



AFRICAN MATHEMATICAL UNION

COMMISSION ON THE HISTORY OF MATHEMATICS IN AFRICA

AMUCHMA-NEWSLETTER-18

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Universidade Pedagógica (UP), Maputo (Mozambique), 11.11.1996

1. OBJECTIVES

The A.M.U. Commission on the History of Mathematics in Africa (AMUCHMA), formed in 1986, has the following objectives:

- a. to improve communication among those interested in the history of mathematics in Africa;
- b. to promote active cooperation between historians, mathematicians, archaeologists, ethnographers, sociologists, etc., doing research in, or related to, the history of mathematics in Africa;
- c. to promote research in the history of mathematics in Africa, and the publication of its results, in order to contribute to the demystification of the still-dominant Eurocentric bias in the historiography of mathematics;
- d. to cooperate with any and all organizations pursuing similar objectives.

The main activities of AMUCHMA are as follows:

- a. publication of a newsletter;
- b. setting up of a documentation centre;
- c. organization of lectures on the history of mathematics at national, regional, continental and international congresses and conferences.

2. MEETINGS, EXHIBITIONS, EVENTS

2.1 Papers presented at recent meetings

- * At the 6th interdisciplinary Summer University on the History of Mathematics (Besançon, France, 8-13 July 1995), Michel Guillemot (France) conducted a workshop on Egyptian mathematics and Rachid Bebbouchi (Algeria) presented the paper "Mathematical symbolism as a epistemological obstacle".
- * Saliou Touré (Côte d'Ivoire) was member of the International Program Committee of the 8th International Congress on Mathematical Education (ICME8, Seville, Spain, 14-21 July 1996). Paulus Gerdes (Mozambique) presented an invited regular lecture on "Culture and mathematics education in (southern) Africa". Cyril Julie (South Africa) was one of the organizers of the working group "Mathematics, education, society, and culture", as was the immediate past president of the African Mathematical Union, Aderemi Kuku (Nigeria) of the working group "Cooperation

among countries and regions in mathematics education". Michael de Villiers (South Africa) chaired the topic group "Proofs and proving: Why, when and how". Mohamed El Tom (Sudan), chairman, and Cyril Julie (South Africa), secretary of the African Mathematical union Commission on Mathematics Education organised an informative meeting on the activities and plans of the commission.

ICME9 (2000) will be held in Japan.

- * At the History and Pedagogy of Mathematics (HPM) ICME-8 Satellite Meeting (Braga, Portugal 24-30 July 1996), two invited introductory lectures dealt with the history of mathematics in Africa:

- * Victor Katz (USA): Egyptian Mathematics;
- * Paulus Gerdes (Mozambique): On Mathematics in the History of Africa south of the Sahara.

The following papers dealt also with mathematics and mathematics education in Africa:

- * Abdulcarimo Ismael (Mozambique): Traditional games and the concept of probability: implications for teaching;
- * Marcos Cherinda (Mozambique): developing mathematical ideas by exploring a weaving board;
- * Franco Favilli (Italy) and Jama Musse Jama (Somalia): Teaching mathematics in Somalia.

Anthony Hitchcock (Zimbabwe) presented "A window on the world of mathematics, 1871: 'Reminiscences of Augustus de Morgan' (A dramatic presentation)".

The 2000 HPM ICME-9 Satellite Meeting will be held in Taiwan.

3. CURRENT RESEARCH INTERESTS

- * Konrad Tuchscherer concluded a Ph.D. dissertation on the 'Kikakui' tradition of writing among the Mende of Sierra Leone. This is a phonographic script for writing the Mende language and a number writing system used to write Mende number words: "Like the syllabic characters of the writing system, the numerals of the decimal based number writing system are written from right to left, from greater units to lesser units. Any number, other than zero, can be written in the system. Interestingly, while the numerals are decimal based, Mende number words are conceptualized largely on a vigesimal (base twenty) system of counting. The two systems overlap: numerals are written decimally and read aloud vigesimally" (African Languages and Cultures, Vol.8, No.2, 1995, p. 172). He is preparing a further study of the 'Kikakui' number system.

