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

No. 55 March 2004

Message from our Chair

This year we are very fortune to have two big meetings concerning the history and pedagogy of mathematics. As you should know Copenhagen will host the international conference ICME 10 from 4-11 July 2004. The history of mathematics will be present in this conference in different forms and more details about these can be found inside.

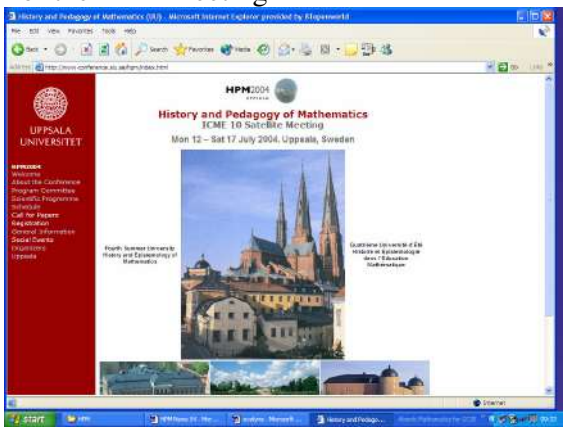
Then there is the HPM 2004 satellite meeting in Uppsala from 12-17 July. Again, there are more details inside.

We invite all the HPM members to contribute and to participate. It will be nice to meet together and we look forward very much to seeing you. For further information about these conferences look at the following websites.

For ICME 10

http://www.icme-10.dk/

For the HPM meeting



http://www-conference.slu.se/hpm/index.html

Fulvia Furinghetti

Editorial

Once again it has been a pleasure to produce this newsletter with many people sending in contributions of quality.
This is my penultimate edition as editor of the HPM Newsletter. In August 2000 I volunteered to edit the HPM Newsletter if there were no other offers and since nobody else came forward I was delighted to produce it. However, after four years I feel it is time for someone else to take over following the ICME and HPM conferences. That way a new HPM Chair and editor can work together to shape the future. So, if there is anybody who is interested in taking on the editorship and wants some details of what is involved, please get in touch.

Peter Ransom
Romsey, UK

ICME 10

TSG 29: The History of the Teaching and the Learning of Mathematics

A new feature in the programme of ICME 10 (4-11 July 2004) is the introduction of TSGs, i.e. of Topic Study Groups. One of these TSGs is TSG 29, on The History of the Teaching and the Learning of Mathematics. This TSG 29 is a considerable innovation since it appears for the first time on an ICME agenda and since it is, moreover, badly or at best marginally represented in international literature such as research handbooks on mathematics education.
TSG 29 is prepared by the following team: Gert Schubring (Germany) and Yasuhiro Sekiguchi (Japan) as chairpersons and Hélène Gispert (France), Hans Christian Hansen (Denmark), and Herbert Khuzwayo (South Africa).
Since there is not yet an established communication net for this topic, it is one of the main tasks to constitute such a communication. The topic has to face a particular challenge: it can be described as a dichotomy between national history and international perspectives. Maybe it can also be understood as the dialectic between the particular and the general. Actually, most of the research pursued is concentrated on the history within a given nation or a given culture. This is quite natural as the history of mathematics teaching and learning constitutes a part of the educational history in that country or culture. In order not to have a collection of separate, isolated histories without interconnections the aim is hence to establish relations between the different histories and to reveal what is "general" in them and what constitutes, say, cultural, social or political particularities. Moreover, the team has identified – already as a result of international cooperation – recent publications on the topic and was thus able to elaborate the first international bibliography on the history of teaching and learning mathematics. Evaluating the bibliography, three major thematic dimensions were identified:

1. modernisations of mathematical curricula (via transmission and/or social-cultural reform movements)
2. aspects of teaching practice (textbooks, methods; teacher training)
3. cultural, social and political functions of mathematics instruction (e.g. practical/vocational versus formal/academic function).

The field for TSG 29 is extraordinarily broad, given the range of topics, the number of states and cultures through history, and the different levels of school systems. The focus therefore is of institutionalised forms of teaching and learning – in types of schools equivalent to primary and secondary levels. Higher education is included as far as it concerns mathematics teacher education.

Within this structure, there will be oral presentations by Shinya Yamamoto (Japan); Nikos Kastanis (together with Iason Kastanis) (Greece); Kristin Bjarnadóttir (Iceland); Eileen Donoghue (USA); Circe Mary Silva da Silva (Brazil); Harm J. Smid (The Netherlands); Mahdi Abdeljaouad (Tunisia), Livia Giacardi (Italy); Alexander Karp (Russia).
Moreover, there will be posters and papers for distribution.
The bibliography and further information is available on the website of ICME 10:
http://www.icme-10.dk/
(→ Programme; → TSG; → TSG 29).

The procedure for papers by distribution is as follows:
1) Abstracts (3 pages at maximum) of proposals for "Presentation by Distribution" can be submitted by March 31, 2004.
2) Notification of acceptance will be by April 15, 2004.
3) Full papers for publishing on the website prior to the conference will be due May 15.

Gert Schubring
Bielefeld

Topic Study Group 17: The Role of the History of Mathematics in Mathematics Education

Team Chairs: Man-Keung Siu, Department of Mathematics, University of Hong Kong, Hong Kong (mathsiu@hkucc.hku.hk) and Constantinos Tzanakis, Department of Education, University of Crete (tzanakis@edc.uoc.gr)

Team Members: Abdellah El Idrissi, Department of Mathematics, Ecole NormaleSupérieure de Marrakech, Morocco (a_elidrissi@hotmail.com); Sten Kaijser, Department of Mathematics, Uppsala University, Sweden (sten@math.uu.se); Luis Radford, School of Education, Laurentian University, Canada (lradford@laurentian.ca)

Aim: The aim of TSG17 is to provide a forum for participants to share their teaching ideas and classroom experience in connection with the history of mathematics, in the spirit of the 10th ICMI study mentioned above and to learn about work that has been done since then.
Focus: Roughly put there are three aspects, which are closely related and yet are separate issues:

(1) Doing research in the history of mathematics,
(2) Teaching the history of mathematics,
(3) Integrating the history of mathematics in the teaching of mathematics.

