



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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This and earlier issues of the Newsletter can be downloaded from our website
<http://www.clab.edc.uoc.gr/hpm/>

Conference reports

On-going Research in the History of Mathematics Education



(Photo: [Gúnna](#), CC)

During the 20th–24th of June 2009, a remarkable conference was held in Garðabær, Iceland. It was the first conference exclusively devoted to the history of mathematics education. The idea of such a conference originated on the symposium to celebrate the 100th anniversary of ICMI, held in Rome in March 2008. So, this conference was organized within a period of not much more than a year. In achieving this, the organizers did a very good job. First and for all, the credits for this achievement go to the local organizer, Kristín Bjarnadóttir. She did a wonderful job, the organisation was perfect, not only of the conference itself, but also of the extra activities such as visits and round

trips that she organized. The conference participants were even received by the president of Iceland, for most, if not all, participants the first and perhaps last occasion to shake hands with a head of state. Also the Programme Committee, consisting of Fulvia Furinghetti, Gert Schubring and Kristín Bjarnadóttir, deserves full appreciation. Within a relatively short period they created a very interesting and valuable program, in which many features of the current research in the history of mathematics education were presented and discussed.

The conference was attended by 15 participants from abroad and 18 from Iceland. There were 18 lectures of 50 minutes each. The lectures can be ordered according the following structure:

- Methodological issues: Hans Christian Hansen, Gert Schubring, Nikos Kastanis
- ICMI/International: Bernard Hodgson, Livia Giacardi, Fulvia Furinghetti
- Modern Mathematics: José Manuel Matos
- Geometry Teaching: Marta Menghini, Pauline Romera-Lebret, Johan Prytz
- Interdisciplinary/contexts issues: Amy Ackerberg-Hastings, Kristín Bjarnadóttir, Þorsteinn Vilhjálmsson
- Practice of teaching: Wagner Rodrigues Valente (read by Gert Schubring), Eileen Donoghue
- Transmission: Man Keung Siu, Harm Jan Smid

- Political and social contexts: Jeremy Kilpatrick

The lectures and the following discussions were interesting and stimulating. The full text of the lectures will be included in the proceedings of the conference, to be published by the University of Iceland, to appear in the summer of next year.

This successful conference proved once again that the history of mathematics education is a viable and interesting field of research. While the history of mathematics education has acquired an undisputed position on meetings as the ICME and ESU, all participants agreed that a conference like this, exclusively devoted to this topic, adds a specific value and should be held on a regular basis. The offer of José Manuel Matos to organize a conference like this in September 2011 in Lisbon was therefore accepted with enthusiasm by all participants.

**Harm Jan Smid,
Holland**

The editors welcome reports from conferences.

Work in progress

We encourage young researchers in fields related to *HPM* to send us a brief description of their work in progress or a brief description of their dissertation.

New Books

Reports on new books are welcome.



Have you read these?

Barnett, Janet Heine: Mathematics goes ballistic: Benjamin Robins, Leonhard Euler, and the mathematical education of military engineers. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 2 2009, 92–104.

Beery, Janet L.: Formulating figurate numbers. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 2 2009, 78–91.

Biggs, Norman: Mathematics of currency and exchange: arithmetic at the end of the thirteenth century. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 2 2009, 67–77.

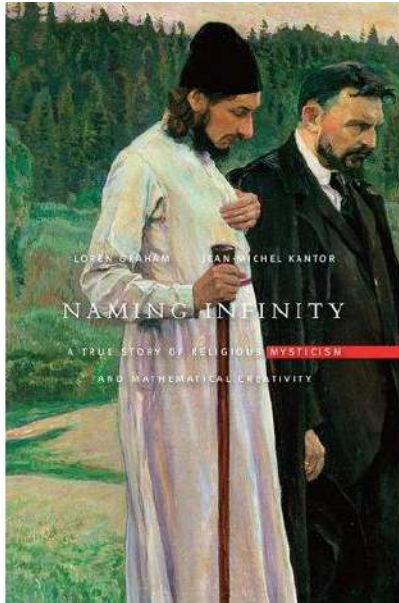
Bjarnadóttir, Kristín: A puzzle rhyme from 1782. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 1 2009, 12–19.

