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

No. 53 July 2003

Message from our Chair

Waiting for HPM 2004

Dear HPM members,
In late May I was in Uppsala to see once more the beautiful site where the next HPM Satellite meeting of the ICME Conference will take place. It was very emotional to be in the oldest University of Scandinavia where the founder of botany Carl von Linné worked. I visited the University Museum (Gustavianum) and enjoyed seeing the field of lilies and the beautiful river going across the green parks. I also enjoyed working with Sten Kaijser and the other members of the local program committee. The program is almost ready and the second announcement will appear shortly on the website

http://www.math.uu.se/hpm/index.html

and, of course, in the HPM website

www.mathedu-jp.org/hpm/index.htm

The meeting will be held jointly with the fourth European Summer University on History and Epistemology of Mathematics. We hope to keep up the tradition of having an interesting meeting for researchers and teachers.
Please be ready to work on your contributions very soon. Since the proceedings will be available at the start of the conference you will be asked to send your text in advance.

Fulvia Furinghetti

Editorial

There were lots of contributions for this Newsletter - I've had a number of reviews and quite a few contributions for the *Have You Read?* section. Professor Gupta has contributed another of his articles and he is happy to answer any queries about the history of mathematics in India and/or send details of relevant Indian publications.
We welcome Funda Gonulates to the list of distributors. She will be responsible for Turkey. A brief autobiography appears near the list of distributors. We are sorry to lose David Lingard, the UK distributor, but he is retiring at the end of the year and so will not have the facilities to send out the UK mailing. If there are any volunteers for this post please could they contact David to find out more about this - the list is not a large one and the time commitment is not great. All that is needed is access to a photocopier and an institution that will pay the postage three times a year! Remember that this commitment reflects well on your institution.
Finally, I wish you all a very pleasant summer and look forward to seeing lots of you next year at ICME and/or the HPM Satellite meeting.

Peter Ransom

A Historical Experience

For many years I have been teaching mathematics at university level to students of different disciplines (Chemistry, Computer Science, Physics, Economy, Architecture and Industrial Design). A common factor to all these students was that they did not like the subject very much, rather than being convinced of the necessity of studying mathematics. From my long experience I think the best way to introduce a new subject is to make a short historical introduction relating something of importance in the life of the mathematicians involved. For example,

- George F. B. Riemann was a German mathematician who died in 1866 from tuberculosis at the early age of 39 years.

- Evariste Galois (1811-1832), an unfortunate French mathematician who in 1830, while only 19 years old, proved that it is impossible to find a formula in radicals for the general solution of fifth degree (or higher) equations. Also, before he turned 21 he was killed in a duel - probably a political provocation in amorous disguise.

- Polish mathematician Benoit B. Mandelbrot, who introduced the concept of fractal, pertained to a Jewish family who emigrated in 1936 to Paris. Why Paris? It was because his uncle, Szolem Mandelbrot, was a member of the elite group Bourbaki. Nevertheless, the young Mandelbrot showed a mathematical capacity quite different from that of his uncle and performed a fantastic career based on his extraordinary visual and geometric intuition.

This is the reason why, not being a historian, I am interested in the history of mathematics.

Vera W. de Spinadel,
Buenos Aires, Argentina

Which Way Can History of Unsolved Problems Influence Mathematics Education?

This note is partly a review of an interesting recent paper and partly a setting of some related questions of research framework. The paper was written by Aldo Scimone, from the Department of Mathematics and Applications of Palermo, Italy, and appeared in CERME 3 (2003)*, in the section of Argumentation and Proof. The title of the paper was *An educational experimentation on Goldbach's Conjecture* and its aim was "to investigate mental representations of pupils about Goldbach's Conjecture (in order) to improve the mathematical education from a historical viewpoint." Goldbach's Conjecture (that every even number >2 is the sum of two primes) is still unanswered today. It was initially proposed to 88 pupils of 16-17 years of age and then, under a suitable setting to younger pupils.

At the beginning of the paper, Scimone mentions the well-known question (which is more general than that asked above in the title of this note): "In which way(s) can history of mathematics influence mathematics education?" The paper, of course, does not try to answer this question in general, but mainly in its restricted version set above as the title of the present note. Perhaps, also, as explained below, Scimone's results indicate a question in the opposite direction: "In which way(s) can research in mathematics education influence historical and socio-psychological research on solving problems in mathematics?".

A key-phrase in Scimone's paper is that *the pedagogical value of open problems and conjectures for mathematics teaching is in general remarkable*. But why is it so? The author of the paper gives, in his introduction, the following answers:

"It (the methodology of solving open problems) allows pupils to use their acquired knowledge to solve problems; it improves their logical-deductive abilities; it contributes

in consolidating knowledge already mastered in a consistent fashion."

All this, however, seems to have very little to do with history (in fact, the problem here is that logical consistency, which usually is taken for granted in understanding mathematicians' writings, is not at all to be taken for granted in understanding young students' work). What seems at the first place to be more relevant, from a common perspective of interest in history and pedagogy of mathematics, is the spontaneous reasoning and intuitive approaches of people facing a non-trivial open question. Thus in facing Goldbach's Conjecture, which was chosen by the author for its simplicity and its astonishing amount of empirical evidence, one has to expect some similarity between the first mathematicians' approaches and the spontaneous students' approaches. And indeed it happens so! Some of the results of Scimone' s experiment - registered dialogues and/or individual 'scenarios' of pupils - are quite similar (although not identifiable) to those known from the history of the Conjecture, as e.g. it is the case of Goldbach himself and of Euler and Cantor.

It should be noted here, however, that a 'scenario' as above (in both the case of students and that of mathematicians of the past) may contain, together with a plan of actions actually carried out or imagined, an interpretation of the problem, an attitude towards it and a decision made (explicitly or implicitly) by the individual to follow or reject the imagined plan. In this way a description through 'scenarios' could be theoretically elaborated as a framework of analysis for research done in the directions mentioned above, towards a special interweaving of history and pedagogy of mathematics.

Tasos Patronis
Patras, Greece

*Scimone, A.: 2003, 'An educational experimentation on Goldbach's conjecture', CERME 3, Working Group 'Argumentation and proof', (Bellaria, Italy).