Given the limited time available, TSG 17 focuses on aspect (3), welcomes contribution on (2), but does not touch upon (1) systematically.

Aspect (3) can further be refined as three more aspects, again inter-related:

To integrate the history of mathematics in the teaching of mathematics, aiming at

(3a) Teaching and/or learning a certain subject area in mathematics,

(3b) Providing general motivation and enjoyment in studying mathematics,

(3c) Developing a deeper awareness, both of mathematics itself and its social and cultural context.

History of mathematics is not to be regarded as a panacea to all pedagogical issues in mathematics education. History of mathematics, besides its intrinsic value, is just one of the many means which may help (some) students to learn better and/or some teachers to teach better. Likewise, mathematics is important but is not the sole subject worth studying. It is the harmony of mathematics with other intellectual and cultural pursuits that makes the subject meaningful and worthwhile. In this wider context history of mathematics has a yet more important role to play in providing a fuller education of the community.

ASG (Affiliated Study Group meeting)

Three timeslots are allocated for the study group HPM under the label ASG (Affiliated Study Group meeting). Here is the program of the meetings, as published in the ICME 10 program. Please note that the favourable allocation at the end of the working day and just before the happy hours will foster relaxed discussions and exchange of opinions.

HPM (the International Study Group on the Relations between History and Pedagogy of Mathematics affiliated to ICMI)
Chairperson Fulvia Furinghetti
<furinghe@dima.unige.it>

The aims of HPM are well illustrated by recent publications, such as: J. Fauvel & J. Van Maanen (editors), *History in mathematics education: the ICMI Study*, Kluwer, Dordrecht / Boston / London.

The HPM Newsletter, regularly appearing three times per year informs us about the activities carried out all around the world, see http://www.mathedu-jp.org/hpm/index.htm.

To provide further information we take from the presentation of the forthcoming HPM 2004 (ICME 10 Satellite Meeting in Uppsala, Sweden, http://www-conference.slu.se/hpm/index.html) the following words (by Sten Kaijser): "The spirit of HPM is much more than the use of history in the teaching of mathematics. It is
• the conception of mathematics as a living science, a science with a long history, a vivid present and an as yet unforeseen future
• the conviction that this conception of mathematics should not only be the core of the teaching of mathematics, but it should also be the image of mathematics spread to the outside world.
Through our common history we see that
• mathematics is the result of contributions from many different cultures
• the teaching of mathematics has developed through the ages
• mathematics has been in constant dialogue with other sciences
• mathematics has been a constant force of scientific, technical, artistic and social development."

The three timeslots scheduled in the program of ICME 10 will be a good occasion to gather the ideas in preparation for the Uppsala meeting. The two poles of the ASG meeting in Copenhagen will the past (a balance of what happened) and the future (projects and perspectives). In what follows we give the program of the ASG meeting.
Contact person: Fulvia Furinghetti <furinghe@dima.unige.it>.
1. First section (Monday, 5 July 2004, 17:30-18:30)
Florence Fasanelli (Associate Program Director AAAS, USA) will give a talk about the history of HPM.
Chair Fulvia Furinghetti
2. Second session (Wednesday, 7 July 2004, 17:30-18:30)
Jan van Maanen (University of Groningen, The Netherlands) will give a talk centred on a survey of what happened after the publication of the ICMI Study, and on the project of a new journal.
Chair Costas Tzanakis, University of Crete, Greece
3. Third session (Friday, 9 July 2004, 16:30-18:30)
Fulvia Furinghetti and Victor Katz will report about what happened in the past four years. Victor Katz will survey the future of HPM (plans, works in progress, discussion of new proposals of activities). In this session the group as a whole should be involved in making more suggestions and - hopefully - volunteering to try to make some of the suggestions a reality.
Chair: Man-Keung Siu, University of Hong Kong, China - Hong Kong.

History and Culture in Mathematics Education

Report of Working Group for Action 13 Jan van Maanen (University of Groningen, Netherlands)

Jan van Maanen, who chaired the Working Group on History and Pedagogy of Mathematics in ICME 9 (Tokyo-Makuhari) as well as the Affiliated Study Group meeting of HPM agreed to publish in this issue of the HPM Newsletter his report of the activities concerning the history in mathematics education.

Structure and themes
The Working Group concentrated on the following five major themes, which were identified in the call for papers. For each theme a keynote speaker was invited. The keynote lectures were discussed in subgroups, in which further short presentations were given as well.

Aspects of multidisciplinary work
Central question: How may mathematics education be improved by attending to the possibility of cross-disciplinary work with other subjects and teachers? Both positive and negative aspects should be considered.

In the keynote lecture Mangho Ahuja (Southeast Missouri State University, Cape Girardeau, MO 63701, USA) spoke about *Traditional versus multidisciplinary teaching.* He compared two teachers in their approach of the Pythagorean theorem, one taking the traditional path and the other who introduced the topic through activity groups in a broad range of fields. Teachers of other disciplines got involved via the questions that they received from the students, although they had been very reluctant to cooperate when they were asked beforehand. The outcome of the multidisciplinary project was positive. Costs are high, certainly when the curriculum does not provide incentives for this type of approach.

Effectiveness of history in teaching mathematics

Central question: What evidence have we that using history or broader cultural dimensions in mathematics education improves the quality of that education?

Karen Michalowicz (The Langley School, McLean VA, USA) spoke in the keynote lecture about *Developing historical modules for use in the high school classroom*, a project funded by the National Science Foundation, which she is carrying out together with Victor Katz (University of DC, Washington DC, USA). Six teams, each of three teachers and a university professor, have worked together during the last two years in order to produce resources for classroom lessons, in a variety of fields. The modules are now distributed and are being field tested by an independent agency. The first impression, from telephonic interviews with students, is that 'history works', especially with respect to the students attitudes, since students think that mathematics taught in this manner is considerably more interesting.

