

# International Study Group on the Relations Between HISTORY and PEDAGOGY of MATHEMATICS NEWSLETTER

AN AFFILIATE OF THE INTERNATIONAL COMMISSION ON MATHEMATICS INSTRUCTION

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## Calendar

1996 November 7 - 10 Atlanta  
Annual meeting of the History of Science Society. This  
meeting will include several talks dealing with the history of  
mathematics. For more details, contact the History of  
Science Society, c/o Keith R. Benson, Executive Secretary,  
Box 351330, University of Washington, Seattle, WA 98195-  
1330, USA; tel: 206-543-9366; fax: 206-685-9544; email:  
hssexec@u.washington.edu.

1997 January 8 - 11

San Diego  
Annual meeting of the American Mathematical Society and  
the Mathematical Association of America. There will be an  
AMS Special Session on the History of Mathematics  
organized by Karen Parshall (University of Virginia) and  
Jim Tattersall (Providence College). There will be an MAA  
Contributed Paper Session on The Uses of History in the  
Teaching of Mathematics organized by Florence Fasanelli  
(MAA), Victor J. Katz (UDC) and V. Frederick Rickey  
(Bowling Green). An MAA minicourse on the teaching of  
the History of Mathematics is organized by Victor J. Katz  
and V. Frederick Rickey. For the program of these sessions  
and some other events see inside.

1997 February 22

Sheffield  
HIMED 97. The annual meeting about history in  
mathematics education arranged by the British Society for  
the History of Mathematics will be held on Saturday 22  
February 1997 at the Mathematics Education Centre,  
Sheffield Hallam University Sheffield. The theme of the day  
is "Using history of mathematics in the school classroom".  
Several talks and workshops are being arranged, and it is  
hoped that there will be a discussion about the themes of the  
forthcoming ICMI Study on "The role of the history of  
mathematics in the teaching and learning of mathematics".  
A detailed program will be issued nearer the time of the  
meeting. For further details contact the organizer: David  
Lingard, Sheffield Hallam University, 25 Broomgrove  
Road, Sheffield S10 2NA; tel: 0114-2532307; fax: 0114-  
2532339; email: d.lingard@shu.ac.uk.

1997 March 23-26

Agua de Sao Pedro  
Seminarío Luso-Brasileiro de História de Matemática  
(Portuguese-Brazilian Meeting on the History of  
Mathematics). HPM will be represented in sessions. Those  
interested can contact Sergio Nobre (Av. 24, 1515 C.P.  
178, Dep. Mat. UNESP, Rio Claro SP, Brasil, or via e-  
mail sernobre@rcb000.uesp.br).

1997 April 18

Minneapolis  
The HPM Americas section meeting will be held in  
conjunction with the National Council of Teachers of

Mathematics meeting. The program chair is Erica Voolich, (244 Sumner St., Somerville, MA 02142, or via e-mail [voolich@mccl.mass.edu](mailto:voolich@mccl.mass.edu).) (See inside for more details; more information will be in the next newsletter.)

1997 June 21 - 24 Calgary  
Conference of the International History, Philosophy &  
Science Teaching Group (See inside for more details.)

1997 July 25 - 30 Liège, Belgium  
Twentieth International Congress of the History of Science.  
The main theme of the congress will be Science,  
Technology and Industry. HPM will contribute sessions.  
Those interested can contact Sergio Nobre (Av. 24, 1515  
C.P. 178, Dep. Mat. UNESP, Rio Claro SP, Brazil or via  
e-mail [sernobre@rcb000.uesp.arusp.br](mailto:sernobre@rcb000.uesp.arusp.br)) For general  
information, contact XXth International Congress of  
History of Science Congress Office, Centre d'Histoire des  
Sciences et des Techniques, Université de Liège, Avenue  
des Tilleuls 15, B-4000 Liège, BELGIUM; tel: 32 41 66 94  
79; fax: 32 41 66 95 47.

1998 August 17-21 Chungbuk  
The first ICMI-East Asia Regional Conference on  
Mathematics Education (ICMI-EARCOME 1) will be held at  
Korea National University of Education, Republic of Korea,  
from August 17 through August 21, 1998. The themes of  
ICMI-EARCOME 1 are: Technology and Mathematics  
Education, Comparative Study on Mathematics Education,  
History and Pedagogy of Mathematics, Mathematics and  
Society, Mathematics Education in Primary School,  
Secondary School and University, Teacher Training, Gifted  
Education. The program will include Invited Lectures,  
Working Groups and Topic Groups. In each Group, keynote  
speeches and paper presentations will be given. Abstracts  
and recommendations will also be proposed. Exhibitions of  
textbooks, computer softwares and other types of materials  
are being planned as well. The conference languages will be  
English and Korean. But all oral presentations in Korean  
will be translated into English. For more information about  
ICMI-EARCOME 1 please contact: Professor Hyunyoung  
Shin, Department of Mathematics Education, Korea  
National University of Education, 363-791, Korea; tel: 82-  
431-230-3721; fax: 82-431-233-3256; email: [shin@knuacc-  
sun.knu.ac.kr](mailto:shin@knuacc-<br/>sun.knu.ac.kr).

