



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

No. 98

July 2018

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).

A MESSAGE FROM THE CHAIR OF HPM

Greetings, Happy Summer, and Welcome to Newsletter 98!

I hope you will pardon this brief “Message” for NL 98. Too many deadlines, numerous impending events, and too long with not paying attention to self-care has caught up to me. Thus, I happily let the content in the following pages serve as the important message of this newsletter. I leave you with just a couple of comments:

- (1) For those of you able to attend and participate in ESU-8 this month in Oslo, Norway: I wish you safe travels and a lovely “summer university.” I hope that you will find the activities of ESU-8 fulfilling and professionally inspiring. I know that the Local

Organizing Committee (LOC) and the Chair and Co-Chairs of the Scientific Program Committee (SPC) have worked tirelessly to ensure a successful ESU.

- (2) I would very much appreciate both an ESU “newcomer” and an ESU “veteran” perspective to share in NL 99. If you would be interested in writing a reflection about ESU-8 for inclusion in the next newsletter, please send me an email or just tell me so when you see me in Oslo!
- (3) As always, if you have announcements, HPM-related work, classroom / instructional ideas to share, please be sure to pass them along to one of the NL Editors. We look forward to hearing from you!

Kathy
(kclark@fsu.edu)

8th EUROPEAN SUMMER UNIVERSITY ON HISTORY AND EPISTEMOLOGY IN MATHEMATICS EDUCATION

20 – 24 July 2018
Oslo, Norway

ESU - 8¹

OsloMet – Oslo Metropolitan University²

<https://esu8.edc.uoc.gr>



Main themes:

Theme 1: Theoretical and/or conceptual frameworks for integrating history and epistemology of mathematics in mathematics education;

Theme 2: History and epistemology in students and teachers mathematics education: Curricula, courses, textbooks, and didactical material of all kinds - their design, implementation and evaluation;

Theme 3: Original historical sources in teaching and learning of and about mathematics;

Theme 4: Mathematics and its relation to science, technology, and the arts: Historical issues and socio-cultural aspects in relation to interdisciplinary teaching and learning;

Theme 5: Topics in the history of mathematics education;

Theme 6: History of mathematics in the Nordic countries.

Second Announcement: The *Second Announcement* has been posted on the ESU-8 website (<https://esu8.edc.uoc.gr/2nd-announcement/>) and the HPM website (<http://www.clab.edc.uoc.gr/HPM/Meetings.htm>) since December 2017. It includes many more details on the scientific program, the registration procedure and fees (<https://esu8.edc.uoc.gr/registration/>), practical details about the venue (<https://esu8.edc.uoc.gr/conference-venue/>), accommodation (<https://esu8.edc.uoc.gr/where-to-stay-in-oslo/>), visa requirements (<https://www.udi.no/en/word-definitions/persons-who-do-not-need-a-visa-to-visit-norway-/#link1>) etc., as well as the overall time schedule (<https://esu8.edc.uoc.gr/short-programme/>).

More detailed information: Visit the regularly updated ESU-8 website <http://esu8.edc.uoc.gr>

Important dates:

- *Deadline for abstract submission of proposals* for all types of activities: **15 November 2017 (expired)**
- *Authors' notification:* 15 December 2017 (expired)
- *Deadline for early registration:* 31 January 2018 (expired)
- *Deadline for late registration:* 31 May 2018 (expired)
- **ESU-8 Opening: 20 July 2018**

¹ See also the last *HPM Newsletter* issues [No 94](#), [No 95](#), [No 96](#).

² Formerly, "Oslo and Akershus University College

of Applied Sciences" (the name changed in January 2018).

Proceedings: They will be published in **digital form after** ESU-8, so that the authors are given the opportunity to enrich their text as a result of the feedback they will gain during ESU-8. Submission of full texts for the proceedings, the reviewing process, and authors' notification will be realized online via <https://esu8.edc.uoc.gr/full-text-submission/> as in the case of the abstracts. More detailed information on the reviewing procedure and the evaluation criteria can be found in the above webpage. The submission platform will open again after ESU-8.