Chemla, Karine: On mathematical problems as historically determined artifacts: Reflections inspired by sources from ancient China. *Historia Mathematica*, Volume 36, Issue 3, August 2009, Pages 213–246.

Christiansen, Andreas: Bernt Michael Holmboe (1795–1850) and his mathematics textbooks. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 2 2009, 105–113.

Craik, Alex D.D.: A proportional view: The mathematics of James Glenie (1750–1817). *Historia Mathematica*, Volume 36, Issue 3, August 2009, Pages 247–272.

de Bruycker, Angelo: ‘To the adornment and honour of the city’: the mathematics course of the Flemish Jesuits in the seventeenth century. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 3 2009, 135–146.



Graham, L. & J-M. Kantor: *Naming Infinity: A true story of religious mysticism and mathematical creativity*, Harvard, 256 pp., 2009.

Hartveit, Marit: How Flora got her cap: the higher education of women in Edinburgh. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 3 2009, 147–158.

Jankvist, Uffe Thomas: A categorization of the “whys” and “hows” of using history in mathematics education. *Educational Studies in Mathematics* Volume 71, Number 3/July, 2009, 235–261.

Kjeldsen, Tinne Hoff and Morten Blomhøj: Integrating history and philosophy in mathematics education at university level through problem-oriented project work. *ZDM* Volume 41, Numbers 1–2/January, 2009, 87–103.

Liu, Po-Hung: History as a platform for developing college students’ epistemological beliefs of mathematics. *International Journal of Science and Mathematics Education*, Vol. 7, No. 3. (2009), 473–499.

Mukhopadhyay, Swapna: The decorative impulse: ethnomathematics and Tlingit basketry. *ZDM* Volume 41, Numbers 1–2/January, 2009, 117–130.

Palmieri, Paolo: Superposition: on Cavalieri’s practice of mathematics. *Archive for History of Exact Sciences* Volume 63, Number 5/September, 2009, 471–495.

Przenioslo, Malgorzata: International mathematical journals published in Poland between the Wars. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 1 2009, 20–26.

Sriraman, Bharath: A historic overview of the interplay of theology and philosophy in the arts, mathematics and sciences. *ZDM* Volume 41, Numbers 1–2/January, 2009, 75–86.

Stephenson, Craig: George Darwin’s lectures on Hill’s lunar theory. *BSHM Bulletin: Journal of the British Society for the History of Mathematics*, Volume 24 Issue 3 2009, 159–171.



Have you been here?

In this section we bring links related to the scope of the HPM from around the world. Please send suggestions.

New link(s) in this issue

Video on the history of mathematics

<http://www.youtube.com/watch?v=wo-6xLUVLTQ>

Societies and organisations

Commission on the History of Mathematics in Africa (including newsletter)

http://www.math.buffalo.edu/mad/AMU/amuc_hma_online.html

Association des Professeurs de Mathématiques de l’Enseignement Public [APMEP] History site:

<http://www.apmep.asso.fr/BMhist.html>

British Society for the History of Mathematics [BSHM]

<http://www.bshm.org>

HOMSIGMAA - History of Mathematics Special Interest Group of the MAA

<http://www.maa.org/sigmaa/hom>

HPM Americas

<http://www.hpm-americas.org/>

Italian Society of History of Mathematics

<http://www.dm.unito.it/sism/indexeng.html>

Association pour la Recherche en Didactique des Mathématiques:

<http://www.ardm.asso.fr/>

Commission Française pour l'Enseignement des Mathématiques:

<http://www.cfem.asso.fr/>

Instituts de Recherche sur l'Enseignement des Mathématiques (IREM):

<http://www.univ-irem.fr/>

Canadian Society for History and Philosophy of Mathematics

<http://www.cshpm.org>

Brazilian Society for History of Mathematics

<http://www.sbhmat.com.br>

Nuncius Newsletter

<http://brunelleschi.imss.fi.it/nuncius/inln.asp?c=5302>

International History, Philosophy and Science Teaching Group

www.ihpst.org

Centre for the History of the Mathematical Sciences.

