

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

Giorgio T. Bagni (1958-2009)

Giorgio T. Bagni was born in Milan (Italy) in 16 June 1958. He died the night of 10 to 11 of June 2009, in a bike accident in a little village near Treviso, his home town.

He leaves his wife Luisa and his daughters Chiara and Elena, his parents and his brother.

He graduated from the University of Padua. For some years he was teacher of Mathematics and Physics in high school and was teaching professor in the University of Bologna and Querètaro (Mexico). In 2000 he was appointed assistant professor in the University "La Sapienza" of Rome; in 2004 he passed to the University of Udine. In these Universities he taught courses of Logic, History of Mathematics and Sciences, Epistemology, Didactics of Mathematics and Sciences, Geometry, Arithmetic and Number Theory.

On the website http://www.syllogismos.it/, which includes Bagni's homepage we read that until May 2009, he authored 23 books and 274 papers, published in national and international journals and proceedings. His main interests of research were History of Mathematics and his use in teaching, Hermeneutics, Didactic of Mathematics with particular reference to algebra.

He was invited as a speaker in many conferences. He attended the ICMI Study 10 (The role of the history of mathematics in the teaching and learning of Mathematics) and



contributed to the resulting ICMI Study book. He presented papers in the Satellite Meetings of HPM and the ESUs. Recently he was the leader of the Working Group on Algebra in CERME 6 (Lyon, 2009).

He was a man of wide and deep culture, as evidenced by his appointment in 1999-2002 as a President of the Academy "Ateneo di Treviso" (Treviso) and his involvement in the popularization of mathematics.

Giorgio was appreciated as a kind person and a high intellectual scholar. His family, friends, and colleagues will miss him so much!

> Fulvia Furinghetti, Genova, Italy

Other colleagues' notes on the death of Giorgio T. Bagni are available at <u>http://www.clab.edc.uoc.gr/HPM/Announcem</u> <u>ents.htm#Bagni</u>



Conference reports

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

Min lidle norske regnebog

by Geir Botten Universitetsforlaget, Norway 2009



In 1645, Tyge Hansøn published the first mathematics textbook in Norwegian: Arithmetica Danica. It treated how to read and write numbers, measuring units, addition, subtraction, multiplication and division as well as regula de tri (rule of three). It also included fractions, square roots and cubic roots.

Geir Botten has been studying this textbook for years, and in "Min lidle norske regnebog" both the mathematics and the style is discussed (in Norwegian). Botten also discusses the context in which it was written: Tyge Hansøn was a teacher at the Cathedral School in Trondheim (Scholae Cathedralis Nidrosiensis), and must have been influenced by Claus Lauridsen Skavbo's Arithmetica eller Regnekunst from 1552.

ARETHMETICA
DANICA
ally liden Sim-
Pypel oc Enfoldia Danif
Rome Baa/ affdeelt i fiere Darter
ller Boger: Den anfangende Ring.
bom l'eel Mytrelig.
Tillammenffreffuen oc med Stib be
regniendi Trundhiemb / x.
A Start Andrew Start Start Start
Enge Hanlent O. Sprgens Baaro
berjamestede forbans Difciple/lampe
provintegranding capetra ne sonite
-Anna A
Da vivel maa fige:"
In p2Ce.

Qui struit apud tryphos, multon habet ille Magiftres;
Quia Caluminia permetitaminia
prenet i Rissenhafin/ bos Beorg Lamprecht/
fine Janetin Midurena Maraluma.
1

Thus, the book has become a welcome source for old methods in mathematics in the Norwegian language.

> Bjørn Smestad, Norway



"Introducing Paulus Gerdes' Ethnomathematics Books: A Collection of Prefaces, Forewords, Afterwords, and Afterthoughts"

The book contains texts by Ubiratan D'Ambrosio, Bruno D'Amore, Maurice Bazin, Jaime Carvalho, Marcos Cherinda, Joan Conolly, Donald Crowe, Peter Damerow, Hippolyte Fofack, Mohamed Hassan, Márcio Imenes, Abdulcarimo Ismael, Mateus Katupha, Aderemi Kuku, Sarifa Magide, Dubner Medina, Alcido Nguenha, Gaston N'Guérékata, Emília Nhalivilo, Giovanni Nicosia, Jan Persens, Arthur Powell, Harald Scheid, Erhard Scholz, Gert Schubring, Greet Van Keymeulen, and the late Dirk Struik.