Announcements

One of the latest activities that are happening in the United States is the beginning of an on-line history of mathematics journal. Victor Katz and Frank Swetz have received a planning grant from the US National Science Foundation to organise the project. Victor and Frank have appointed an advisory board. The articles that the proposed journal will publish are designed for teachers of secondary, college and university students. Electronic media provides authors the opportunity to use interactive activities or demonstrations in their articles. The publication, although in English, will welcome authors worldwide. For further information contact Victor Katz at

vkatz@udc.edu

Ptolemy's value of π in India

The popular number π is usually defined as the ratio of the length of the circumference of any circle to that of its diameter. We know that π is not only irrational but also transcendental. So, the exact or true value of π cannot be expressed by a fraction of two integers or by a simple surd. For convenience, some useful practical approximations of π from history of mathematics are as follows:
Archimedean value, $\pi = 22/7$
Ancient Chinese ration, $\pi = 355/113$
Jaina value, $\pi = \sqrt{10}$
Aryabhata's approximation, $\pi = 62832/20000$
Ptolemy's value, $\pi = 377/120$

Like Euclid's *Elements* in mathematics, the *Syntaxis Mathematica* (about AD 150) of Claudius Ptolemy was a famous work in astronomy during ancient and medieval times. The work is more popularly known by its Arabian title of *Almagest*. On the basis of the table of chords given in this work (Book I), Ptolemy is credited with the use of a value of π which can be expressed in the sexagesimal notation as $\pi = 3;8,30 = 3 + (8/60) + (30/60^2) = 377/120$.
In India, Brahmagupta in his *Brahma-sphuta-siddhanta* (AD 628) used the approximation π

= 3 as a rough value and $\pi = \sqrt{10}$ as an accurate value (XII, 40). Due to a sort of rivalry with Aryabhata (born AD 476), he did not use the former's value (= 3.1416) which was far superior.

Another interesting fact has come to light in this context. Aryabhata in his *Aryabhatiya* (I, 10) gave the outermost circumference of the terrestrial wind (i.e. of the Earth's atmosphere) as 3375 *yojanas* (*yojana* is an Indian unit of distance). But Brahmagupta misread the text and took Aryabhata's above numerical figure to be 3393 (*BSS*, XI, 15). From this, Brahmagupta also found the corresponding diameter as 1080 *yojanas* thereby implying the use of $\pi = 3393/1080 = 377/120$ which is the same as Ptolemy's value!

It must be noted that the diameter 1080 cannot come from the circumference 3393 by using $\pi = 3$ or $\pi = \sqrt{10}$ as prescribed by Brahmagupta himself. By using Aryabhata's value (which was known to Brahmagupta) we get diameter = 3393x2000/62832 = 1080.02 nearly.

It may be that Brahmagupta got 1080 by neglecting the small fractional part. Interestingly, Brahmagupta is credited by Alberuni, for deriving $\pi = 22/7$ from $\sqrt{10}$, since $\sqrt{10} = \sqrt{(3^2 + 1)} \approx 3 + 1/7$, by applying a well-known rule, $\sqrt{(a^2 + r)} \approx a + r/(2a + 1)$.

References:

Alberuni's India by E.C. Sachau, Indian reprint, Delhi, 1964
Aryabhatiya ed. and transl. by K.S.Shukla, New Delhi, 1976
C.B. Boyer, *A History of Mathematics*, Wiley, N.Y., 1968
H.T. Colebrooke, *Algebra with Arithmetic and Mensuration from the Sanscrit* etc., reprinted, Wiesbaden, 1973
R.C. Gupta, "On some ancient and Medieval Methods of Approximating Quadratic Surds", *Ganita-Bharati* 7(1985), 13-22
C. Ptolemy, *The Almagest* transl. by R.C. Toliaferro, Encyclopaedia Britannica, London etc., 1952

R. C. Gupta
Jhansi, India

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.

Mathematics in School, January 2003, Vol. 32, No. 1. Special Issue: History of Mathematics, Codes and Cryptography (with CD-ROM)

TEACHER OF MATHEMATICS (TOM): Have you read the special issue of *Mathematics in School*, about the History of Mathematics? Very interesting, isn't it?
RESEARCHER IN MATHEMATICS EDUCATION (RIME): Yes it is… but…
TOM: But?
RIME: It contains a list of papers about interesting extracurricular subjects, but where is the didactics?
TOM: What do you mean? I can find a lot of suggestions for classroom work.
RIME: You should be careful in using the history of mathematics in class.
TOM: I know. The paper by Fulvia Furinghetti and Domingo Paola warns about the complexity of such a use. To design an instructional sequence requires competent work in the fields of both history and education. The choice of the history materials is to be made in the light of the educational aims one has in mind. They also give an example about using history in teaching probability.
RIME: You see, they are researchers in mathematics education. Many papers in this

special issue are lacking in theoretical framework and in proposals for curriculum development.
TOM: Aren't the other authors experts in didactics?
RIME: Yes, many of them are. But here they speak mainly about historical facts; and the leading article is by Simon Singh, who is certainly not an educator, even though he has given talks to pupils.
TOM: I found his article on the history of cryptography of some interest. You can touch on a lot of mathematical topics that can be used in the classroom, from simple additions and multiplications, to powers, permutations, and binary numbers. And you can give pupils an idea of what mathematicians do.
RIME: What about the other papers?
TOM: It's true some of them do not mention school or pupils at all. There are neither direct didactical suggestions nor "instructional sequences", but I can find several hints for teaching. For example, I can use the paper by Glen Van Brummelen about *Meteors in 10th century Persia* or the one by Peter Ransom about the *Framework for teaching dialling* to deal with angles and trigonometry.
RIME: You must be able to integrate these topics into your lessons, also giving an idea of history and of the development of mathematical thought. This seems to me even more difficult with the content of the papers by Jack Oliver, those about the representation and the work with fractions of the Ancient Egyptians and of the Babylonians; or with Gregory of St. Vincent's lemmas about the hyperbola, illustrated by Bob Burn, not to mention the history of the Decimal Point by Chris Weeks. Aren't all these merely curiosities?
TOM: Maybe the *Rise and fall of the decimal point* is simply a curiosity, partly because it is a "British" problem. As far as the other papers you mentioned are concerned, I don't know. Surely to show pupils different ways of representing fractions allows them to reflect about the deep meaning of our decimal system. And the theorems about the hyperbola, I think, can be well integrated into teaching conic sections, even if I don't know if it is worth the trouble to speak about history. Yes, perhaps I would need some more advice about how to use these subjects in my classes.
There are also papers with more precise suggestions. Dimitris Chassapis and Maria Kotsakosta describe an experience about the Bridges of Königsberg in primary school. And Marjolein Kool gives a very nice suggestion about the way of using an old textbook as an extra-student in classroom, so that pupils can compare their strategies when solving text problems or when computing products. This way of working can also be adapted to other arguments; and the topic is not an extracurricular one.
RIME: And what about the *School of Pythagoras* by David Brown? Is there any didactical suggestion?
TOM: No, but it is certainly a wonderful reading for older pupils: a boy who, surfing the net, finds himself "projected" into the world of Pythagoras.
RIME: I wonder if you make things too easy. I am not sure that it is so obvious for teachers how to use these materials.
TOM: One should try. As written in John Earle's introduction, students should not be deprived of the opportunity to experience some of the rich, stimulating and exciting areas of mathematics that got many of us hooked on the subject in the first place.
RIME: But there is also a warning.
TOM: I know, not simply to tell "stories" - the paper by Chris Weeks is very clear about this.
RIME: By the way, Chris Weeks seems to ignore another "story" about Thales. During his stay in Egypt, Thales was asked (maybe by the pharaoh), to measure the height of Cheops' Pyramid. He put a stick in the sand, measured its shadow, measured the shadow of the pyramid at the same moment, and, using suitable proportions, he deduced the height of the pyramid. This is the reason why in France (and in Italy) the English "Section theorem" or the German "Strahlensatz" is called Theorem of Thales.
TOM: Anyway, I liked this issue.
RIME: Hmm…