4. NOTES AND QUERIES

This section is reserved for questions that readers would like to have answered; these are the 'queries'. The answers will be the 'notes'. If you have questions or answers about sources, dates, names, titles, facts, or other such matters related to the history of mathematics in Africa, frame them in clear and concise language and send them to the editors. If you are answering a question, make clear reference to that question. All readers may send both questions and answers. Each will be published with the name of the sender.

5. HAVE YOU READ?

5.1 On the History of Mathematics in Africa

#207 Aïssani, Djamil: **Le mathématicien Eugène Dewulf (1831-1896) et les manuscrits médiévaux du Maghreb**, *Historia Mathematica*, New York, 1996, Vol. 23, No.3, 257-268

Presents some aspects of the investigations of the French geometer Eugène Dewulf concerning Maghrebian medieval manuscripts.

#208 Damerow, Peter: **Die Entstehung des arithmetischen Denkens**, in: P.Damerow & W. Lefèvre, *Rechenstein, Experiment, Sprache: Historische Fallstudien zur Entstehung der exakten Wissenschaften*, Klett-Cotta, Stuttgart (Germany), 1981, 11-113

See #209.

#209 Damerow, Peter: **The development of arithmetical thinking: on the role of calculating aids in Ancient Egyptian and Babylonian arithmetic**, in: P.Damerow, *Abstraction and Representation. Essays on the Cultural Evolution of Thinking* [Boston Studies in the Philosophy of Science, Vol. 175], Kluwer, Dordrecht (Netherlands), 1996, 173-273

Translation of #208. Includes sections on the 'Structural characteristics of Ancient Egyptian Arithmetic' (176-188) and 'The means of calculation in Ancient Egypt' (188-199).

#210 Djebbar, Ahmed: **Quelques Commentaires sur les Versions arabes des *Eléments* d'Euclide et sur leur Transmission à l'Occident Musulman** [Some Comments on the Arabic versions of Euclid's *Elements* and on their Transmission to the Muslim West], in: M.Folkerts, *Mathematische probleme im Mittelalter. Der lateinische und arabische Sprachbereich* [Mathematical Problems in the Middle

Ages. The Latin and Arabic Language Area], Harrassowitz Verlag, Wiesbaden (Germany), 1996, 91-114

Euclid's *Elements* were probably the most studied and most commented text by Arab mathematicians in the period between the end of the 8th century and the beginning of the 19th century. Several Arabic versions of the *Elements* were used. The paper presents new information concerning terminology and certain variants found by the author and relative to the transmission of the *Elements* to and their use in the Muslim West.

- #211 Dzielska, Maria: **Hypatia of Alexandria**, Volume 8 of *Revealing Antiquity*, Harvard University Press, Boston (USA), 1995, viii + 157 pp.

Translation by F.Lyra of an unpublished manuscript in Polish "Hypatia z Aleksandrii". Contents the following chapters: The literary legend of Hypatia; Hypatia and her circle; The life and death of Hypatia. Cf. #212.

- #212 Deakin, Michael: **Review of Maria Dzielska's Hypatia of Alexandria**, The American Mathematical Monthly, Washington (USA), Vol. 103, No. 1, Jan. 1996, 83-87

This review of #211. welcomes Dzielska's book: "We have waited over two centuries since the last book-length biography of Hypatia of Alexandria was published in English" (p. 83), analyzes Dzielska's reconstruction of Hypatia's philosophical ideas, and criticizes the treatment of Hypatia's mathematics: "... we are offered no real discussion of Hypatia's mathematics at all..." (p. 86) (cf. Deakin's studies #138, 190, 190, and amuchma 17:4.2).

- #213 Gerdes, Paulus: **Sobre Matemática na História da África Sub-Sahariana** [On Mathematics in the History of sub-Saharan Africa], Proceedings - Actes - Actas "História e Educação Matemática", ICME-8 satellite meeting of the International Study Group on the Relations between History and Pedagogy of Mathematics (HPM), Deuxième Université d'Été Européenne sur l'Histoire et Épistémologie dans l'Éducation Mathématique, Associação de Professores de Matemática, Braga, 1996, Vol.1, 23-34

Presents an introductory overview of mathematics in the history of sub-Saharan Africa.