From the Editor  
Gerard Buskes

This issue, No. 19, of the newsletter is the first one under  
my editorship. The previous editor Victor J. Katz has  
become the Americas Section Chair. His legacy includes 24  
issues of perfectly edited newsletters. My first goal as new  
editor is to approximate the perfection that Victor has  
brought to this newsletter. It is my task to continue in his  
tradition a goal of disseminating all that is important to  
HPM via this newsletter. These are great times to advance  
our common concerns about History and Pedagogy of

Mathematics and I am looking forward to work with all of  
you to move forward. At the same time I want to express  
my sincere gratitude to Victor Katz, who has helped me to  
understand various subtleties of editing, producing and  
distributing this newsletter, and to John Fauvel and Jan van  
Maanen who have much facilitated the work to get started  
with this issue. Of course, any flaws are now fully my  
responsibility. I thank all of you who have already  
contacted me with warm words of support and cooperation,  
in particular Ronald Callinger for continuing his wonderful  
column "Have You Read?" Also I would like to thank the  
administration at the University of Mississippi. In  
particular, Deans H. Dale Abadie and Michael R.  
Dingerson, and chair Glenn Hopkins of the Mathematics  
Department at the University of Mississippi deserve much  
credit for financial and moral support to the vision of HPM  
via this newsletter. Last but not least, the Manager of  
University Printing Services, Mintia Craig, actually  
produces the print in front of you.

My second goal is a place on the world wide web  
for our newsletter. This will not affect the normal  
distribution of the hard copy that you will continue to  
receive as before. I will report to you on this matter in the  
next issue. Also, I would like to enter your e-mail  
addresses, if you have such, into my mailing list for this  
newsletter. Please contact me with any suggestions or any  
other information via e-mail at [rumbuskes@  
vm.cc.olemiss.edu](mailto:rumbuskes@<br/>vm.cc.olemiss.edu) or by regular mail at the editorial office.  
Any information on how to improve the newsletter and fully  
employ its potential as a means of communication between  
our interests in HPM is very welcome.

As you will see from this issue, one of the most  
exciting events since the July issue, has been the ICME-8  
meeting in Seville and the satellite meeting of HPM in  
Braga. From both of these meetings we have included  
detailed reports.

Last, but most importantly, thanks to all of you  
readers for your interest and please keep me informed to  
continue to keep you informed!

Thanks to John Fauvel  
Jan van Maanen

Some things are so obvious that one tends to overlook them.  
This happened to me at the HPM-business meeting in  
Braga. John Fauvel, who chaired (and cheered) HPM in the  
last four years, opened the meeting and led the first half.  
John gave a report about what happened during his  
presidency, addressing special words of thanks to Victor  
Katz for the excellent way in which Victor edited and  
produced and distributed the HPM newsletter during many  
years. HPM is a large and rather informal set of people,  
who are active in many ways, but -apart from their interest  
in history and pedagogy of mathematics- only share the  
newsletter. So, thanks to Victor for keeping us together

Then John gave the word to me, in order to chair the second half of the meeting and HPM during the next four years. The obvious thing for me to do was to thank John Fauvel warmly for the energy that he invested in HPM during the last four years, and -as the reader will understand by now- I forgot to do so. This however, has the advantage that I can now write grateful words, so that all can read them. Thanks to John Fauvel, for stimulating many of us, for initiating conferences, for writing documents, for quiet diplomacy and for his overt joy and belief in the HPM-ideas.

I hope to be able to continue in (t)his spirit, and am happy that John has promised to assist me, just as Ubiratan d'Ambrosio and Florence Fasanelli, the other former chairs, continue to do important work. The second half of the meeting, about the next four years of HPM, is another story, which will follow next in this issue.

Thanks to John!

Report from the chair  
Jan van Maanen

What follows now is an account of the second half of HPM's business meeting at Braga. Central topic were the ideas and plans for activities in the next four years.

To start at the end, that is with the year 2000: ICME-9 will be in Tokyo, in the first week of August. We hope to have the satellite meeting of HPM in Taiwan, after ICME-9. Presently Wann Sheng Horng (Taipei) is investigating the possibilities of organizing the meeting.

