



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

No. 89

July 2015

This and earlier issues of the Newsletter can be downloaded from our website

<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).

HPM 2016

Mathematics in the Mediterranean

First Announcement

History and Pedagogy of Mathematics (HPM)

2016 Satellite Meeting of ICME 13

**July 18 to 22, 2016
Montpellier, France**

1. Aim and focus

HPM 2016 is the ninth quadrennial meeting of the International Study Group on the Relations Between the History and Pedagogy of Mathematics - the HPM Group.

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 theme of HPM 2016 is “Mathematics in the Mediterranean.” 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.
6. Topics in the history of mathematics education.
7. Mathematics in Mediterranean countries.

3. Activities during the 2016 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:

1. plenary lectures,
2. panels,
3. discussion groups,
4. workshops,
5. parallel sessions where participants present research reports,
6. poster exhibitions, and

7. exhibitions of books and other didactical material.

Plenary sessions, discussion groups, and panels deal with the main topics of the conference. Plenary speakers, panelists, and coordinators of discussion groups are invited by the scientific committee.

We encourage you 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 2016 HPM Conference will be held from **July 18 to July 22, 2016** in **Montpellier, France**. Montpellier is a beautiful town, famous for its culture and history. The University of Montpellier, the host of the 2016 HPM Conference, is one of the oldest universities in the world, where Joseph D. Gergonne published in the early 19th century one of the oldest mathematical journals. Gergonne’s portrait appears in the logo and the website banner of the Conference.

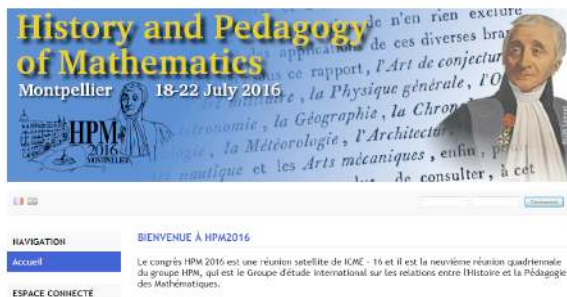
5. Official languages

The official languages of the conference are English and French.

6. Submission of proposals

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

Using the **HPM 2016 Activity Application Form**, for each proposal, individuals should submit an **abstract** of no more than 500 words no later than **October 31, 2015**. To download the **HPM 2016 Activity Application Form**, please go to the conference website.



If the Scientific Committee accepts an individual's abstract, the abstract will appear in the conference program, and the individual will present their work during the conference for the activity described in the abstract.

The authors of accepted abstracts who wish to submit a **full paper** should do so no later than **January 31, 2016**. Each paper will be peer reviewed using the usual international standards. Accepted papers will appear in the *Online Proceedings of the 2016 HPM Conference* to be available at the beginning of the conference.

In all other cases, the abstract that has been accepted will also be included in the conference proceedings.

More details on text length and the format guidelines will appear in the 2nd

Announcement and in the HPM 2016 and HPM websites:

<http://hpm2016.sciencesconf.org>

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

Summary of deadlines:

Submission of Abstracts: October 31, 2015

Notification of acceptance (or not) of the submitted abstracts: **November 30, 2015**

Submission of full texts: January 31, 2016.

Notification of acceptance (or not) of the submitted texts: **March 30, 2016**

The members of the 2016 HPM Scientific Committee (ScC) will coordinate the peer-review process.

7. Registration fee

- *Early registration* (before April 15, 2016): 250 € (student or novice researcher 150 €)
- *Regular registration* (between April 15 and June 15, 2016): 300 € (student or novice researcher 200 €)
- Registration after June 15, 2016, or at the conference: 350 €

The conference fee includes: 5 lunches, 9 coffee breaks, as well as the gala dinner on the seaside, and a conference excursion.

8. The International Scientific Committee (ScC)

Evelyne Barbin, France
Renaud Chorlay, France
Viviane Durand-Guerrier, France
Abdellah El Idrissi, Morocco
Gail FitzSimons, Australia
Fulvia Furinghetti, Italy
Thomas Hausberger, France
Masami Isoda, Japan
Luis Puig, Spain
Anjing Qu, China
Luis Radford, Canada (Chair)
Man Keung Siu, Hong Kong SAR, China
Bjørn Smestad, Norway
Constantinos Tzanakis, Greece

9. The Local Organizing Committee (LOC)

Aurélie Chesnais
Anne Cortella (Co-chair)
Viviane Durand-Guerrier
Thomas Hausberger (Chair)
Simon Modeste
Nicolas Saby

10. Website

Follow us at:

<http://hpm2016.sciencesconf.org>

11. Contact

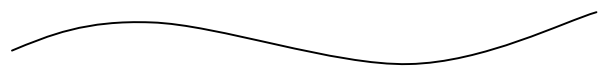
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- Luis Radford (Chair),
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- Anne Cortella (Co-chair),
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HPM is affiliated with ICMI (International Commission on Mathematical Instruction). HPM 2016 is a satellite meeting of the 2016 International Congress on Mathematical Education and is scheduled close to ICME.