Plenary Lectures

Theme 1: Hans Niels Jahnke (Germany), *Hermeneutics, and the Question of "How is Science Possible?"*

Theme 2: Ingo Witzke (Germany), *Epistemological beliefs about mathematics – Challenges and chances for mathematical learning: Back to the future.*

Theme 3: Frédéric Métin (France), *Implementing history in the math class, from kindergarten to teacher training: words and artifacts*

Theme 4: Snezana Lawrence (UK), *The art and architecture of mathematics education – a study in metaphors*

Theme 5: Marta Menghini (Italy), *The fusion of plane and solid geometry in the teaching of geometry: textbooks, aims, discussions*

Theme 6: Andreas Christiansen (Norway), *The first Norwegian textbooks in mathematics – A story of independence and controversy*

Plenary Panel Discussion:

Theme 2: Caterina Vicentini (Italy) coordinator, Nathalie Chevalarias (France), Kathleen M. Clark (USA), Michel Roelens (Belgium): *History, Epistemology and Teaching Mathematics: A challenging partnership?*

Contact

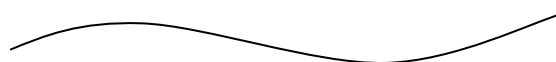
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APPENDIX:

Plenary Panel Discussion on *History, Epistemology and Teaching Mathematics: A challenging partnership?*

Participants are welcome and encouraged to contribute to the discussion, both **beforehand** and **during the ESU**. Therefore, in preparing the panel discussion, it will be both helpful and stimulating to have as many as possible opinions of prospective participants on the questionnaire below to be sent to the panel coordinator Caterina Vicentini (cater.vicentini@gmail.com).

Survey Questions for In-Service Teachers

1. Have you completed a course in History of Mathematics as part of a graduate degree program?

a. Was the course required or did you take it as an elective?

2. Did you complete a course in History of Mathematics during your initial teacher training program?

a. Was the course required or did you take it as an elective?

3. Do you use History of Mathematics in the classroom?

4. If yes, please select all that apply:

- a. I use it only occasionally or only to share anecdotes about persons or events in the History of Mathematics.

- b. I use History of Mathematics to motivate a new topic of study or mathematical concept.
- c. I incorporate the reading of historical texts (or particular excerpts of historical texts).
- d. I incorporate historical problems as part of the mathematical work that students engage in.
- e. Other (please describe):

If no, why? (Again, please select all that apply.)

- a. lack of personal interest
- b. lack of knowledge of History of Mathematics
- c. lack of resources
- d. lack of training
- e. lack of time
- f. lack of motivation
- g. other option (specify)

5. In what ways do you think the use of History of Mathematics could improve your teaching?

6. Do you know what “Epistemology of Mathematics” is?

7. If yes, which is your personal epistemological position towards Mathematics?

8. Do you think this position affects your didactics?

9. If yes, how?



MAA Convergence: Mathematics History for Your Classroom

MAA Convergence is both an online journal on the history of mathematics and its use in teaching and an ever-expanding collection of online resources to help its readers teach mathematics using its history. Founded by Victor Katz and Frank Swetz in 2003 and published by the Mathematical Association of America, *Convergence* brings you a variety of informative articles and useful teaching tools.

We highlight here some of our newest articles and resources.

“Elementary Soroban Arithmetic Techniques in Edo Period Japan” shows readers how to use an abacus to solve problems from the *Taisei Sankei* (c. 1700).



Above: This abacus represents a step in the transition from the Edo period abacus with 7 beads per column to the modern abacus with 5 beads per column. (*Source:* author’s collection)

“More Classroom Activities Based on Ancient Indian Rope Geometry” uses applets to illustrate instructions from the *Śulba-sūtras* for building altars.



Above: Model of a falcon fire altar from an Athirathram ceremony in 2011. (*Source:* Wikimedia Commons)

“Divisibility Tests: A History and User’s Guide” piques students’ interest with discoveries, rediscoveries, and generalizations of these integer tests.

