AFRICAN MATHEMATICAL UNION

Commission on the History of Mathematics in Africa

(AMUCHMA)

AMUCHMA-NEWSLETTER-28

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Maputo (Mozambique), 21.04.2004

AMUCHMA

Chairman: Paulus Gerdes (Mozambique)
Secretary: Ahmed Djebbar (Algeria)
Members: Cyprien Gnanvo (Benin), Salimata Doumbia (Côte d'Ivoire), Nefertiti Megahed (Egypt), Mohamed Aballagh (Morocco), Abdoulaye Kane (Senegal), David Mosimege (South Africa), Mohamed Souissi (Tunisia), David Mtwetwa (Zimbabwe)
Associate Members: José Barrios (Canary Islands, Spain), Scott Williams (USA)

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. Organisation of lectures on the history of mathematics at national, regional, continental and international congresses and conferences.

2. MEETINGS, EXHIBITIONS, EVENTS

2.1 International Forum on Integrating Indigenous Ways of Knowledge

At the International Forum on Integrating Indigenous Ways of Knowledge (October 2-3, Mount Pleasant, Michigan, USA), organised by the Central Michigan University and the Saginaw Chippewa Indian Tribe, Paulus Gerdes (Mozambique) presented the theme "*Lusona – and other geometrical creations of Africa.*"

In the days before the realisation of the forum Paulus Gerdes gave a series of talks:
- "*Symmetries in African cultural practices*" (Alma College, Alma, September 29);
- "*Examples of geometrical ideas in African cultures*" (Department of Mathematics and College of Science and Technology, Central Michigan University, September 30);
- "*Examples of geometrical ideas from Africa (and their use in education)*" (Mathematics Department and College of Education, Michigan State University, East Lansing, October 1).

He also gave an informal presentation at the Saginaw Chippewa Tribal College (September 30) and took part in the research colloquium / round table on "*Indigenous scholars / practitioners / teachers sharing their wisdom on infusing indigenous knowledge into education.*"

2.2 Winter University on the History and Epistemology of Science (Cairo, Egypt)

The Universities of Cairo and Lille (France) organised a *Winter University on the History and Epistemology of Science* that took place from 24 to 30 January, 2004, at the University of Cairo (Egypt). The lectures and workshops were for Egyptian mathematics teachers and inspectors, scientific journalists and translators. The following topics concerning the historiography of mathematics were presented:
- Ahmad Fouad Basha (University of Cairo):
   (1) *The importance of the scientific heritage*
   (2) *History of technology*
- Ayman Fouad (University of Cairo): *The science of manuscripts*
- Abd Al Satar Al-Halawji (University of Cairo): *Cataloguing manuscripts*
- Ahmed Djebbar (University of Lille):
   (1) *Why and how to study ancient scientific writings*
   (2) *History of classic algebra*
   (3) *Combinatorics in the Maghreb*
- Hasanin Rabi (University of Cairo): *Methodologies of history and of the history of sciences*
- Bernard Maitte (University of Lille): *History of symmetry*
- Husayn Nassar (University of Cairo): *Methodology of the critical edition of heritage*.

2.3 Papers presented at recent meetings

* At the Symmetry Festival 2003 (Budapest, Hungary, August 16-20, 2003), Ramila Patel (Swaziland) presented the paper "*Symmetry in patterns on Swazi grass mats*" (28 p.).

*   At the launch of the African Institute for Mathematical Sciences (AIMS) in Muizenberg, Cape Town (South Africa, September 18-19, 2003) Paulus Gerdes (Mozambique) presented an invited paper on "*Mathematics and its Connections to African Art, Culture and Experience.*"

*   At the Annual Conference of the Maryland Council of Teachers of Mathematics (October 17, 2003, Rockville, Maryland, USA), Lawrence Shirley (USA) presented the paper "*Geometry in Africa*" (www.towson.edu/~shirley/geometryafrica.htm).

*   At the annual workshop of the African Forum for Children in Science and technology (AFCLIST), held at the Eduardo Mondlane University (Maputo, Mozambique, November 11-15, 2003) Paulus Gerdes (Mozambique) delivered the opening plenary paper entitled "*Exploration of geometrical ideas embedded in African cultural practices.*"

*   At the first National Exhibition of Science and Technology, organised by the Ministry of Higher Education, Science and Technology (Maputo, Mozambique, November 11-14, 2003) Paulus Gerdes (Mozambique) delivered the final plenary paper entitled "*From the analysis of traditional African designs to the discovery of new symmetries and matrices.*"

*   Ahmed Djebbar (Algeria) gave two lectures in Doha (Qatar): "*The Arab Sciences around the Mediterranean*" (French Cultural Centre of Doha, December 6, 2003) and "*Mathematics and Linguistics through the Contributions from the East and the Maghreb*" (University of Doha, December 7, 2003).