Please note that the 13th International Congress on Mathematical Education (ICME-13) will take place immediately after HPM 2016, from July 24 to July 31, 2016 in Hamburg, Germany (see <http://www.icme13.org/>).

Luis Radford
Université Laurentienne, Canada



**13th International Congress on
Mathematical Education
(ICME-13)
24 –31 July 2016,
Hamburg, Germany**

**Topic Study Group (TSG) 25:
*The Role of History of Mathematics
in Mathematics Education***

**CALL FOR SUBMISSION OF
PROPOSALS**

Organizing Team

Co-chairs:

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Team members:

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IPC Liaison person:

Alain Kuzniak (France)

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I. Aim

TSG 25 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 (HM) in Mathematics Education (ME). 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 and to get fruitful feedback from the discussion, and at the same time to stimulate the interest of the newcomers by giving them the opportunity to get a broad overview on the state-of-the-art in this area.

The discussion within 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.

II. Rationale

Mathematics is a human intellectual enterprise with a long history and a vivid present. Thus, mathematical knowledge is determined, not only by the circumstances in which it becomes a deductively structured theory, but also by the procedure that originally led or may lead to it, and which is indispensable for its understanding. Therefore, learning mathematics includes not only the “polished products” of mathematical activity, but also the understanding of implicit motivations, the sense-making actions and the reflective

processes of mathematicians, which aim to the construction of meaning; hence, teaching mathematics should include giving students the opportunity to “do mathematics”. To put it differently: although the “polished products” of mathematics form that part of mathematical knowledge that is communicated, criticized (in order to be finally accepted or rejected), and serve as the basis for new work, the **process** of producing mathematical knowledge is equally important, especially from a didactical point of view. Therefore, perceiving mathematics both as a logically structured collection of intellectual products and as processes of knowledge production should be the core of the teaching of mathematics. At the same time, it should also be central to the image of mathematics communicated to the outside world

Along these lines, putting emphasis on integrating historical and epistemological issues in mathematics teaching and learning constitutes a possible natural way for exposing mathematics in the making that may lead to a better understanding of specific parts of mathematics and to a deeper awareness of what mathematics as a whole really is. This is important for ME, helping to realize that mathematics:

- is the result of contributions from many different cultures;
- has been in constant dialogue with other scientific disciplines, philosophy, the arts and technology;
- has undergone changes over time; there have been shifting views of what mathematics is; and
- has constituted a constant force for stimulating and supporting scientific, technical, artistic, and social development.

This helps to improve ME at all levels and at the same time to also realize that although mathematics is central to our modern society and a mathematically literate citizenry is essential to a country’s vitality, historical and epistemological issues of mathematics are equally important. The harmony of mathematics with other intellectual and cultural pursuits also makes the subject interesting, meaningful, and worthwhile. In this wider context, history and epistemology of mathematics have a yet more important role to play in providing a fuller education of the community: not being a natural science, but a formal science closer to logic – hence to philosophy – mathematics has the ability inherent in itself to bridge the humanities with the sciences. At a time when societies value and want young people educated in the sciences, and which simultaneously have a hard time finding out how to get people to “move” from humanistic studies to the sciences, integrating history and epistemology in ME can make the connection between sciences and humanities visible to students.

This is most important, especially today when there is much concern about the level of mathematics that students are learning and about their decreasing interest in mathematics, at a time when the need for both technical skills and a broader education is rising.

III. Focus

The programme of TSG 25 will be structured around the following main themes:

1. Theoretical and/or conceptual frameworks for integrating history in mathematics education;

2. History and epistemology implemented in mathematics education: Classroom experiments and teaching materials, considered from either the cognitive or/and affective points of view;
3. Surveys on the history of mathematics as it appears in curriculum and/or textbooks (including the history of mathematics in old mathematics textbooks);
4. Original sources in the classroom, and their educational effects;
5. History and epistemology as a tool for an interdisciplinary approach in the teaching and learning of mathematics and the sciences by unfolding their fruitful interrelations; and
6. Cultures and mathematics fruitfully interwoven.