Marta Menghini
Italy

Copies of *Mathematics in School*, January 2003, Vol. 32, No. 1. Special Issue: History of Mathematics can be obtained from The Mathematical Association, 259 London Road, LEICESTER LE2 3BE, UK
Telephone 0116 221 0013 or email office@m-a.org.uk to place your order.

Jan de Witt, *Elementa Curvarum Linearum, Liber Primus*, Springer- Verlag, New York, Inc., 2000 (ISBN 0-387-9874-7, Hard-bound, p. 298, € 104,95)

Contents: Preface. 1. Introduction. 2. Summary. 3. Latin text and translation. 4. Annotations to the translation - Appendices (A. Applications of areas. - B. The conic sections in Apollonius) - References.- Index.

Springer-Verlag has added a new masterly book to its prestigious series *Sources and Studies in the History of Mathematics and Physical Sciences*.

This important work by Jan de Witt has been excellently translated and commented upon by Prof. Albert W. Grootendorst, who is the co-author of a book of analysis, the translator of several 17th-century mathematics books, from Latin into Dutch and English, and the author of various articles on the history of mathematics. He is a specialist in Greek mathematics and in 17th- century mathematics. He is currently translating the second part of De Witt's work.

Jan de Witt, a son of Jacob's, was born in Dordrecht in 1625, at the time of the unification of the Provinces which were to form a new Republic. A lawyer at The Hague's court, in 1650 he became Dordrecht's Pensionary and in 1653 Great Pensionary of Holland.
It was a time of great difficulties and political unrest: he played an important role both on the national and international scene, which was swept by intricate events and wars. Together with his intense political life, he also devoted himself to mathematics, to geometry and statistics, in particular. He was brutally killed while visiting his jailed brother, with the unjust accusation of attempting to kill the Prince.

As Grootendorst remarks, almost every Dutch person knows that he was a great statesman (a statue in his memory stands in the centre of the Hague) but very few know that he was a pure mathematician, who wrote the first textbook on analytic geometry: *Elementa Curvarum Linearum (Liber Primus et Liber Secundus).*

Dutch mathematician Frans van Schooten Junior (1605-1660), was among the first admirers of Descartes's *Géométrie*: this was published in 1637 at Leiden by bookseller Jan Maire, together with *La Dioptrique* and *Les Meteores*, as an appendix to the well-known *Discours de la Méthode pour Bien Conduire Sa Raison et Chercher la Vérité dans les Sciences*. He then decided to translate *Géométrie* into Latin, the lingua franca for scientific communication in the seventeenth century: the first edition appeared in 1649, again at Jan Maire's publishing bookshop. Being encouraged by this success, Van Schooten planned the publication of the second edition in two volumes, which appeared in 1659 and in 1661 respectively.

Elementa Curvarum Linearum (*Liber Primus* et *Liber Secundus*) came out as a part of the second volume.
The real novelty of de Witt's work, as compared to Apollonius, lies in the different definition of the conics, constructed in the plane in a kinematical way according to a mathematical prescription and not in space as plane sections of a cone. Although some kinematical constructions were previously known (Archimedes, Proclus, Descartes, van Shooten Jr., etc.), de Witt's innovation, however, consisted in considering two arbitrary intersecting straight lines, instead of two mutually orthogonal lines.
In the second chapter, Grootendorst provides a concise yet complete overview of de Witt's work, thus allowing the reader to get a precise idea of the book main lines because all theorems and corollaries are restated using the

modern notation. As a matter of fact, in *Liber Primus*, Jan de Witt writes in a purely verbal style, without using our well-known mathematical symbols (±, ×, ÷, etc.): *Liber Primus* is, in reality, an introduction to *Liber Secundus*, in which he applies the analytic method to the conics. De Witt does not give a unified definition of the conics - as, for instance, Pappus of Alexandria had done in antiquity by means of focus, directrix and eccentricity - but for each of them he provides its own construction. In studying each curve, de Witt compares his own constructions with those of Apollonius, finally stating that his constructions are much more natural and simpler. He "recognises" the nature of his own curves as conics in a geometric way, linking them to the application of areas.
Prof. Grootendorst has supplied the book with excellent annotations, enriched by a good, extensive commentary, which clarify the problems of the application of areas in particular. Consequently, the reading and the interpretation of the various theorems and corollaries are made a lot easier. Both the two appendices and the bibliography are extremely interesting and useful.
We are now eagerly expecting the publication of *Liber Secundus*, after this splendidly annotated translation.