The Open University, UK

http://puremaths.open.ac.uk/pmd_research/CHMS/index.html

Oxford Museum of the History of Science

www.mhs.ox.ac.uk/exhibits/

<http://www.mhs.ox.ac.uk/measurer/text/title.htm>

<http://www.mhs.ox.ac.uk/geometry/title.htm>

<http://www.mhs.ox.ac.uk/scienceislam/>

Topics and Resources

MATHS for EUROPE: The history of some aspects of mathematics like: history of mathematical persons, symbols, algorithms...

<http://mathsforeurope.digibel.be/index.html>

<http://mathsforeurope.digibel.be/list.htm>

<http://mathsforeurope.digibel.be/olvp.htm>

<http://mathsforeurope.digibel.be/olvp2.htm>

<http://mathsforeurope.digibel.be/olvp3.htm>

Ethnomathematics on the Web

<http://www.rpi.edu/%7Eeglash/isgem.dir/links.htm>

About Medieval Arabic Numbers

<http://www.geocities.com/rmlyra/Numbers.html>

<http://www.geocities.com/rmlyra/arabic.html>

Annotated Bibliography on Proof in Mathematics Education

<http://fcis.oise.utoronto.ca/~ghanna/educationabstracts.html>

BibM@th

<http://www.bibmath.net/dico/index.php3?action=rub&quoi=0>

Centro Virtual de Divulgación de las Matemáticas, esta siendo desarrollada por la Comisión de Divulgación de la Real Sociedad Matemática Española (R.S.M.E.)

<http://www.divulgamat.net/index.asp>

Digitization of the oldest extant manuscript of Euclid's *Elements*

<http://librarieswithoutwalls.org/bookviewer/>

History of Statistics

<http://www.stat.ucla.edu/history/>

Images of Lobachevsky's context

<http://www.ksu.ru/eng/museum/page0.htm>

Images of Mathematicians on Postage Stamps
<http://members.tripod.com/jeff560/index.html>

Photos of Mathematicians
<http://www.math.uni-hamburg.de/home/grothkopf/fotos/math-ges/>

Numdam-Digitization of ancient mathematics documents
<http://www.numdam.org/en/ressnum.php>

The Montana Mathematics Enthusiast (journal)
<http://www.montanamath.org/TMME/>

Convergence: an online magazine of the MAA providing resources to teach mathematics through its history
<http://convergence.mathdl.org/>

International Journal for Mathematics Teaching and Learning,
<http://www.cimt.plymouth.ac.uk/journal/default.htm>

Homepage of International Journal for the History of Mathematics Education
<http://www.tc.edu/centers/ijhmt/index.asp?Id=Journal+Home>

Documents for the History of the teaching of mathematics in Italy
<http://www.dm.unito.it/mathesis/documents.html>

Ethnomathematics Digital Library
<http://www.ethnomath.org/>

Some Japanese Mathematical Landscapes:
The results of wandering in a beautiful country, with a mathematical eye, aided by a digital camera, by A. Arcavi
http://math.criced.tsukuba.ac.jp/museum/arcavi/arcavi_english/index.html

Wann-Sheng Horng's webpage
with HPM related materials in Chinese.
<http://math.ntnu.edu.tw/~horng/>

Fred Rickey's History of Mathematics Page
<http://www.dean.usma.edu/math/people/rickey/hm/default.htm>

CultureMATH. Ressources pour les enseignants de Mathématiques
www.dma.ens.fr/culturemath/actu/livres.htm

The French INRP (National Institute for Pedagogical Research) is developing a website on questions related to mathematics teaching: EducMath
<http://educmath.inrp.fr>