IV. Contributions

There will be the following types of contributions: *Invited contributions*, *submitted contributions* that will lead either to a paper, or a poster presentation.

Each participant can submit a proposal either for a paper or a poster presentation, but not for both.

1. *Invited contributions*, consisting of

(a) A maximum 8-page paper, possibly amended after eventual comments by the Organizing Team members;

(b) A 20-minute oral presentation based on the paper followed by a 5-minute discussion.

2. *Submitted contributions* consisting of

(a) A maximum 4-page paper to be peer reviewed using the usual international

standards by two independent reviewers appointed by the Organizing Team (either belonging to, or external to it);

(b) An oral presentation based on the submitted paper; more specifically:

(b₁) The Organizing Team will select a small number of papers out of those accepted after the reviewers' recommendations, for a 20-minute oral presentation followed by a 5-minute discussion, in which the presenter is expected to reveal and emphasize the main points of his/her work, leaving enough time for the audience to respond and discuss. After the completion of the reviewing process, authors of these *selected papers* will have the opportunity to extend their original paper to a maximum of 8 pages, if they wish to do so.

Alternatively, author(s) may decide to make available to the TSG participants other forms of material in addition to the accepted paper (in the form of supplementary text(s), material easily accessible on the web, or any other kind of resources related to their work) well in advance, and to give only a 10-minute oral presentation, devoting another 10 minutes to get feedback from the audience, or to discuss feedback gained from TSG participants before ICME 13.

(b₂) Based on the outcome of the reviewing process the Organizing Team may suggest that all the other submitted papers, are either accepted for *poster presentation* (see below), or for a 10-minute *oral communication* followed by a 5-minute discussion. If necessary, these oral communications will take place in parallel 60-minute sessions, in addition to the four 90-minute regular sessions assigned to each TSG. Authors are encouraged to provide additional material as described in case (b₁)

above, to stimulate response from TSG participants, either before ICME 13, or during the conference activities.

(c) A 1-page paper for a poster presentation, to be peer reviewed using the usual international standards. Accepted posters will be displayed in one of the four evening sessions that have been scheduled for that purpose by the ICME 13 Organizers (see the 2nd *Announcement*, pp. 29-30).

Papers of invited contributions and accepted papers for paper or poster presentation, as well as any additional material as outlined above, will be made available from the ICME 13 website at the particular webpage assigned to this TSG and will be accessible to all participants who have registered for TSG 25 (see the 2nd *Announcement*, p. 31) In this way, registered participants will have the opportunity to view it, think about it, and possibly respond to authors and the Organizing Team.

V. Time schedule

As announced, each TSG is allocated 360 minutes, divided into four 90-minute sessions (see the 2nd *Announcement*, pp. 29-30).

(a) It is expected that there will be maximum six (6) invited contributions, each one focusing on at least one of the six themes of TSG 25.

(b) **Proposals** for paper and poster presentations will be **submitted** via the **ICME 13 website** from **September 1 to October 1, 2015**, using *Conftool* and the template that is available at

http://icme13.org/proposals_and_paper_submission

Important note: There is a **different** submission period for **posters**, in case the authors do **not** apply for the solidarity fund; namely from **January 1 to January 31, 2016** (see the 2nd *Announcement*, pp. 31-32).

Because of the restricted period of submission, and in order to make possible for the Organizing Team **to assist in the submission process** more effectively, **authors are strongly encouraged to send their paper submission** to the **co-chairs** of the TSG 25 as soon as possible, even **earlier than September 1, 2015** and in any case **before** submitting it via the ICME 13 website.

(c) Accepted contributions will be presented as detailed in §IV.2 above. Depending on the total number of accepted proposals, each session will end with an overall follow-up discussion on the presentations given, not exceeding 15 minutes.

(d) At the opening session, a 10-minute presentation is scheduled, to give the opportunity to the Organizing Team to inform participants on the aim, the structure and technical details of the TSG sessions.

(e) Finally, there will be a 20-minute discussion in the closing session to summarize the main points made in this TSG, to comment on establishing collaborations among participants and possible research perspectives in the near future, as well as to encourage critical evaluation of the work done in this TSG and improvement suggestions for the next ICME.

