archive. I didn't want to include the Königsberg bridge problem, because it is rather easy and too well known. But I also felt I couldn't leave it out, just in case someone would have missed that class or forgotten it was Euler who starred in it. So, I used the map of Königsberg as a tool in the second part of jigsaw format, as I will explain further on. The class was divided into seven equal groups. Each group was given a different

number from 1 to 7 and was handed several copies of one of Sandifer's columns and some additional sources (e.g., a book or URL). For instance, the first group discussed a text on Euler's contribution to Venn diagrams, the second group did $e^{i\pi} + 1 = 0$, another group did his formula $V + F = E + 2$, one group discussed his work on amicable numbers, one did the St. Petersburg paradox, etc. I asked the students to study the text on Euler's work, and all prepare a poster sheet on an A3 sheet of paper, in order to be able to present this work to others later. The groups had about 30 minutes to create their poster.

The students then had to form new groups, in which all numbers 1 to 7 were represented. Each newly formed group was handed a placemat with two maps of Königsberg, with all the bridges on it, as shown below. One map was a somewhat authentic drawing of the city, the other was much more schematic and contained all bridges numbered from one to seven. I also handed them a toy figure that represented Euler. (I used Big Smurf for this, since at the time there was a collect-all-five action at our local groceries store. And then, of course, Big Smurf has a beard and carries a book. You can use a regular game pawn for this as well, but I believe the personalization of Euler on the map adds to the full experience.) Big Smurf/ Euler had to walk around through the city of Königsberg and each time he crossed a bridge the group member with the same number had to present his or her poster with Euler's work on it. Each bridge could only be crossed once. So obviously this meant that one group member would not be able to present their topic. These students were
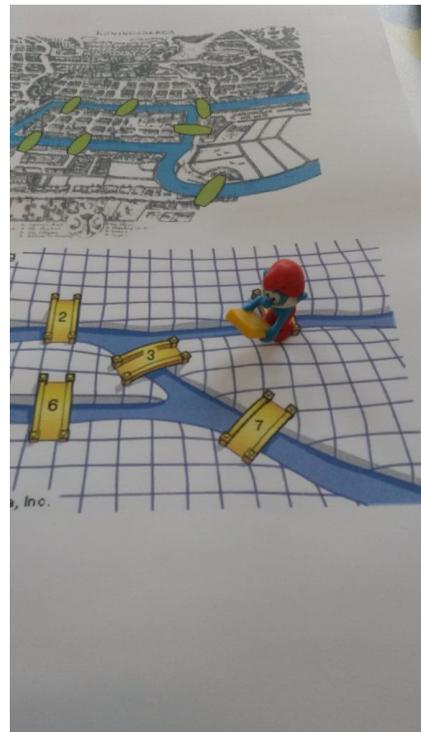
asked to present their work to the whole group at the end of the session.
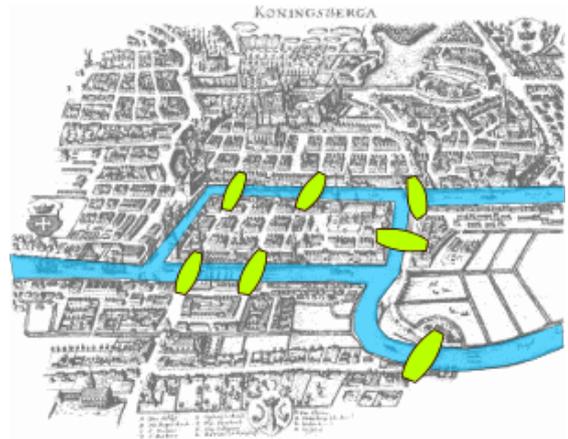
Map 1: Ancient city of Königsberg
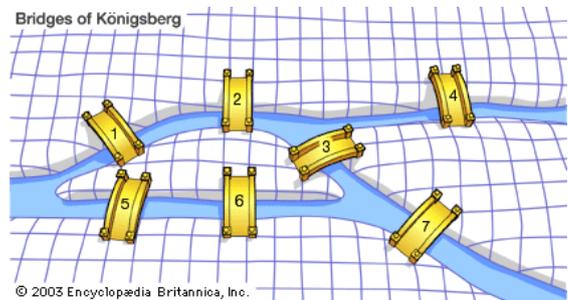
Map 2: Schematic version of the bridges

Big Smurf (aka Euler) in Königsberg

Final remarks

I have tried to share some classroom activities and design principles from my experience as a history of mathematics teacher within a teacher training program. I believe several aspects of these sessions can be used in different contexts, with different contents and materials. If you wish to comment, share your own experiences, or have any further questions, please feel free to contact me.