Our series of mini-Primary Source Projects (mini-PSPs) from the **TR**ansforming Instruction in Undergraduate **M**athematics via **P**rimarily **H**istorical **S**ources (TRIUMPHS) team continues with the project, “Euler’s Rediscovery of e ,” a mini-PSP in which Introductory Analysis students connect Euler’s sequence and series for e .

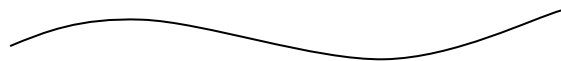
Our “Index to Mathematical Treasures” includes hundreds of images for use in your classroom from dozens of libraries and sources.

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 Beery
Editor, *MAA Convergence*
University of Redlands, California
USA





**Recent Bimonthly Newsletter
from the International
Mathematical Union (IMU)**

As you may know, the IMU issues a bimonthly newsletter. The contents of the May 2018 newsletter are given below.

IMU-Net 89: May 2018

A Bimonthly Email Newsletter from the International Mathematical Union
Editor: Martin Raussen, Aalborg University, Denmark

Contents

1. Editorial: African Mathematical Union
2. CEIC: Notes and Comments
3. Inside the IMU
4. IMU General Assembly and ICM 2018
5. 2018 Survey of Mathematical, Computing and Natural Scientists
6. ICM-CDC Project Support Program
7. Shaw Prize awarded to Luis Caffarelli
8. News on the International Day of Mathematics project
9. Subscribing to IMU-Net

If you are not already receiving the IMU-Net but would like to do so, please see below!

Subscribing to IMU-Net

There are two ways of subscribing to IMU-Net:

1. Click on <https://www.mathunion.org/organization/IMU-Net> with a Web browser and go to the “Subscribe” button to subscribe to IMU-Net online.

2. Send an e-mail to imu-net-request@mathunion.org with the Subject-line:

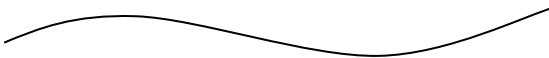
Subject: subscribe


In both cases, you will get an e-mail to confirm your subscription so that misuse will be minimized. IMU will not use the list of IMU-Net emails for any purpose other than sending IMU-Net, and will not make it available to others.

More details about IMU-Net can be found at:

<https://www.mathunion.org/organization/imu-net/>

You can find here, for instance, detailed information about subscribing to the IMU-Net mailing list and unsubscribing from it.





**A PRIZE IN HONOR OF
“MARIA GAETANA AGNESI
THIRD CENTENNIAL”
TO BE AWARDED FOR AN
ORIGINAL RESEARCH PAPER
ON THE THEME:
FEMALE MATHEMATICIANS
IN HISTORY**

The Società Italiana di Storia delle Matematiche (Italian Society of History of Mathematics), with a generous contribution by Prof. Maria Clara Nucci, announces a **Prize of 2.500 euros** to be awarded to a young scholar’s original research paper on the theme:

Female mathematicians in history

The Prize celebrates “Maria Gaetana Agnesi (1718-1799) in the Third Centennial of her birth”.

Italian and Foreign citizens may apply if they are aged less than 40 years old **on October 3, 2018**, and if they have attained a PhD or a Master’s Degree at a European or non-European University **between January 1, 2013 and September 30, 2018**.

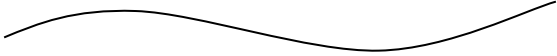
The Prize Committee may award the Prize jointly to more than one winner.

Rules

The applicants must fill and sign the application form, and email it together with the pdf file of their original research paper to m.g.agnesi2018@gmail.com **not later than October 3, 2018, at midnight (GMT+2)**.

The submitted original research paper must be written either in Italian or English. Prof. Maria Clara Nucci and two Members nominated by the Board of the Società Italiana di Storia delle Matematiche will decide the winner among the submitted papers.