*   At the Seminar on the History and the Didactics of Science, held on December 13-14, 2003, at the University of Blida (Algeria), Ahmed Djebbar (Algeria) delivered a plenary paper entitled "*Arab mathematics between deductive steps and algorithmic practices.*"

*   At the Colloquium on Mathematics Education and Francophony (Tozeur, Tunisia, December 20-23, 2003), Ahmed Djebbar (Algeria) delivered a plenary paper entitled "*From Kairouan to Cordova: Some aspects of mathematical activities in the Maghreb and in Spain between the 9th and the 15th century.*"

*   At the *École Normale Supérieure* (Algiers, Algeria, January 17, 2004), Ahmed Djebbar (Algeria) gave a talk entitled "*Algebraic activities in the Maghreb and in Andalus.*"

*   At the International Creative Learning Cultures Project Workshop (Maputo, Mozambique, March 10-12, 2004), Paulus Gerdes (Mozambique)

delivered an invited paper entitled "*Geometrical ideas in African cultures and educational perspectives.*"

* At the Ministry of Education (Rabat, Morocco, March 12, 2004), Ahmed Djebbar (Algeria) delivered an invited paper entitled "*From culture to science: example of a Maghrebian contribution*"

* At two scientific meetings organised by the Association Young Science and by the Tunisian Association for the Mathematical Sciences (Djerba Island, Tunisia, March 15-20, 2004), Ahmed Djebbar (Algeria) presented three papers:
   • *Arab astronomy between calculation and theory*;
   • *Combinatorics and the Arabic language in the maghreb during the 12th-13th centuries*;
   • *Overview of algebraic activities in the Islamic East and West (9th-15th century)*.

3. CURRENT RESEARCH INTERESTS

Paulus Gerdes (Mozambique) concluded the book manuscript "*Otthava*: Fazer cestos e geometria na cultura makhuwa do nordeste de Moçambique" [***Otthava*: Making baskets and doing geometry in the Makhuwa culture of Northeast Mozambique**]. The first two native Makhuwa speakers who wrote doctoral theses on the Makhuwa culture, Mateus Katupha, linguist and former Minister of Culture of Mozambique, and Abdulcarimo Ismael, ethnomathematician, wrote the preface and postface.

M'Boka Kiese (France) is doing a study on **negritude** and mathematics: "I am working on a renewal of universal mathematical thinking basing myself on the negritude" (August 5, 2003).

Milo Gardner (USA) is doing research on Pre-Greek primes used in Egyptian fractions.

4. THESES

Aliyu Ibrahim Kiri is a doctoral student at the Bayero University in Kano (Nigeria) doing his research under the supervision of Muhammad Bello, the University's Deputy Vice-Chancellor. His thesis is tentatively called "**An analysis of the mathematics used by local Islamic scholars in Northern Nigeria**." In particular the use of magic squares will be studied. He plans to interview a number of prominent Islamic scholars, known for their use of mathematics.

5. SOURCES

5.1 Papers on the Ishango bone by Dirk Huylebrouck (cf. # 426)

The following are a series of papers on the Ishango bone by Dirk Huylebrouck (Belgium):

* The bone that began the space odyssey, *The Mathematical Intelligencer*, New York (USA), Vol. 18, No. 4, 1996, 56-60.

"Describes the Ishango bone (Congo / Zaire) as a Mesolithic mathematical artifact, some interpretations of the notches, and uses. Shallit remarks in a letter to the editor (Vol. 19, No. 3, p. 7) that papers by A. S. Brooks present a date of 20,000 years ago (not 11,000 years ago as stated by Huylebrouck) for the bone. Yet, no polemics was engaged to set its true age at 22,000 years ago (20,000 B.C.) in an additional letter to the editor."

* Counting on hands in Africa and the origin of the duodecimal system, *Wiskunde en Onderwijs*, Antwerp (Belgium), No. 89, 1997, 53-57.

"Summarizes the popular 'astronomical' and 'arithmetical' explanations about the origin of the base 12 and the related use of the number 60, to reject them in favor of the ethnomathematical counting hypothesis the phalanxes of one hand with the thumb."

* The Ishango bone: from Africa to space, *EOS-magazine*, Ghent (Belgium), No. 7/8, 1998, 46-50.

"A vulgarization about the Ishango rod, the oldest mathematical object, in a glossy science magazine for a wide audience. Includes large colour pictures."

* The parabolic flight of the Ishango artifact: the oldest mathematical find, *Wiskunde en Onderwijs*, Antwerp (Belgium), No. 101, 2000, 4-16.