Geometrical books and instruments from 15th to 18th century
<http://www.geometricum.com/>

David Henderson's Home Page
[Educational and Historical Topics on Geometry]
<http://www.math.cornell.edu/~dwh/>

Homepage of Albrecht Heeffer
<http://logica.ugent.be/albrecht/>

Homepage of Jens Høyrup
<http://www.akira.ruc.dk/~jensh/>

L'Enseignement Mathématique, Archive
<http://retro.seals.ch/digbib/vollist?UID=ensmat-001>

Homepage of Prof. Leo Corry
<http://www.tau.ac.il/~corry/>

Opera Mathematica of Christoph Clavius
<http://mathematics.library.nd.edu/clavius/>

Archimedes Project [Some famous mathematical books of the Renaissance period are available on line, i.e. Pacioli's *Summa*]
http://archimedes2.mpiwg-berlin.mpg.de/archimedes_templates

Simon Stevin's *De Meetdaet* [The Practice of Measuring]
http://www.math.leidenuniv.nl/~wiskonst/mee_tdaet/index.html

and The Principal Works of Simon Stevin
http://www.historyofscience.nl/works_detail.cfm?RecordId=2702

Mathematicians Gallery
http://www.math.uconn.edu/MathLinks/mathematicians_gallery.php?Rendition=printerfriendly

History of Mathematics
<http://www.otterbein.edu/resources/library/libpages/subject/mathhis.htm>

The Garden of Archimedes. A museum for Mathematics
http://web.math.unifi.it/archimede/archimede_NEW_inglese/

Mathematical instruments
<http://brunelleschi.imss.fi.it/museum/esim.asp?c=500164>

and
<http://web.mat.bham.ac.uk/C.J.Sangwin/Sliderules/sliderules.html>

and
<http://www.mhs.ox.ac.uk/epact/catalogue.php?ENumber=52265>

Homepage of Eleanor Robson
<http://www.hps.cam.ac.uk/dept/robson.html>

Flickr group for HPM related photos
<http://www.flickr.com/groups/812621@N24/>

Monuments on Mathematicians
<http://www.w-volk.de/museum/exposi.htm>

We would like to provide a more comprehensive list of websites containing resources useful to researchers and students (not necessarily in English). If there are any you use, or you know are useful for students or researchers, please send your recommendations to the editors.

Notices

The wonderful approximation $\pi = 355/113$. Some historical and cultural glimpses

By Prof. R. C. Gupta

Originally connected with the mensuration of a circle, the number π is the most interesting number in mathematics. The history of the genesis, growth, and of the various properties of π forms a good part of the origin and development of many mathematical concepts. The number π is not only irrational but transcendental and so its true value cannot be equated to a rational number or fraction which can serve only as an approximation.

Zu Chongzhi (also spelt as Txu Chung-chi) (AD 429-500) was a first rate mathematician of China. His great mathematical book *Zhui Shu* (Method of Mathematical Composition), written in AD 480, is not extant. Fortunately, some of his contributions are recorded in subsequent works. The *Sui Shu* (Official History of the Sui Dynasty, AD 581-618) considers him as “the prince of mathematicians”, adding that he is said to have invented subtle methods to square the circle.

According to *Sui Shu*, Zu’s very close ratio (between circumference C and diameter D) was 355 to 113 and the approximate ratio was 22 to 7. Thus he not only found the already known Archimedean approximation

$$\pi = 22/7 \quad (1)$$

but the far better and accurate new value

$$\pi = 355/113 \quad (2)$$

More significantly, the *Sui Shu* narrates that Zu found more accurate limits between which the true circumference of a circle must lie. These limits (given in ancient form) imply

$$3.1415926 < \pi < 3.1415927 \quad (3)$$

Interestingly it is also recorded that *Zhui Shu*’s profundity was not understood properly and so the work was neglected and then

abandoned and soon lost. Nevertheless, the work was known in Japan under a different title (*Tetsujutsu*) and had its impact on the traditional mathematics there.