VI. Material

Given the strict time schedule, the time available for each contribution cannot exceed 20 minutes (see §IV *Contributions* above).

Therefore, an important feature to help prospective participants to better understand each contribution will be the availability of additional material that will supplement and complement each presentation, in addition to the submitted text. The Organizing Team welcomes and strongly advises contributors to provide such additional material (like written documents/papers closely related to the authors' work, links to relevant web sites etc; see also §IV.2 above) in order to stimulate interest in their work, help participants grasp better its content, and, hopefully, make easier constructive feedback, to the benefit of both the contributors and the other participants. They are also encouraged to make available hard copies of selected material to be distributed to participants at the time of the TSG sessions, but this is left to the initiative and responsibility of each presenter.

Important: For more details on the complete scientific programme of ICME 13 and its structure and time-schedule, as well as on practical details, the registration process, the venue and social events, please visit the official ICME 13 website at <http://www.icme13.org/> and especially the *2nd Announcement* at http://www.icme13.org/files/2nd_announcement.pdf

Constantinos Tzanakis
Greece

HPM-Americas meeting

October 30 – November 1, 2015

University of Massachusetts, Amherst

HPM-Americas will be holding a meeting Friday afternoon through Sunday morning, **October 30 to November 1, 2015**, at the University of Massachusetts, Amherst. Amherst is located just off Route 91, and north of the Mass Pike. Amherst is accessible from the Hartford airport (50 minutes) and the Boston and Albany airports (each about 2 hours). A shuttle is available from the Hartford and Boston airports through Valley Transporter. Peter Pan bus lines runs from Boston, New York, and DC to the UMass campus. The nearest Amtrak station is in Northampton, which is about 10 miles from Amherst and on public transportation. We seek a variety of talks on relations between the history and pedagogy of mathematics. Talks on experience with using history in mathematics classrooms are especially encouraged. Talks seeking comment on untested ideas for using history to teach mathematics are also welcome. Talks will be about 25 minutes long, followed by abundant time for discussion. **Abstracts of proposed talks need to be received by September 1, 2015.** Abstracts and registrations can be submitted via www.hpm-americas.org.

David Roberts
HPM-Americas Section

CERME-9 (Prague) TWG12 Report: History in Mathematics Education

CERME-9 (Prague, Czech Republic) was the fourth time of the TWG on “History in Mathematics Education”. The CERME-9 group contributed fourteen papers and two posters, and involved approximately twenty participants in the working sessions. TWG12 covers a range of topics related to history in mathematics education, but on an overall scale, submissions to the group may be distinguished by either concerning “History in Mathematics Education” (HiMed) or “History of Mathematics Education” (HoMed). At the Prague meeting there were five papers addressing topics of HoMed, while the remaining nine papers and two posters were concerned with issues of HiMed at various educational levels, which also included teacher education.

Issues Considered in the TWG12 Call for papers

For CERME-9, TWG12 welcomed empirical and theoretical research papers and posters, but to some degree also methodological and developmental papers related to one or more of the following issues (bulleted below) – although any paper/poster of relevance to the overall focus of the group was taken into consideration:

- Ways of integrating original sources in classrooms, and their educational effects, preferably with conclusions based on classroom experiments;
- Surveys on the existing uses of history or epistemology in curricula, textbooks, and/or classrooms in

primary, secondary, and tertiary levels;

- Design and/or assessment of teaching/learning materials on the history of mathematics;
- The role of history or epistemology of mathematics at the primary, secondary, and tertiary level, and in pre- and in-service teacher education, from cognitive, pedagogical, and/or affective points of view;
- Investigations or descriptions of the historical instances of research cultures and cultures of teaching and learning in mathematics;
- Relationships between (frameworks for and empirical studies on) history in mathematics education and theories and frameworks in other parts of mathematics education;
- Possible parallelism between the historical development and the cognitive development of mathematical ideas;
- Theoretical, conceptual and/or methodological frameworks for including history in mathematics education;
- The potential role of history of mathematics/mathematical practices in relation to more general problems and issues in mathematics education and mathematics education research.