- #214 Gerdes, Paulus: **Femmes et Géométrie en Afrique Australe**, L'Harmattan, Paris, 1996, 219 pp.

Translation of "Women and Geometry in southern Africa" (#175; see also below 6.2). The main objective of the book is to call attention to some mathematical aspects and ideas incorporated in the patterns invented by women in Southern Africa. The themes treated in the book are: decorated handbags, coiled baskets, mat weaving, string figures, decorated pottery, grass brooms, tattooing and body painting, bead ornaments, and mural decoration.

- #215 Katz, Victor: **Egyptian Mathematics**, Proceedings - Actes - Actas "História e Educação Matemática", ICME-8 satellite meeting of the International Study Group on the Relations between History and Pedagogy of Mathematics (HPM), Deuxième Université d'Été Européenne sur l'Histoire et Épistémologie dans l'Éducation Mathématique, Associação de Professores de Matemática, Braga, 1996, Vol.1, 45-53

Presents an introductory overview of mathematics in ancient Egypt.

- #216 Rashed, Roshdi: **Encyclopedia of the History of Arab Science**, Pórtico, Zaragoza, 1996, 3 volumes, 1,128 pp. [Vol.1: Astronomy; Vol.2: Mathematics and the Physical Sciences; Vol.3: Technology, Alchemy and Life Sciences]

Volume 2 includes the following chapters includes the following chapters: Numeration and Arithmetic (A.Saidan); Algebra (R.Rashed); Combinatory analysis, Numerical analysis, Diophantine analysis and number theory (R.Rashed); Geometry (B.Rosenfeld, A.Youschkevitch); Trigonometry (M.Debarnot); The influence of Arab mathematics in the medieval West (A.Allard); Music science (J.Chabrier); Statics (M.Rozhanskaya); Geometrical optics (R.Rashed); The emergence of physiological optics (G.Russell); The Western reception of Arab optics (D.Lindberg).

- #217 Silva, Elísio Santos: **Jogos de quadrícula do tipo mancala com especial incidência nos praticados em Angola** [Board games of the mancala type with special attention for those played in Angola], Instituto de Investigação Científica Tropical, Lisboa, 1995, 323 pp.

Edition of text completed in 1970 with recent complementary notes (295-311). Chapter 2 (21-68) describes games of the mancala type in general. Chapter 3 (69-119) describes the mancala games played in Angola: owela, muvalavala, tchela, lueli, mwendo, quando, uela, gango, biri, déqui. Chapter 4 (121-294) discusses the origin of these traditional games in Angola.

- #218 Silva, Elísio Santos: **O "ouri" — Um Jogo Caboverdiano e a sua prática em Portugal** [Ouri — A game from Cape Verde Islands and its practice in Portugal], Associação de Professores de Matemática, Lisbon (Portugal), 1994, 85 pp.

This book published by the Association of Mathematics Teachers in Portugal deals with "ouri" (or "seca" or "ouril"), a game of the mancala type, as played on the West African Cape Verde Islands and among immigrants in Portugal. It is also compared with other mancala type games from the Cape Verde Islands as "pintôn", and "pia" or "moura".

5.2 Publications on the History of Mathematics, Ethnomathematics and Mathematics Education

- #219 Aronson, Lisa: **Review of P.Gerdes & G.Bulafo's *Sipatsi: Technology, Art and Geometry In Inhambane***, African Arts, Los Angeles, 1995, Vol. 28, No.2, 89-90

Review of #132 (cf. #153).

- #220 Brading, Mary: **Mathematics from History: The Egyptians**, Educational Television Company, London, 1994, 48 pp.

The topics covered in the booklet include: number system, arithmetic and fractions calculations, calendar, measurement of land area and boundaries, standardised weights, construction of pyramids and temples, logical and strategic mathematical games and puzzles. The explanations are followed by activity, resource information sheets for children and notes for teachers.

- #221 Gerdes, Paulus: **On Women and Geometry (education) in Southern Africa**, in: T. Kjaergard, A.Kvamme, N.Linden (Eds.), *Numeracy, Race, Gender, and Class — Proceedings of the Third International Conference on the Political Dimensions of Mathematics Education*, Garpar Forlag, Landas (Norway), 1996, 207-217

Suggests the incorporation of aspects of traditional female activities in geometry teaching (cf. # 175, 213).