"In the 1968 movie *2001, A Space Odyssey* the opening scene shows a human ancestor throwing his first discovery, the use of a bone as a tool, into space. As to realize Kubrick's metaphor, the Ishango rod was brought in zero gravity during a parabolic flight of the European Space Agency. By carrying this oldest mathematical object with him, moviemaker Georges Kamanayo (Rwanda) became the first weightless 'African-European'."

* The oldest mathematical artifact, but not in Flanders, *Umubano, Journal of the Flanders-Rwanda Association*, Ninove (Belgium), autumn 2000, 4-7.

"A rather assertive paper in which the author expresses his disappointment for the lack of interest in Flanders (Belgium) for African mathematics."

* The Ishango bone, the oldest mathematical object, *Kadath, Chroniques des Civilisations Disparues*, Brussels (Belgium), No. 98, 2001, 25-32.

"Presents details on the Ishango rod, original pictures of the excavation site, a paper model of the object, explanations about the difficulties with the dating of the object, and, in particular, the new interpretation of the notches by V. Pletser."

5.2 Examples of Books published by African Mathematicians (1)

To give the readers of the AMUCHMA Newsletter an impression of books and booklets published by African mathematicians, we start in this issue to present examples. Any reader who has information on books not yet referred to in the AMUCHMA Newsletter, please contact the editors.

Dzinotyiweyi, Henri A. M. (Zimbabwe, former Vice-President AMU for Southern Africa [1991-1995]):
* *The analogue of the group algebra for topological semigroups*, Pitman Advanced Publishing Program, Boston (USA), 1984, 196 p.
* *A first course in mathematical analysis*, C.B.S. Publishers, Delhi (India), 1986.

Ezin, Jean-Pierre (Benin, Secretary-General of the AMU):
* (Ed.): *Fibre bundles: their use in physics*, World Scientific, Singapore, 1988, 175 p.

Hassan, Mohamed H. A. (Sudan, President of the African Academy of Sciences):
* together with Farouk El-Baz (Eds.): *Physics of desertification*, Kluwer, Dordrecht (Netherlands), 1986, 473 p.
* et al. (Eds.): *The role of women in the development of science and technology in the Third World*, World Scientific, Singapore, 1991, 970 p.
* *Science and technology for the socio-economic development of Africa*, RANDFORUM Press, Nairobi (Kenya), 1993, 29 p.

Hogbe-Nlend, Henri (Cameroon, First President of the African Mathematical Union 1975-1986):
* *Théorie des bornologies et applications* [Theory of bornologies and applications], Springer, Berlin (Germany), 1971, 168 p. (in French).
* *Distributions et bornologie* [Distributions and bornology], Universidade de São Paulo, São Paulo (Brazil), 1973, 143 p. (in French).

* *Bornologies and functional analysis: introductory course on the theory of duality topology-bonology and its use in functional analysis*, North-Holland, Amsterdam (Netherlands), 1977, 144 p.
* Hogbe-Nlend, Henri: & Vincenzo B. Moscatelli: *Nuclear and conuclear spaces: introductory courses on nuclear and conuclear spaces in the light of the duality "topology-bornology"*, North-Holland, Amsterdam (Netherlands), 1981, 275 p.

Kuku, Aderemi O. (Nigeria, Past President of the African Mathematical Union 1986-1995):
* together with J. Rawnsley & E. Thoma: *Group representation and its applications* [Lectures given at the International Summer School on Group Representation and its Applications, August 17-September 11, 1981, Ibadan, Nigeria], CIMPA, Nice (France), 1985, 221 p.
* together with H. Bass & C. Pedrini (Eds.): *Algebraic K-theory and its applications* [Proceedings of a workshop and symposium, ICTP, Trieste, Italy], World Scientific, Singapore, 1999, 607 p.

Masenge, Ralph W. P. (Tanzania)
* together with W. F. Reichert: *Fundamentals of numerical methods*, Dar es-Salaam University Press, Dar es-Salaam (Tanzania), 1974, 97 p.
* Masenge, Ralf W. P.: *Basic Numerical Methods*, Dar es-Salaam University Press, Dar es-Salaam (Tanzania), 1988, 232 p.

Mshimba, Ali Seif (Tanzania):
* together with W. Tutschke (Eds.): *Functional analytic methods in complex analysis*, World Scientific, Singapore, 1990.
* Mshimba, Ali Seif: *Basic complex analysis*, Dar es-Salaam University Press, Dar es-Salaam (Tanzania), 1992.

Salbany, Sérgio (South Africa):
* *Bitopological spaces, compactifications and completions*, Math Monographs of the University of Cape Town, Cape Town (South Africa), Volume 1.

6. REVIEWS

None were received.