Giuliano Testa
Italy

Dauben, Joseph W. & Scriba Christoph J. (editors), *Writing the history of mathematics: its historical development*, Birkhäuser Verlag, Berlin, 2002, pp. xxxviii-690 (ISBN 3-7643-6167-0)

Contents
Table of Portraits. Contributors. Praescriptum. Introduction. Acknowledgemtnts. Glossary.- PART I Countries. 1. France. 2. Benelux. 3. Italy. 4. Switzerland. 5. Germany. 6. Scandinavia. 7. The British Isles. 8. Russia and the U.S.S.R. 9. Poland. 10. Bohemian Countries. 11. Austria. 12. Greece. 13. Spain. 14. Portugal. 15. The Americas. 16. Japan. 17. China. 18. India. 19. Arab Countries, Turkey and Iran. 20. Postscriptum.- PART II Portraits and Biographies.- PART III Abbreviations, Bibliography and Index.

It is an encyclopaedic work dealing with the development of the historiography of mathematics all over the world and it is the result of the collaboration of 44 scholars from different countries. The idea originated with the plan of the *International Commission on the History of Mathematics*; but it proves to be also an indispensable tool for the study of the history of mathematics.

It is dedicated to the memory of Kenneth Ownsworth May (1915-1977) who, in 1970, founded the prestigious international journal *Historia Mathematica*. The general perspective is highly cultural; this common trait running through the various articles gives unity to the whole, despite their variety of style, length and sensitiveness. As matter of fact, the editors in the introduction insist on the basic conceptual difference between "history of mathematics" and "historiography of mathematics", this being one of the main distinctions in the book. For clarity's sake, in the following text a distinction is made between "history" and "historiography" and in particular between "history of mathematics and historiography of mathematics". History is what has happened in the past. Historiography is the analysis of "history" as a discipline, an account of its assumptions, methods, and the different approaches to which it as been subject in the hands of different historians writing in different places at different times under varying constraints including (but not limited to) economics, politics, philosophy, religion, and even health and psychological states of mind. Likewise, "history of mathematics" is concerned with the development, taking place in time, of the unfolding of mathematics; "historiography of mathematics", on the other hand, embraces the scholarly research, reconstruction, and description of the past development of the *history* of the subject. Historiography of mathematics involves the investigation, as exactly as possible, of this past evolution, to describe and interpret it for all relevant times and places in as critical and comparative a

way as possible. Therefore, not a history of mathematics but a history of how the histories of mathematics were written.

The book falls into three parts. The first part deals with the way historiography of mathematics has developed and progressed in the course of centuries, according to the specific cultural traits of the various countries taking part in the project. The final overview is really of great interest and universal in scope: it covers over 50% of the book.
The second part contains a biographical factfile of a great number of mathematics historians, whereas in the third part the reader will find a rich bibliography. Finally, an interesting portrait gallery of famous mathematics historians completes the book. This is a seminal work of great importance that can't be missing from the library of any department of mathematics.

Giuliano Testa
Italy

John Napier: Logarithm John, by Lynne Gladstone-Millar, published by National Museums of Scotland (Chambers Street, Edinburgh EH1 1JF), 2003, (IBSN 1-901663-70-1), 55 pages, price: £ 6.99.

What a wonderful little book: it is beautifully written and has wonderful photographs and illustrations sprinkled throughout its pages. Moreover it accomplishes its purpose, to give us a glimpse into the nature and times of John Napier, and late 16th and early 17th century Scotland.

John Napier lived most of his life in Merchiston Castle near Edinburgh. He was born there in 1550, died there in 1617 at the age of 67, and was buried there. (But the church of his time was replaced, so there is no grave or vault that one can see, only a wall plaque commemorating his life.) He was born into a wealthy and privileged family that could trace its roots back 500 years. John's father, Archibald, was only 15 years old when he married John's mother; John was born the next year. At the age of 13 he was sent off to the University of St. Andrews.

Everyone knows that Napier's name is associated with the discovery of logarithms, but his work in this area seems not to have been at the forefront of his interests, at least in his early years. In his earlier years Napier was interested in theology and he wrote on the Apocalypse. Around 1594 Napier started to think about mathematics and according to Gladstone-Millar, "he was reasoning that there must be a short-cut method of doing long division and multiplication sums instead of the way merchants, navigators and astronomers had to use presently…." These musings led Napier to the invention of logarithms.

Napier plodded away on his logarithms for more than 20 years, but when word started to leak out that he had discovered something great, fears arose that others would pirate the idea; so in 1614 he published his book the *Mirifici Logarithmourm in* Latin, the common language in Europe among educated people.

The use of logarithmic tables is explained in the booklet but they are given as a *fait a compli*, with no explanation as to how the entrees in the table were obtained.
Logarithms are presented as exponents, and this interpretation is attributed to Napier. However in reality Napier defined a logarithm as a certain relationship between the lengths of two line segments: one generated by a point moving on a very long but finite segment, and the other generated by a point moving on an infinite vector. Because of the general audience for which this booklet was written, none of this is mentioned, and I think rightfully so. As Eves states, "One of the paradoxes of the history of mathematics is the fact that logarithms were discovered before exponents were in use."
Napier did not live long enough to see the true impact of his logarithms. He is considered to be one of the greatest men Scotland has ever produced—and the fact that he invented what he did in what must be called academic isolation makes his accomplishments all the greater.

I found this booklet very enjoyable and I highly recommend it for high school and

college libraries. The mathematics section leaves a little to be desired, but all in all, it gives us a glimpse of John Napier and the times in which he lived.

Ted Eisenberg
Beer-Sheva, Israel

Costa, C., *José Vincente Gonçalves: Matemático… porque professor!*, (PhD thesis), Universidade de Trás-os-Montes e Alto Douro, Portugal, 2000

"José Vincente Gonçalves: mathematician… what a teacher!"

José Vincente Gonçalves (JVG) was one of the most important Portuguese mathematicians of the 20th century. The PhD thesis of Doctor Cecilia Costa reinforces this idea, presenting a very accurate and interesting research, focusing not only on JVG's scientific work but also in several aspects of is life and teaching route.

J. Vincente Gonçalves has born in the monarchy and survived the First World War and Second World War as well as a dictatorial regime in Portugal. As a professional he taught in Coimbra and Lisbon University. In the latter place he founded the Mathematics section in the magazine of the Faculty publishing almost 100 research articles and papers in national and international scientific magazines.