Papers presented in TWG12 (Cerme-9, 2015)

Please see the complete list of papers and posters presented during TWG12 at: <http://www.cerme9.org/products/wg12/>

Four areas of Questions for reflections during sessions

The work following the presentations of participants' papers and posters was orchestrated by four overarching themes cutting across the topics of papers:

Meta-level or methodological reflections on HiMEd and HoMEd

- What (if any) is (could be) the role assigned to epistemological/historical reflection in some major mathematics education theoretical frameworks: e.g. Theory of Didactical Situations (TDS); Actions, Processes, Objects, and Schemas Theory (APOS); Mathematical Knowledge for Teaching (MKT); etc?
- With regard to the local/global tension: Can large-scale surveys (e.g., history of algebra, historical development of geometry, notion of proof from Euclid to Hilbert, evolution of the concept of function, etc.) go beyond the "bird's eye view"? Can we elicit necessary conditions for such large-scale surveys to make any sense? Is the "epistemological narrative" the only way to organize historical material on a large scale?

HiMEd – the *student* perspective

- Which theoretical perspectives provide fruitful orientation for empirical studies designed to measure students' engagement/learning/etc. of mathematics (when history of mathematics is "used")? What measures are valued in such studies? What methods of analysis can be (should be) employed?

- What is the role of students' mathematical ability (or mathematical interest or prior mathematical experience) in successfully including (elements of) history of mathematics in the teaching of mathematics?

HiMEd – the *teacher* perspective

- What minimal/satisfactory level of command of history of mathematics can we reasonably attempt to achieve in teacher training?
 - Sub-issue: *The able reader*: knowledge of available sources, distinction between primary and secondary sources (more generally, the ability to identify the nature of a source), ability to assess a document with a critical mind, deontological aspects (basically, citing one's sources, indicating alterations when altering a text).
 - Sub-issue: *The epistemological toolbox*: what descriptive/analytical concepts do we wish to make available to teachers? Concepts such as: proof-generated concept, zero-definition, conceptual differentiation, analysis/synthesis, epistemic object/tool, etc. Beyond the toolbox, are there "facts" about the "nature of mathematics" that we find we ought to teach (cf. the wealth of literature in physics

education on the “nature of science”)?

- To what extent should we expose (future)-teachers to elements of history of mathematics that have no direct connections with classroom contents (in particular to enrich their “image” of the parts of higher mathematics, which they studied but will not teach)?

HoMEd – the mathematical education landscape

- Lessons from history that can be learned from the construction of the curriculum: Who is the curriculum mainly for? What “big” problems or issues does it aim to resolve? Who benefits most in the short and long run? What are the preferences of areas and topics from mathematics that are being promoted – and why? Who become the developers (and carriers) of the curriculum and how?
- How are mathematical institutions built and are they linked with the new curricula or aims of the society?
- How are cultural values created, narrated, and developed within the new mathematics education landscapes?
- What are the elements by which the tradition in mathematics education, practice, and research is perpetuated?
- What are the outputs of the new curricula/institutions/new mathematical education landscape (the material, the ephemeral, i.e. new values)?

In the following, we give examples of some of the specific questions addressed for

each of these four topics. We conclude the report with some selected reflections related to the areas of questions.

Selected Conclusions

TWG 12 participants – within both the small group and whole group discussions – had much to offer regarding the several subquestions related to the role of large-scale and small-scale surveys of history of mathematics. Several participants shared the view that using a general survey of history (i.e., “global view”) helps to create a cultural landscape, which includes and accommodates multiple tools, concepts, and ideas – and which establishes a meaningful lens to use from the outset. Group discussions during CERME-9 consistently returned to the notion that accessing and reading general surveys of history of mathematics provides a good starting point from which to approach resources. However, it was also important to access different types of resources so that practitioners would be equipped to address different views that emerge from history of mathematics in mathematics education. Participants also offered several examples of general survey textbooks and sourcebooks that would serve practitioners.

Given the current educational landscape in several countries, particularly regarding curriculum reform, the participants of TWG 12 spent a great deal of time discussing lessons that can be learned from the construction of curriculum over time. When considering the question – *For whom is the curriculum constructed* – participants believed that a country’s mathematics curriculum is for the ministers of education. However, this also raised further questions in the group’s discussion, such as: *What does ‘curriculum’ mean?* That is, there are several

meanings and contexts that apply and what might be considered ‘curriculum’ by one that may not hold for another. Our group also discussed history in a different way when considering the questions of the fourth topic area. For example, we thought of historical heritage, and questioned whether mathematics curriculum had caught up with what is needed. And, of particular interest to many of the TWG 12 participants, we raised the question of: *How can history inform the decisions that are made with regard to mathematics curriculum?*

We look forward to exploring this issue in particular at CERME-10 in Dublin, Ireland in 2017.