7.   HAVE YOU READ?

7.1 Publications on the History of Mathematics in Africa

#403   Chrisomalis, Stephen: **The Egyptian origin of the Greek alphabetic numerals**, *Antiquity*, Vol. 77, No. 297, September 2003, 485-496.
    This article deals with he same basic material as Zaslavsky's paper (#416), but emphasizes the historical, rather than the mathematical, point of view.

#404   Djebbar, Ahmed: **Les activités mathématiques au Maghreb à travers le témoignage d'Ibn Khaldûn** [Mathematical activities in the Maghreb through the testimony of Ibn Khaldûn], *Actes des journées sur "Les sciences dans la phase de déclin" (Marrakech, 8-11 February 2001)*, Faculté des Lettres et Sciences Humaines, Rabat (Morocco), 2003, 7-22.

#405   Djebbar, Ahmed: **Quelques exemples de scholies dans la tradition arabe des Eléments d'Euclide** [Some examples of scholies in the Arab tradition of Euclid's Elements], *Revue d'Histoire des Sciences*, Paris (France), 2003, Vol. 56, No. 2, 293-321.

#406   Djebbar, Ahmed: **Les activités mathématiques médiévales, un exemple d'échanges scientifiques et interculturels en Méditerranée** [Medieval mathematical activities, an example of scientific and intercultural exchange in the Mediterranean], in: E. Gallo, L. Giacardi & O. Robutti (Eds.), *Conferenze e Seminari 2002-2003*, Publication du Seminario di Storia delle Matematiche "Tullio Viola", Turin (Italy), 2003, 287-308..

#407   Djebbar, Ahmed: **Mathématiques et société à travers un écrit maghrébin du XIVe siècle** [Mathematics and society through a Maghrebian writing of the 14th century], *Actes du colloque international "De la Chine à l'Occitanie, chemins entre arithmétique et algèbre"* (Toulouse, 22-24 September 2000), Editions du C.I.H.S.O., Toulouse (France), 2003, 29-54.

#408   Djebbar, Ahmed: **Les activités mathématiques en Andalus et leur prolongement au Maghreb (IXe-XVe siècles)** [Mathematical activities in Andalus and their extension to the Maghreb (9th – 15th century)], *Journées de la Société Catalane d'Histoire des Sciences et des Techniques* (Barcelona, 15-17 November 2002), Societat Catalana d'Historia de la Ciencia i la Tecnica, Barcelona (Spain), 87-112

#409   Djebbar, Ahmed: **Nasîr ad-Dîn at-Tûsî, un savant polygraphe du XIIIe siècle** [Nasîr ad-Dîn at-Tûsî, a polygraphic scholar of the 13th century], *Revue Farhang*, Teheran (Iran), 2003, 159-181.

#410   Djebbar, Ahmed: **La science islamique: naissance et développement à travers l'exemple des mathématiques** [Islamic science: Birth and development through the example of mathematics], *Ayene-ye Miras* [Mirror of Heritage], *Quarterly Journal of Book Review*, Teheran (Iran), 2003, New series, Vol. 5, No. 4 (No. 20), 27-50.

#411   Djebbar, Ahmed: **La phase arabe de l'histoire de la trigonométrie** [The Arab phase in the history of trigonometry], *Actes du colloque "Les instruments scientifiques dans le patrimoine: quelles mathématiques ?"* (Rouen, 6-8 April 2001), Editions Ellipse Paris (France), 2004, 415-435

#412   Djebbar, Ahmed: **Du nombre pensé à la pensée du nombre: quelques aspects de la pratique arithmétique arabe et de ses prolongements en Andalus et au Maghreb** [From the thought number to the thinking of number: Some aspects of the Arab arithmetical practice and its continuation in Andalusia and in the Maghreb], in: C. Alvarez, J. Dhombres & J.-C. Pont (Eds.), *Actes de la "Rencontre Internationale de Peyresc sur la pensée numérique"* (Peyresc, 7-10 September 1999), *Sciences et Techniques en Perspective*, Brepols (Belgium), 2004, Second Series, Vol. 8, No. 1, 303-322.
     The article presents what is known about the arithmetical practices from the Islamic East that have circulated in Andalusia and in the Maghreb and that were continued in both regions.

#413   Gerdes, Paulus: **Symmetries on mats woven by Yombe women from the Lower Congo area: On the interplay between cultural values and mathematical-technical possibilities**, in: Dorothy K. Washburn & Donald W. Crowe (Eds.), *Symmetry Comes of Age, The Role of Pattern in Culture*, University of Washington Press, Seattle, 2004, 81-99.
     Analyses mathematical ideas involved in the designing and production of mats by Yombe women from the Lower Congo area at the end of the 19th century and the beginning of the 20th century.