The black-and-white edition (134 pp.) contains only the texts, whereas the colour edition (156 pp.) contains also a reproduction of the covers of the ethnomathematics books.

Printed versions of both editions are available from <u>http://stores.lulu.com/pgerdes</u> Both editions are free downloadable. Geometry and Basketry of the Bora in the Peruvian Amazon



The English language version of Paulus Gerdes' book "**Geometry and Basketry of the Bora in the Peruvian Amazon**" (170 pp.) has now been published together with a supplement (36 pp.). The supplement contains images in colour of the photographs included in black-and-white in the book itself. Book and supplement are available in print and as download from Lulu:

<u>http://stores.lulu.com/pgerdes</u> (The book was originally published in Portuguese (also available from Lulu)).

The book "Geometry and Basketry of the Bora in the Peruvian Amazon" (170 pp.) presents some geometric aspects of the making and decoration of baskets in the Bora culture. The Bora live along the upper Cahuinari and the Igara-Paraná rivers in the Colombian, Brazilian and Peruvian Amazon.

After a brief presentation of the Bora people in Chapter 1, various aspects of the decoration of circular trays and baskets is analysed in Chapters 2 to 9, from their design and manufacture to the composition and colouring of finite and plane patterns, including a reflection on the symmetries involved. In Chapter 10, the geometrical aspects of the production of baskets with a square bottom and circular rim are analysed. In Chapter 11 some suggestions for the incorporation of geometrical features of Bora basketry into mathematics education are presented. The last chapters reflect on ethnomathematics and mathematics education.

This book contributes to an appreciation of the Bora scientific and cultural experience, and in particular, to the education of the future generations. A significant facet of geometrical research consists of finding all possible configurations that satisfy certain conditions. The Bora basket weavers excel herein.



L'EthnoMathématique en Afrique

(CEMEC, Maputo & Lulu.com, Morrisville NC, 2009, 148 pages)

L'intérêt manifesté dans ma conférence plénière « Idées mathématiques dans l'histoire et les cultures africaines » pendant le Colloque Espace Mathématique Francophone 2009 à Dakar, Sénégal (6 au 10 avril 2009) m'a stimulé à préparer une édition nouvelle de mon livre « L'ethnomathématique comme nouveau domaine de recherche en Afrique : Quelques réflexions et expériences du Mozambique ».

La nouvelle édition reproduit la préface, l'introduction et les cinq chapitres de l'édition originale de 1993 « Recherche ethnomathématique : une réponse à l'un des plus grands défis à l'enseignement mathématique en Afrique », « Sur le concept de l'ethnomathématique », « Exemples de 'conscientisation culturelle' des futurs enseignants de mathématiques », « L'ethnomathématique et l'éducation des enseignants : exemples et illustrations » et « Un motif décoratif amplement diffusé et le Théorème de Pythagore », ainsi qu'inclut deux articles écrits plus tard « Pensée mathématique et exploration géométrique en Afrique et ailleurs », publié dans le numéro spécial « Dialogue des rationalités », organisé par Paulin Hountondji, de la Revue Diogène (UNESCO & Presses Universitaires de France, 2003, No. 202, 126-144), et « Paroles, gestes et symboles », élaboré avec mon collègue Marcos Cherinda pour le numéro spécial Naissance des Nombres : Comptes et Légendes, organisé par Tony Lévy, de Le Courrier de l'UNESCO (Paris, Novembre 1993, 37-39).