Resources

On the jigsaw-technique: www.jigsaw.org
On role-playing games:
http://aestranger.com/role-playing-games-educational-tools/
The wheel of fortune:
https://wheeldecide.com/wheels/games/wheel-fortune-spinner/
Ed Sandifer's "How Euler did it":
http://eulerarchive.maa.org/hedi/

On use of primary sources:

Barnett, J. H., Pengelley, D., & Lodder, J. (2014). The pedagogy of primary historical sources in mathematics: Classroom practice meets theoretical frameworks. *Science & Education*, *23*(1), 7-27.

On Dutch teacher training:

Bogaart-Agterberg, D. van den (2019) *History of mathematics in Dutch teacher training.* Paper to be published in the proceedings of the 11th Congress of European Research in Mathematics Education, Utrecht, Netherlands.

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PETER RANSOM, THE MAN KNOWN TO TRAVEL WITH A SWORD AND CANNON BALLS TO MANY PARTS OF THE GLOBE

On the occasion of the Queen's birthday in 2019, **Peter Howard Ransom** has been appointed a Member of the Order of the British Empire (MBE). This is a great honor for him, his wife Janet, daughters Madeleine and Claire, and grandsons. And it is also an acknowledgment for HPM community and, in general, of mathematics educators. As a matter of fact, the motivation for the appointment is "For voluntary service to Mathematics Education." The following notes on Peter's career illustrate his active role in the community of mathematics educators.

He started teaching mathematics in state schools in September 1977 to students aged 11 to 18 years old. After teaching in three schools he was then employed in 1994 by SMP, the Schools Mathematics Project, to write textbooks for the age range 11 to 16. When that work was completed in 1998, he returned to teaching 11- to 16-year-olds in state secondary schools. While at The Mountbatten School in Romsey, he edited the HPM Newsletter from 2000–2004, supported by his school which distributed the newsletter. He was delighted to receive notification of the MBE, with the citation "For voluntary service to mathematics education."

He has contributed to many mathematical communities in the UK (MA, IMA, BSHM, LMS, ATM, UKMT, Ri and Secretary for

BCME9) and abroad since joining The Mathematical Association (MA) in 1980 and becoming a Fellow of the Institute of Mathematics and its Applications (IMA) in 1991. He met John Fauvel in 1990 and worked with him on History in the Mathematics Classroom. This inspired him to join the BSHM and incorporate more history into his teaching and subsequently he distributed the BSHM Newsletter for a number of years and spent three years as Membership Secretary of the BSHM. He was President of the MA from 2013–2014 and in 2015 became Chair of the MA Council, an office he holds until April 2020.

I think that Peter Ransom is not only a good teacher and a good researcher, but also an effective and captivating presenter in such a way that his talks and the various activities in these conferences are attracting many participants. In particular, it is remarkable the Ransom's extraordinary creativity in conceiving situations, and methods of presentation through suggestive figures, concrete objects and theatrical situations. He was invited as a plenary speaker at the HPM Satellite meeting and Fourth European Summer University held in Uppsala in 2004. The text of this plenary talk is published in the Proceedings under the title of "John Blagrave, gentleman of Reading." This paper represents a paradigmatic example of the cultural enrichment brought by history of mathematics into the mathematics teaching when the design of teaching sequences is done with competence and passion by a teacher-researcher. As it happens for other papers by Ransom, I have often used this text for explaining to my students the power of history as a teaching tool and as a way to make mathematics a discipline with a cultural value beyond the pure technical aspects.