The interest of Professor Cecilia's Costa dissertation is not limited to mathematical concepts but also to the knowledge of the man beyond the science. It is a very important document about the man, the work and the implications of his contribution to the development of mathematics in the national and international panorama. Above all it is a very clear pedagogical opinion, sometimes comparing his work as a teacher with actual practices and ideological concepts.
One might imagine that a book constructed as a PhD thesis would be very technical and its language inaccessible. However it is an easily read document, illustrated with pictures, copies of documents and testimonials about the life of JVG to be read by everyone, even without a mathematical basis, reaching everyone interested in history of mathematics. Doctor Cecilia Costa has made a very important contribution to divulge Portuguese mathematics history with this book. The importance of this book to the dissemination of contemporary history is not entirely drained in these pages and it is an invitation to those who want to make a closer approach to one of the most important Portuguese mathematicians of this century.

Eduardo
Portugal
(Editor's note: Apologies, I deleted the email before extracting Eduardo's details.)

Paulus Gerdes, *Awakening of Geometrical Thought in Early Culture*, MEP-Publications, Minneapolis MN, 2003, 200 pages (ISBN 930656-75-X). [Foreword by Dirk Struik (MIT)]

Paulus Gerdes is the author of many books and articles in several languages dealing with ethnomathematics, the interface between mathematics and anthropology. For many years, he and his colleagues in Mozambique have been investigating and documenting the mathematics inherent in the daily activities of various African cultures. Among his recent books in English are *Geometry From Africa: Mathematical and Educational Explorations* (Mathematical Association of America) and *Women, Art and Geometry in Southern Africa* (Africa World Press).

With *Awakening of Geometrical Thought in Early Cultures*, Gerdes digs deeper into the origins of geometric concepts. In this book, a translation and revision of an earlier work in Portuguese and German, he investigates the mathematical thought "frozen" in the activities of early societies, relying on both literature and on observation of such current practices of mat- and basket-weaving and house building as have survived colonisation. Basic to his analysis is Engels' theory of "human labour" as the driving force in the construction of knowledge. Gerdes writes: "The dialectical interplay between active life

and abstract thinking constitutes the motor of the development of geometry" (page 9). The ability to abstract the geometric properties of objects is the outcome of a lengthy historical development based on experience. People learned to apply geometric principles in their practical lives, to fulfil their human needs. The role of labour is central to this development. As one among several examples, Gerdes describes in detail the process of weaving a basket, using a wealth of diagrams and other illustrations. Over the generations, practitioners developed various styles of weaving, giving rise to geometric shapes-squares, hexagons, circles and cylinders. They found the optimal angles at which to fold the strips to produce the desired effect. They discovered that symmetrical shapes were not only the most practical, but also the most beautiful, as illustrated by drawings of decorative designs of several different societies. They observed and were influenced by phenomena in nature. Gerdes applies a similar analysis to house building and other activities. What practical activities inspired the Egyptians to memorialise their kings with square-based pyramids? How did they carry out that amazing feat of ancient Egyptian mathematics, the derivation of the formula for the volume of a truncated pyramid? Here again, Gerdes describes the possible path to this achievement in the "material products of human labours and in their empirically discovered relationships" (page 126).

Much has been written about the early development of geometric concepts. Gerdes analyses these writings and reveals their shortcomings, from "unscientific" mysticism to inadequate probing into the origins of geometric ideas. With its clear exposition, its hitherto-untapped theoretical concepts, its wealth of drawings, diagrams, and other illustrations, and its many references to the literature, *Awakening of Geometric Thought in Early Cultures* will appeal to mathematicians, anthropologists, historians, philosophers, educators, the lay public, and students of many disciplines.

Contents:

The book is available from MEP Publications, University of Minnesota,
Physics Bldg., 116 Church St. S.E.,
Minneapolis, MN 55455-0112, USA
http://umn.edu/home/marqu002
E-mail: marqu002@tc.umn.edu

Claudia Zaslavsky
New York, USA

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?

Jürgen Schönbeck, *Euklid.* Vita Mathematica, vol. 12 (Birkhäuser, Basel: 2003). ISBN 3-7643-6584-6

A new investigation on Euclid's biography and on his work, not just in mathematics, but including astronomy, optics and music.

Gert Schubring, *Análise Histórica de Livros de Matemática* (Campinas/SP: Editora Autores Associados, 2003). ISBN 85-7496-061-6
First systematic exposition of the evolution of textbooks in mathematics, since the Antiquity.

Gert Schubring
Bielefeld, Germany

Gerdes, P., Plaited strip patterns on Tonga handbags in Inhambane (Mozambique) - An update, *Visual Mathematics*, Vol. 5, No. 1, March 2003
is available on the following webpage:
http://www.mi.sanu.ac.yu/vismath/gerdtonga/index.html

Paulus Gerdes
Maputo, Mozambique

Joseph W. Dauben & Christoph J. Scriba (editors), *Writing the History of Mathematics: Its Historical Development.* Birkhäuser Verlag, Basel, 2002. Pages xxxvii + 689; €128 (Hard), €79 (Soft).
Part I contains historiography of mathematics in various countries (including "India" by R. C. Gupta). Part II has Biographies and 24 Portraits and Part III has Bibliography and Index.

A.K. Bag and S.R. Sarma (editors), *The Concept of Sunya* (i.e. zero). Proceedings of a Seminar on Zero. Aryan Books International. Etc., New Delhi, 2003. Pages xiii + 287; Rs. 1250/-
This deals with the concept of zero in speculative thought, in mathematical system, and with the ramification of zero in other fields. There are 24 articles including "Zero in the Mathematical System of India" by R.C. Gupta.

L.E. Sigler, Fibonacci's *Liber Abaci.* A Translation into modern English of Leonardo Prisano's Book of Calculation. Springer Verlag, Berlin etc., 2002. Pages viii + 636; US$99
Known for introducing the Indian number system and algorithms of arithmetic in Europe, the *Liber Abaci* is an encyclopaedic work of 13th century mathematics, both theoretical and practical.

M.S. Sriram et al (editors), *500 Years of Tantrasangraha: A Landmark in the History of Astronomy*. I.I.A.S. Shimla, 2002
This includes papers on mathematics along with Persian and Islamic Astronomy in India, etc.

Joseph W. Dauben & Christoph J. Scriba (editors), *Writing the History of Mathematics: Its Historical Development.* Birkhäuser Verlag, Basel, 2002. Pages xxxvii + 689; €128 (Hard), €79 (Soft).
Part I contains historiography of mathematics in various countries (including "India" by R. C. Gupta). Part II has Biographies and 24 Portraits and Part III has Bibliography and Index.