Après la publication de la première édition de « L'ethnomathématique comme nouveau domaine de recherche en Afrique », quelques de mes livres ont été publiés en Français par les Éditions L'Harmattan : Une tradition géométrique en Afrique. — Les dessins sur le sable (1995, Tome 1 : Analyse et reconstruction, 247 p.; Tome 2 : Exploration éducative et mathématique, 184 p. ; Tome 3 : Analyse comparative, 144 p.); Femmes et Géométrie en Afrique Australe, (1996, 219 p.); Lusona : Recréations géométriques *d'Afrique* (1997, 127 p.); et *Le cercle et le* carré: Créativité géométrique, artistique, et symbolique de vannières et vanniers *d'Afrique*, *d'Amérique*, *d'Asie et d'Océanie* (2000, 301 p.) (http://www.editionsharmattan.fr/). En 1994, l'Université Pédagogique au Mozambique avait publié *Sipatsi: Technologie, Art et Géométrie à Inhambane* (1994, 102 p.)

En ensemble avec le Pr. Ahmed Djebbar, nous avons publié la biographie *Les Mathématiques dans l'Histoire et les Cultures Africaines. Une Bibliographie Annotée* (Université de Lille & Union Mathématique Africaine, Lille, 2007, 332 p.) que peut être consulté pour connaître plus sur mathématiques et culture en Afrique, c'est-àdire, sur « L'EthnoMathématique en Afrique »

Aussi publié en Anglais: *Mathematics in African History and Cultures. An annotated Bibliography*, Lulu.com, Morrisville NC (EUA), 2007, 430 p. (http://stores.lulu.com/pgerdes)).



Have you read these?

Bockstaele, Paul . (2009) Between Viète and Descartes: Adriaan van Roomen and the Mathesis Universalis. Archive for History of Exact Sciences Online First

http://dx.doi.org/10.1007/s00407-009-0043-4

Bullynck, Maarten. *Decimal periods and their tables: A German research topic (1765-1801)*, Historia Mathematica, Volume 36, Issue 2, May 2009, Pages 137-160,

Charalambous, Charalambos, Panaoura, Areti and Philippou, George. (2009) Using the history of mathematics to induce changes in preservice teachers' beliefs and attitudes: insights from evaluating a teacher education program. Educational Studies in Mathematics 71 (2).

Grant, Hardy. *What's in a word? Symmetry through the centuries*, Historia Mathematica, Volume 36, Issue 2, May 2009, Pages 171-177,

Jankvist, Uffe Thomas. (2009) On empirical research in the field of using history in mathematics education. Revista Latinoamericana de Investigación en Matemática Educativa (2009) 12(1): 67-101.

Palmieri, Paolo. (2009) *Superposition: on Cavalieri's practice of mathematics*. Archive for History of Exact Sciences Online First <u>http://dx.doi.org/10.1007/s00407-008-0032-z</u>

Radford, L, Schubring, G, Seeger, F (eds): Semiotics in Mathematics Education: Epistemology, History, Classroom and Culture (Rotterdam: Sense, 2008).

Rey, Javier Docampo. *Algebraic diagrams in an early sixteenth-century Catalan manuscript and their possible sources*, Historia Mathematica, Volume 36, Issue 2, May 2009, Pages 113-136.

Schubring, Gert. *Mathematics in Naples*. *An extraordinary case of institutional development*, La Historia de la Ciencia y de la Técnica: Un Arma Cargada de Futuro. Ensayos en Homenaje a Mariano Hormigón, , eds. M.A. Velamazan, F. Vea, J. Cobos & C. Martin (Cádiz: Diputación Provincial de Cádiz, FPZ, Servicio de Publicaciones, 2008), 143-153.

Schubring, Gert. *Reforma e Contra-Reforma na Matemática - o Papel dos Jesuítas*, Perspectivas da Educação Matemática (Campo Grande/MS), 2008, 1: 2, 23-38.

Schubring, Gert. Gauss e a Tábua dos Logaritmos, Relime, 2008, 11: 3, 383-412.