After Montpellier (1993) and Braga (1996) the Troisième Université d'Été Européenne sur Histoire et Épistémologie dans l'Éducation Mathématique (Third European Summer University on History and Epistemology in Mathematics Education) will be at regular intervals when kept in 1999. Jan van Maanen will try to establish a Belgian/Dutch organizing committee, and aims at a one week conference in the summer of 1999, preferably in Belgium.

One of the main goals for the next four years is the ICMI-study organized by HPM, and devoted to the relations between history and pedagogy of mathematics. The final result will be a book, edited by John Fauvel and Jan van Maanen, who will co-chair the study. The book should document the 'state of the art' in the field of HPM, in the form of proceedings of an invited conference. The contributions will be guided by a discussion document, which will be prepared by a small committee, appointed by ICMI (International Commission on Mathematical Instruction) and will be available in the spring of 1997. The conference is scheduled for 1998, somewhere in France. Also in 1988 there will be an Ibero-American HPM-meeting in Caracas, Venezuela (organized by Fernando Castro)

Finally, HPM will contribute with sessions to the 20th International Congress of the History of Science, 25-30 July 1997 in Liège, and to the Encontro Luso-Brasileiro de História de Matemática (Portuguese-Brazilian Meeting on the History of Mathematics) 23-26 March 1997 in Sao Paulo. In both cases Sergio Nobre will coordinate the programme, and those interested may contact him directly (Av. 24, serobre@rcb000.uesp.br).

These paragraphs have had a rather bookkeeping nature, and not much of wide perspectives and broad views. Yet, they have a common perspective, which is that HPM brings colleagues together, who share ideas, who argue and want to be convinced, and who want to improve their mathematics teaching and make it more humane. My view is that, in this common perspective, HPM will be a growing factor in the world of mathematics.

Report on HPM meeting at ICME 8 in Seville  
Victor J. Katz, Chair of the America's Section

Although the temperature reached 50 degrees C. during the afternoon, fortunately the air-conditioning worked sufficiently well for us to have comfortable temperatures during the evening sessions of HPM at ICME-8 in Seville in July. During the evening session, Jan van Maanen of the Netherlands was confirmed as the new international chair of HPM, while Gerard Buskes of the US became the new Newsletter editor. With that business out of the way, we proceeded to have a number of fascinating presentations by people representing many countries around the world.

On the first evening, Abraham Arcavi (Israel) discussed some of the work he had done at the Weizmann Institute in developing materials for teacher education courses using history. Materials on the negative numbers, irrational numbers, and linear & quadratic equations are available in English and have been used in Israeli classrooms for over a decade. Alejandro Garcíadiego (Mexico) then discussed History and Pedagogy: An Innate Symbiosis, in which he wondered whether in fact we should use primary sources in class, rather than some of the better written, but perhaps mythical, materials available elsewhere. Marilyn Monroe played a major role in Alejandro's presentation.

During the second evening, we heard from Lucia Grugnetti (Italy), Osamu Takenouchi (Japan), and Louis Charbonneau (Canada). Lucia discussed both the risks and advantages of using history in the classroom, in connection with the many possible ways of so doing. Osamu enlightened us on Wasan, the Japanese traditional mathematics. And Louis looked historically at the relationship between algebra and geometry and how this can be used in the teaching the former.

On the final evening of ICME, Peter Ransom

(UK) showed us why "Writing Yesterday's Mathematics" was helpful "for Tomorrow's Mathematicians". Luis Recalde (Colombia) interpreted some of the literary work of Jorge Luis Borges in terms of the concepts of the infinite. Shmuel Avital (Israel) brought us up-to-date on some studies which have taken place in Israel showing how the use of history has had a positive effect on learning among high school students. And Florence Fasanelli (USA) discussed her work with Indian teachers in the western US on incorporating various ideas from the history of polygons in their own teaching.

Besides the HPM meeting itself, Topic Group 16, organized by Louis Charbonneau, also discussed the History of Mathematics and the Teaching of Mathematics. TG 16 has had two panel discussions on successive afternoons. During the first, John Fauvel (UK), Mercedes Dies Barrabes (Spain), Anne Michel-Pajus (France), and Victor Katz (US) discussed the use of history at four different levels, from primary school to university. And during the second, Anna Sfard (Israel), Niels Jahnke (Germany), Jean-Luc Dorier (France), and Maggy Schneider (Belgium) looked at some theoretical aspects of using history in teaching.

History played a major role at ICME-8 and will continue to play major roles in future ICMEs. Put ICME-9 on your calendar for 2000.