Uffe Thomas Jankvist

(Aarhus University, Denmark),

Snezana Lawrence

(Bath Spa University, UK),

Kathleen Clark

(Florida State University, USA), and

Renaud Chorlay

(Université Paris-Diderot, France)



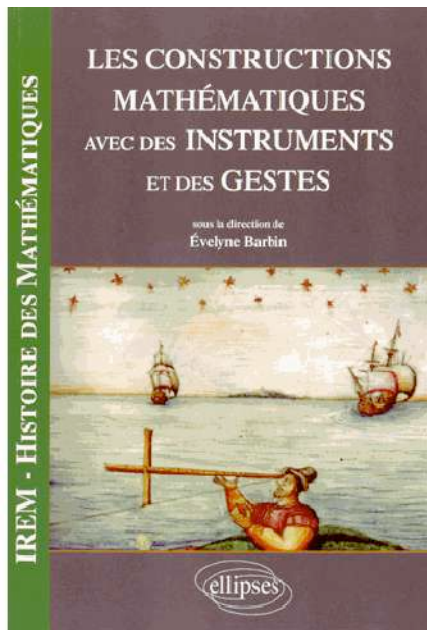
Have you read these?

Evelyne Barbin (ed.) *Les Constructions Mathématiques avec des Instruments et de Gestes (Mathematical Constructions: making and doing)*, Ellipses-Editions, 306 p. Paris, 2015, ISBN 9782340-002067.

Any study of geometry involves both thinking and doing and it is through the doing – drawing, measuring, copying – that we develop a sense of what geometry is. In her introduction to this collection of essays on geometrical constructions, Evelyne Barbin quotes the French philosopher Gaston Bachelard, who claims that using mathematical instruments is to make theory concrete (*des théories matérialisées*). Barbin adds that the figure is, in essence, the evidence of geometrical knowledge.

School mathematics has today lost a great deal of its geometry. There are a few traces remaining of what was once a major component of the curriculum. Indeed geometry was once synonymous with mathematics. What remains is a little about the properties of simple quadrilaterals and circles, Pythagoras’ theorem (usually only treated algebraically), and some idea of ratio and proportion and the intercept theorem (what the French call Thales’ theorem). The advent of ‘new mathematics’ in the 1960s drove out the major part of the geometry that had been taught for centuries and only some

of that has crept back in. A major plaint at the time was to condemn the loss of rigour (never very easy to defend) but much greater damage was the loss of a sense of geometrical intuition. That intuition is mostly gained from action – that is from the act of mathematical constructions.



It is in an attempt to recall this loss, and to report on the history of geometrical constructions, that provides the spur for this collection of studies. The general outline will be familiar but there are some surprises and delights. The first chapter, on ruler and compass constructions, mostly following well-known Euclidean propositions, ends with some less familiar constructions, such as constructions using only the set-square, constructions using only a straight-edge and constructions devised by the using only a pair of compasses. The second chapter continues the theme of using simple construction ideas, this time applied to practical needs – enlarging, reducing, cartography and measuring inaccessible distances. These demands required refinements, or, rather, more practical adaptations, of simple geometrical

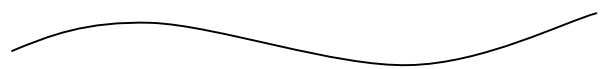
instruments, such as the graduated measuring square and Galileo's proportional compasses. The chapter ends with a discussion of similar figures following ideas from Euclid, Clairaut and Chasles.

The three succeeding chapters deal with the classical problems of quadrature, duplicating the cube and trisecting an angle. Here we meet a variety of ingenious designs using adapted compasses as well as methods using graphs. Justifications of methods are provided, drawing on classical works as well as 17th century works.

An interesting chapter deals with the history of the construction of the regular heptagon, again introducing both adapted standard instruments as well as the use of algebraic curves, and there follows a chapter exploring the construction of the pentagon in relation to other figures. A chapter dealing with practical applications of these constructions to defensive structures recalls the fortifications of Vaudan. The two final chapters deal with constructions of tangents and touching curves and the construction of curves to aid calculation, such as the parabola of Descartes and nomograms.

As one has come to expect from IREM studies, each article is well supported by references to both classical literature and more recent research. The book is attractively designed and offers an overview of the subject for anyone wanting background knowledge as well as many hours of pleasure for the curious student.