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 ESU-6 website http://www.algebra.tuwien.ac.at/kronfellner/es

<u>u6/</u>

Societies and organisations

Commission on the History of Mathematics in Africa (including newsletter) <u>http://www.math.buffalo.edu/mad/AMU/amuc</u> <u>hma_online.html</u>

Association des Professeurs de Mathematiques 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: <u>http://www.cfem.asso.fr/</u>

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 <u>http://brunelleschi.imss.fi.it/nuncius/inln.asp?c</u> =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/CH MS/index.html

Oxford Museum of the History of Science

www.mhs.ox.ac.uk/exhibits/ http://www.mhs.ox.ac.uk/measurer/text/title.ht m 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.ht ml http://www.geocities.com/rmlyra/arabic.html

Annotated Bibliography on Proof in Mathematics Education

http://fcis.oise.utoronto.ca/~ghanna/educationa bstracts.html

BibM@th

http://www.bibmath.net/dico/index.php3?actio n=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.)* <u>http://www.divulgamat.net/index.asp</u> 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.unihamburg.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/defau lt.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.ht ml

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 <u>http://math.criced.tsukuba.ac.jp/museum/arcav</u> <u>i/arcavi_english/index.html</u>

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/http://www.dean.usma.edu/www.dean.usma.edu/

Culture*MATH***.** Ressources pour les enseignants de Mathématiques <u>www.dma.ens.fr/culturemath/actu/livres.htm</u>

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

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 <u>http://retro.seals.ch/digbib/vollist?UID=ensma</u> <u>t-001</u>

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

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

Archimedes Project [Some famous mathematical books of the Renaissance period are available on line, i.e. Pacioli's *Summa*]

http://archimedes2.mpiwgberlin.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.cf m?RecordId=2702

Mathematicians Gallery

http://www.math.uconn.edu/MathLinks/mathe maticians_gallery.php?Rendition=printerfrien dly

History of Mathematics

http://www.otterbein.edu/resources/library/lib pages/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/Slider ules/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

First announcement ESU-6 6th European Summer University on the History and Epistemology in Mathematics Education

19-23 July 2010, Vienna, Austria



The initiative of organizing a Summer University (SU) on the History and Epistemology in Mathematics Education belongs to the French Mathematics Education community, in the early 1980's. From those meetings emerged the organization of a SU on a European scale, as the *European Summer* University (ESU) on the History and Epistemology in Mathematics Education, starting in 1993. Since then, ESU was successfully organized in 1996, 1999, 2004 and 2007 in different places in Europe. By now, it has been established into one of the main international activities of the HPM Group, which – from 2010 onwards – will be organized every four years, so that every two years there will take place at least one major international meeting of the Group; namely, ESU and the HPM Satellite Meeting of ICME.

1. Aim and focus of the ESU

The ESU mainly aims

- to provide a forum for presenting research in mathematics education and innovative teaching methods based on a historical, epistemological and cultural approach to mathematics and their teaching, with emphasis on actual implementation,
- to give the opportunity to mathematics teachers, educators and researchers to share their teaching ideas and classroom experience related to this perspective,
- in this way, to motivate further collaboration along these lines, among members of the mathematics education community in Europe and beyond, attempting to reveal the following aspects of mathematics:
 - Mathematics should be conceived as a human intellectual enterprise with a long history, a vivid present and an as yet unforeseen future;
 - Although its "polished" products form that part of mathematical knowledge that can be communicated, criticized (in order to be finally accepted or rejected) and serve as the basis for new work, the process of "doing mathematics" is equally important, especially from a didactical point of view;
 - Hence, the meaning of 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 the understanding of implicit motivations, the sense-making actions and the reflective processes, which are aimed at the construction of meaning; hence, teaching mathematics should include the opportunity given to students to "do mathematics";

• This conception of mathematics should be, not only the core of the teaching of mathematics, but also the image of mathematics spread to the outside world.

In this connection, putting emphasis on historical and epistemological issues 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 mathematics education, helping to realize that:

- Mathematics is the result of contributions from many different cultures;
- Mathematics has been in constant dialogue with other sciences, arts and technics;
- Mathematics has been a constant force of scientific, technical, artistic and social development;
- The philosophy of mathematics has evolved through the centuries;
- The teaching of mathematics has developed through the ages; and in this way, to improve the learning of mathematics and stimulate students' interest to it;

This helps to improve mathematics education at all levels, at the same time, however, realizing that although mathematics is central to our modern society and a mathematically literate citizenry is essential to a country's vitality, it is not the sole subject worth studying. It is the harmony of mathematics with other intellectual and cultural pursuits that 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.

This is most important, especially today that many countries are concerned about the level of mathematics their students learn and about their decreasing interest in mathematics at a time when the need for both technical skills and a wider education is rising.