The activities developed by Peter in conferences and seminars have been appreciated all over the world, in Europe and in other countries, where mathematics education is an emerging discipline. For example, he has presented a successful workshop at ICME 12 in Seoul (South Korea) involving local participants.

The scientific activity of Peter Ransom has been mainly developed in the milieu of HPM, the International Study Group on History and Pedagogy of Mathematics affiliated to ICMI (International Commission on Mathematical Instruction). He has been a fundamental actor in the recent development of this group. As a matter of fact, when I was appointed as Chair of HPM the communication in the group was very poor and this was affecting the activity of the group. Peter Ransom was appointed as an editor of the Newsletter. His work was great: he created the new format still used, introduced new sections and columns, created a net of national distributors.

The long list of publications and the strong reputation qualify Peter Ransom as an important actor in the field of research on history in mathematics teaching, but I like to say that what makes him unique in this field is the enthusiasm that he is able to transmit about history of mathematics and about the profession of teaching. Besides these academic aspects, I would like to mention one important element of Peter's personality, which is his modesty and friendly attitude. He is a valuable friend and collaborator willing to assist anyone needing his advice or help.

Peter does a number of mathematical sessions in period costume for students of all ages from 8 to 98. For example, he does a session dressed as a seaman of 1805 at the battle of Trafalgar and demonstrates the destructive effects of cannon balls. He plans to do this at ICME-14 in Shanghai (2020). This is why Peter is the man known to travel with a sword and cannon balls to many parts of the globe, and we congratulate him on being appointed a Member of the Order of the British Empire (MBE).

For more information on this honor, please see

https://inews.co.uk/news/uk/queen-birthday-honours-list-2019-full-mbe-obe-cbe-knighthood-damehood-everyone/

Fulvia Furinghetti
University of Genova (Italy)

MAA Convergence Provides Research Tools and More

Since 2004, *MAA Convergence* has been 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. We highlight here some of our newest articles and resources for use in your classroom.

Robert E. Bradley and Salvatore J. Petrilli, Jr. provide a **translation of François-Joseph Servois' 1817 "Memoir on Quadratures,"** the French mathematician's contribution to a debate on numerical integration techniques among the mathematicians Christian Kramp (1760–1826), Joseph-Diez Gergonne (1771–1859), and Joseph-Balthazard Bérard (1763–1844?). The translators also guide readers through Servois' paper and suggest several student activities for a numerical analysis course.

At the same time the Servois article debuted, *Convergence* launched an **index of all the translations** that have appeared in the journal, accessible from the home page as well as from "What's in Convergence?" Another recent article, **"Teaching Mathematics with Ephemera: John Playfair's Course Outline for Practical Mathematics,"** by Amy Ackerberg-Hastings, helps instructors identify and analyze primary sources that were intended to be used for only a short period of time.
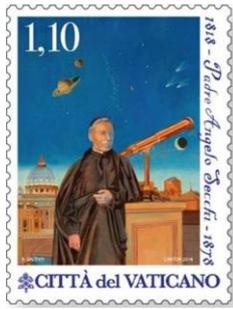
Examples of ephemera: Stamps honoring Fr. Angelo Secchi, who founded astronomical spectroscopy, and Maria Agnesi, female mathematician and textbook author, issued in 2018 by Vatican City. Image provided in 6 September 2018 [press release](#)*.*

Above: Detail from Peter Apian, Quadrans Apiani astronomicus (1532), a historical illustration that can be used to stimulate student questions about mathematics.

A third recent article, **"Using the Publimath Database to Bring History into our Teaching,"** by Homebline Languereau and Anne Michel-Pajus, provides instructions for navigating a French catalogue that collects citations and PDFs for research articles and projects on the use of history to teach mathematics.

Above: QR Code for the Publimath Database.

Convergence also celebrated its 16th year of publication this spring with features on its previous editors—Victor J. Katz, Frank J. Swetz, and Janet Beery—a brief history of the journal, and Swetz's new essay on the justifications for using history to teach mathematics, **"Do We Teach Too Much Mathematics . . . ?"**

Ongoing *Convergence* series and collections include:

- "Math Origins," in which author Erik Tou traces the historical development of concepts seen in today's undergraduate curriculum. The most recent article in the series examines the origins of eigenvectors and eigenvalues.