Review by Chris Weeks, UK





Announcements of events



Forthcoming BSHM meetings

(The British Society for the History of Mathematics)

<http://www.dcs.warwick.ac.uk/bshm/events.html#forthcoming>

1. BSHM/CSHPM Joint Meeting in North America 2015

Wednesday, 5 August 2015 to Saturday, 8 August 2015
Washington, DC, USA

For information, see:

<http://www.cshpm.org/meeting/> or
<http://www.maa.org/meetings/mathfest>.

2. LMS-EMS Mathematical Weekend, Birmingham University

Friday, 18 September 2015 to Sunday, 20 September 2015
University of Birmingham, UK

3. A Celebration of the Bicentenary of Ada Lovelace (Gresham Lecture)

Thursday, 29 October 2015
Gresham College, London

4. BSHM Christmas Meeting

Saturday, 5 December 2015
Birmingham and Midland Institute,
Birmingham, UK

5. Research in Progress 2016

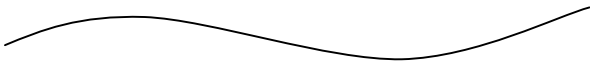
Saturday, 27 February 2016
Shulman Auditorium, The Queen's College, Oxford, UK

6. Mathematics emerging: A tribute to Jackie Stedall and her influence on the history of mathematics

Saturday, 9 April 2016 to Sunday 10 April 2016
The Queen's College, Oxford, UK

7. 'Mathematical Biography: A Celebration of MacTutor'

Friday, 23 September 2016 to Saturday, 24 September 2016
St. Andrews, Scotland



ICHME 4

Fourth International Conference on the History of Mathematics Education

23 – 26 September 2015

Turin, Italy

1ST ANNOUNCEMENT

We are calling for papers for this fourth conference to carry on the successful works initiated in Iceland (2009), and continued in Portugal (2011) and Uppsala (2013). Abstracts of proposed contributions (length: about one page with essential bibliography) should be submitted by 10 April 2015. The decision about acceptance will be communicated by **15 May 2015**. Submission of abstracts, and later of papers, will be done via the conference website: <http://e20.unito.it/ICHME4/>

[Note from editors: This deadline has passed.]

The conference

The history of mathematics education has become a well-established research area, since first becoming visible internationally at ICME 10 in 2004, in Copenhagen, as the TSG 29. The first international journal devoted to this field of study, the *International Journal for the History of Mathematics Education*, has been published since 2006. The history of mathematics education became a subject of interest in various international meetings, for instance at the ESU-5 (Prague, 2007) and ESU-6

(Vienna, 2010), at the CERME meetings, and at ICME 11 (Monterrey, 2008, TSG 38), ICME-12 (Seoul, 2012, TSG 35), and HPM 2012 (Daejong, 2012). The first specialized research conference, entitled “On-going Research in the History of Mathematics Education”, held in Garðabær near Reykjavík (Iceland) in 2009, led to a series of such specialized conferences. We are now organizing the fourth international conference, this time in Turin, Italy.

Founded in 1404, the University of Turin is one of the oldest and most prestigious Italian universities. Hosting some 70,000 students, 4,000 academic, administrative and technical staff, and 1,800 post-graduate and post-doctoral students, the University of Turin promotes culture and research, innovation, teacher training, and entry into employment. The University of Turin has a remarkable research tradition in subjects such as the mathematical, physical and natural sciences, history and philosophy, law, economics and medicine. In the field of mathematics it boasts a long-lasting tradition, including illustrious *Maestri* such as Carlo Ignazio Giulio, Quintino Sella, Rodolfo Bettazzi, Giuseppe Peano, Corrado Segre, Giovanni Vailati, Alessandro Terracini, Guido Ascoli and Tullio Viola, who were strongly interested in problems pertaining to mathematics education.

The themes treated in the former conferences were in particular: *geometry teaching, algebra teaching, teaching of calculus, interdisciplinarity and contexts, the modern mathematics movements, curricula history, development of mathematics education in specific countries, practices of teaching, mathematics textbooks, teacher education*

and transmission and reception of ideas (see the Proceedings for more details).

Those proposing abstracts will have wide freedom of choice, but in order to stimulate research in areas that are less explored, new topics such as *teacher journals* and *teacher education* are suggested.

The publication of the Proceedings is planned. Papers will be peer-reviewed.

Scientific committee:

- **Kristín Bjarnadóttir (Iceland)**
- **Fulvia Furinghetti (Italy)**
- **Livia Giacardi (Italy)**
- **Erika Luciano (Italy)**
- **Johan Prytz (Sweden)**
- **Gert Schubring (Brazil/Germany)**

With the scientific support of **Ferdinando Arzarello**, president of ICMI.