Probability theory and statistics

Problem definition: An important subject whose historical dimension has been too little attended to (except at a rather simple anecdotal level) is that of probability and statistics. A fuller consideration of the contribution that its history could make to statistics education is overdue.
The keynote speaker was Arthur Bakker (Freudenthal Institute, Utrecht, NL). He discussed *The history of early statistics and its didactical implications*, concentrating on a historical and then a didactical phenomenology of average values. These constitute a large family of notions that in early times were not yet strictly separated. There are many parallels between history and the development of students' conceptions. Classroom observations indicate the importance that students discover many qualitative aspects of average values before they learn how to calculate the arithmetic mean and the median. From history, it is concluded that estimation, fair distribution and simple decision theory can be fruitful starting points for a statistical instruction sequence.

The dance and poetry of mathematics

Problem definition: An aspect of mathematics education which historical-cultural studies are well able to support is its creativity, fun and beauty. Spelling out in more detail how this may be achieved will be a useful service to teachers.

Hisato Kikuchi (Higashiyamagata Junior Highschool, Yamagata, JP) reported in his keynote lecture *Sangaku as a teaching material* about joint work with Ikutaro Morikawa (Yamagata University, Yamagata, JP). *Sangaku* is one of Japan's indigenous mathematical customs from the Edo period. Many mathematicians of this period would try to set original problems for themselves and solve them. Doing so, they produced plates with colourful figures and dedicated them to a shrine or a temple. This custom showed not only appreciation for God, but also pride in one's mathematical ability. *Sangaku* appeared to be a fruitful medium for working with students, who studied constructing and solving problems through the making of *sangaku*. Students' appreciation of mathematics increased, as well as their confidence in problem solving.

Culture

Problem definition: It is important to discuss the breadth of the idea of culture and to discuss how far it needs to be narrowed, and in what directions, in order to make progress with bringing proposals for how mathematics teachers may be supported and encouraged.

The keynote lecture *Mathematics education: cultural perspectives and underpinnings in the Indian context* was given by Dilip K. Sinha (Visva-Bharati, India). He reviewed a series of aspects of Indian mathematical culture, which ranged from early work discussed by Colebrook to the fairly contemporary notes by Ramanujan. Although current mathematics education in India is predominantly shaped by western perspectives, one can also recognise in it the essence of Indian culture, in that recent perspectives on mathematics education keep on developing with these three categories: grassroot, esoteric and applicable.

Further presentations and discussion

After the keynote lectures further work was done in three subgroups.

The first group was chaired by Costas Tzanakis (University of Crete, Greece) and went on with the theme of *multidisciplinary work.* The discussion explored what multidisciplinary work might be in the context of mathematics education. The conclusion was that there should be an emphasis on mathematics, and that the teacher should adjust the work to the social context of the students. Important parameters are the educational level of the students, the subject, the time available, and the teacher's own experience. Multidisciplinary work is possible in practically any subject. Examples signalled were: calculus, differential equations, probability theory and statistics, combinatorics, vector analysis and functional analysis, but also subjects like number theory, group theory and topology. The subjects may relate to non-mathematical topics as: physics and natural sciences, philosophy, music and arts, logic and linguistics, drama, literature and history.
Specific examples of actual implementations were presented by Oscar Joao Abdounur (Brazil), about *Historical aspects of ratio and proportion in music and mathematics education;* Costas Tzanakis, about *Elaborating on abstract algebraic concepts on the basis of physical ideas and concepts: special relativity on the basis of elementary matrix algebra and group theory* and Paul Manning (USA) on *Intersections of mathematics and the humanities discovered by accident: language, literature, philosophy*.

A second group, chaired by Karen Michalowicz, went on with the themes *Effectiveness of history in teaching mathematics* and *Probability theory and statistics.* Short presentations were given by Catherin Murphy (USA), about *A historical course for teachers;* Rebecca Kessler (USA), about *A module about Archimedes for the mathematics classroom;* Osamu Takenouchi (Japan), about *History and mathematics teaching in Japan;* Phyllis Caruth (USA), about *A module about the history of combinatorics and statistics for the mathematics classroom,* and Bernd Zimmermann (Germany) about *Appealing geometrical problems from Al-Sizji.* The subsequent discussion was mainly about effectiveness. The conclusion was that there are many ways to implement history, some of them needing special attention and care. For example, one should be critical when students use information that comes from the internet. History can have a function, it was agreed, either to enrich mathematics (e.g. if you know a subject already, to do it once more but in a different manner), or to introduce a subject to students. It can be applied in order to develop a new learning trajectory; it can produce heuristics for problem solving, and many more useful things. Historical games were also discussed as a positive contribution in mathematics lessons.

The third group, chaired by Florence Fasanelli (Washington DC, USA) and Jan van Maanen, worked on the broader cultural

perspective, as reflected by the final two keynote lectures. Short presentations were by Lawrence Shirley (USA) about *Using costumes and connecting to local peculiarities* and Man-Keung Siu (Hong Kong) about his course *Mathematics: a cultural heritage.* A variety of aspects of culture came up for discussion:

- the clash between western and eastern mathematical traditions
- the influence that the prevailing culture may have on individual students, or on groups of students (e.g. the gender problem is closely linked to the mathematical culture)
- paying attention to the specific culture of the region, or the culture of an ethnic subgroup of a mathematics class, can have a positive influence, for example in increasing the self-confidence of the group
- cultural happenings (visits to a museum, drama, etc.) often attract criticism from colleague-teachers and parents, so one should be prepared for that. On the other hand enthusiasm of students is one of the best and most convincing arguments for doing these types of activities, certainly with the parents.
- the relation between culture, history and mathematics education is under-researched, and is worth further research.

Looking back

On this Working Group some general conclusions may be drawn. The first is that the relation between history and mathematics education is still an area in which many developments take place. The systematic production and testing of historical modules, as described by Michalowicz and Katz, is one example of a type of research with a practical outcome that is very important. The value of making a connection with local culture was brought forward more than once, and with reports of positive results. Increasing confidence with students is one of the key-words connected with the positive evaluation. As always positive results require input. The balance between cost and result was discussed, and although it was agreed that the costs are still high, many participants appeared willing to invest in this manner. One of the reasons was their own pleasure in preparing historical material for students, but the main reason was that they noticed many positive effects with students. In some countries the curriculum is not supportive of this work. Further work has to be done on national levels.