- "A Series of Mini-projects from **TR**ansforming **I**nstruction in **U**ndergraduate **M**athematics via **P**rimary **H**istorical **S**ources" which currently offers eight mini-Primary Source Projects (PSPs) from the TRIUMPHS team for use in a variety of courses. The most recent PSPs to join the series are:
  - "The Origin of the Prime Number Theorem: A Primary Source Project for Number Theory Students" (by Dominic Klyve)

o "The Cantor Set Before Cantor: A Mini-Primary Source Project for Analysis and Topology Students" (by Nicholas A. Scoville)

- "Index to Mathematical Treasures," which includes hundreds of images for use in your classroom from dozens of libraries and archives. Our chief "treasure hunter" is *Convergence* founding editor Frank Swetz.

See all of these articles and more at *MAA Convergence:*

http://www.maa.org/press/periodicals/convergence.

Join us at the *Convergence* of mathematics, history, and teaching!

Janet Barnett,
Colorado State University-Pueblo (USA)
and
Amy Ackerberg-Hastings,
Independent Scholar (USA)
Editors, *MAA Convergence*

DEAR GIORGIO, WE STILL MISS YOU!

*This text is a short report of the conference, **"Una giornata di studio in ricordo di Giorgio T. Bagni nel decennale della scomparsa,"** held at Palazzo Toppo Wassermann – Università di Udine (Italy) on 18 June 2019, and co-organized by the Udine University, the AIRDM (Associazione Italiana di Ricerca in Didattica della Matematica) e il Centro di Ricerche Didattiche "Ugo Morin."*

The University of Udine, together with the Centro "Ugo Morin," the AIRDM, and the support of the local section of "Mathesis" Society have organized a day-long conference in honor of **Giorgio Bagni** on the occasion of the tenth anniversary of his death. The "practical organizers" have been Giovanna D'Agostino e Gianluca Gorni from the Maths Department of Udine University.

In the presence of his wife Luisa Piccin and their two daughters (image above), 16 people have talked either to recall with emotion and love his personality and work, or to go deeper into the topics he used to study and research, or both.

In the words of all the participants, Giorgio was a very kind and generous person, always ready to help anyone in need. His impressive capacity to work and write, together with his open vision of the role of History of Mathematics in Mathematics Education, are the main features he showed.

Bagni's inheritance is really widespread both under the quantitative and the qualitative points of view. He wrote more than 20 books and 250 papers. However, what seems to me really exceptional is the simultaneous focus on the mathematical contents, their emerging through history, and both the hermeneutical and semiotic aspects related to the approach via original sources in view of a didactical application epistemologically aware.

The privileged eye was always toward the teaching purposes. He was extremely clear without loss of accuracy and at the same time he managed to avoid boredom.

At this moment, I will not go into all the talks I heard. Let me only underline the presence of Silvano Rossetto from Centro Morin; Claudio Bernardi from "la Sapienza" University in Rome, where Giorgio worked for five years; the moving talk given by his master, colleague and friend Bruno D'Amore from University Josè de Caldas in Bogotà; the video conference by Luis Radford from Laurentian University in Ontario; the charming talk on the "lesson study" in Mathematics by Maria G. Bartolini Bussi from Reggio Emilia University; and, last but definitely not least, the speech on the complex relationship between History and Didactics of Mathematics given by Paolo

Bussotti from University of Udine who never met Giorgio personally, but apparently knew very well of him.

I was honored to have the occasion to represent the International Study Group on HPM, speaking on behalf of Chair Kathleen Clark, and also on behalf of the whole ESU8 program committee and in particular of its chair, Constantinos Tzanakis. I took the advantage to add a personal tribute recalling the Progetto Lauree Scientifiche 2007 in which Bagni and myself cooperated in letting the town of Gorizia know it had had Augustin Louis Cauchy among its citizens.

To conclude, I must confess I was touched and in certain moments it was difficult to avoid crying. Giorgio was a friend with whom I was used to talk not only about work. We also had private conversations and coming home yesterday evening I had the feeling he was sitting in the car beside me as he usually was coming back from the meetings of the Nucleo in Ricerca Didattica of Udine University.