#414   Grattan-Guinness, Ivor & B. S. Yadav (Eds.): *History of the Mathematical Sciences*, Hindustan Book, New Delhi (India), 2004, 244 p.
     Proceedings of the International Conference on the History of the Mathematical Sciences held at New Delhi from December 21-23, 2001. Contains two chapters dealing with mathematics in Africa:
     * Milo Gardner: The Egyptian mathematical leather roll (119-134);

* Gregg De Young: A new source of evidence for the lost Arabic translations of Euclid's *Elements* (149-164).

#415   Rincon, Paul: **Greeks borrowed Egyptian Numbers**, *BBC Science*, London (UK), September 2003
[http://news.bbc.co.uk/1/hi/sci/tech/3109806.stm]

#416   Zaslavsky, Claudia: **The Influence of Ancient Egypt on Greek and Other Numeration Systems**, *Mathematics Teaching in the Middle School,* NCTM, Reston VA (USA), Vol. 9, No. 3, November 2003, 174-178.
> "The article traces the development of the alphabetic numeration systems of the early Greeks, Hebrews, and Arabs to the concepts underlying ancient Egyptian hieratic numeration, and includes activities for students."

7.2 Publications on the History of Mathematics in Africa, Ethnomathematics and / or Mathematics Education

#417   Bazin, Maurice & Modesto Tamez: *Math and Science Across Cultures, Activities and Investigations from the Exploratorium*, The New Press, New York, 2002, 176 p.
> Papers with activities related to mathematics from Africa are:
> * Paulus Gerdes: Sona: Sand drawings from Africa (3-15)
> * Robert Lange: Madagascar Solitaire: Playing Games (25-31)
> * Maurice Bazin & Modesto Tamez: Counting like an Egyptian: Egyptian math (47-59).

#418   Bello, Muhammad Yahuza: **Indigenous Hausa Number System**, *Afrikanische Arbeitspapiere* (African Working Papers), Institut für Afrikanistik, Universität Köln, Köln (Germany), No. AAP-70, 2002, 191-198.
> Analyses the structure of the Arabic- and English-free number words in the Hausa language (Nigeria). The indigenous Hausa number system has base ten, with numerals for the first four powers of ten. Both the additive and the subtractive principles are used. For instance, 98 is *xari ba goma* (100 less 2).

#419   Garegae‑Garekwe, Kgomotso G.: *Teachers' Beliefs about mathematics, its teaching and learning and the communication of these beliefs to students: A case study in Botswana*, Ph.D. dissertation, University of Manitoba, Winnipeg, Manitoba (Canada), 2002, 302 p.
> "The study focused on teachers' beliefs about mathematics, its teaching and learning and the communication of these beliefs to students. It is a qualitative case study of three Junior Secondary

School mathematics teachers. Data collection techniques included classroom observations, interviews, concept amps, personal essays, and perusal of official documents. In addition to responding to open-ended questionnaires, students constructed concept maps about their teachers' views about the teaching and learning of mathematics. Ernest's (1989; 1991) three categories of personal philosophies were used to categorize teachers' beliefs about mathematics, its teaching and learning, Thamo, was categorized as an Instrumentalist, and his instructional practices were incongruent with his views about mathematics teaching and learning. The other two teachers (Kgosing & Letsomane), who were categorized both as Platonists, had their views about mathematics learning and teaching consistent with their instructional practices. Letsomane's instructional practices were inconsistent with his views about the nature of mathematics. The study also showed that apart from being influenced by subject beliefs and contextual constraints, teachers could be influenced by other factors including their educational philosophical stance. It was found that teachers convey their beliefs to students through verbal and non-verbal instructional behaviors and practices."

#420 Gerdes, Paulus: **Mathematical Thinking and Geometric Exploration in Africa and Elsewhere**, *Diogenes*, UNESCO & Sage Press, London, 2004, No. 202, 107-122.
Paper originally written for presentation at the international conference "Towards an encounter of rationalities" (Porto Novo, Benin, 2002).

#421 Gerdes, Paulus: **Pensée mathématique et exploration géométrique en Afrique et ailleurs**, *Revue Diogène*, Presses Universitaires de France & UNESCO, Paris (France), 2003, No. 202, 126-144.
French language version of # 420.

#422 Gerdes, Paulus: **Symmetry-Geometry Aspects of *Mavuku* Baskets among the Makhuwa (Mozambique)**, *Symmetry: Culture and Science*, Vol. 12, No. 1-2, Budapest, 2003, 87-114.
Presents an analysis of *mavuku* containers produced by Makhuwa basket weavers in the Northeast of Mozambique. The containers consist of two twill woven circular trays. The paper analyses the symmetries and the geometric structure of the weaving designs. The know-how of the old master-weaver Mulaliha from Rapale receives particular attention.