Report on HEM Braga 96  
Victor J. Katz

When there are over five hundred people from over 30 countries gathered together at one location for a week, all with a common interest in history and its use in the classroom, there is a lot of excitement in the air. You could feel it in the halls of Complexo Pedagógico 2 at the Gualtar campus of the University of Minho. You could also feel it in line for the cafeteria, in town for dinner, in the excursion buses, and, most of all, in the classrooms and lecture halls where new ideas spilled out and intense discussions took place. HEM Braga - or to be precise - História e Educação Matemática, Braga - was a combined meeting. It was the ICME-8 satellite meeting of HPM as well as the Second European Summer University on History and Epistemology in Mathematics. As such, its attendees included not only experts in history and its use in the classroom, but also many school teachers from all over Europe (and the rest of the world) who were interested in learning something about the history of mathematics and how it could be incorporated into their own teaching.

The organizers of the combined meeting decided that, to meet the needs of all who were coming, there would be a series of "introductory lectures" to introduce novices to various aspects of the history of mathematics as well as contributed papers, workshops, and panel discussions dealing with the use of history in the classroom. But not

surprisingly, given the high quality of the lecturers chosen by the program committee, many of the "introductory" lectures drew large audiences, including many "experienced" participants.

Since it is not possible to discuss every session of the meeting - no one person could possibly have attended more than about 20% of the sessions - this report will only give some of the highlights of the meeting. Fortunately, the Mathematical Association of America will be publishing a book of papers from this meeting, so everyone will be able to learn from the hard work of all the presenters.

The conference began with a plenary lecture by F. R. Dias Agudo, of the Academy of Sciences of Lisbon, on "Pedro Nunes and the lessons of an epoch," in which he showed the effect of the Portuguese Discoveries on the scientific revolution of the 17th century and how the level of education in a country is critical if it is to continue to make scientific and technological advances.

We now turn to some of the introductory lectures. Paulus Gerdes, from the Pedagogical University of Mozambique, discussed "Mathematics in the History of Africa South of the Sahara, considering such topics as games and puzzles, geometry, numeration systems, and graphs as examples of mathematical ideas in African cultures. He also noted how many of these elements are useful in mathematics education. Eleanor Robson, of Oxford University (England), in her talk "From Uruk to Babylon: 4500 Years of Mesopotamian Mathematics," concentrated on some of the less-well-known aspects of that history, especially the early period in which the Babylonian number system originated and the period after 1600 B.C., from which there is a sudden lack of tablets. Chun-ip Fung (Hong Kong Institute of Education) substituted for Man-Keung Siu in presenting the latter's paper on "Ancient Chinese Mathematics." Again, less well-known aspects of that history were presented, including aspects of the origins of mathematical ideas in China. Similarly, P. Rajagopal (York University, Canada) dealt with the relationships between Indian mathematics and Indian culture in his talk "Indian Mathematics and its Evolution;" in particular, he showed us pictures of one of the bird altars, the construction of which posed many interesting mathematical problems.

The first group of lectures were some among many which dealt with mathematics in a particular culture. There were also many introductory lectures dealing with particular mathematical topics, including Geometry by Evelyne Barbin (IREM Paris VII, France), Algebra by Jean-Paul Guichard (IREM de Poitiers, France), Trigonometry by Victor J. Katz (Univ. of D.C., USA), and Calculus by Jan van Maanen (Univ of Groningen, The Netherlands). Finally, there was a series of introductory lectures dealing with the relationship of mathematics to other fields, including Music and Mathematics by John Fauvel (The Open University,

UK), Mathematics and Art by Florence Fasanelli (MAA, USA), and Mathematics and Technology by Ubiratan D'Ambrosio (Univ de Sao Paulo, Brazil).

The contributed papers spanned a wide range. Some dealt directly with the history of mathematics. Others demonstrated how to use history in teaching mathematics. Still others reported on various projects they had conducted on introducing history in the classroom. For example, Amira Cooper (Technion, Israel) discussed her work in integrating historical material into high school classes, mostly by assigning special readings on the history of a particular topic and then discussing these in class during the discussion of the mathematical topic. Her research found that using the historical material contributed to a substantial change in student attitudes. Gavin Hitchcock (University of Zimbabwe) brought down the house with a one-man dramatic presentation of Augustus De Morgan discussing the changes in mathematics during his lifetime, the most important of which was "the joyous assertion of logical freedom." Harald Gropp (University of Heidelberg, Germany) gave two fascinating talks, one on Celtic mathematics, which included a discussion of the Coligny calendar plate, and one on the history of Pascal's triangle, which presented some new information on the possible transmission of ideas about the triangle from the middle east via the work of Johann Scheubel. Janet Barnett (University of Southern Colorado, USA) discussed how anomalies have shaped the development of mathematics through the centuries, while George Heine (Math and Maps, USA) showed us how Islamic thinkers viewed mathematics. Abdulcarimo Ismael (Pedagogical University, Mozambique) showed how some traditional games in Africa involve the concept of probability and thus how these games can be used in teaching the subject. Warn-Sheng Horng (National Taiwan Normal University) compared the pedagogy of Liu Hui and Euclid, concluding that it is important that teachers use both the operational approach of the former and the structural approach of the latter in teaching various geometrical concepts. Several speakers from the Canary Islands in Spain discussed aspects of the "Proyecto Helena", an interdisciplinary experience of the History of Mathematics begun recently in several high schools there, while some of the Portuguese delegates considered the use in class of various aspects of the history of mathematics in Portugal.