Caterina Vicentini
Liceo "Buonarroti",
Monfalcone (GO), (Italy)
Herschel Grammar School-Slough,
London (UK)
British Society for the History of
Mathematics

Have you read these?

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Announcements of Events

Forthcoming BSHM Meeting

The British Society for the History of Mathematics
http://www.bshm.ac.uk/events

1. Maynooth Conference in the History of Mathematics

1 – 2 August 2019
Maynooth University

Maynooth University will host a two day conference on the History of Mathematics on August 1st and 2nd. It is being held jointly under the auspices of Irish History of Mathematics (IHoM) and the British Society for the History of Mathematics.

https://www.maynoothuniversity.ie/mathematics-and-statistics/historymathsconf2019

Day 1 will focus on invited talks on a selection of mathematical texts from the Russell Library. Confirmed speakers (as of 28 May) are:

- Philip Beeley, University of Oxford, 'TBA'
- Catherine Goldstein, Institut de Mathématiques de Jussieu-Paris Rive gauche, 'Jean Prestet's Elements of mathematics: algebra

as a basis for mathematics at the end of the 17th century'

- Niccolò Guicciardini, University of Milan, 'On two early editions of Isaac Newton's mathematical correspondence and works: William Jones's Analysis per quantitatum, series, fluxiones ac differentias (1711) and the Royal Society's Commercium epistolicum (1713)'
- Boris Jardine, University of Cambridge, 'TBA'
- Yelda Nasifoglu, University of Oxford, 'Mathematics education in early modern Jesuit colleges'
- Kevin Tracey, University of Swansea and the London Science Museum, 'Ramus amongst the Jesuits: Reading Introductory Mathematics in the Irish Colleges of Spain'
- Benjamin Wardhaugh, University of Oxford, 'Reading Euclid in the Maynooth collection'

Day 1 will also feature a visit to the Russell Library to view their collections, which include works of Galileo, Copernicus, Fermat, and Newton, to name but a few. There will be a conference dinner in the evening.

Day 2 will follow a format similar to previous IHoM conferences, and will allow for a combination of longer and shorter talks. Confirmed speakers and titles (as of 28 May) are:

- Joseph Bennett, Maynooth University and Institute of Technology, Carlow, 'Grand Prix des Sciences Mathématiques 1882'

- Piotr Błaszczyk, Pedagogical University of Cracow, 'On how Descartes changed the meaning of the Pythagorean theorem'
- Rod Gow, University College Dublin, 'Francis Hutcheson: an Irish-born philosopher with mathematical interests'
- Sue Hemmens, Marsh's Library, 'The Bishop, the Knight, his Wives, and a Book: an Arabic Euclid from the collection of Narcissus Marsh'
- Gavin Hitchcock, 'Fellowship of imaginations: A dialogue between Hamilton & De Morgan'
- Christopher Hollings, Mathematical Institute & The Queen's College, Oxford, 'Reading the Rhind Mathematical Papyrus'
- Peter Lynch, University College Dublin, 'Gabriel Stoke's Fundamental Contributions to Fluid Dynamics'
- Clare Moriarty, University College Dublin, 'Reasons for Not Replying': A Masterclass in Trolling from an 18th Century Bishop'
- Maurice O'Reilly, Dublin City University, 'Using original sources with undergraduate mathematics students: an exploration of the mathematical treasures in Marsh's Library'
- Anne van Weerden, Utrecht University, 'A biographer's opinion as primary source: the strange case of Sir William Rowan Hamilton'