2. Main themes of ESU-6

The ESU is neither a collection of intensive courses, nor a conference for researchers, but something in between. More specifically, it is a place where beginners, more experienced researchers and teachers present their teaching experience to the benefit of the participants and get a constructive feedback from them. It refers to all levels of education – from primary school, to tertiary education - including in-service teachers' training. For ESU-6 the focus is preferably on work and conclusions based on actual classroom experiments and/or produced teaching & learning materials. The programme and activities of ESU-6 are structured around the following *main themes*:

- Theoretical and/or conceptual frameworks for integrating history in mathematics education;
- History and epistemology implemented in mathematics education: classroom experiments & teaching materials, considered from either the cognitive or/and affective points of view; surveys of curricula and textbooks;
- Original sources in the classroom, and their educational effects;
- History and epistemology as tools for an interdisciplinary approach in the teaching and learning of mathematics and the sciences;
- Cultures and mathematics;
- Topics in the history of mathematics education;

In several of these themes emphasis is put on work and conclusions based on actual classroom experiments and/or produced teaching & learning materials, but insightful theoretical ideas and/or historical analysis with visible didactical implications are also welcome.

3. Activities during ESU 6

All activities should refer to the ESU 6 main themes. Its scientific program will be structured along these themes, consisting of a few plenary lectures & panels, as well as, parallel sessions of oral presentations, short communications and posters, for participants, who want to speak about their own experience, or research. A major part of the programme, however, consists of *workshops*.

Normally there will be at most one *plenary lecture* per theme.

In the *panels* the participants will work together, well in advance, so that, during the panel session, there is a real discussion among them and/or with the panel coordinator.

Workshops consist in studying a specific subject and having a follow-up discussion. The role of the workshop organizer is to prepare, present and distribute the historical/epistemological or pedagogical/didactical material, which motivates and orients the exchange of ideas and the discussion among the participants. Participants read and work on the basis of this material (e.g. original historical texts, didactical material, students' worksheets etc). This means that there are many workshops in parallel, which will vary in duration (2 hours for workshops based on didactical pedagogical material; 3 hours for workshops based on historical and/or epistemological material). It would be very good and stimulating if there were workshops, which elaborate on the general ideas presented in the plenary lectures.

Oral presentations will normally be allocated a 30-minute time slot; 25 minutes for presentation and 5 minutes for discussion. It is an activity in the spirit of a conventional research conference.

Finally, 10-minutes *short oral communications* and *poster presentations* (with an abstract of no more than 200 words to be included in the proceedings), as well as *exhibitions* of books and other didactical material will also be possible.

4. Target population

The major part of the participants is expected to be (elementary or secondary) schoolteachers, who may wish to gain new ideas on how they can integrate the history of mathematics into their teaching. However, there will be also university teachers and students, interested in the integration of the history and epistemology of mathematics into mathematics education, as well as, historians of mathematics, who may give a limited number of lectures and workshops to inform others about recent developments in their domain, and mathematicians with an interest in the relation between mathematics, its history and epistemology, and its role at present and in the past.

5. Time and place

The 6th ESU will take place from Monday 19 to Friday 23 July 2010 at the Vienna University of Technology, Vienna, Austria.

6. Official Languages

The official languages of ESU-5 are: English, German and French.

More specifically:

- All *plenary talks* and *panel discussions* will be in *English*.
- Oral presentations can be delivered in any of the official languages. However, for presentations not in English, presenters will be asked to use *two sets of transparencies;* one set in the language they are going to give their presentation and *one set in English*.
- It is preferable to organize *Workshops* in English. Nevertheless, workshops organizers who intend to organize their workshop in another language are encouraged to prepare copies in English of the material to be distributed to the participants (e.g. transparencies, worksheets etc). This will certainly increase participation, as well as, facilitate communication among participants.

7. Submission of proposals

31 October 2009: **deadline** for submitting **Abstracts** of proposals for all types of activities.

30 November 2009: Notification of acceptance or not of the submitted proposals.

Important: Please, obtain an *Application Form* and send it in electronic form to Evelyne Barbin, Chair of the ESU-6 :

evelyne.barbin@wanadoo.fr.