A.K. Bag and S.R. Sarma (editors), The Concept of Sunya (i.e. zero). *Proceedings of a Seminar on Zero*. Aryan Books International. Etc., New Delhi, 2003. Pages xiii + 287; Rs. 1250/-
This deals with the concept of zero in speculative thought, in mathematical system, and with the ramification of zero in other fields. There are 24 articles including "Zero in the Mathematical System of India" by R.C. Gupta.

L.E. Sigler, *Fibonacci's* Liber Abaci. *A Translation into modern English of Leonardo Prisano's Book of Calculation*. Springer Verlag, Berlin etc., 2002. Pages viii + 636; US$99
Known for introducing the Indian number system and algorithms of arithmetic in Europe, the *Liber Abaci* is an encyclopaedic work of 13th century mathematics, both theoretical and practical.

M.S. Sriram et al (editors), *500 Years of Tantrasangraha: A Landmark in the History of Astronomy*. I.I.A.S. Shimla, 2002
This includes papers on mathematics along with Persian and Islamic Astronomy in India, etc.

R. C. Gupta
Jhansi, India

Gravemeijer, K. & Doorman, M.: 1999, 'Context problems in realistic mathematics education: a calculus course as an example', *Educational Studies in Mathematics*, v.39, 111-129.
This paper considers the role of context problems in mathematics education, according to the Dutch approach that is known as realistic mathematics education. Following Freudenhal's idea of "guided reinvention" the author has designed a teaching sequence aimed at introducing the concept of derivative based on history. They have considered the emergence of kinematics at Merton College in the first half of the 14th century, which happened through the investigation of velocity as a measure of motion. Looking at the history of calculus from a modelling perspective the authors see a development of calculus that starts with modelling problems about velocity and distance.

Percival, I.: 2001, 'An artefactual approach to ancient arithmetic', *For the learning of mathematics*, v.21, n.3, 16-21.
This paper reports the work of the author with elementary school students based on the use of the history of mathematics. The declared aim is to 'humanise' mathematics classes. The idea of 'humanising mathematics' often appears in mathematical writing, but sometimes it is not clear what the authors mean with this expression and how they reach their aim. In this paper this idea is realised in the classroom linking history of mathematics and mathematics itself through a social approach and multicultural co-operation. The mathematical subject dealt with is elementary arithmetic. In other papers this subject has been treated through ancient documents, but here we have the following artefactual approaches which appear to be very suitable to the author's purpose: students' own construction of objects (such as Babylonian tablets) and documents imitating those studied and using ancient calculating devices, albeit in modern reconstruction.

Bazin, M., Tamez, M., and the Exploratorium Teacher Institute: 2002, *Mathematics and Science across Cultures. Activities and Investigations from the Exploratorium*, The New Press, New York.
This book is addressed to teachers in grades 4-12 wishing to develop hands-on activities in classroom suggested by artefacts or instruments produced by different civilisations of the present and of the past. Some topics presented in the book are: sand drawings from Africa, counting in Inca and Egyptian old civilisations, collecting water in Kalahari Desert, weaving baskets, colours from nature. The book is published by Exploratorium, San Francisco's innovative museum of science, art, and human perception (www.exploratorium.edu).

Themes in Education, v.4, n.1, 2003.
This special issue of the journal contains seven selected papers from the first Hellenic Symposium on *The contribution of history and philosophy of science in science and teaching* held in 2001 in the Department of Education (University of Thessaloniki, Greece). The themes dealt with are: - the role of history in science teaching, - the role of history and philosophy of science in the teaching of quantum mechanics, - teaching/learning problems in science, - popularisation of history of science.
Titles and authors;
Patsopoulos, D., *An example of school use of the history of physics: Reference to Tahles of Myletus in several modern Greek textbooks of physics (1834-1839)*, 7-14.
Mihas, P., *Using history in teaching of optics*, 15-23.
Seroglou, F. & Koumaras, P., *A critical comparison of the approaches to the contribution of history of physics to cognitive, metacognitive and emotional dimension of teaching and learning physics: a feasibility*

study regarding the cognitive dimension using the SHINE model, 25-36.
Hadzidaki, P., *History and philosophy of science: An instructional base for attaining a qualitative approach to quantum mechanics worldwiew*, 37-48.
Tselfes, V. & Kanatsouli, M., *Cultural obstacles in the science learning process: The case of Greek elementary education*, 49-64.
Halkia, K., Paleopoulou, R. & Koukopoulou, G., *A comic strip version of Galileo's life: Attempts to popularise the history of science*, 65-74.
Skordoulis, C., *Space conceptualisation in the context of postmodernity: In search of a cultural logic*, 75-86.

Ransom, P.: 2002-03 and 2003, 'Drawing instruments - their history and classroom use', *BSHM Newsletter* v.47, 53-56 and v.48, 45-48.
The first of the two papers by Peter Ransom describes work with parallel rulers that is mainly geometrical. The work described in the second paper involves mensuration with the cylindrical (or round) ruler.

Fulvia Furinghetti, Italy

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.

Conference reports

HPM Americas section meeting

San Antonio, USA, April 2003

The Americas Section of HPM held their annual meeting at the National Council of Teachers of Mathematics Conference in San Antonio, Texas, April 2003. The meeting always includes an HPM program. Speakers for this year were Edie Mendez, Anthony Piccalino, and Frank Swetz. Edie who was a student of Wilber Knorr spoke on the primary source research she continues to do on Hypatia. Anthony, who has been doing early-American research, spoke about arithmetic in the early North American English colonies. Finally Frank Swetz, considered one of the experts on Chinese mathematics, spoke on Magic Squares.

Victor Katz discussed the Historical Module project that he and Karen Dee Michalowicz

had co-directed. Victor had with him copies of a CD that contains the modules. The Mathematics Association of America is producing these modules. The final version should be available in Denmark for ICMI and for the HPM meeting in Sweden to follow.

Karen Dee Michalowicz ended the meeting with a display of some of the rare books that she collects. One of these included a Clavius Euclid from the late 1500's.

The Americas section of HPM has a website on which HPM Newsletters are available. It is www.hpm-americas.org

Karen Dee Michalowicz
Fairfax, USA

Announcements of events

Colloque François Viète, un mathématicien en son temps (Fontenay-le-Comte 1540 - Paris 1603)

19 septembre - 20 septembre 2003
Nantes & Fontenay-le-Comte, France
(première annonce)

Le Centre d'histoire des sciences et des techniques François Viète de l'Université de Nantes organise, en collaboration avec l'IREM de Nantes et la Ville de Fontenay-le-Comte, un colloque en commémoration du 400ème anniversaire de la mort du mathématicien français François Viète.
The François Viète Centre for the history of science and techniques of the University of Nantes is organising, in collaboration with the IREM of Nantes and the town of Fontenay-le-Comte, a colloquium commemorating the 400th anniversary of the eath of the French mathematician François Viète.