More history at ICME-9
As an appendix I list here the other historical activities at ICME-9.

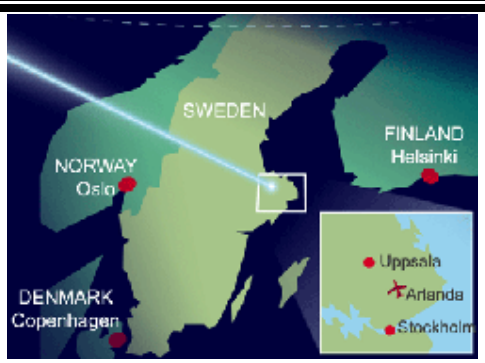
There were regular lectures by Niels Jahnke (Germany) about *Historical sources in the mathematics classroom: ideas and experiences,* by Osamu Takenouchi (Japan) about *Some characteristic features of Wasan, the Japanese traditional mathematics* and by Ewa Lakoma (Poland) about *History of mathematics in educational research and mathematics teaching — a case of probability and statistics.*

Then there were two sessions of the International Study Group on the relations between History and Pedagogy of Mathematics (HPM), with the following speakers: Bjørn Smestad (Norway) on *History of mathematics in Norwegian textbooks*, Peter Ransom (UK) on *Teaching geometry through the use of old instruments,* Osamu Kota (Japan) on *John Perry and mathematics education in Japan,* Yoichi Hirano, Katsihusa Kawamura and Shin Watanabe (Japan) on *Mathematical exhibits at museums from viewpoints of mathematics education,* Nobuki Watanabe (Japan) on *A practice of the cultural history of mathematics in elementary school.*

The second HPM-session was concluded by the installation of HPM's new chair for the period 2000-2004, Fulvia Furinghetti (University of Genova, Italy).

And finally, the book *History in mathematics education: The ICMI Study*, edited by John Fauvel and Jan van Maanen, and published by Kluwer Academic Publishes (Dordrecht 2000), was launched with presentations by several chapter-coordinators (Fasanelli, Jahnke, Michalowicz, Nagaoka, Siu and Tzanakis).

Jan van Maanen
Groningen



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HPM 2004

Miss it – miss out!

Work in progress

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

Reviews

In you would like to be involved in reviewing books or magazines for this section, please send your contact details and area(s) of interest to the editor who will forward books or magazines for review as and when they become available.

The views expressed in this section are the views of the reviewers and may not necessarily be those of the HPM Advisory Board.

If you wish for a book to be reviewed, please send it to the editor who will arrange for it to be reviewed.

Have you read these?

Fried, M.N.: 2001, 'Can mathematics education and history of mathematics coexist?', *Science & Education*, v.10, 391-408.

The author considers the problem of trivialising or distorting history when teaching modern mathematics. According to him two possible solutions of the difficulty are (1) "radicals separation" - putting the history of mathematics in a separate track from the ordinary course of instruction, and (2) "radical accommodation" - turning the study of mathematics into the study of mathematical texts.

Fulvia Furinghetti
Genova

Paulus Gerdes wrote to tell us about his most recent book.

I have the pleasure to inform you that the Mozambican publishing house 'Moçambique Editora' (www.ME.co.mz) launched my book *Sipatsi: Cestaria e Geometria na Cultura Tonga de Inhambane*
[*Sipatsi: Basketry and Geometry in the Tonga culture of Inhambane*]
(176 p.; with 32 pages in colour). On seventy eight pages, a catalogue of 362 different plaited strip patterns is reproduced.

Copies of the book may be obtained directly from the publisher Moçambique Editora (www.ME.co.mz, rrocha@ME.co.mz, comercial@ME.co.mz) or from Texto Editora (www.TE.pt, ppegado@textoeditora.pt) in Lisbon, Portugal.
The price of the book is 14 Euros or 17.50 $ (USD).

The book explains how artisans produce beautiful hand bags, called sipatsi in Gitonga, a language spoken in the Mozambican province of Inhambane. The activity of weaving sipatsi is originally a female activity.

The book presents a catalogue of decorative strip patterns plaited into the sipatsi, resulting from collecting sipatsi for more than twenty-five years. It also includes suggestions for the mathematical-educational use of sipatsi, varying from the study of composition and symmetries to the study of progressions and pentagons.
The book concludes with the presentation of some new phenomena in the production of sipatsi, underlining the geometric-artistic creativity of the basket weavers and the comparison of sipatsi-patterns with some woven strip patterns from other cultures (Northeast of Mozambique, Mexico and Brazil).

The book contains a preface by Alcido Nguenha, the Minister of Education of Mozambique, and the following chapters:

1. A fabricação dos sipatsi
[The production of sipatsi, by Gildo Bulafo]
2. Catálogo de padrões-de-fita nos sipatsi
[Catalogue of strip patterns on sipatsi]
3. Exemplos de exploração educacional e matemática dos sipatsi
[Examples of the educational and mathematical exploration of sipatsi]
4. Mais exemplos de exploração educacional e matemática
[More examples of educational and mathematical exploration]
5. Novos fenómenos
[New phenomena]
6. Padrões-de-gipatsi noutros contextos culturais
[Gipatsi-patterns in other cultural contexts]
Anexo: Uma força de imaginação sem limite
[Appendix: A force of imagination without limit].

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The writings of Paulus Gerdes

Books published in 2003:

Awakening of Geometrical Thought in Early Culture, MEP Press, Minneapolis MN, 2003, 200 pp. [Preface by Dirk Struik]

Sipatsi: Cestaria e Geometria na Cultura Tonga de Inhambane, Moçambique Editora, Maputo, 2003, 176 pp.