An early Chinese mathematician Liu Hui (third century AD) by his method of inscribed polygons had derived the simple approximation

$$\pi = 157/50 \quad (4)$$

Later on Ho Chenglian (AD 370-447) used a method of harmonized averaging. In a more general way, if there are two positive fractions, a/b (smaller) and c/d (greater), then the many interpolated intermediary values can be found from the harmonized fraction

$$(a+nc)/(b+nd) \quad (5)$$

Where n is the number of steps or iterations. We apply this technique to (1) and (4). Since

$$157/50 < \pi < 22/7 \quad (6)$$

The expression (5) with $n=9$ easily gives

$$\frac{157+9 \times 22}{50+9 \times 7} = \frac{355}{113} \quad (7)$$

which is Zu's accurate value (2).

Another possible derivation can also be suggested. In his commentary on the famous *Jiu Zhang Suan Shu* (Nine Chapters of Mathematical Art), Liu carried out the calculations related to circle to "very minute numbers". He clearly stated that for diameter 1250, the circumference is 3927 thereby implying

$$\pi = 3927/1250 \quad (8)$$

But he continued to prefer the use of the simpler ratio (4) for "practical purpose". However, some modern Chinese scholars consider (8) not at contribution of Liu but of Zu who was doubtlessly familiar with the work and method of the former. Anyway, Zu must have been hunting for a value which is simple as well as accurate. Using the well

known ancient Euclidean algorithm, the fraction (8) could be expressed in the form of a continued fraction as

$$\frac{3927}{1250} = 3 + \frac{1}{7 + \frac{1}{16 + \frac{1}{11}}} \quad (9)$$

From this we easily get Zu's approximations (1) and (2) as second and third convergents.

There is yet another consideration. In modern notation the simple continued fraction (when all numerators are unity) (9) can be written as $[3; 7, 16, 11]$. In 1761 J. H. Lambert showed that the true value of π is

$$[3; 7, 15, 1, 292, 1, 1, \dots \text{ to } \infty] \quad (10)$$

In this notation, Zu's inequality (3) (whatever be his method of getting it) can be expressed as

$$[3; 7, 15, 1, 243, \dots] < \pi < [3; 7, 15, 1, 354, \dots] \quad (11)$$

We note in this that first four convergents will be same on both sides. Also the unit fractions with denominators 243 and 354 are relatively very small and deviations caused will be practically negligible. Thus from (11), we have, quite accurately,

$$\pi = [3; 7, 15, 1] = 355/113$$

In India, the Jaina scholar Virasena (AD 816) in his *Dhavalā* commentary quotes a verse which has the rule

$$C = 3D + (16D + 16)/113 \quad (12)$$

And which also claims that this is "even more accurate than the accurate one". The peculiar thing in (12) is the addition of the absolute free number 16 because it makes it dimensionally imbalanced. Structural form of (12) shows that this addition of number 16 was intrinsically meant to deliberately improve the value of C obtained by the obviously known rule

$$C = 3D + 16D/113 \quad (13)$$

which implies Zu's accurate value (2).

For $D = 20000$ (as taken by the famous Indian mathematician Āryabhata I), the rule (13) yields $C = 62831$ plus $97/113$, while (12) will give $C = 62832$ which is exactly the value given by Āryabhata (born AD 476) in his *Āryabhatīya* (II.10) as the close value.

Aryabhata was a respected professor (ācārya) and thus a great authority for Indians. He was regarded as an incarnation of God Sun who descended on earth to improve the astronomical system. Thus rule (12) was claimed more accurate. It may be pointed out that during the Sui and Tang (618-907) dynasties in China there was great cultural intercourse between India and China via Buddhism.

Explicit mathematical statements for rules implying (2) are found in India historically in the *Tantrasamuccaya* (1428) of Nārāyana Nampūtiri and in Nīlakantha Somayāji's (circa 1500) *Tantrasangraha* as well as in his *Golasāra* and also in some other writers.