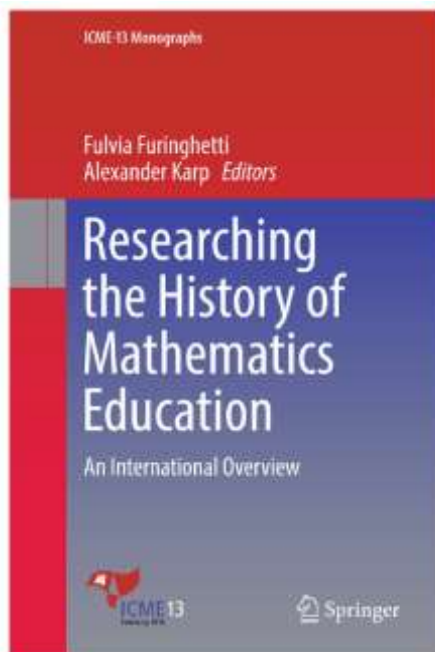
(Received 16 May 2018)



**Announcing the publication of
two ICME-13 monographs**

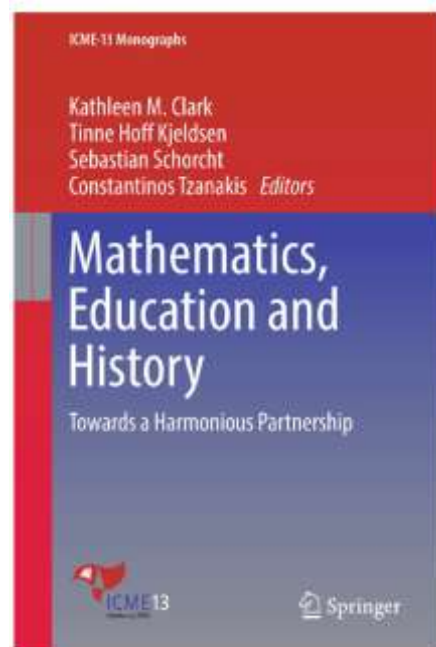
***Researching the History of Mathematics
Education: An International Overview***
Editors: **Furinghetti**, Fulvia & **Karp**,
Alexander

<https://www.springer.com/gp/book/9783319682938>



***Mathematics, Education and History:
Towards a Harmonious Partnership***
Editors: **Clark**, Kathleen M., **Kjeldsen**,
Tinne Hoff, **Schorcht**, Sebastian, &
Tzanakis, Constantinos

<https://www.springer.com/gp/book/9783319739236>



LES MATHÉMATIQUES ET LE RÉEL

Evelyne **Barbin**, Dominique **Bénard** et Guillaume **Moussard** (Eds.). *Les mathématiques et le réel, expérience, instruments, investigations*, Presses Universitaires de Rennes, 2018.



This collection of fourteen essays is drawn from presentations made at an IREM conference of the same title, which took place in Le Mans in 2015. The authors show how there is a two-way relationship between mathematics and the real world: in other words, applications of mathematics are not just thought experiments. Similarly, physical objects, from geometrical instruments to calculating machines, can be

used to solve mathematical questions that may not be otherwise accessible. All the authors examine the historical development of their topics.

The authors are, or have been, teachers of mathematics at secondary or university level and the purpose of the original conference, and these essays, is not only to examine an historical topic but also to show how a study of its history may inform its teaching.

The volume is published by Presses Universitaires de Rennes (with the support of the University of Le Mans) and can be ordered directly from their website: <http://www.pur-editions.fr>

A more detailed review of the book is forthcoming.

Chris Weeks
Devon, UK

PASSERELLES

Marc Moyon & Dominique Tournès D. (Eds.). *“Passerelles”*: Enseigner les mathématiques par leur histoire au cycle 3. Commission Inter-IREM “épistémologie et histoire” Bouc-Bel-Air: ARPEME.



This collective volume is based on the joint work of nine French IREMs. It presents teaching sequences based on historical resources (original texts, drawings, or material artifacts), designed for and implemented in the French “cycle 3” (CM-1-CM-2-6e). A documented website accompanies the book, which provides all of the necessary files with a selected bibliography (<http://www.univ-irem.fr/spip.php?rubrique505>).



Have you read these?