Further information about the conference and accommodation in Turin will be available on the conference website:

<http://e20.unito.it/ICHME4>



Registration and conference fees

Through **15 June 2015**, the fees are **160 Euros**, after **15 June 2015** the fees will be **190 Euros**.

Last day of registration and payment is **29 August 2015**.

Registration can be completed via the conference website.

Proceedings of the ICHMEs

Paedagogica Historica, Special Issue: History of Teaching and Learning Mathematics, ed. by Gert Schubring, 2006, *XLII*: IV&V (Proceedings of TSG 29 at ICME 10).

Bjarnadóttir, K., Furinghetti, F., & Schubring, G. (Eds.) (2009). "Dig where you stand". Proceedings of the conference on On-going research in the History of Mathematics Education. Reykjavik: University of Iceland – School of Education.

Bjarnadóttir, K., Furinghetti, F., Matos, J., & Schubring, G. (Eds.) (2012). "Dig where you stand" 2. Proceedings of the conference on the History of Mathematics Education. Lisbon, Universidade Nova.

Bjarnadóttir, K., Furinghetti, F., Prytz, J., & Schubring, G. (Eds.) (2015). "Dig where you stand" 3. Proceedings of the third conference on the History of Mathematics Education. Uppsala: Department of Education, Uppsala University.

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Gert Schubring (Brazil/Germany)

2016 HPM meeting

18 – 22 July 2016
Montpellier, France

(See first announcement in page 1.)

ICME-13 International Congress on Mathematical Education

24 – 31 July 2016
Hamburg, Germany



<http://icme13.org/home>

Topic Study Groups at ICME-13

A Topic Study Group (TSG) is designed to gather a group of congress participants who are interested in a particular topic in mathematics education. A TSG will serve as mini-conference and will display the progress of the discussion in the intervening

years since ICME-12. Topic Study Groups will therefore promote the discussion of a variety of perspectives on the theme of the Group. The TSG will consist of high-standard discussions enabling the newcomer to get a broad overview on the state-of-the-art and allowing the experts to lead discussions at a high level. The team will provide the audience of their TSG not with a nationally framed insight into the strands of the discussion of the theme, but will give an overall overview on the international discussion as broadly as possible and allowing for insight into less well-known strands of the discussion from under-represented countries. For ICME-13, the TSG is the major arena for participation. Participants are expected to associate themselves with one TSG and to stay in that group for all sessions.

Please see the ICME-13 website for a complete list of all 54 TSGs.

TSG 24

History of the teaching and learning of mathematics

Co-chairs:

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Team members:

Henrike Allmendinger (Germany)
Harm Jan Smid (Netherlands)
Johan Prytz (Sweden)

IPC Liaison person: Alain Kuzniak (France)

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 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 and other directions in mathematics education (for example, teacher education)

In addition, a panel discussion on past and future developments will be organized.

References

Karp, A., & Schubring, G. (Eds.) (2014). *Handbook on the history of mathematics education*. New York: Springer.

Schubring, G., Furinghetti, F., & Siu, M.K. (2012). Turning points in the history of mathematics teaching – Studies of National Policies. *ZDM - The International Journal on Mathematics Education*, 44(4).

TSG 25

The Role of History of Mathematics in Mathematics Education

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Team members:

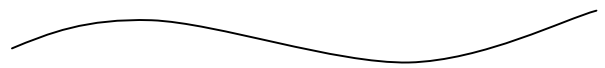
Kathleen Clark (USA)

Tinne Hoff Kjeldsen (Denmark)

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See announcement on page 5 for more information about this TSG 25.



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Table of contents

| | |
|------------------------------|----|
| HPM 2016, Montpellier | 1 |
| TSG 25, ICME-13, Hamburg | 5 |
| HPM-Americas meeting | 9 |
| CERME-9; TWG12 Report | 10 |
| Have you read these? | 13 |
| Announcements of events | 14 |
| HPM Administrative Structure | 20 |

The views expressed in this Newsletter may not necessarily be those of the HPM Advisory Board.

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<http://grouphpm.wordpress.com/>

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

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The Newsletter appears three times a year with the following deadlines for next year.

| No. | Deadline for material | Sent to distributors |
|-----------|------------------------|----------------------|
| 90 | 12 October 2015 | November 2015 |
| 91 | 12 February 2016 | March 2016 |
| 92 | 12 June 2016 | July 2016 |

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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.