#423   Gerdes, Paulus: **Exploring Plaited Plane Patterns among the Tonga in Inhambane (Mozambique)**, *Symmetry: Culture and Science*, Vol. 12, No. 1-2, Budapest, 2003, 115-126.
> Discusses a class of plane patterns encountered on twill-plaited baskets recently made by Tonga artisans, mostly women, where coloured strands alternate with groups of natural-coloured strands. Within the conditions considered by the basket weavers and taking into account the symmetries, they discovered all possible solutions.

#424   Gerdes, Paulus: *Sipatsi: Cestaria e Geometria na Cultura Tonga de Inhambane* [Sipatsi: Basketry and Geometry in the Tonga Culture of Inhambane], Moçambique Editora, Maputo, 2003, 176 p. (32 pages in colour) (in Portuguese).
> The book explains how artisans produce beautiful hand bags, called *sipatsi* in Gitonga, a language spoken in the Mozambican province of Inhambane. The activity of weaving *sipatsi* is originally a female activity. The book presents a catalogue of 362 decorative strip patterns plaited into the *sipatsi*, resulting from collecting *sipatsi* for more than twenty-five years. It also includes suggestions for the mathematical-educational use of *sipatsi*, varying from the study of composition and symmetries to the study of progressions and pentagons. The book concludes with the presentation of some new phenomena in the production of *sipatsi*, underlining the geometric-artistic creativity of the basket weavers, and a comparison of *sipatsi*-patterns with some woven strip patterns from other cultures (Northeast of Mozambique, Mexico and Brazil). Alcido Nguenha, the Minister of Education of Mozambique, wrote the preface.

#425   Gerdes, Paulus: **Ethnomathematics as a new research field, illustrated by studies of mathematical ideas in African history**, in: Tinne Hoff Kjeldsen, Stig Andur Pedersen & Lise Mariane Sonne-Hansen, *New Trends in the History and Philosophy of Mathematics,* University Press of Southern Denmark, Odense, 2004, 135-161.
> Paper presented at the conference 'New Trends in the History and Philosophy of Mathematics' (Roskilde, Denmark, 1998).

#426   Huylebrouck, Dirk: *Afrika en wiskunde. Etnowiskunde in zwart Afrika, vanaf de koloniale tijd terug naar de oudste wiskundige vondst van de mensheid: het Ishangobeen* [Africa and mathematics. Ethnomathematics in black Africa from the colonial times backwards to the oldest mathematical find of humanity: the Ishango bone], Author's edition, Schaarbeek (Belgium), 246 p. (in Flemish).

This book is the by-product of more than hundred lectures given around Belgium for pupils of high schools and candidates for working in developing countries. It contains the following parts and chapters: Chap. 1 "Ethno-mathematics: why?" (p. 9-17); Chap. 2 "Sources for African ethno-mathematics" (19-26); Part 1 "Introductory mathematical voyage," Chap. 3 "Narrative and musical introduction" (29-44); Chap. 4 "Creative counting in Africa" (45-62); Chap. 5 "Drawing" (63-83); Chap. 6 "Reasoning without writing" (85-111); Chap. 7 "Multiplication following the Yoruba and Ethiopian way" (113-128); Part 2 "The Ishango bone", Chap. 8 "The Ishango site" (131-142); Chap. 9 "Mathematical notches" (143-153); Chap. 10 "Missing link" (155-169); Chap. 11 "Not out of Africa" (171-180); Part 3 "Multicultural mathematics, from Africa to space," Chap. 12 "Black mathematics" (183-212); Chap. 13 "An imaginative idea" (213-226); References (227-236).

7.3 Other publications on the History of Mathematics by African mathematicians

#427 Gerdes, Paulus: **Níjtyubane — Sobre Alguns Aspectos Geométricos da Cestaria Bora na Amazónia Peruana** [*Níjtyubane* — On some geometrical aspects of Bora basketry in the Peruvian Amazon], *Revista Brasileira de História da Matemática*, Rio Claro (Brazil), Vol. 3, No. 6, 3-22.

> The paper discusses some geometrical aspects of Bora basketry in the Peruvian Amazon. In particular, twill-plaited, circular trays called *níjtyubane* are analysed. Elements of their production and of the creation and transformation of geometric patterns are studied. An outline of their historical development is presented that stresses the similarity and the cultural diversity.

7.4 Publications on the History of Mathematics and the African Diaspora

None were reported.

7.5 Reviews

#428 Lumpkin, Beatrice (Chicago, USA): Paulus Gerdes' 'Awakening of Geometrical Thought in Early Culture', *Political Affairs: Ideology, Politics and Culture*, New York (USA), 2003, Vol. 82, No. 10, 40-41 (cf. #388).

