

AFRICAN MATHEMATICAL UNION

COMMISSION ON THE HISTORY OF MATHEMATICS IN AFRICA

AMUCHMA-NEWSLETTER-24

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)

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Ethnomathematics Research Centre, Maputo (Mozambique), 11.11.2000

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. Fifth PAN-AFRICAN CONGRESS OF MATHEMATICIANS

During the Fifth Pan-African Congress of Mathematicians (Cape Town, South Africa, 23-28 January 2000), the General Assembly of the African Mathematical Union analysed the activities of the AMU during the last five years, and elected the members of the new Executive Committee and the chairpersons of the AMU Commissions.

The new Executive Committee of the AMU has the following composition:

President: Prof. Jan Persens (South Africa)
Secretary-General: Prof. Jean-Pierre Ezin (Benin)
Treasurer: Prof. Paulus Gerdes (Mozambique)

Vice-President for Southern Africa: Prof. Patrick Phiri (Swaziland)
Vice-president for Eastern Africa: Prof. Verdiana Masanja (Tanzania)
Vice-President for North Africa: Prof. Mohamed Chidami (Morocco)
Vice-President for West Africa: Prof. Akry Koulibaly (Burkina Faso)
Vice-President for Central Africa: Dr. M. Mawanda (Dem. Rep. Congo)

Members at large:

Dr. Sami Baraket (Tunisia)
Prof. Patrick Mangheni (Uganda)
Prof. Mary Teuw Niane (Senegal)

Prof. Hassan Nsar (Egypt)

Immediate Past President: Prof. Ahmed Kerkour (Morocco)

The following professors are the chairpersons of the AMU Commissions elected by the General Assembly:

- Nouzha El Yacoubi (Morocco): Chairperson, AMU Commission on Pan-African Mathematics Olympiads;
- Verdiana Masanja (Tanzania): Chairperson, AMU Commission on Women and Mathematics;
- Juma Shabani (Burundi): Chairman, AMU Commission on Mathematics Education;
- Paulus Gerdes (Mozambique): Chairman, AMU Commission on the History of Mathematics in Africa (AMUCHMA) [reelected];
- Daouda Sangare (Mali): Editor-in-Chief of the AMU Journal “Afrika Mathematika”[reelected].

The newly elected Executive Committee of AMU completed the composition of AMUCHMA in the following way:

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)

3. MEETINGS, EXHIBITIONS, EVENTS

3.1 Papers presented at PACOM 2000

At the Fifth Pan-African Congress of Mathematicians (Cape Town, South Africa, 23-28 January 2000; see 2), the following papers concerning the history of mathematics in Africa were (intended to be) presented:

- * Paulus Gerdes (Mozambique) presented a plenary lecture entitled “*On mathematical ideas in cultural activities in the history of Africa south of the Sahara*”.
- * Dirk Huylebrouck (Belgium) and Vladimir Pletser (European Space Agency) were unable to come to South Africa to present their paper “*Research and Promotion: about the first mathematical artifact: The Ishango bone*”. The authors’ abstract of the paper:

“In 1950, the Belgian Prof. J. de Heinzelin discovered a bone at Ishango, a village at the sources of the Nile, on the border of Congo and Uganda. The 20000 years old artifact has patterned notches, making it the first tool showing logic reasoning. In the present communication, four demonstrations of the mathematical skills in pre-colonial Africa will be given as additional circumstantial evidence for its mathematical properties. Furthermore, the Ishango bone is still a research object, because other dating methods are applied on it and because new interpretations are proposed for it, like Pletser's "slide rule"-reading. It rejects former "arithmetic game" and "calendar" explanations, but confirms de Heinzelin's archaeological evidence about relationships between Egypt, West Africa and Ishango. It points towards the use of the base 12, which anthropologist Thomas had studied in West Africa some 80 years ago. It shows that the Ishango artifact is the missing link Thomas was looking for. The fact that the dawn of mathematics originated in Africa is not always well known. The authors aim to make it better known, through an extraordinary link between Africa and the space adventure. Indeed, a scene from the movie "2001: A Space Odyssey" offers a very strong image that facilitates the communication with the largest audience. It is about a human ancestor who throws a bone in the air that turns into a space ship. The sequence can be considered as a metaphor to illustrate the progress of mankind, from apparently very simple discoveries up to the technology of the space age. If the African artifact would continue its Kubrick-like voyage, weightlessly floating in space, it would stand for the contributions made by different civilisations to the development of mathematics and physics, and thus to the conquest of space. A satellite conference about science, with schools in Africa, would focus the attention on mathematics in Africa, and this would certainly be successful, as the authors could experience in 1993, when they assisted in the organization of a scientific event by the University of Burundi.”