Reprint:

Ethnogeometrie. Kulturanthropologische Beiträge zur Genese und Didaktik der Geometrie, Verlag Franzbecker, Hildesheim, 360 pp. [Preface by Peter Damerow] (original edition 1990)

Papers published in 2003:

Plaited strip patterns on Tonga handbags in Inhambane (Mozambique) – An update, Visual Mathematics, Belgrade, March 2003, Vol. 5, No. 1
[available online at: http://members.tripod.com/vismath by going to issue 5(1)]

Origins of Geometrical Thought in Human Labor, Nature, Society, and Thought, Minneapolis, 2003, 14(4), 391-418
[available online at: http://umn.edu/home/marqu002 by going to the NST link]

Dividing the sides of a triangle in proportional parts, Visual Mathematics, Belgrade, June 2003, Vol. 5, No. 2
[available online at: http://members.tripod.com/vismath by going to issue 5(2)]

Pensée mathématique et exploration géométrique en Afrique et ailleurs, Revue Diogène, Presses Universitaires de France, Paris, 2003, No. 202, 126-144.

Note on research inspired by the historical reconstruction of mathematical ideas in the

'sona' geometric tradition of Southern-Central Africa, AMUCHMA Newsletter, Nº 27, Maputo, 2003, 7-9

Níjtyubane — Sobre Alguns Aspectos Geométricos da Cestaria Bora na Amazónia Peruana, Revista Brasileira de História da Matemática, Rio Claro, Vol. 3, No. 6, 2003, 3-22.

Oblique altitudes. A generalisation of the theorem about the altitudes of a triangle, in: Nouzha El Yacoubi et al. (Eds.), Proceedings of the 13th Pan African Mathematics Olympiad, Ministério da Educação, Maputo, 2003, 46-50.

From African 'sona' drawings to the discovery of new symmetries and matrices, in: Nouzha El Yacoubi et al. (Eds.), Proceedings of the 13th Pan African Mathematics Olympiad, Ministério da Educação, Maputo, 2003, 51-64.

Entrançamentos culturais, in: Paolo Bellingeri, Maria Dedò, Simonetta di Sieno, Cristina Turrini (Eds.), O ritmo das formas, Atractor, Lisboa, 2003, 121-124

Oblique Altitudes and Bisectors, Visual Mathematics, Belgrade, September 2003, Vol. 5, No. 3
[available online at: http://members.tripod.com/vismath by going to issue 5(3)]

Symmetry-Geometry Aspects of Mavuku Baskets among the Makhuwa (Mozambique), Symmetry: Culture and Science, Vol. 12, No. 1-2, Budapest, 2003, 87-114

Exploring Plaited Plane Patterns among the Tonga in Inhambane (Mozambique), Symmetry: Culture and Science, Vol. 12, No. 1-2, Budapest, 2003, 115-126

Ethnomathematics as a new research field, illustrated by studies of mathematical ideas in African history, in: Tinne Hoff Kjeldsen, Stig Andur Pedersen & Lise Mariane Sonne-Hansen, New Trends in the History and Philosophy of Mathematics, University Press of Southern Denmark, Odense, 2004, 135-161

In press:

Vinte cinco Anos de Estudos Histórico-Etnomatemáticos em África ao Sul da Sahara, LLULL, Revista Espanhola da História da Ciência, Zaragoza (concluded January 2003)

Mathematical Thinking and Geometric Exploration in Africa and Elsewhere, Diogène, UNESCO, Paris (concluded March 2003)

On mirror-curves, alternating knots, rope mats and plaited polyhedra (Preface), in: Rossing, Nils & Kirfel, Christoph, Matematisk beskrivelse av taumatter [Mathematical description of rope mats], Caspar, Trondheim

Nirrosula, an African musical instrument as a source of inspiration for mathematical exploration, in: Frances Rosamond (Ed.), Steve Brown Festschrift (concluded July 2003)

Interweaving Art and Mathematics in African Design, International Review of African American Artists, New York (concluded July 2003)

Bemvindo ao mundo das publicações etnomatemáticas (Prefácio), in: José Machado Ribeiro, Maria do Carmo Domite & Rogério Ferreira (Eds.), Etnomatemática: papel, valor e significado, Editora Zouk, São Paulo

Patterns in African Basketry, Bolletino della Unione Matematica Italiana, Bologna (concluded January 2004)

Weaving Polyhedra in African Cultures, Symmetry: Culture and Science, Budapest (concluded January 2004)

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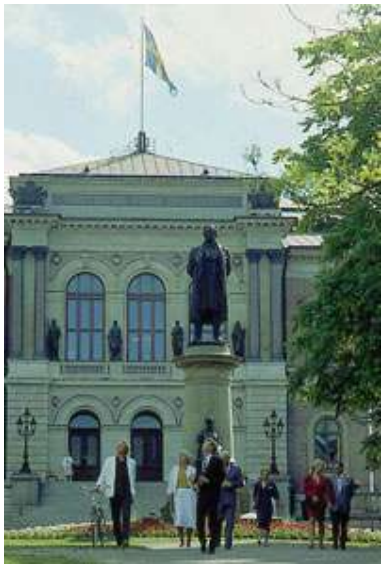

HPM 2004

Uppsala

July 12-17 2004

Have you been here?

The British Society for the History of Mathematics web site at
www.dcs.warwick.ac.uk/bshm/
has many links to related sites.

The Italian Society of History of Mathematics web site at
www.dm.unito.it/sism/index.html

The HPM-Americas web site is up and going. The new web site is
www.hpm-americas.org

The HPM satellite meeting in connection with the Copenhagen ICME-10 in 2004 is planned for Uppsala with Sten Kaijser as the local person in charge. Visit
http://www.math.uu.se/hpm/index.html
You can find out more about ICME-10 and register for the first announcement now at
www.ICME-10.dk

The AMUCHMA newsletter on the history of mathematics in Africa can be found at
www.math.buffalo.edu/mad/AMU/amuchma_online.html
All the earlier issues are available on the same web page.

For a history of HPM visit
http://mcs.open.ac.uk/puremaths/pmd_department/pmd_fauvel/HPM_%20history.htm

History and Epistemology for the Teaching of Mathematics has been activated at the address:
www.syllogismos.it
On the site it is possible to find material relating to the teaching of mathematics and some historical references which will be useful in the field of mathematics. Every/any suggestion to improve such a site, conceived mainly in terms of helping colleagues involved in education and in particular in teaching will also be welcomed.