#429 Zaslavsky, Claudia (New York, USA): Paulus Gerdes' 'Awakening of Geometrical Thought in Early Culture', *Indilinga, African Journal of*

Indigenous Knowledge Systems, Isipingo (South Africa), Vol. 2, No. 1, 115-116; *History and Pedagogy of Mathematics Newsletter*, Romsey (UK), 2003, No. 53, 9-10 (cf. #388).

7.6 Mathematical books and documents published in Africa

#430   Ezin, Jean-Pierre, ***Report of the meeting of the AMU Executive Board***, AMU Information Bulletin, No. 9, Cotonou (Benin), 2003, 10 p.

> Report of the meeting of the Executive Board of the African Mathematical Union held in Cotonou (Benin), January 22-24, 2003.

#431   Yacoubi, Nouzha El; Ismael Cassamo Nhêze; Luís do Nascimento Paulo & Paulus Gerdes (Eds.), ***Proceedings of the 13th Pan African Mathematics Olympiad of the African Mathematical Union***, AMUPAMO & Ministry of Education, Maputo, 2003, 64 p.

> Proceedings of the 13th Pan African Mathematics Olympiad held in Maputo, Mozambique (April 19-27, 2003), organised by the African Mathematical Union Commission for the Pan-African Mathematical Olympiad (AMUPAMO) and hosted by the Ministry of education of Mozambique. Includes the paper "From African 'sona' drawings to the discovery of new symmetries and matrices" (51-64) by Paulus Gerdes.

7.7 Mathematical books published by Africans outside Africa

> Cf. 5.2.

8.   ANNOUNCEMENTS

8.1   Sixth Pan-African Congress of Mathematicians

The African Mathematical Union organises the 6th Pan-African Congress of Mathematicians (PACOM 2004) from September 1 to September 6, 2004, in Tunis, Tunisia. The general theme of the congress is "Mathematical Sciences and Development of Africa."

Fr more information, contact the President of the Local Organising Committee:

> Prof. Abderahman Boukricha, Université de Tunis El Manar, B.P. 63, 1013 Tunis, Tunisia
> (Tel. 00 216 71 703 746, Fax: 00 216 71 704 329, E-mail: pacom@cck.mu.tn)

or consult the website:

8.2 Pan-African Mathematics Olympiad 2004 (PAMO 2004)

The 14th edition of the Pan-African Mathematics Olympiad (PAMO 2004) will be hosted by the Republic of Tunisia from August 24 to September 2 in Tunis. The Prize Giving Ceremony will take place during the Opening ceremony of the Pan-African Congress of Mathematicians.

For more information, contact:

> Prof. Nouzha El Yacoubi,, Chairperson AMUPAMO, Département de Mathématiques et d'Informatique, B.P. 1014, Rabat, Morocco
> (Fax: 212 37 77 30 44, E-mail: nelyacoubi@yahoo.fr, elyacsb@fsr.ac.ma,)

8.3 Eighth Maghrebian Colloquium on the History of Arab Mathematics

The 8th Maghrebian Colloquium on the History of Arab Mathematics will take place in Tunis (Tunisia), December 18-20, 2004.

For more information, contact the President of the Local Organising Committee:

> Prof. Mahdi Abdeljaouad, Institut Supérieur de l'Éducation et de la Formation Continue, 43, rue de la Liberté, 2019 Le Bardo, Tunisia, E-mail: mahdi.abdeljaouad@isefc.rnu.tn)

8.4 Annotated Bibliography on Mathematics in African History and Cultures

Paulus Gerdes and Ahmed Djebbar are concluding an annotated bibliography on Mathematics in African History and Cultures, to be published in English, French, and Arabic. If any reader knows of any relevant bibliographic reference not referred to in any of the issues of the AMUCHMA Newsletter, please inform the editors as soon as possible:
pgerdes@virconn.com or ahmed.djebbar@math.univ-lille1.fr

8.5 Third International Workshop on Contemporary problems in Mathematical Physics

The International Workshop on Contemporary problems in Mathematical Physics is organised every second year in Benin under the auspices of the Executive Secretariat of the International Chair in Mathematical physics and applications (ICMPA). The third workshop (COPROMAPH3) took place in

Cotonou, Benin from November 1 to 7, 2003. Topics for COPROMAPH3 include contributions in nonlinear systems, supersymmetry, quantisation and applications in physics. A special session is on Physics for environmental problems.

For more information, contact:

> Prof. M. Hounkonnou, Institut de Mathématiques et de Sciences Physiques (IMSP), Unité de recherche en Physique Théorique (URPT), B.P. 2628, Porto-Novo, Benin
> (Tel. 229 22 24 55, Fax: 229 22 24 55, E-mail: hounkonnou@yahoo.fr)

8.6 SAMSA Symposium on Mathematics of Finance

The Southern African Mathematical Sciences Association (SAMSA) organised a Symposium on Mathematics of Finance that took place in Lusaka (Zambia, December 2003).