* José Barrios (Canary Islands) was also unable to come to Cape Town to present his paper entitled “*On the place of the Canary Islands in the studies of the ancient history of African mathematics*”. Here follows the author’s abstract:

“Through my earlier research, evidence have arisen suggesting that the ancient Berber inhabitants of Grand Canary Island in 14th-15th centuries (the centuries just preceding the Spanish conquest of the Islands), systematically recorded numerical astronomical and calendrical data by mean of certain geometrical figures, named ‘tara’, painted in white, read and black on wood planks and on the wall of certain caves. In this paper, I summarise part of this evidence, stressing the peculiar position as well as the potential importance of the Canarian studies for the mainstream investigation the ancient history of African mathematics.”

3.2 Papers presented at recent meetings

- * At the Third Luso-Brasilian Meeting on the History of Mathematics (University of Coimbra, Portugal, 7-12 February 2000), Paulus Gerdes (Mozambique) presented a plenary lecture entitled “*On some geometrical ideas in the history of central and southern Africa*”.
- * At the Conference “Mathematics and Culture” (University of Milano-Bicocca, Italy, 14 April 2000), Paulus Gerdes (Mozambique) presented the keynote address entitled “*Mathematical inspiration in / from African cultures*”.
- * At the International Colloquium on “2000 Years Transmission of Mathematical Ideas: Exchange and Influence from Late Babylonian Mathematics to Early Renaissance Science” (Rockefeller Study and Conference Centre, Bellagio, Italy, 8-12 May 2000), Ahmed Djebbar (Algeria) presented the paper entitled “*The circulation of mathematics between the Islamic East and West: Old interrogations and new elements*”.
- * At the occasion of the International Year of Mathematics, the Houari Boumédiène University organised a national colloquium on mathematics (Alger, Algeria, 21-24 May 2000). More than 300 Algerian teachers and scholars, coming from all regions from Algeria and from abroad, took part in the colloquium. The opening address was given by Ahmed Djebbar (Algeria) and was entitled “*From the 9th to the 19th century, thousand years of mathematical activities in the Maghreb*”. Other papers concerning the history of mathematics were the following:
 - * Djamil Aïssani: “*The stay of the famous mathematician François Arago (1808-1809) in Algeria*”;
 - * Abdelmalek Bouzari: “*The theory of conic sections in the mathematical tradition of Andalusia and the Maghreb*”;
 - * Youcef Guergour: “*Al-Mu'taman Ibn Hud and his Kitab al-istikmal*”;
 - * Moktadir Zerrouki: “*Mathematics and heritage in the Maghreb through the commentary of al-'Uqbani*”.
- * At the Peruvian Bilingual Educational Research Programme, Paulus Gerdes (Mozambique) conducted a workshop on the methodology of ethnomathematical and historical research, illustrated by examples from the Amazonia and from Africa south of the Sahara (Iquitos, Peru, May-June 2000).
- * Ahmed Djebbar (Algeria) gave a series of lectures at the University of Zaragoza (Zaragossa, Spain, 12-14 June 2000). The lectures were about

the history of algebra, the history of combinatorics and the history of mathematical activities in the Maghreb and in Spain.

- * At the third Mathematical Summer School of Safi (Safi, Morocco, 11-14 July 2000), two papers were presented concerning the history of mathematics:
 - * Mohamed Akkar (Morocco): “*Mathematics and society*”;
 - * Ahmed Djebbar (Algeria): “*Birth and development of Arabic mathematics (9th-15th century)*”.