In Europe, Valentin Otho (or Otto) of Germany seems first to have given (2) in 1573. He got it from Ptolemy's $\pi = 377/120$ and the Archimedean (1) as follows:

$$(377-22)/(120-7) = 355/113$$

This may be compared with the rule (5) with $n = -1$. A dozen years later, Adriaen Anthoniszoon (= Peter Metius) of Holland hit upon the same ratio by a "lucky accident". All that he showed was

$$333/106 < \pi < 377/120 \quad (14)$$

and then simply averaged numerators and denominators, that is, used (5) with $n = 1$ for which it is called rational mean.

In decimal form of (2), the first six decimal figures are found correct but (3) shows that Zu found π correct to eight significant figures. This accuracy was not excelled anywhere in the world for the next nine centuries.

Mādhava (circa 1400), the founder of the Late Āryabhata School, gave a Sanskrit stanza according to which

$$\pi = (2827, 4333, 8823, 3)/(9 \times 10^{11}) \quad (15)$$

which yields value correct to 12 decimal places (after rounding off). More significantly, Mādhava knew the so-called Gregory series for $\tan^{-1} x$ from which follows many infinite series for π .

In 1424 Jamshīd al-Kāshī of Islamic world wrote the excellent *Al-Risāla al-Muhitiyya* (Treatise on the Circumference) in Arabic. In this he correctly found π to 16 decimal places by classical method using polygons up to 3×2^{28} sides. He first expressed 2π sexagesimally. In Europe Vieta found π correct to 9 decimals (1579) and Adriaen van Roomen to 15 decimals (1593) before the famous Ludolph van Ceulen of Germany (1610) computed π to 35 decimal places all by classical method.

For geometric constructions of Zu's ratio (2), see Berggren et al (2004). They were given by Jakob de Gelder (1849), S. Ramanujan (1913) and T. M. P. Hughes (1914).

References

- Āryabhata: *Āryabhatīya*, Edited with English translation and notes by K. S. Shukla. INSA, New Dehli, 1976.
- L. Berggren et al: *L Pi: A Source Book*, Springer, NY, 2004.
- C. B. Boyer: *A History of Mathematics*, Wiley, NY, 1968.
- H. Eves: *An Introduction to the History of Mathematics*, Holt, Rinehart and Winston, NY, 1969.
- R. C. Gupta: "The Mādhava-Gregory Series", *Mathematics Education*, Vol. 7, No. 3 (1973), Sec. B, 67-70.
- R. C. Gupta: "Some Ancient Values of Pi and Their Use in India", *Mathematics Education*, Vol. 9, No. 1 (1975), Sec. B, 1-5.
- R. C. Gupta: "Sino-Indian Interaction and the Chinese Buddhist I-Hsing (AD 683-727)", *Ganita-Bhārati*, 11 (1989), 38-49.
- T. Hayashi et al: "Indian Values for π Derived from Āryabhata's Value", *Historia Scientiarum*, No. 37 (1989), 1-16.

S. K. Jha and M. Jha: "A Study of the Value of Hindu and Jaina Pi", *Journal of Bihar Math. Society*, 13 (1990), 38-44.

J.-C. Martzloff: *A History of Chinese Mathematics*, Springer, Berlin, 1997.

**R. C. Gupta,
Jhansi, India**

Announcements of events

IMA Conference on the History of Mathematics

6 November, 2009

Royal Statistical Society, London
East London, where the conference will be held, was the fermenting ground where one of the first mathematical societies was founded, the Spitalfields Mathematical Society (1717). The history of the area has inspired, in many ways, the contributions to the conference, and we hope that both mathematicians and the historians of mathematics will find this a fascinating opportunity to explore the ways in which mathematics developed from its applications and in which applications inspired the creation of new mathematical techniques.
http://www.ima.org.uk/Conferences/history_of_mathematics.html

Numeracy: Historical, philosophical and educational perspectives

December 16-18, 2009

Oxford, UK
In recent years studies of the history of mathematics have turned increasing attention to the mathematical experiences of ordinary people and to the teaching, learning and using of mathematics which takes place outside elite contexts and away from individuals who might ordinarily identify themselves as mathematicians. At the same time a focus exists in the educational world on the key skill of numeracy, its nature and its acquisition. And philosophers of mathematics have long been interested in the nature of our understanding of numbers and numerical

operations and the nature of basic arithmetical knowledge.