For more information, contact:

> Prof. Oluwale D. Makinde, Applied Mathematics Department, University of the North, Private Bag X1106, Sovenga 0727, South Africa
> (Tel. +27 15 26 82 459, Fax: +27 15 29 12 395, E-mail: makinde@unorth.ac.za)

8.7 TWAS Mathematical Prize

With the support of the Third World Academy of Sciences (TWAS), the African Mathematical Union launches its **TWAS Mathematical Prize for young African mathematicians** (under 35 and living and working in an African country) to be awarded every four years at the occasion of the Panafrican Congress of Mathematicians (PACOM). The first award ceremony will take place at PACOM2004 in Tunisia. Files of candidature have to be received by the AMU Secretariat before May 31, 2004.

For more information, contact:

> Prof. Jean-Pierre Ezin, Secretary-General AMU, IMSP, B.P. 613, Porto-Novo, Benin (E-mail: secretariat@imsp-uac.org)

8.8 BENHIMA Mathematics Prize

With the sponsorship of the Haw Assafi Association the African Mathematical Union launches the **Dr. Mohammed Benhima Mathematics Prize** for

African mathematicians under the age of 35. The prize will be awarded every two years at the occasion of the Summer School that the Hawd Assafi organises in Safi (Morocco). The first awarding ceremony will take place in July 2004. Files of candidature have to be received by the HAW ASSAFI Association before May 31, 2004.

For more information, contact:

Secrétariat-Prix Mathematiques Dr. Mohammed BENHIMA, Association HAWD ASSAFI, B.P. 275, Safi Centrale, Safi, Morocco

8.9 Third Symposium on Training and Research on Pan-African Mathematics Olympiads (PAMOSTR 2004)

The AMU Commission on Mathematics Olympiads organises its 3rd Symposium on Training and Research in Cotonou, Benin from April 5 to 10, 2004. The theme is "Towards a harmonisation of the PAMO candidates training".

For more information, contact:

Prof. Nouzha El Yacoubi,, Chairperson AMUPAMO, Département de Mathématiques et d'Informatique, B.P. 1014, Rabat, Morocco
(Fax: 212 37 77 30 44, E-mail: nelyacoubi@yahoo.fr, elyac-sb@fsr.ac.ma)

8.10 African Institute for Mathematical Sciences

The Centre for the Manuscripts of the Library of Alexandria, headed by Yousef Zaydan, organises in collaboration with the Institute for the History of Arab Science of Alep (Syria) an international colloquium about "The unknown aspects of the history of Arab science," to be held in Alexandria (Egypt), September 20-30, 2004.

For more information, contact:

Prof. Yousef Zaydan, Fax. +203 48 30 329.

8.11 African Institute for Mathematical Sciences

On September 18, 2003, the African Institute for Mathematical Sciences (AIMS) was launched in Muizenberg near Cape Town (South Africa). "The African Institute for Mathematical Sciences (AIMS) is a new educational centre established in Cape Town, South Africa with the goal of strengthening scientific and technological capacity across the African continent. We are a collaborative project between the Universities of Cape Town, Stellenbosch,

Western Cape, Cambridge, Oxford and Paris-Sud XI. AIMS is presenting a postgraduate course taught by top African and international scientists and educators.AIMS is a residential centre and hopes to act as a feeder for more specialised research programmes in South Africa and abroad."

For more information:
www.aims.ca.za or www.aimsforafrica.org

9. ADDRESSES OF SCHOLARS, INSTITUTIONS AND PUBLISHERS MENTIONED IN THIS NEWSLETTER

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- Zaslavsky, Claudia: 45 Fairview Avenue, #13-1, New York, NY 10040-2742, USA (czaslav@msn.com, tel (212)569-4115)

10. 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.

11. 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: Centro de Investigação Etnomatemática, C.P. 915, Maputo, Mozambique (Fax: 258-1-49 45 04; E-mail: pgerdes@virconn.com)

for the **English** version;

or to the Secretary

Ahmed Djebbar: Département de mathématiques, Bt. M 2, Université de Lille 1, 59655 Villeneuve D'Asq Cedex, France
(Fax: 33-1-45 33 77 12; E-mail: ahmed.djebbar@math.univ-lille1.fr, Ahmed.Djebbar@wanadoo.fr)

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

12. AMUCHMA-NEWSLETTER website

Thanks to Scott Williams, the English language edition of all issues of the **AMUCHMA Newsletter** is also accessible on the following website:

http://www.math.buffalo.edu/mad/AMU/amuchma_online.html