The editor welcomes information about other sites.

www-conference.slu.se/hpm/index.html
HPM 2004

Announcements of events

14th National IREM meeting on History of Mathematics

May 14-15, 2004
Dijon, France.

Organised by the inter-IREM Commitee on Epistemology and History of Mathematics, and the University of Burgundy/IREM of Dijon. The general subject is: "On the historical relationship between mathematics and physics", and the two days will be devoted to plenary lectures, workshops. A little could be said about Burgundy wine, too... The official language of this meeting will be French but communications in English are nevertheless possible.

Les trois conférences plénières porteront sur les relations attendues et inattendues entre mathématiques et physiques (P.Bailhache), sur les groupes en cristallographie (B.Maitte) et sur la physique d'Helmholtz (O.Darrigol). Il y aura deux sessions d'exposés en parallèle sur des thèmes comme Boltzmann et l'irréversibilité, le mémoire sur l'éclairage des phares de Fresnel, les passages de Vénus, l'idée de forme chez les mathématiciens, les travaux du 18ème siècle sur les cordes vibrantes, les instruments physiques de mesure, la loi de Darcy.
Il y aura aussi deux sessions en parallèle d'ateliers de lectures de textes historiques sur des thèmes comme mathématiques et physique en théorie de la relativité, la doctrine des couples de Poinsot, les réflecteurs paraboliques de Fresnel, les modèles mathématiques de la musique, la mécanique des fluides de Helmholtz, les modes physique et mathématique de démonstration chez les Anciens, l'optique d'Euclide, le principe de conservation de la force d'Helmholtz.
Le programme prévoit aussi une dégustation de vins de Boourgogne.
Les inscriptions se font en ligne à l'adresse : http://www.u-bourgogne.fr/IREM/

For further information, please contact: Frédéric Métin at frmetin@wanadoo.fr.

The Life and Work of Henri Poincaré

May 21-23, 2004
Milton Keynes, UK

A joint meeting between departments of the Open University and the Université Nancy 2
To celebrate the 150th anniversary of Poincaré's birth (29 April) this conference on his work has been organised.
Further information from Jeremy Gray
Email: j.j.gray@open.ac.uk

Asian-Pacific HPM Workshop: A counterpart of European Summer University

May 24-28, 2004
Tai-Chung, Taiwan

Due to a success of the HPM 2000 Taipei (Satellite meeting of the ICME-9), as commented by international colleagues and local teachers, my team members came to realise that we should in the Asian-Pacific Rim keep the HPM momentum going. Perhaps in this regard we should organise some sort of HPM workshops in order to educate in-service and pre-service teachers as well as graduate students whose majors are mathematics education in general and the HPM in particular. There is one model which may be appropriate for us to copy, namely, the European Summer University. Now we present to colleagues the workshop, "Asian-Pacific HPM: History, Culture and Mathematics Education in the New Technology Era", to be held on May 24-28, 2004. Colleagues, teachers and (graduate) students are welcomed to join us and share their critical but empirically based reflections on the related educational issues.

In organising the workshop, we are glad to report that Letwin Chun Chor Cheng, Fulvia Furinghetti, Masami Isoda, Robert Stein, Jan van Maanen and Alexei Volkov have accepted our invitation as plenary speakers. They will also supervise respectively a three-hour workshop to share their research/ teaching on the issues of the HPM. Since the

relevance of the HPM to teaching at elementary (primary) school level deserves more attention than the current literature shows, we will take this opportunity to encourage teachers to join the occasion. This may in part explain why our main organiser, Prof. Yan-Chuan Lin, is teaching at the Department of Mathematics Education, National Tai-Chung Teacher College, an institution whose major goal is to educate elementary school teachers. In addition, Prof. Letwin Chun Chor Cheng, teaching at the Department of Mathematics, the Hong Kong Institute of Education, an institution also devoted to training elementary teachers, promises to add his force to help create a forum for the teachers in this area. On the other hand, we also ask Prof. Masami Isoda and Prof. Robert Stein to encourage school teachers coming to share with local teachers their teaching experience and their concern about education reform.

Since the history of mathematics *per se* should come first regarding the HPM issues, we also wish in this workshop, just as in other conference occasions, to invite historians / teachers who have made substantial contributions. This would be especially enlightening if we can share with the participants some interesting studies of the history of mathematics in this area. In this connection, Prof. Alexei Volkov will present his contribution to the hitherto unexplored history of Vietnamese mathematics. Besides, three graduate students from Seoul National University (under the supervision of Prof. Kim Yun Sik), will also come to join us to share their research experiences with the history of (Korean) mathematics.

As to the HPM itself, Professors Jan van Maanen and Fulvia Furinghetti are very much experienced in their research and teaching practices. The have already played key roles in supervising the related workshops for teachers and college/graduate students in the past decade. Their vision on the European HPM will emphasise the activities here. Their promise to participate will, therefore, assure the success of the Asian-Pacific HPM Workshop.

Venue: National Tai-Chung Teachers College (NTCTC), Tai-Chung, Taiwan
140, Min-Sheng Road, Tai-Chung City, Taiwan 403
Tel: 886-4-22263181, 222, 223
Fax: 886-4-22200818
Secretariat Email: math@mail.ntctc.edu.tw
Sponsors: National Science Council (NSC), Taiwan
National Tai-Chung Teachers College (NTCTC), Taiwan

Themes:
1. History of East Asian Mathematics: Issues on transmission and transformation
2. The Effectiveness of History and Culture in Teaching Mathematics: Empirical studies
3. The Integration of History of Mathematics, Culture and Current Educational Technology in Teaching
4. Teacher Profession Development and the HPM
5. The Integration of Technology and Human in Mathematics Education in the New Technology Era