In addition to the papers, there were numerous workshops, in which groups of participants learned by doing. For example, Greisy Winicki Landman (Technion, Israel) had participants working on the Regula Falsi to solve equations. June Barrow-Green (Open University, UK) led her group through introductory ideas of chaos, basing her work on the historical development of the subject beginning in the late 19th century. Giuliano Testa (Liceo Scientifico P. Lioy, Italy) demonstrated how students can learn conics through reading an ancient French text, even if they do not know French. And Constantinos Tzanakis (University of

Crete, Greece) convinced his workshop that they need to use the close relationship between mathematics and physics in their historical development in order to teach many concepts in those two subjects.

There were four panel discussions, one on the history of mathematics education, one on history, research and the teaching of mathematics, one on mathematical proof in history, and one on "perils and pleasures of the Internet." Listeners at each of these discussions heard the subject matter considered from several points of view and generally initiated lively discussions of the material.

Participants in HEM Braga 96 will long remember not only the formal sessions, but also the informal discussions over coffee, over lunch, and during the excursions to various interesting locations near Braga. They will also remember the wonderful banquet on Friday night under the stars and around the swimming pool at the Abadia d'Este restaurant in the hills above Braga, where Eduardo Veloso and Maria Fernanda Estrada, the chief organizers, were honored and where we were all entertained by the singing, playing, and dancing of a wonderful Portuguese band. They will remember the dramatic production during the final evening, in which Descartes debated Galileo, a production written by Gavin Hitchcock and admirably acted by Evelyne Barbin and Fulvia Furinghetti. They will remember the many new friends they made as well as those with whom they got reacquainted. And, most of all, they will remember the ideas generated during the meeting, ideas which many will take back with them to their own classrooms and share with their colleagues all over the world. The use of history of mathematics in the teaching of mathematics took another major step forward during this conference, and it is our students who will benefit.

#### HPM Americas Section Meeting in Minneapolis

The annual meeting of the HPM Americas section will again take place in connection with the annual meeting of the National Council of Teachers of Mathematics. It will be from 5-8 pm on Friday, April 18 in Minneapolis and will be followed by dinner. Details of the meeting will be in the next Newsletter. The program chair for this year is Erica Voolich. We invite anyone who would like to make a presentation to send an abstract to her, either by e-mail to [voolich@meol.mass.edu](mailto:voolich@meol.mass.edu) or by snail mail to 244 Summer St., Somerville, MA 02142. Please send the abstract no later than February 1, 1997. We would especially like presentations dealing with the direct use of historical materials in the school or college classroom.

Message from the Chair of the America's Section  
by Victor J. Katz

Although I am sorry to be leaving the editorship of the HPM Newsletter, I am pleased to be able to continue

working with HPM in a new capacity. And I am certain that Gerard Buskes will do a wonderful job as the new editor, helping us move forward into the 21st century.

From my report on the HEM Braga meeting, you can see that great progress is being made around the world in convincing teachers at all levels that the use of history in teaching mathematics is not only useful in motivating students but also necessary in helping students understand various concepts. In France, for example, there is a great amount of material being published by IREM for teachers to help them use history. There are also yearly summer workshops to which many teachers come and learn how to use such material. Similarly, the HIMED meetings in England attract large numbers of high school teachers who both share their own experiences in using history and also learn new ways of doing this. In the U.S., the Mathematical Association of America has lately published two volumes which will help teachers use history. Learn from the *Masters and Vita Mathematica*, and has advertised these widely to the college community. But clearly more needs to be done to reach the high school mathematics community.