The members of the *Scientific Program Committee* (SPC) will review the submitted abstracts. At this stage, acceptance of a proposal means that the proposed activity will be included in the ESU-6 Scientific Programme. However, this does not imply that a full text based on this activity will automatically be included in the ESU-6 Proceedings, which are going to be published after the ESU. Full texts will be further reviewed by members of the SPC at the usual international standards. For more details, see *Proceedings*, §10 below.

8. The (international) *Scientific Program Committee* (SPC)

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Anita Dorfmayr, University of Vienna, Elisabeth Hofmann, Vienna University of Technology Manfred Kronfellner, Vienna University of

Technology (chair)

9. The web site

Making known the ESU in various countries (in Europe and beyond) is a major task to be realized by the SPC. To this end, a web site will be operating shortly at http://www.algebra.tuwien.ac.at/kronfellne r/esu6/

This is going to be a very efficient tool to make known the ESU worldwide, to allow for online registration etc.

10. Proceedings

Publishing the Proceedings of the ESU is also a major task. In fact, Proceedings of the previous ESU have become standard references in this area (cf. the Appendix).

The Proceedings will be published **after** ESU-6, so that authors are given the opportunity to enrich their text as a result of the feedback they will gain during this European Summer University.

Each submitted full text for a workshop, or an oral presentation will be reviewed by one or two members of the SPC at the usual international standards.

More details on the deadline for submitting full texts, their size, the format guidelines and the expected date by which the proceedings will be available and sent to all registered participants, will be announced in due course from the ESU-6 and HPM websites

http://www.algebra.tuwien.ac.at/kronfell ner/esu6/

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

11. More information – contact

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> Evelyne Barbin, France Manfred Kronfellner, Austria Constantinos Tzanakis, Greece



History of mathematics in the first Wikipedia logo

For about eight months of 2001, Wikipedia used a logo which I had created some time earlier.



The text is almost impossible to read due to the "fisheye" effect, but it is based on a text from the preface of "Euclid and his Modern Rivals" by Lewis Carroll (Charles Dodgson), which read:

"In one respect this book is an experiment, and may chance to prove a failure: I mean that I have not thought it necessary to maintain throughout the gravity of style which scientific writers usually affect, and which has somehow come to be regarded as an 'inseparable accident' of scientific teaching. I never could quite see the reasonableness of this immemorial law: subjects there are, no doubt, which are in their essence too serious to admit of any lightness of treatment – but I cannot recognise Geometry as one of them. Nevertheless it will, I trust, be found that I have permitted myself a glimpse of the comic side of things only at fitting seasons, when the tired reader might well crave a moment's breathing-space, and not on any occasion where it could endanger the continuity of the line of argument."

This note is included in the newsletter in the spirit of Lewis Carroll, to give a moment's breathing-space...

(Source: http://en.wikipedia.org/wiki/Wikipedia:Logos and slogans)

> Bjørn Smestad, Norway

Historical recreational maths in maths education

Narges Assarzadegan from Isfahan, Iran has been using recreational maths problems in her classes. She has taken these problems from historical sources, in particular, from three manuscript sources:

Lub al hisab by Ali ibn Yusuf Monshi (6th hegira, Persian), *Miftah Al Moamelat* by Haseb Tabari (5th hegira, Persian) and *Attakmilah fel Hisab* by Abu Mansour Baghdadi (5th hegira, Arabic). She says that she finds that such problems are a help in making the lessons interesting and appealing to non-mathematical learners. Also translating the word problems into algebra helps with learning algebra and thirdly, she values the culture and ethnomathematical perspectives the problems offer. The students are able to learn about the rich mathematical heritage of Persian and Arabic history (here from 11^{th} – 13^{th} centuries CE).

Here are a selection of the problems she has used. For a full copy of her report, please contact Narges Assarzadegan at the email address given below.