- #222 Gerdes, Paulus: **Lunda Geometry — Designs, Polyominoes, Patterns, Symmetries**, Universidade Pedagógica, Maputo, 1996, 149 pp.

Develops the geometry of Lunda-designs, invented in the context of analysing mathematically a class of sand drawings from north-eastern Angola, a region called Lunda (cf. #120, #174, vol.2).

- #223 Gibbs, William & Sihlabela, Mprophet: **String figures**, Mathematics in School, Leicester, 1996, Vol. 25, No. 3, 24-27
Examples of string figures from Bhutan (Asia) and Kenya, Zambia and Swaziland are presented, and suggestions for their exploration in mathematics education are presented.
- #224 Krause, Marina: **Multicultural Mathematics Materials**, National Council of Teachers of Mathematics, Reston, 1983 (6th printing 1993), 76 pp.
Chapter 1 deals with Africa (1-7): Egyptian match, Egyptian numeration system, Senet (Egypt) and Wari (West Africa).games.
- #225 Mapapá, Abílio: **Children's games and toys in mathematics education in Mozambique**, in: T. Kjaergard et al. (Eds.), *Numeracy, Race, Gender, and Class — Proceedings of the Third International Conference on the Political Dimensions of Mathematics Education*, Garpar Forlag, Landas (Norway), 1996, 221-228
Explores possibilities of using traditional Mozambican games and toys in mathematics education.
- #226 Mapapá, Abílio: **Barns leker og spill i matematikk undervisningen**, in: *Tangenten — Tidsskrift for Matematikk-undervisning*, Landas (Norway), No. 4, 5-11
Translation into Norwegian of #225.
- #227 Michalowicz, Karen: **Fractions of Ancient Egypt in the contemporary classroom**, Mathematics Teaching in the Middle School, NCTM, 1996, Vol. 1, No.10, 786-789
Presents suggestions of how using ancient Egyptian fractions in the mathematics classroom.
- #228 Mosimege, David: **Ethnomathematical activities in South Africa: some developments, reflections and possibilities**, in: T. Kjaergard et al. (Eds.), *Numeracy, Race, Gender, and Class — Proceedings of the Third International Conference on the Political Dimensions of Mathematics Education*, Garpar Forlag, Landas (Norway), 1996, 229-241
Explores possibilities of using South African string figure patterns, architecture, flag, games and counting methods in the classroom (cf. AMUCHMA 17: 4.1).

- #229 Peterson, Wayne (Ed.): **Multicultural Mathematics Posters and Activities**, National Council of Teachers of Mathematics, Reston, 1984, 52 pp.
The following topics deal with Africa: Egyptian numerals, Oware game, Egyptian multiplication, "Nine Men's Morris", African string puzzle, Egyptian rope stretchers, Shongo networks.
- #230 Shirley, Lawrence: **Activities from African Calendar and Time Customs**, Mathematics Teaching in the Middle School, NCTM, 1996, Vol. 1, No.8, 616-620
Presents suggestions of how using African 'day-names' (examples are given from Ghana and Nigeria), and practices like the 'sunrise clock' in the mathematics classroom.
- #231 Soares, Daniel: **The incorporation of the geometry of traditional house building in mathematics education in Mozambique**, in: T. Kjaergard et al. (Eds.), *Numeracy, Race, Gender, and Class — Proceedings of the Third International Conference on the Political Dimensions of Mathematics Education*, Garpar Forlag, Landas (Norway), 1996, 242-244
Suggests the use of the geometry of house building techniques in mathematics education (cf. AMUCHMA 17: 4.1).
- #232 Stott, L. & Lea, H.: **Common threads in Botswana**, British Council, Gaborone, 1993, 82 pp.
Presents suggestions about the use of baskets, hair braiding, and weaving designs in mathematics education.