Le Colloque se tiendra les vendredi 19 septembre et samedi 20 septembre 2003 dans le cadre des Célébrations Nationales du Ministère de la Culture. La première journée aura lieu à l'Université de Nantes, elle concernera l'œuvre scientifique de François Viète. La seconde journée sera organisée à Fontenay-le-Comte avec la collaboration de la Ville de Fontenay-le-Comte, elle situera François Viète en son époque.
The Colloquium will take place on Friday 19 September and Saturday 20 September 2003 under the auspices of the National Celebrations of the Ministry of Culture. The first day will take place at the University of Nantes, and will deal with the scientific work of Viète. The second day will be organised at Fontenay-le-Comte with the collaboration of the town council and it will contextualise Viète in his time.

Conférenciers prévus: Jacques Borowczyck (IUFM Orléans-Tours), Pascal Brioist (Université de Tours), Louis Charbonneau (UQAM, Canada), Karine Chemla (CNRS, Paris), Giovanna Cifoletti (EHESS, Paris), Hugues Daussy (Université du Maine), Jean-Paul Delahaye (Université de Lille I), Paolo Freguglia (Université de l'Aquila, Italie), Enrico Giusti (Université de Florence, Italie), Didier Poton (Université de Poitiers), Guy Saupin (Université de Nantes), Muriel Seltman (Royaume-Uni).
Presenters envisaged: - as above

Organisation: Evelyne Barbin et Anne Boyé.

Pour plus d'informations ou pour recevoir les formulaires d'inscriptions, s'adresser à
evelyne.barbin@wanadoo.fr
For more information on how to receive the application forms contact
evelyne.barbin@wanadoo.fr

The History and Use of Proof in Mathematics

September 20 - 21 2003
Oxford, UK

A joint meeting between the BSHM and Oxford University Department for Continuing Education

Organiser: Raymond Flood
Raymond.Flood@conted.ox.ac.uk

The programme for this two-day conference will cover a variety of aspects of the history and use of proof. Issues addressed will include early examples of proof in mathematics, developments in proof, famous problems and the search for proof, software correctness, and proof in the school mathematics curriculum.

The conference will appeal to those working in mathematics and mathematics education as well as those with a general interest in the subject.

For further details when available please contact Administrator, Day and Weekend Schools, OUDCE, 1 Wellington Square, Oxford, OX1 2JA
telephone (+44) (0) 1865 270368.

Wallis Tercentenary Meeting

Saturday 25 October 2003
Oxford, UK

A one-day meeting BSHM meeting in Oxford to celebrate the tercentenary of John Wallis (1616-1703), Savilian Professor of Geometry in Oxford from 1649 to 1703.

Organisers: Jackie Stedall (Jackie.Stedall@queens.ox.ac.uk), Raymond Flood (Raymond.Flood@conted.ox.ac.uk) and Tony Mann (A.Mann@gre.ac.uk).

History in the undergraduate mathematics curriculum: why and how?

15 November 2003
Oxford, UK

A one day BSHM meeting.

For further information please contact Eleanor Robson eleanor.robson@all-souls.ox.ac.uk

John von Neumann Centenary Meeting

29 November 2003
Greenwich, UK

John von Neumann contributed to many areas of mathematics and was a pioneer of computing. A joint BSHM meeting with the School of Computing and Mathematical Sciences, University of Greenwich and the Centre for the History of the Mathematical Sciences, Open University

Organisers: Martin Campbell-Kelly, Jeremy Gray and Tony Mann (A.Mann@gre.ac.uk)

Details of BSHM meetings can be found at www.dcs.warwick.ac.uk/bshm/meetings.html

American Mathematical Society

December 2003
Bangalore, India

There will be a session on History of Mathematics at this meeting. The coordinator for the session is Professor Gérard Emch. Contact him at the Department of mathematics, University of Florida, Little Hall, P.O.Box 118105, gainesville FL 32611-8105, U.S.A.
Email gge@math.ufl.edu

HPM 2004 satellite conference of ICME-10

July 12 - 17, 2004
Uppsala, Sweden
(First Announcement)

We are happy to inform you that the HPM satellite conference of ICME-10 will take 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
- Luis Radford <lradford@nickel.laurentian.ca>, École des sciences de l'éducation, Université Laurentienne, Sudbury, Canada
- Eleanor Robson <eleanor.robson@all-souls.oxford.ac.uk>, Oriental Institute, Oxford, UK
- Gert Schubring <gert.schubring@uni-bielefeld.de>, Institut für Didaktik der Mathematik, Universität Bielefeld, Germany
- 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 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 will soon be a web page under
http://www.math.uu.se/hpm

Fulvia Furinghetti & Sten Kaijser
Italy & Sweden

Distributors:

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

News of distributors

David Lingard (UK distributor) regrets that he will not have the time to continue with his role after the next issue, and at some point during the next academic year he is unlikely to have the necessary resources at his disposal as he winds down his commitments.

He is happy to discuss with any potential volunteer just what is entailed etc, and he can supply them with an electronic mailing list (for envelopes) etc.

We are very grateful to David for all his work in distributing the HPM Newsletter in the UK for over 5 years, just as we are grateful to all the distributors for the work they do - distribution would not be possible without the enthusiasm and hard work of everybody.

We welcome Funda Gonulates, who will take over the Turkish distribution from this issue, and wish her well in promoting the HPM Newsletter.

Ms. Gonulates has been working as a research assistant at Bagazici University, Istanbul, in the Department of Science Education since September 2001. She did her undergraduate study in Mathematics Education, at Bagazici University Secondary School Science and Mathematics Education Department (September 1996-July 2001). She is a graduate student in Mathematics and Science Education at the same university. She has

participated different projects in various fields of education throughout her undergraduate and graduate studies. *The Acreditation of a Private School in Istanbul*, *The Development of Teaching Skills in Primary and Secondary School Teachers* and *The Improvement of Activites to Enhance the Mathematical Thinking Skills of K0 Children* are some of them. She is now studying on the integration of history of mathematics in teaching mathematics program. Her research interests are history of mathematics and its use in teaching, measurement and evaluation in education, the development of mathematical thinking in children and multicultural education.