2. Stokes200 Symposium

15 – 18 September 2019
Cambridge

https://stokes200.weebly.com/

Invited Speakers

- June Barrow-Green (The Open University) – Title TBA
- Michael Berry (University of Bristol) – Asymptotics and optics - Stokes and the rainbow
- John Brady (Caltech, Pasadena) – Stokesian Dynamics
- John Bush (MIT, Cambridge, USA) – Hydrodynamic quantum analogs
- Michael Cates (DAMTP, Cambridge) – Hard Sphere Suspensions Beyond Stokes: Friction and Shear Thickening
- Olivier Darrigol (CNRS, Paris) – George Stokes, true servant of the light
- Anne De Wit (ULB, Brussels) – Chemical control of Stokes flows
- Nigel Goldenfeld (University of Illinois) – How Sir George Gabriel Stokes nearly discovered the renormalization group
- Raymond Goldstein (DAMTP, Cambridge) – Biological fluid dynamics
- Stuart Mathieson (Queen's University Belfast) – Stokes as a Religious Man of Science
- Oreste Piro (UIB, Palma de Mallorca) – Title TBA
- Paul Ranford (UCL, London) – Stokes as Secretary of the Royal Society 1854-1885 - his influence on science and scientists
- Jayne Ringrose (Pembroke College, Cambridge) – Stokes in the context of Pembroke College
- Idan Tuval (IMEDAE, Palma de Mallorca) – Limits and variations of Stokes' law for living matter
- Sylvie Vergniolle (IPGP, Paris) – The profound impact of Stokes' work in modern physical volcanology
- Andy Woods (BP Institute, Cambridge) – Stokes law and turbulent particle-laden flows

Contributed talks

- Snezhana Abarzi (Western Australia) – Interface dynamics: New mechanisms of stabilization and destabilization and structure of flow fields
- Michael Bestehorn (Brandenburg University of Technology) – Reduced models in fluid dynamics
- Silvana Cardoso (Cambridge) – Title TBA
- Julyan Cartwright (Granada) – Title TBA
- Colm Caulfield (DAMTP, Cambridge) – On the (quasi)-steady motion of incompressible fluids
- Andrea Ferrari (Cambridge) – Stokes and anti-Stokes
- Gerard Fuller (Stanford) – The shape evolution of miscible sessile and pendant drops
- John Hinch (DAMTP, Cambridge) – Title TBA
- Ed Hinton (Cambridge) – Stokes flow over topography

- Herbert Huppert (DAMTP, Cambridge) – Stokes flow in rapidly rotating systems
- Serafim Kalliadasis (Imperial) – The resolution of the moving contact line
- Aoife Kearins (Dublin) – Title TBA
- Davor Krajnovic (Leibniz-Institut für Astrophysik Potsdam) – A college friend: John Couch Adams
- John Lister (DAMTP, Cambridge) – Stokes flow and unsteady Stokes flows during drop coalescence
- Robert MacKay (Warwick) – Use of Stokes' theorem for plasma confinement
- Scott McCue (Queensland University of Technology) – Analysing Taylor-Saffman bubbles using Stokes phenomenon
- Sebastien Michelin (Ecole Polytechnique) – Modeling chemo-hydrodynamic interactions in photetic suspensions
- Christopher Ness (Cambridge) – Title TBA
- Jordi Ortin (Barcelona) – Viscoelastic shear waves and vortex rings in oscillatory pipe flow of wormlike micellar solutions
- Tim Pedley (DAMTP, Cambridge) – Title TBA
- Marco Polin (Warwick) – Topological sensitivity of microbial flow fields under tight confinement
- Sandalo Roldan-Vargas (Max Planck & Granada) – Rare events, anomalies, and Brownian motion
- Michael Sandford (formerly at RAL Space) – Stokes: tracing his family, and their life in Cambridge
- Osamu Sano (Tokyo) – Viscous flow around macroscopic cavities in a granular material in terms of darcylet
- David Smith (Birmingham) – NEAREST – An Accessible and Efficient Method for Biological Stokes Flow
- Richard Webb (Cambridge) – Title TBA
- Joseph Webber (Cambridge) – Stokes drift over corals
- Grae Worster (DAMTP, Cambridge) – Fingering of shear-thinning, radially extensional flows

3. Gresham Lecture

23 October 2019
London

Mathematical Expeditions
http://www.bshm.ac.uk/events/mathematical-expeditions

2019 marks the centenary of the eclipse expeditions that provided evidence for Einstein's theory of general relativity. To mark the centenary, we have chosen "Mathematical Expeditions" as the topic for our annual Gresham meeting.