5.3 Other publications on the History of Mathematics by African mathematicians

- #233 Hitchcock, Gavin: **A window on the history of mathematics, 1871: Reminiscences of De Morgan — A dramatic presentation**, Proceedings - Actes - Actas "História e Educação Matemática", ICME-8 satellite meeting of the International Study Group on the Relations between History and Pedagogy of Mathematics (HPM), Deuxième Université d'Été Européenne sur l'Histoire et Épistémologie dans l'Éducation Mathématique, Associação de Professores de Matemática, Braga, 1996, Vol.2, 35-42
Dramatic presentation of De Morgan's reminiscences at the end of his life, reflecting about the development of logic and algebra.

6. ANNOUNCEMENTS

6.1 Newsletters and journals

- * The African Mathematical Union Commission on Mathematics Education (AMUCME, cf. AMUCHMA 17: 2.1) will start later this year the publication of a newsletter. If you have any information for the AMUCME-Newsletter or like to receive it, contact the secretary of AMUCME:

Cyril Julie, Department of Didactics, University of the Western Cape, Private Bag X17, Bellville 7535, South Africa (E-mail: cjulie@education.uwc.ac.za)

- * The *École Normale Supérieure* of Kouba (Algeria) published the 5th (34 pp., July 1995) and 6th (38 pp., March 1996) editions of its *Cahier du Séminaire Ibn al-Haytham sur l'Histoire des Mathématiques Arabes*. The publication is in Arabic with a list of contents in French. The Bulletin gives information about the activities of the Ibn al-Haytham Workshop, presents theses, book and papers, and includes information about Colloquia and the latest publications. At the end it gives an index of all names cited in the Bulletin. Ahmed Djebbar is responsible for the Bulletin and the Secretariat is led by Youcef Guergour. For more information, contact:

E.N.S. de Kouba, Département de Mathématiques, B.P. 92, 16050 Vieux Kouba, Alger, Algeria [tel. (2) 583511, Fax: (2) 583142; Telex: 62567]

- * The Association Tunisienne des Sciences Mathématiques (ATSM, Tunisian Association of Mathematical Sciences) publishes in French the journal "Omar El Khayam". For further information, contact:

Béchir Kachouth, 43 rue de la Liberté, 2019 Le Bardo, Tunisia

- * The Science Teachers Association of Malawi (STAM) publishes a newsletter in conjunction with the Mathematics Association of Malawi (MAM) called *The Malawi Mathematics and Science Teacher*. For further information, contact:

The STAM Secretariat, c/o INSET Department, Chancellor College, Box 280, Zomba, Malawi

6.2 XXth International Congress of History of Science

The XXth International Congress of History of Science will take place in Liège (Belgium), 20-26 July 1997. Ahmed Djebbar (Algeria) coordinates, together with Ekmeleddin Ihsanoglu the symposium on "Science and technology in the Ottoman Empire". Ubiratan D'Ambrosio (Brazil) and

Paulus Gerdes (Mozambique) organize the symposium on "Ethnoscience and Ethnomathematics: the history of the evolution of modes of thought in the last five hundred years". For further information on the Congress, contact:

Centre d'Histoire des Sciences et des Techniques, Université de Liège, Avenue des Tilleuls, 15, B- 4000 Liège, Belgium (Fax: 32 (0) 41 66 94 47; E-mail: chstulg@vml1.ulg.ac.be)

6.3 Casablanca Study Group on the History of Mathematics

As a following-up to the International Colloquium on Mathematics Education on the theme *Mathematics education in Morocco and teacher education: evaluation and perspectives* [Casablanca, Morocco, 29-31 May 1996, cf. AMUCHMA 17:7.3], the Department of Mathematics at the 'École Normale Supérieure' of Casablanca decided to create a Study group on the History of Mathematics, to be coordinated by Abdelazir Benaïcha. The studygroup started in october 1996 a montly seminar, with the following program for the 1996/97 academic year:

- 30.10.96: M. Rachdi: The diffusion of Arab sciences to Europe;
- 27.11.96: A. Al-Hor: The foundations of mathematics in the writings of Ibn al-Banna;
- 11.12.96: A. Squalli: Mathematics among the Arabs between Tradition and Innovation;
- 29.01.97: E. Laabid: The distribution of heritages in Arab mathematics;
- 26.02.97: A. Al-Moutamassik: The state of research in the history of mathematics in Morocco;
- 19.03.97:: Mathematics and medicine.