The invited speakers:
Letwin Chun Chor Cheng: He is senior lecturer at the Department of Mathematics, the Hong Kong Institute of Education, Hong Kong. His research interests are mathematics teaching and assessment.
Fulvia Furinghetti: She is the current chair of HPM (2000-2004), teaching at the Department of Mathematics in Genova University in Italy. Moreover, she is very active in both HPM and PME communities which may well explain why many of her papers are devoted to the combination of HPM and PME.
Masami Isoda: He is one of the plenary speakers of the HPM 2000 Taipei, teaching in Tsukuba University, Japan. He has an excellent experience in integrating HPM and the internet to enhance the effectiveness in teaching mathematics.
Robert Stein: He teaches at the Department of Mathematics in California State University,

San Bernardino, and now holds the post of the chairman of HPM American Area. He was invited to join the HPM 2000 Taipei.
Jan van Maanen: He is the ex-chairman of HPM (1996-2000), teaching at the Department of Mathematics, Groningen University, The Netherlands. He devotes himself to the research on the history of mathematics and the integration of mathematics education and HPM.
Alexei Volkov: He was trained to become an historian of mathematics in USSR. He is currently a Lecturer at the Department of Mathematics, McGill University, Canada. Now he is mainly doing research in the history of mathematics in China and in Vietnam.

Submission deadline: March 31, 2004
The papers published by scholars should be written in English. School teachers and graduate students are encouraged to write in English. To them, the Chinese version is acceptable but an abstract in English should be included. Besides, the paper is to be no more than 20000 words and in a form convenient for re-editing. Proceedings will be published before the conference is taken place.

Registration Deadline: March 31, 2004
Registration Fee: US$150 (students / high teachers are waived).

Wann-Sheng Horng
National Taiwan Normal University
Email: horng@math.ntnu.edu.tw

History of Mathematics Afternoon

May 28, 2004
Glasgow, Scotland

A joint BSHM meeting held with the Department of Mathematics, University of Strathclyde.
Organiser: Dr I. Tweddle
Email: itweddle@strath.ac.uk

Turing 2004: A celebration of his life and achievements

June 5, 2004
Manchester, UK

A joint BSHM meeting held with the British Logic Colloquium.
BSHM organiser: Janet Delve
Website: www.maths.man.ac.uk/logic/turing 2004/
Email: Janet.Delve@port.ac.uk

Our Scientific Debt to Iraq

June 10, 2004
London, UK

The speaker will be Dr Emilie Savage-Smith (University of Oxford). The meeting will start at 5pm and be held at the British Academy, 10 Carlton House Terrace, London SW1Y 5AH
For a free invitation email: bsai@britac.ac.uk

The Third BSHM/CSHPM Joint Conference

July 9-11, 2004
Cambridge, UK

This meeting follows the successful meetings held in Oxford (1997) and Toronto (1999). The contributions come from members of both societies and from many countries. More than 25 papers have already been accepted. Further details are available from the joint organisers.
John Earle (BSHM) c.j.earle@exeter.ac.uk
Adrian Rice (CSHPM) arice4@rmc.edu

HPM 2004 satellite conference of ICME-10

July 12 - 17, 2004
Uppsala, Sweden

We are happy to inform you that the HPM satellite conference of ICME-10 takes place on July 12 - 17, 2004 in the historic town of Uppsala, Sweden. It will be organised by the department of Mathematics at Uppsala University.
The chairman of the local organising committee is Sten Kaijser who is also the contact person in Uppsala.
A programme committee has been founded consisting of

- Fulvia Furinghetti (chairperson) <furinghe@dima.unige.it>, Dipartimento di Matematica, Università di Genova, Italy
- Sten Kaijser (secretary) <sten@math.uu.se>, Department of Mathematics, University of Uppsala, Sweden
- Abraham Arcavi <abraham.arcavi@weizmann.ac.il>, Weizmann Institute of Science, Israel
- Evelyne Barbin <evelyne.barbin@wanadoo.fr>, Centre François Viète, France
- Gail FitzSimons <gail.fitzsimons@education.monash.edu.au>, Faculty of Education, Monash University, Victoria, Australia
- Paulus Gerdes <pgerdes@virconn.com>, Ethnomathematics Research Centre, Maputo, Mozambique
- Wann-Sheng Horng <horng@math.ntnu.edu.tw>, Department of Mathematics, National Taiwan Normal University, Taipei, Taiwan
- Victor Katz <vkatz@udc.edu>, University of the District of Columbia in Washington DC, USA
- Jan van Maanen <maanen@math.rug.nl>, Department of Mathematics, University of Groningen, The Netherlands
- Sergio Nobre <sernobre@ms.rc.unesp.br>, Departamento de Matemática, UNESP, Rio Claro SP, Brazil
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- Man-Keung Siu <mathsiu@hkucc.hku.hk>, Department of Mathematics, University of Hong Kong
- Costas Tzanakis <tzanakis@edc.uoc.gr>, Department of Education, University of Crete, Greece

About the conference

HPM is the International Study Group on the Relations between History and Pedagogy of Mathematics affiliated to ICMI. Among the activities of the group HPM there is the tradition of organising satellite meetings of the conference ICME. We list below these meetings:
1984 ICME-5 (Adelaide, Australia), satellite meeting in Sturt Campus of the University of Adelaide
1988 ICME-6 (Budapest, Hungary), satellite meeting in Florence (Italy)
1992 ICME-7 (Québec, Canada), satellite meeting in (Toronto, Canada)
1996 ICME-8 (Seville, Spain), satellite meeting in (Braga, Portugal)
2000 ICME-9 (Tokyo-Makuhari, Japan), satellite meeting in (Taipei, Taiwan).
The HPM Satellite conference is a unique occasion to attend lectures, workshops, research reports from all over the world about the use of history in mathematics education, history of mathematics, history of mathematics education. The participants to the HPM meetings are researchers in history, in mathematics education, and teachers who have experimented with the use of history in their teaching.