Argentina

Juan E. Nápoles Valdés, Lamadrid 549, (3400) Corrientes, ARGENTINA
idic@ucp.edu.ar

Australia

Situation vacant. If you are interested in helping with the distribution please contact the editor for details.

Austria

Manfred Kronfellner, Institut für Algebra, Technische Universität Wien, Wiedner Haupstr. 8-10, A-1040 Wien, AUSTRIA
m.kronfellner@tuwien.ac.at

Belgium and The Netherlands

Sylvia Eerhart, Freudenthal Instituut, Aïdadreef 12, 3561 GE Utrecht, THE NETHERLANDS
S.Eerhart@fi.uu.nl

Canada

Thomas Archibald, Mathematics Department, Acadia University, Wolfville, NS B0P1X0, CANADA Tom.Archibald@acadiau.ca

China

Ma Li, Linkoping University, ITN, SE - 601 74 Norrkoping, SWEDEN
mali@itn.liu.se

Eastern Europe

Dr. László Filep, Institute of Mathematics and Informatics, College of Nyíregyháza, Nyíregyháza, Pf.166, H-4401, HUNGARY
filepl@zeus.nyf.hu

France

Evelyne Barbin, Centre François Viète, Faculté des sciences et des techniques, 2 Chemin de la Houssinière, BP 92208, 44322 Nantes cedex, FRANCE
evelyne.barbin@wanadoo.fr

Germany

Gert Schubring, Inst. f. Didaktik der Math., Universitaet Bielefeld, Postfach 100 131, D-33501, Bielefeld, GERMANY
gert.schubring@uni-bielefeld.de

Greece and the Balkans

Nikos Kastanis, Department of Mathematics, Aristotle University of Thessaloniki, Thessaloniki 54006, GREECE nioka@auth.gr

Iran

Mohammad Bagheri, P.O.Box 13145-1785, Tehran, IRAN sut5@sina.sharif.edu

Israel

Ted Eisenberg, Mathematics Department, Ben Gurion University of the Negev, Beer-Sheva 84105, ISRAEL

Italy

Giorgio T. Bagni and Marta Menghini, Dipartimento di Matematica (Universita` La Sapienza), Piazzale A. Moro 5, 00185 Roma ITALY
giorgio.bagni@uniroma1.it
marta.menghini@uniroma1.it.

Japan

Osamu Kota, 3-8-3 Kajiwara, Kamakura Kanagawa-ken, 247-0063 JAPAN
kota@asa.email.ne.jp

Malaysia

Mohamed Mohini, Department of Science and Mathematical Education, Universiti

Teknologi Malaysia, 81310 Johor, MALAYSIA mohaini@fp.utm.my

Mexico

Alejandro R Garciadiego, José M. Velasco 71, San José Insurgenies, 03900 México, D.I. MEXICO gardan@servidor.unam.mx

Morocco

Abdellah El Idrissi, E.N.S. B.P: 2400 Marrakech, C.P: 40 000, MOROCCO a_elidrissi@hotmail.com

New Zealand

Bill Barton, Mathematics Education Unit, Dept of Mathematics and Statistics University of Auckland, Private Bag 92-019, Auckland, NEW ZEALAND b.barton@auckland.ac.nz

Other East Asia

Gloria Benigno, Department of Education, Culture and Sports, Region X, Division of Misamis Occidental, Oroquieta City, PHILLIPINES glorya4444@yahoo.com

Scandinavia

Sten Kaijser, Department of Mathematics, P.O. Box 480, SE- 751 06 Uppsala, SWEDEN sten@math.uu.se

South America

Marcos Vieira Teixeira , Departamento de Matemática , IGCE - UNESP, Postal 178 13 500 - 230 Rio Claro, SP BRAZIL marti@rc.unesp.br

South Asia

Prof. R. C. Gupta, Ganita Bharati Academy, R-20, Ras Bahar Colony, Jhansi-284003, U.P. INDIA

Southern Africa

Paulus Gerdes, Mozambican Ethnomaths Research Centre, C.P. 915, Maputo, MOZAMBIQUE pgerdes@virconn.com

Spain and Portugal

Carlos Correia de Sá, Departamento de Matemática Pura, Faculdade de Ciência da Universidade do Porto, Praça Gomes Teixeira 4099-002 Porto, PORTUGAL csa@fc.up.pt

Taiwan

Wann-sheng Horng, Math dept NTNU, 88 Sec.4, Tingchou Rd., Taipei, TAIWAN horng@math.ntnu.edu.tw

Turkey

Funda Gonulates, Bagazici Universitesi, Egitim Fakultesi, Bebek- Istanbul, TURKEY oprukcuf@boun.edu.tr

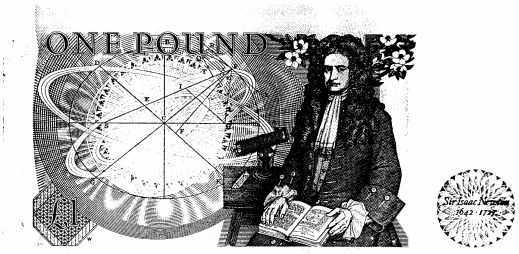
United Kingdom

David Lingard, Mathematics Education Centre, Sheffield Hallam University, College House, Collegiate Crescent, Sheffield S10 2BP, UK d.lingard@shu.ac.uk

United States of America

Karen Dee Michalowicz, 5855 Glen Forest Drive, Falls Church, VA 22041, USA karendm@aol.com

INDEX



Gauss (1777-1855) featured on this German 10 mark note and Newton (1642-1727) appeared on a British £1 note. Abel is on a Norwegian note, but I do not have one. Are there any other mathematicians making money?

Items for the Newsletter should be sent to the editor, preferably by email.
The Newsletter appears three times a year with the following deadlines for next year.

Deadline for material	Sent to distributors
15 October 2003	1 November 2003
12 February 2004	1 March 2004
14 June 2004	1 July 2004

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 Faculty of Mathematics at The Mountbatten School and Language College, Romsey, SO51 5SY, UK, and printed and mailed courtesy of The Mountbatten School and Language College. The Newsletter is free of charge upon request from the distributor for your area, and may be reproduced with acknowledgement.

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