The studygroup prepares also a series of conferences on the history of mathematics in the Maghreb with as invited speakers A. Djebbar, Y Guergour (Algeria) and lecturers from the University of Fez (Morocco).

For further information on the Studygroup, contact:

Abdelazir Benaïcha, École Normale Supérieure, Route d'El Jadida, B.P.9172, Mers Sultan, Casablanca, Morocco (Fax: 02-98-53-26)

6.4 1996 Noma Award for Publishing in Africa competition

The book "Women and Geometry in Southern Africa. Some Suggestions for Further Research" (cf. #175, 214) by Paulus Gerdes (Mozambique), received a "Special Commendation" in the 1996 Noma Award for Publishing in Africa competition. The jury's citation about the book is the following:

The book was praised by the jury as "combining in an ingenious way the study of geometry with that of the visual arts, presenting an important challenge and stimulant to the future of mathematics education in Africa. It demystifies mathematics in relation to gender and race, and erases the borders between mathematics and popular culture as experienced in the work and crafts of women in southern Africa. The book's importance lies in its prospective impact on the education of African women in mathematics".

7. ADDRESSES OF SCHOLARS AND INSTITUTIONS MENTIONED IN THIS NEWSLETTER

- * Aïssani, Djamil: Association GEHIMAB, Laboratoire de Recherche LAMOS, Université de Béjaïa, 06000 Béjaïa, Algeria
- * Aronson, Lisa: Department of Art and Art History, Skidmore College, Saratoga Springs, NY 12866-1632
- * Bebbouchi, Rachid: Institut de Mathématiques - USTHB, BP 32 El-Alia, 16111 Alger, Algeria
- * Benaïcha, Abdelazir: École Normale Supérieure, Route d'El Jadida, B.P.9172, Mers Sultan, Casablanca, Morocco (Fax: 02-98-53-26)
- * Brading, Mary: King Alfred's College, Winchester, UK
- * Cherinda, Marcos. Departamento de Matemática, Universidade Pedagógica, C.P. 4040, Maputo, Mozambique
- * Damerow, Peter: Max-Planck-Institut für Bildungsforschung, Lentzeallee 94, D-14195 Berlin, Germany (Fax: +49-30-8249939; E-mail: damerow@mpib-berlin.mpg.de)
- * Deakin, Michael: Department of Mathematics, Monash University, Clayton 3168 Victoria, Australia (E-mail: mdeakin@monash.edu.au)
- * Djebbar, Ahmed: Département de Mathématiques, Bâtiment 425, Université de Paris-Sud, 91405 Orsay Cedex, France (Fax: 33-1-47015917; E-mail: Ahmed.Djebbar@math.u-psud.fr)
- * Educational Television Company: Leah House, 10a Great Titchfield Street, London W1P 7AA, UK
- * El Tom, Mohamed: Faculty of Science, University of Qatar, P.O.Box 2713, Doha, Qatar (Fax: 974-44 86 42; E-mail: uoqatara@qatar.net.qa)
- * Favilli, Franco: Dipartimento di Matematica, Via Buonarroti 2, Pisa 56100, Italy
- * Gerdes, Paulus: Universidade Pedagógica, P.O.Box 3276, Maputo, Mozambique (Fax: 258-1-422113; E-mail: paulus@up.uem.mz); address during 1996/1997 sabbatical leave: University of Georgia, 105 Aderhold Hall, Athens GA 30602, USA (Fax: (706) 542-4551; E-mail: pgerdes@coe.uga.edu)