Beery, J. L., Greenwald, S. J., Jensen-Vallin, J. A., & Mast, M. B. (Eds.). (2017). *Women in mathematics: Celebrating the centennial of the Mathematical Association of America (Association for Women in Mathematics Series 10)*. Cham, Switzerland: Springer.

Confalonieri, S. (2018). A further analysis of Cardano’s main tool in the *De Regula Aliza*: on the origins of the splittings. *Archive for History of Exact Sciences*, 72(3), 303-352.

Del Centina, A., & Fiocca, A. (2018). Boscovich’s geometrical principle of continuity, and the “mysteries of the infinity.” *Historia Mathematica*, 45(2), 131-175.

Del Centina, A., & Fiocca, A. (2018). “A masterly though neglected work,” Boscovich’s treatise on conic sections. *Archive for History of Exact Sciences*. (article not assigned to an issue)

Elior, O. (2018). The Arabic tradition of Euclid’s *Elements* preserved in the Latin translation by Adelard of Bath and the Hebrew translation by Rabbi Jacob. *Historia Mathematica*, 45(2), 111-130.

Mozaffari, M. (2018). An analysis of medieval solar theories. *Archive for History of Exact Sciences*, 72(2), 191-243.

Oaks, J. (2018). François Viète's revolution in algebra. *Archive for History of Exact Sciences*, 72(3), 245-302.

Ossendrijver, M. (2018). Bisecting the trapezoid: tracing the origins of a Babylonian computation of Jupiter's motion. *Archive for History of Exact Sciences*, 72(2), 145-189.

Romero-Vallhonestá, A., & Massa-Esteve, R. (2018). The main sources for the *Arte Mayor* in sixteenth century Spain. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, 33(2), 73-95.

Sidoli, N. (2018). Uses of construction in problems and theorems in Euclid's *Elements* I–VI. *Archive for History of Exact Sciences*. (article not assigned to an issue)

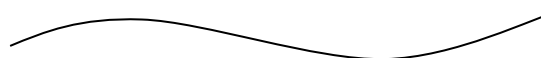
Sidoli, N. (2018). The concept of *given* in Greek mathematics. *Archive for History of Exact Sciences*. (article not assigned to an issue)

Stalpers, L., & Kaplan, E. (2018). Edward L. Kaplan and the Kaplan-Meier Survival Curve. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, 33(2), 96-108.

Verburgt, L. (2018). A letter of Robert Leslie Ellis to William Walton on probability. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, 33(2), 96-108.

Vidal, C., & Tur, S. (2018). The modernity of Dedekind's anticipations contained in *What are numbers and what are they good for?* *Archive for History of Exact Sciences*, 72(2), 99-141 (and 143).

Wardhaugh, B., Beeley, P., & Nasifoglu, Y. (n. d.). *Reading Euclid: Euclid's Elements of Geometry in early modern Britain and Ireland*. Project based at the History Faculty, University of Oxford and funded by the Arts and Humanities Research Council. [Note: This exhibition has ended but the website remains active.]





Announcements of Events



Forthcoming BSHM Meeting

(The British Society for the History of Mathematics)

<http://www.bsham.ac.uk/#forthcoming>

1. Mathematics in War and Peace

24 October 2018

London

Prof June Barrow-Green (Open University):

“I think I would better satisfy my desire by working on an English book on artillery.”:
Euler’s work on ballistics

Tony Royle (Open University):
Logbooks, Letters and Loop-the-Loop:
The nature of life for the flying
mathematicians of the Royal Aircraft
Factory during WW1.

Prof David Aubin (Sorbonne, Paris):
Science Leaders under Fire: Stories about
Mathematicians Killed in World War I.

2. The Mathematics of Time

8 December 2018

Midlands Institute, Birmingham.



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(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).

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

No.	Deadline for material	Sent to distributors
99	12 October 2018	November 2018
100	12 February 2019	March 2019
101	12 June 2019	July 2019

The Newsletter is the communication of the International Study Group on the Relations between the History and Pedagogy of Mathematics, an affiliate of the International Commission on Mathematical Instruction.

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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.