- Stephen Johnston (Oxford): Privateer and Mathematician: the Voyages of Edward Wright
- Rebekah Higgitt (Kent): Precision exploration: mathematical practice and 18th-century British voyages of scientific exploration

- Ana Simões (Lisbon): Gresham Lecture Towards a global history of the eclipse of 29 May 1919

4. Savilian Professors of Geometry: The first 400 years

23 November 2019
Oxford

2019 marks the 400th anniversary of the founding of Oxford University's Savilian Professors of Geometry. The Bodleian will have a display in the Weston library from November to February to mark this anniversary. This one-day meeting comprises seven lectures about the Savilian professors and their life, labours and legacy.

Confirmed speakers include:
- William Poole: Sir Henry Savile and the early professors
- Keith Hannabuss: Baden Powell and Henry Smith
- Karen Parshall (Virginia, USA): J. J. Sylvester
- Robin Wilson: G. H. Hardy and E. C. Titchmarsh
- Frances Kirwan: Michael Atiyah and after

ICHME-6
Sixth International Conference on the History of Mathematics Education

16 – 20 September 2019
Marseille, France

First Announcement

We are calling for papers for this sixth conference, presenting original research on history of mathematics education.

The main thematic issues of the conference will be:

1. to compare recent research on the history of mathematics education at the international level;
2. to highlight and analyse the interrelations between the history of mathematics and the history of mathematics education;
3. to explore new methods of research, interpretation and evaluation of sources;
4. to enrich the history of education with a comparative approach to the mathematical contents taught;
5. to take into account the sociological context to analyze the educational and professional scope of mathematics education;
6. to analyze internationally the dissemination of conceptions and reforms in mathematical education.

Regarding the choice of topics for presentations there will be no restriction regarding time periods.

First becoming visible internationally at ICME 10 in 2004, in Copenhagen, as the TSG 29, the history of mathematics education has since become a well-established area of research. It has been a subject of interest in various international meetings, e.g. at the ICME, HPM, CERME and ESU conferences.

The first specialized research conference, entitled "Ongoing Research in the History of Mathematics Education," held in Garðabær near Reykjavík (Iceland) in 2009, led to a series of such specialised conferences. This will be the sixth international conference, this time held in Luminy, France, at the CIRM. It will be the continuation of the successful work of the first five conferences, in Iceland (2009), Portugal (2011), Sweden (2013), Italy (2015), and The Netherlands (2017).

The Conference

The *Centre International de Rencontres Mathématiques* (CIRM) was created in 1981 by the French mathematics community and has become an increasingly popular venue for conferences. Situated near Marseille, on the doorstep of the *calanques*, CIRM is in a unique location in the south of France. It is a quiet place, linking the charms of traditional Provence with all the facilities that researchers need for a successful conference. The work environment is comfortable and comprises seminar and meeting rooms of various sizes. The main building called the '*Bastide*' has kept the traditional look of *Provençal* houses with its pink walls. It contains a large number of bedrooms for

the participants at events, as well as offices. Other bedrooms and studios, which have been recently updated, are situated in nearby buildings all a few minutes from each other. CIRM can therefore cater for 90 residents at any one time. The restaurant is one of the main features of CIRM and it is famous for its varied cuisine based on traditional French cooking and local products. The traditional Marseille *Bouillabaisse* served on Thursdays is THE gourmet *rendez-vous* for conference participants. Last but not least, the library is truly appreciated by all CIRM's residents and by the local and regional community of mathematicians.

Registration and Conference Fee
Registration will take place via the conference website.
Registration and conference fees: until 15 May 2019, the fee is € 75; thereafter the fee will be € 90. The fees will include publication of the Proceedings and participation at the excursion. Last day of registration and payment is 15 July 2019.
The bank account for the payment of the fees will be indicated later.
Payment of lodging and extras (coffee breaks & conference dinner: € 32,50) will be done upon arriving. See for information on lodging: https://www.fr-cirm-math.fr/tarifs.html

International Programme Committee:
- Évelyne Barbin (France)
- Kristín Bjarnadóttir (Iceland)
- Fulvia Furinghetti (Italy)
- Alexander Karp (USA)
- Johan Prytz (Sweden)
- Gert Schubring (Brazil/Germany)