Examples

- 1. A certain tree has its third in the earth, a quarter is in water, and 3 units are outside. What is its length? $(\frac{1}{3} + \frac{1}{4})x + 3 = x \Rightarrow \frac{5}{12}x = 3 \Rightarrow x = \frac{36}{5}$
- 2. There is a fish its head is third of its length, its tail is $\frac{1}{5}$, and its middle without head and tail is 10 units. What is its length?

$$\frac{x}{3} + \frac{x}{5} + 10 = x \Longrightarrow \frac{7}{15} x = 10 \Longrightarrow x = \frac{150}{7}$$

3. There is a little pool with three channels, one of them can fill the pool in three days, the second in four days, and other in five days. If all three channels are open at the same time, what is the time to fill the pool?

$$1 \div (\frac{1}{3} + \frac{1}{4} + \frac{1}{5}) = \frac{60}{20 + 15 + 12} = \frac{60}{47}$$

4. There is a little pool with four channels, one of them can fill the pool in one day and night, the second in half a day and night, and third in a quarter of a day and a night and the fourth in third of a day and night. If all four channels are open at the same time, what is the time to fill the pool?

$$1+2+3+4=10, \frac{1}{10}=\frac{x}{24}, x=2\frac{2}{5}$$
 hours

A similar problem is illustrated in *Lub al hissab* where the diagram represents different parts of the day:



- a) Two people have 8 loaves of bread. One has three and other five. A guest arrives. They now divide their bread equally. The guest paid 8 dinars for what he had eaten. How much should the first and second person pay? If they divide the 8 loaves into three parts, so they have 24 equal parts, then everybody receive 8 parts. First person had 3 loaves (9 parts) and second had 5 loaves (15 parts). So the first person gives away 1 part, and the second gives away 7 parts. The first receives 1 dinar and second receives 7 dinars. $5 - \frac{8}{3} = \frac{7}{3}, \ 3 - \frac{8}{3} = \frac{1}{3}$
- **b**) There is a little worm, every day it puts out $\frac{1}{5}$ of its body from a hole and slips back $\frac{1}{6}$. How long does it take

for the worm to get out of its hole?

- $\frac{1}{5} \frac{1}{6} = \frac{1}{30}, \frac{24}{30} + \frac{1}{5} = 1$ So the worm leaves its hole completely on the beginning of the 25th day.
- c) Two messengers, one from Yazd and the other from Kerman walk towards each other. The first can walk a third of the distance per day, the other a quarter of the distance per day. When will they meet?

 $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}, \frac{7}{12} = \frac{1}{x} \Longrightarrow x = \frac{12}{7} = 1\frac{5}{7}$

Narges Assarzadegan, Isfahan Narges.assarzadegan@gmail.com

History of mathematics in primary school mathematics education

We are teacher educators in primary school teacher training who are interested in how best to include history of mathematics to enhance mathematics education at the primary level. We would like to get in touch with others who are interested in HPM issues on the primary level, for possible collaboration. Konstantinos Nikolantonakis, University of Western Macedonia, Greece nikolantonakis@noesis.edu.gr

> Bjørn Smestad, Oslo University College, Norway bjorn.smestad@lui.hio.no



Announcements of events

Summer course on Mathematics and narrative: bringing mathematics back to the cultural mainstream

July 20-24, 2009 Budapest, Hungary

Philosophical Aspects of Symbolic Reasoning in Early Modern Science and Mathematics (PASR)

August 27-29, 2009

Ghent, Belgium

This conference brings together scholars working on philosophy of science, history of science, history of philosophy and history of mathematics on the role and function of symbolic representations in the development of modern science and mathematics from the end of the sixteenth century throughout the seventeenth century.

http://www.pasr.ugent.be/

Models in Developing Mathematics Education

September 11–17, 2009 Dresden, Germany Second announcement: <u>http://www.informatik.htw-</u> <u>dresden.de/~paditz/SecondAnnouncementDres</u> <u>den2009.doc</u>

ESU 6

July 19–23, 2010

Vienna, Austria See First Announcement in this issue. http://www.algebra.tuwien.ac.at/kronfellner/es u6/

CERME 7

2011 Rzeszów, Poland



ICME 12

July 8-15, 2012 Seoul, South Korea http://www.icme12.org/

HPM 2012

To be announced

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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not necessarily be those of the	HPM

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HPM Advisorv Board

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

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73	12 February 2010	1 March 2010
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