Books or proceedings published after the previous HPM satellite meetings:

- Calinger, R. (editor): 1996, *Vita mathematica*, MAA Notes n.40. (HPM 1992)
- Lagarto, M. J., A. Vieira & E. Veloso (editors): 1996, *Proceedings of Second European summer university and satellite meeting of ICME-8* (Braga, Portugal). (HPM 1996)
- Katz (editor): 2000, *Using history to teach mathematics: An international perspective*, Mathematical Association of America. (HPM 1996)
- Horng, W.-S. & F.-L. Lin (editors): 2000, *Proceedings of the HPM 2000 Conference History in mathematics education. Challenges for a new millennium. A satellite meeting of ICME-9*. (HPM 2000)

About the venue

The city of Uppsala is one of the oldest cities in Sweden. It was once considered the capital of Sweden and it is still the ecclesiastic capital since the residence of the archbishop of Sweden lies in Uppsala.
Uppsala has a famous university, founded 1477, which is the oldest in Scandinavia. The university has had many famous scholars and scientists of which the founder of botany, Carl von Linné is perhaps the most well known. Also some of Sweden's most prominent mathematicians during the 20th century, foremost among them Arne Beurling and Lennart Carleson, were educated and for a substantial part of their career active in Uppsala.

For further information contact Sten Kaijser <sten@math.uu.se>. There is a web page under
http://www.math.uu.se/hpm

Fulvia Furinghetti & Sten Kaijser
Italy & Sweden

Percy Alexander MacMahon's 150th Birthday Celebration

September 23, 2004
Milton Keynes, UK

Speakers: Paul Garcia, (Open University), George Andrews (Penn State University), Keith Lloyd (Southampton University) and David Singmaster (South Bank University)

There will be a display of MacMahon memorabilia.
Organiser: Paul Garcia
Email: paul@marybj.cix.co.uk

First Brazilian Colloquium on the History of Mathematics and the Fourth Luso-Brasilian Meeting on the History of Mathematics

October 24-27, 2004
Natal, Brazil
(First Announcement)

Joint Conference
The First Brazilian Colloquium on the History of Mathematics and the Fourth Luso-Brasilian Meeting on the History of Mathematics will be held jointly in Natal, RN (Brazil), from 24th to the 27th of October 2004. The General Coordinator of the events is Dr. John A. Fossa. A web page with more details is expected to be on line by early next year. For early registration, please contact Prof. Fossa at fosfun@digi.com.br.

The 22nd International Congress of History of Science

24-30 July 2005
Beijing, China

The general theme is "Globalization and Diversity". Discussions will focus on the diffusion of science and technology between different cultures in the past, and its impact on the world today, as well as its prospects for the future advance of human civilisation.

The First Circular is available from the Congress Website:
http://2005bj.ihns.ac.cn .
For further information, please contact to the Congress Secretariat.

Secretariat of the 22nd ICHS
Institute for History of Natural Science
Chinese Academy of Sciences
137 Chao Nei Street
Beijing 100010
CHINA

e-mail: 2005bj@ihns.ac.cn

6th International Symposium on the History of Mathematics and Mathematical Education using Chinese Characters (ISHME)

August 4-7, 2005
Tokyo, Japan

The 6th ISHME will call its participants to discuss general issues related to the history of mathematics and mathematical education in East Asia. In addition to these topics, the Symposium will make the mathematics in East Asia from the 16th through the 19th centuries in global network a special subject of discussion.
The First Circular is available from the Secretariat of the ISHME6.
For further information, please contact to the Congress Secretariat.

Secretariat of the ISHME6
Prof. Kobayashi Tatsuhiko
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460-1 Kamisadori
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JAPAN

e-mail: koba@maebashi-it.ac.jp

ICME-11

2008
Mexico

The Executive Committee of ICMI has received during 2002 three declarations of intent to present a bid for hosting ICME-11 in 2008, namely from China, Korea and Mexico. The SARS problem in 2003 prevented our Chinese colleagues from completing the preparation of their formal bid. Sites visits to Korea and Mexico by a delegation of members of the Executive Committee of ICMI were organised in 2003, which allowed the EC to appreciate the quality of the local infrastructure, the support the project was receiving in the country as well as the expertise of the organising team.

The ICMI Executive Committee is pleased to announce its decision of accepting the invitation from Mexico. We hope the international mathematical education community will enthusiastically receive the invitation of our Mexican colleagues for 2008, so to make ICME-11 a memorable event from Mexican, Latin American and international perspectives. The precise dates and site of ICME-11 will be announced soon.

The ICMI Executive Committee wishes to express its gratitude to the mathematics education and mathematics communities in the three countries, and especially the committee that prepared the Korean bid, chaired by Professor Sung Je Cho, ICMI Representative from Korea and President of Korean Sub-Commission for ICMI, and the committee that prepared the Mexican bid, chaired by Professor Carlos Signoret, President of the Mexican Mathematical Society. The EC was highly impressed by the quality of the two dossiers they presented and hopes that the enthusiasm of those who supported these bids will reflect not only in ICME-11, but in future ICMEs as well.

Bernard R. Hodgson
Secretary-General of ICMI - Secrétaire général de la CIEM (International Commission on Mathematical Instruction / Commission internationale de l'enseignement mathématique)

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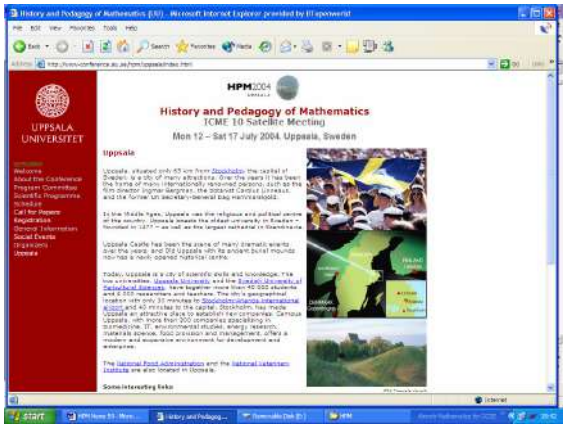

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The views expressed in this Newsletter may not necessarily be those of the HPM Advisory Board.

Please pass on news of the existence of this newsletter to any interested parties.

Items for the Newsletter should be sent to the editor, preferably by email.
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14 June 2004	1 July 2004
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12 February 2005	1 March 2005

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