- * Gibbs, William: School of Education, University of Leeds, Leeds LS2 9JT, UK (E-mail: w.m.gibbs@education.leeds.ac.uk)
- * Guergour, Youcef: E.N.S. de Kouba, Département de Mathématiques, B.P. 92, 16050 Vieux Kouba, Alger, Algeria
- * Guillemot, Michel: IREM, 118 route de Narbonne, 31062 Toulouse, France
- * Hitchcock, Gavin: Department of Mathematics, University of Zimbabwe, P.O.Box MP 167, Zimbabwe
- * Ismael, Abdulcarimo: Departamento de Matemática, Universidade Pedagógica, C.P. 4040, Maputo, Mozambique (E-mail: ismael@fcnmp.ue.mz)
- * Jama, Jama Musse: Via di Pretale 103F, 56100 Pisa, Italy (E-mail: jama@beti.dm.unipi.it)
- * Julie, Cyril: Department of Didactics, University of the Western Cape, Private Bag X17, Bellville 7535, South Africa (E-mail: cjulie@education.uwc.ac.za)
- * Kachouth, Béchir: 43 rue de la Liberté, 2019 Le Bardo, Tunisia
- * Katz, Victor: 841 Bromley St., Silver Spring, 2002 MD, USA
- * Kerkour, Ahmed: Chairman AMU, c/o President Al Akhawayn University, P.O.Box 104, 53000 Ifrane, Morocco (Fax: 212-5-56 71 50)
- * Krause, Marina: California State University, Long Beach, Ca, USA
- * Kuku, Aderemi: ICTP, P.O.Box 586, Miramare, 34100 Trieste, Italy
- * Lea, Hilda: 60 Lenham Avenue, Saltdean, Brighton, UK
- * Mapapá, Abílio: Departamento de Matemática, Universidade Pedagógica, P.O.Box 4040, Maputo, Mozambique
- * Michalowicz, Karen: Mathematics Department, Langley School, McLean, VA 22101
- * Mosimege, David: Department of Mathematics Education, University of the North, Private Bag X1106, Sovenga 0727, South Africa (Fax: 0152-268 2869; E-mail: mosimegem@unin1.unorth.ac.za)
- * National Council of Teachers of Mathematics: 1906 Association Drive, Reston, Virginia 2291, USA
- * Noma Award Managing Committee: POBox 128, Whitney, Oxon OX8 5XU, UK (Fax: +44-(0)1993-709265)
- * Rashed, Rosdi: C.N.R.S./R.H.E.S.E.I.S., 27 rue Damesme, 75013 Paris, France
- * Sangare, Daouda: Secretary-General AMU, 502 Avenue du 8 mai 45, 69300 Caluire, France (Tel. 33 - 78 23 31 72)
- * Shirley, Lawrence: Department of Mathematics, Towson State University, Towson, MD 21204, USA (E-mail: E7M2SHI@TOE.TOWSON.EDU)
- * Sihlabela, Mprophet: Ministry of Education, Mbabane, Swaziland
- * Silva, Elísio: R. João de Deus Ramos 1-1C, 8491087 Alvelade, 1700 Lisboa, Portugal

- * Soares, Daniel: Departamento de Matemática, Universidade Pedagógica, C.P. 2025, Beira, Mozambique
- * Toure, Saliou: Ministre de la Recherche Scientifique, Abidjan, Côte d'Ivoire
- * Tuchscherer, Konrad: Africa Department, School of Oriental and African Studies, Thornhaugh Street, Russell Square, London WC1H 0XG, UK
- * Villiers, Michael de: Faculty of Education, University of Durban-Westville, Private Bag X54001, Durban, 4000 South Africa

8. SUGGESTIONS

What are your suggestions for improving the AMUCHMA Newsletter?

What are your suggestions for other activities of AMUCHMA?

Send your suggestions, comments, information, questions and any other contributions to the chairman or secretary of AMUCHMA.

Send articles, books and manuscripts for the AMUCHMA Documentation Centre to the Chairman or Secretary.

9. DO YOU WANT TO RECEIVE THE NEXT AMUCHMA-NEWSLETTER?

The AMUCHMA Newsletter, published in Arabic, English and French, is available free of charge upon request.

Send requests to the Chairman

Paulus Gerdes: Universidade Pedagógica, P.O.Box 915, Maputo, Mozambique (Fax: 258-1-422113; E-mail: paulus@up.uem.mz)
 [address during 1996/1997 sabbatical leave: University of Georgia, 105 Aderhold Hall, Athens GA 30602, USA (Fax: (706) 542-4551; E-mail: pgerdes@coe.uga.edu)]

for the **English** version;

or to the Secretary

Ahmed Djebbar: Département de Mathématiques, Bâtiment 425, Université de Paris-Sud, 91405 Orsay Cedex, France (Fax: 33-1-47015917; E-mail: Ahmed.Djebbar@math.u-psud.fr)

for the **French** and **Arabic** versions.

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