Local Committee:
- Évelyne Barbin
- Guillaume Moussard

Further information about the conference and practical information is available on the conference website
https://conferences.cirm-math.fr/2038.html

Contact: evelyne.barbin@wanadoo.fr

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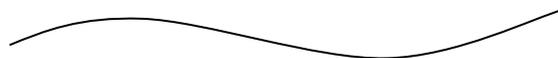
30th Novembertagung on the History and Philosophy of Mathematics

31October – 2 November 2019
Strasbourg, France

Mathematical Cultures, Values and Norms

The Novembertagung on the History and Philosophy of Mathematics is an annual international conference aimed at PhD and postdoctoral students (young scholars) in the history of mathematics.

In 2019 the Novembertagung will be held in Strasbourg. Lodging will be at the CIARUS from 30 October to 2 November and the conference sessions at the IRMA, from 31 October to 2 November.

Mathematical knowledge is commonly thought of as being essentially universal: its truths are eternal and incontrovertible, its propositions understandable and agreeable by all, independent of linguistic, cultural, ethnic or religious backgrounds, its formulation and validation requiring little more than pen and paper. However, global knowledge, as mathematics seems to be, is always produced locally. As such, it hinges upon collectively shared ways of practicing, writing, and communicating mathematics. This year's Novembertagung invites participants to reflect broadly on one or several of the following questions:
How can we characterize mathematical communities and cultures?

What historiographical and epistemological categories should one use when describing these shared ways of doing mathematics?
How does mathematical knowledge circulate between these communities?
What role do values and norms, be it epistemic, aesthetic or political, play in the shaping of mathematical cultures?
What role do values and norms play in shaping the individual mathematician and their work ?
How can historians and philosophers evaluate the impact of these cultural aspects on the mathematics being produced?

Keynotes will be given by June Barrow-Green (Open University) and Roy Wagner (ETH Zurich).

CONNECTING TAMAS VARGA'S LEGACY AND CURRENT RESEARCH IN MATHEMATICS EDUCATION

6 – 8 November 2019
Budapest, Hungary

On the occasion of the 100th anniversary of the birth of the Hungarian mathematics educator, didactician and reform leader Tamás Varga, a conference on mathematics education will be held at the **Hungarian Academy of Science**.

The main aims of the conference are to

- *Celebrate the 100th anniversary of Varga situating his work in an international context and discussing its relevance for mathematics education today;*
- *Offer a forum to current international research on mathematics education in different domains;*
- *Foster the connections between Hungarian research on mathematics education and international research in the field.*

The conference will combine different forms of activity: plenary lectures, panels, communication and poster sessions, workshops, as well as presentation of didactic material and videos related to Tamás Varga's work. In order to stimulate dialogue between Varga's heritage and current research in mathematics education, a special emphasis will be laid on recent research developments on themes in the focus of Varga's interest. Especially:

Teaching and learning of specific mathematical themes
- *Logic and algorithmic thinking*
- *Discrete mathematics*
- *Probabilities and statistics*
- *Cross-cutting themes*
- *Inquiry Based Education and the development of learning trajectories*
- *Manipulatives and semiotic tools in the development of mathematical concepts*
- *Mathematics education from the early grades on*
- *Mathematics as playful and creative activity*
- *Differentiation and diversity in mathematics education*
- *Teachers' creativity and design capacity*

In addition, questions related to the history of mathematics education and to the comparison of different didactical approaches will be addressed.

Further information will be available soon on the website of the conference:

https://varga100.sciencesconf.org/

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http://www.clab.edc.uoc.gr/hpm/

These and other news of the HPM group are also available on the website

http://grouphpm.wordpress.com

(the online and on time version of this newsletter).

Items for the Newsletter should be sent to the editors, preferably by email (see addresses below).

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102	**12 October 2019**	**November 2019**
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A note from the Editors

The Newsletter of HPM is primarily a tool for passing along information about forthcoming events, recent activities and publications, and current work and research in the broad field of history and pedagogy of mathematics. The Newsletter also publishes brief articles which they think may be of interest. Contributions from readers are welcome on the understanding that they may be shortened and edited to suit the compass of this publication.