My major goal in my tenure as chair, then, is to reach out to that community, chiefly by increasing the presence of HPM at national and regional meetings of NCTM. Now that we are an official Affiliated Group of NCTM, we can more easily secure spots in the schedules. I am therefore proposing that HPM organize sessions in as many regional and national meetings as possible in order to make us more visible to the mathematics community and thus enable more teachers to be able to use history. Unfortunately, the deadline dates for organizing sessions are nearly 18 months in advance of the meetings in 1998. Nevertheless, we will begin now. The HPM officers will be in charge of organizing a one-day "Conference within a Conference" (Cwac) at the April, 1988 national NCTM meeting in Washington, DC. Although we have not worked out the details for this conference, the basic idea is to invite many people from the region who have been using history, both at the school and college levels, to give presentations or, even better, workshops in which participants can experience the benefits of using history. At a given conference, we might have all the presentations and workshops relate to a common theme, say algebra or geometry, or else relate to a certain grade level as indicated in the NCTM Standards. In addition, we might have panel discussions, lectures on historical topics, or general discussions of the nuts and bolts of using history in a particular course. We will attempt to have written material prepared which can be distributed and will make available for purchase some of the many books already produced, in the US or abroad, dealing with using history.

Once the Washington conference has been organized, we will put together a basic outline of how to organize and publicize such a conference. This outline will be distributed to anyone who would like to organize a Cwac (or perhaps a 3-hour minicourse) at one of the

regional meetings. But naturally, we need volunteers in each region to take on the local organizational task. If you would be willing to volunteer, either alone or with others, please let me know by e-mail to [vkatz@udc.edu](mailto:vkatz@udc.edu) or by fax to 202-274-5399 (or even by snail mail to Mathematics Department, University of the District of Columbia, 4200 Connecticut Ave. N.W., Washington DC 20008). You can also contact me if you just have ideas on how to organize such a conference or to volunteer to give a presentation. The 1998 NCTM regional meeting schedule is as follows: Jan 29-31, St Louis; Feb 12-14, Dallas; Feb 19-21 Denver; Mar 5-7, Tampa; Oct 15-17, Hartford; Oct 15-17, Louisville; Oct 23-25, Calgary, Alberta; Oct 29-31, Little Rock; Nov 11-13 Reno. The 1999 schedule (in part) is Feb 4-6, Charlotte; Feb 11-13, Des Moines; and Jul 27-30, Honolulu. The 1999 national meeting is scheduled for April 22-25 in San Francisco.

#### Joint Mathematics Meetings, January 1997, San Diego

We remind you of some sessions of interest to readers of this *Newsletter* at the annual Joint Mathematics Meetings, to be held in San Diego from January 8 to January 11, 1997. There will be an AMS Special Session on the History of Mathematics. The organizers are Karen Parshall (University of Virginia) and Jim Tattersall (Providence College). The schedule is as follows.

#### Friday January 10, 8:00 a.m.-10:50 a.m.

8:00 a.m. Jacob M. Plotkin (Michigan State University): *Felix Hausdorff's Contributions to the Theory of order Types.*

8:30 a.m. Paul R. Wolfson (West Chester University): *The story of the "Parallelogram Rule" for Finding Tangents.*

9:00 a.m. Wilbur R. Knorr (Stanford University): *"Rational diameters" and the discovery of incommensurability.*

9:30 a.m. Judith V. Grabiner (Pitzer College): *More light on Colin Maclaurin.*

10:00 a.m. William Dunham (Muhlenberg College): *The Euclid-Euler Theorem.*

10:30 a.m. Joseph Dauben (Herbert H. Lehman College, City University of New York) *Mathematics and ideology: The politics of infinitesimals.*

#### Friday January 10, 1:00 p.m.-5:50 p.m.

1:00 p.m. Gregory H. Moore (McMaster University): *From Weierstrass to Aleksandrov: The early history of Compactness.*

1:30 p.m. Jan P. Hogendijk (University of Utrecht): *Mathematical mysteries of mediaval Iran.*

2:00 p.m. Erwin O. Kreyszig (Carleton University): *Euler's accomplishments in engineering mathematics.*

2:30 p.m. V. Frederick Rickey (Bowling Green State University): *The Calculus Texts of Johann Bernoulli.*

3:00 p.m. Daniel S. Alexander (Drake University):

*Newton, Newton's Method and Power series.*

3:30 John Fauvel (The Open University, UK): *J.J. Sylvester (1814-1897): poet, pedagogue, personality.*

4:00 Victor J. Katz (University of District of Columbia): *The Transmission of Mathematics from Islam to Europe.*

4:30 p.m. Patti Hunter: *The Mathematics of Statistics: Foundations of Probability in American Textbooks, 1925-1950.*

5:00 p.m. Daniel E. Otero (Xavier University), Kim Plofker (Brown University): *Gregory of St. Vincent, Antonio de Sarasa, and the area under the hyperbola.*

5:30 Shawnee L. McMurrin (Redlands University): *Dirac: A physicist does linear algebra.*

**Saturday January 11, 8:00 a.m.-10:50 a.m.**

8:30 a.m. T. Christine Stevens (Saint Louis University): *Sophus Lie, transformation groups, and geodesics.*