This conference seeks to bring together these different approaches to numeracy, in order to share insights about what numeracy is, how we can recognise it (or its absence), how it relates to other cognitive capacities, and other fundamental questions concerning basic numerical abilities. It will also provide a forum for the discussion of detailed case studies from the different realms of history, philosophy, and education, which will, it is hoped, prove mutually stimulating and fruitful for new interactions between these fields. Novel and/or interdisciplinary approaches are particularly welcome.

<http://www.benjaminwardhaugh.co.uk/numeracy/index.html>

The History of Mathematics in the Undergraduate Curriculum

March 30, 2010

University of Greenwich, UK
A workshop organised jointly by the British Society for the History of Mathematics and the Higher Education Academy Maths, Stats and OR Network.

The history of mathematics is to be found in many parts of the undergraduate curriculum – from full modules to informal asides. This workshop will showcase the range of approaches used in British Universities and provide opportunity for informal discussion.

The Tenth Maghrebian Colloquium on the History of Arab Mathematics

May 29-31, 2010

Tunisia
The themes of the Colloquium, related to the history of Arab mathematics, will be divided into the following topics:

- A. Mathematics and astronomy.
- B. Applied mathematics.
- C. History of teaching Arab mathematics.
- D. Teaching the history of mathematics.
- E. Mathematics and society.

For more information, contact the Local Organising Committee:

Prof. Mahdi Abdeljaouad, Institut Supérieur de l'Éducation et de la Formation Continue, 43 rue de la Liberté, 2019 Le Bardo, Tunisie.
E-mail: mahdi.abdeljaouad@yahoo.fr



ESU 6

July 19–23, 2010

Vienna, Austria

See First Announcement in the previous issue.

Plenary speakers:

Michael Fried, Ben Gurion University of the Negev (Israel)

Uffe Thomas Jankvist, Roskilde University (Denmark)

Michael Glaubitz, University Duisburg-Essen (Germany)

Raffaella Pisano, University La Sapienza Roma (Italy)

Marc Moyon, IREM and University of Lille I (France)

Maria Koth, University of Vienna (Austria).

Deadline for abstracts: **October 31st, 2009.**

Further details and outline programme to appear on the website soon.

<http://www.algebra.tuwien.ac.at/kronfellner/esu6/>

CERME 7

2011

Rzeszów, Poland

CERME is a Congress designed to foster a communicative spirit. It deliberately and distinctively moves away from research presentations by individuals towards collaborative group work. Its main feature is a number of thematic groups whose members will work together in a common research area. Researchers wishing to present a paper at the Congress should submit the paper to one of these groups.

ICME 12

July 8-15, 2012

Seoul, South Korea

<http://www.icme12.org/>

HPM 2012

July 16-20, 2012

Daejeon, South Korea



Photo from a meeting of some of the people responsible for the HPM 2012 (from left to right): Sunwook Hwang (chair of the Local Organising Committee (LOC), president of KSME), Jinho Kim (secretary of LOC), Evelyne Barbin (HPM AdB), Pamela Chae (Daejeon Convention Center), Sung Sook Kim (vice-president of KSME and member of LOC), Masami Isoda (HPM AdB), Chang Kyoong Park (president of KSHM and member of LOC), Sangki Choi (vice-chair of LOC).

A note from the Editors

The Newsletter of HPM is primarily a tool for passing on 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.

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If you wish to be a distributor in a new or unstaffed area please contact the editor.

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