9:00 a.m. Margaret A.M. Murray (Virginia tech): *American Women Mathematics PhDs of the Forties and Fifties.*

9:30 a.m. Kim Plofker (Brown University): *The "error" in the Indian "Taylor Series Expansion" to the Sine.*

10:00 a.m. Charles W. Curtis (University of Oregon): *The beginnings of computational group theory: The Characters of the symmetric group.*

10:30 a.m. Robin J. Wilson (The Open University, UK), Adrian Rice (Middlesex University) *The Early History of the London Mathematical Society.*

There will be an MAA Contributed Paper session on *The Uses of History in the Teaching of Mathematics*, organized by Florence Fasanelli (MAA), Victor J. Katz (UDC), and V. Frederick Rickey (Bowling Green), growing out of the NSF-supported MAA Institute on the History of Mathematics and Its Use in Teaching. V. Frederick Rickey writes elsewhere in this issue about his experiences with the Institute on the History of Mathematics and its Use in Teaching. The program reads as follows.

**Wednesday January 8, 8:00 a.m.-11:00 a.m.**

8:00 a.m. *Introduction*

8:05 a.m. Mark S. Foskey (Jacksonville University): *Begin at the Beginning: Combining Euclid in Translation With a Conventional Text.*

8:25 a.m. Etienne Archinard (Collège de Saussure, Switzerland): *Back to the academic year 1851-2.*

8:45 a.m. A.S. Elkhader (Northern State University): *The use of Historical Numeration Systems in the South Dakota Native Americans.*

9:05 a.m. Janet H. Barnett (University of Southern Colorado): *Using History to Provide Context.*

9:25 a.m. Peter R. Flusser (Kansas Wesleyan University), Charles B. Pierre (Clark Atlanta University): *Euler's Proof of Fermat's Last Theorem for  $n=3$ .*

9:45 a.m. Maureen T. Carroll: *Cauchy's Proof of the Power Rule: A project for Real Analysis.*

10:05 a.m. Bonnie J. Shulman (Bates College): *Using*

*Original Sources to Teach the Logistic Equation: A Module.*

10:25 a.m. Elizabeth Mayfield (Hood College): *A non-traditional course in the history of mathematics*

10:45 a.m. Ruth Rebekka Struik (University of Colorado Boulder): *Pascal and the Problem of Points.*

**Thursday January 9, 7:00 p.m.-9:55 p.m.**

7:00 p.m. Alphonse Buccino (Contemporary Communications, Inc.) *The Role of History in shaping Scholarship and Education in Mathematics*

7:20 p.m. David Dennis (University of Texas at El Paso): *Project-Based Investigations with Portfolio Assessment in a History of Mathematics Course for Teachers.*

7:40 p.m. Nkechi M Agwu, Dr. (BMCC, CUNY): *Preparing Elementary Mathematics Educators Using the History of Mathematics and Mathematics Education.*

8:00 p.m. Leon M. Cohen (Hampden-Sydney College): *Writing Assignments in a History of Mathematics Class*

8:20 p.m. David J. Barsky (California State University San Marcos): *Which came first, the Airy equation or the Airy function.*

8:40 p.m. Amy L. Rocha (San Jose State University): *An Historical Approach to the Central Limit Theorem*

9:00 p.m. Agnes Tuska (California State University Fresno): *History and Problem Solving*

9:20 p.m. Herbert E. Kasube (Bradley University): *Using Original Sources in Discrete Mathematics.*

9:40 p.m. Phillip E. Johnson (UNC Charlotte) *Using Original Sources to Enhance the Introductory Real Analysis Course.*

On Saturday January 11, 1:00 p.m-2:40 p.m there is an AMS Session on History of Mathematics. The schedule is as follows.

**Saturday January 11, 8:00 a.m.-10:50 a.m.**

1:00 p.m. Mark McKinzie (University of Wisconsin-Madison): *From Euler's hidden lemmas to Stokes's infinitely slow convergence.*

1:15 p.m. Peter D. Schurer (Middlebury College): *The History of a Mathematics Department at an American Liberal Arts College.*

1:30 p.m. John A. Synowicz (Indiana University Northwest): *Cauchy and partial differential equations*

1:45 p.m. James J. Tatterall (Providence College): *A brief History of the Sodlierian Chair.*

2:00 p.m. Steve Butcher, Harry B. Coonce: *The Blossoming of the American Mathematical Research Community, 1900-1996. A Genealogy Project.*

1:15 p.m. Ahlam El-Hage Tannouri (Morgan State University), Al-Karaji (Morgan State University), Al-Samawal (Morgan State University): *Arithmetization of Algebra.*

1:30 p.m. Sanchez Clara Helena, (Universidad Nacional-Columbia): *The History of Mathematics in Columbia.*

There will also be an MAA minicourse on the

teaching of the History of Mathematics, organized by Victor J. Katz and V. Frederick Rickey. It is listed in the program for the Joint Meeting as Minicourse #11. The minicourse will be very helpful to anyone who teaches or wants to teach a History of Mathematics Course by discussing various approaches, resources, possible syllabi, suggestions for student projects etc. The Minicourse will be particularly useful for those who will teach the History of Mathematics for the first time.

On Friday January 10 from 5:30 p.m. to 6:20 p.m. there will be a dramatic presentation by Robin Wilson (The Open University, UK) and John Fauvel (The Open University, UK) in which Thomas Archer Hirst (1830-1892), in full Victorian costume, talks about his work and the people (e.g. Gauss, Dirichlet, Cayley, Klein, Darwin, Faraday and Chebyshev) that he has met.

In addition, Academic Press will be organizing a reception for historians of mathematics at the meeting, in honor of *Historia Mathematica*.

#### Conference of the International History, Philosophy & Science Teaching Group

A conference of the International History, Philosophy and Science Teaching Group will be held June 21-24, 1997 in Calgary, Alberta, Canada. The Dean of the Faculty of Education, University of Calgary, Professor Ian Winchester, will be the conference chair. The conference has been initiated by the North American region, but is not limited to it. All members of the International group, and others, are invited to attend. Calgary, the site of the 1988 winter Olympics, is situated at the foot of the Canadian Rockies, near the mountain resort of Banff. The conference programme will include an optional visit to the Rockies.

International and national groups that have interests in the role of HPS in science, mathematics, and history teaching are encouraged to use the conference as an occasion to present their work and to consolidate networks.

Proposals for contributed papers, workshops, discussion groups, and exhibits of curricular and instructional materials related to the purposes of the conference are now being accepted. Due date for receipt of papers and proposals is February 15, 1997. Four copies of the proposal or paper should be sent to Ms. Linda Lentz at the address below. The proposals should include:

1. A cover page with paper title, authors name(s), institutional affiliation, address, telephone number, FAX number, and e-mail address.
2. A 100-150 word Abstract of each proposed paper or session.
3. Three self-addressed envelopes.

Format: Papers should follow the format, style, and referencing conventions used in the Group's journal *Science & Education*. Please pay particular attention to form of title, author's name and address, an Abstract of 100-150 words, and referencing conventions. Disk submission is necessary - WordPerfect or Microsoft Word is preferred for PC or Mac platforms, but ASCII is acceptable. Final papers should not exceed 5000 words. They must be submitted by February 15, 1997. Early submission of proposals and final papers is encouraged in order to facilitate programming and production of Conference Proceedings.

Proposals and papers should be sent to Ms. Linda Lentz, Faculty of Education, University of Calgary, Calgary, Alberta, T2N 1N4, CANADA; email: 180118@ucdasvml.admin.ucalgary.ca or lentz@acs.ucalgary.ca.

#### Have You Read?

Ronald Calinger, ed.

This column seeks references from across the history and historiography of mathematics, the pedagogy of mathematics, and the sociology of mathematics. It also attempts to cite books or articles, containing sections on these subjects that have the potential for encouraging and motivating students, along with possibly improving the learning of mathematics and research in it, or that may enrich courses. Please send citations with complete bibliographic information to the section editor c/o Department of History, Catholic University of America, Washington, DC 20064, U.S.A.

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The *Newsletter* is the communication of the International Study Group on the Relations Between History and Pedagogy of Mathematics, an affiliate of the International Commission on Mathematical Instruction. It is edited in the Department of Mathematics, University of Mississippi, University, MS 38677, U.S.A. and printed and mailed with funds supplied by the University of Mississippi and other educational establishments around the world. The *Newsletter* is free of charge upon request and may be reproduced with acknowledgement.

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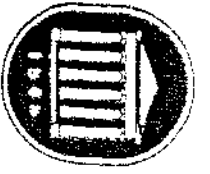
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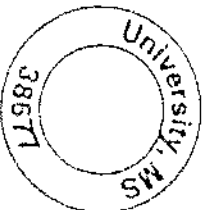
Elsewhere: U.S. Editorial Office.

## Table of Contents

1	.....	Calendar
2	.....	From the Editor. Thanks to John Fauvel. Report from the chair.
3	.....	Report on HPM meeting at ICME-8. Report on HEM meeting Braga 96.
5	.....	HPM Americas Section Minneapolis. Message from the Chair of The Americas Section.
6	.....	AMS-MAA meeting, San Diego 1997.
7	.....	Conference of the International History, Philosophy and Teaching Group.
8	.....	Have You Read?
9	.....	List of Distributors.



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