- * Ahmed Djebbar (Algeria) was member of the Programme Committee of the International Francophone Colloquium on “Mathematics education in Francophone countries in the 20th century and perspectives for the beginning of the 21st century” (Grenoble, France, 15-17 July 2000). The following African scholars presented papers at the colloquium:
 - Mohamed Akkar (Morocco): “*Mathematics education in the Maghreb*”;
 - Saliou Touré (Ivory Coast): “*Mathematics education in Subsaharan Africa*”;
 - Rachid Bebbouchi (Algeria): “*Didactical Research: A possible transition between mathematics education and mathematical research*”;
 - Ahmed Daif (Morocco): “*History of the introduction and the evolution of didactics in Morocco. Today’s teaching of didactics at teacher training colleges (ENS, CPR, ERI)*”;
 - Khalil Sammad (Morocco): “*Mathematics and other subjects. Their different roles. Examples of experimentation*”;
 - Abdelkader Khelladi (Algeria): “*Mathematical symbolism in a non-Latin graphic environment, neither from the left nor from the right*”;
 - Moncef Zaki (Morocco): “*Conception of a mathematical module of expression in French for Moroccan students*”;
 - Abderrahman Aït Ouassarah (Morocco): “*Use of Cabri to visualise certain qualitative properties of dynamic systems*”.

- * At the International Symposium “Symmetry 2000” (Stockholm, Sweden, 13-17 September 2000), Paulus Gerdes (Mozambique) presented the paper “*Symmetrical explorations inspired by the study of African cultural activities*”.

- * At the International Colloquium “From China to the West: Ways between Arithmetic and Algebra” (Toulouse, France, 22-23 September 2000), the following African scholars presented papers:
 - Ahmed Djebbar (Algeria): “*Mathematics and Society: Some problems in medieval Maghrebian mathematical writings*”;

Ezzaim Laabid (Morocco): “*Arithmetical procedures that may replace algebra: Examples from the heritage tradition in the medieval Maghreb*”;

Abdelmalek Bouzari (Algeria): “*Procedures and circulation of ‘thought numbers’ from the Islamic East to the West*”;

Mohamed Souissi (Tunisia): “*Algorithms of different operations by al-Qalasadi. Some remarks*”.

- * At the sixth Congress of the Association of Francophone Circles of History and Archaeology of Belgium (Mons, Belgium, 24-27 August 2000), Francis Buekenhout (Free University of Brussels, Belgium) presented the paper entitled “*Polyhedra from Lucy to Jacques Tits*”, in which the prehistory and early history of the concept of polyhedron in Africa in stone cutting activities is analysed.
- * At the Study days of the French Association of Teachers of Mathematics in Public Schools (APMEP) on “*Mathematics in the Mediterranean*” (Nice, France, 27-29 October 2000), Ahmed Djebbar (Algeria) presented the opening address entitled “*Arabic mathematics on both sides of the Mediterranean*”. About 800 mathematics teachers took part in the event, among them teachers from the Maghreb and from Subsaharan Africa.

4. CURRENT RESEARCH INTERESTS

*** Cameroon Research Group on Ethnomathematics**

The University of Yaoundé 1 set up a Research Group on Ethnomathematics. Its coordinator is Professor G. Edward Njock (cf. #12)
[P.O. Box 623, Yaoundé, Cameroon (Tel./Fax. +237-216717; E-mail: enjock@uycdc.uninet.cm)].

5. 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.

6. THESES

- * Sidi Amar Assali (Algeria) defended successfully a ‘Magister’ thesis in the History of Mathematics (École Normale Supérieure d’Alger, June 25, 2000). His thesis is entitled “*The mathematical instruments of astronomy through the work of al-Hasan al-Murrakushi in the ‘Book of principles and objectives of the science of time’*”.

7. REPRINTS (continuation)

The Institute for the History of Arabic-Islamic Science at the Johann Wolfgang Goethe University (Frankfurt am Main, Germany) collected and started the reprinting of a series of papers and books on “Islamic mathematics and science”. Related to the history of mathematics in Africa are the following reprints:

Volume 24: *Ibn Yunis Abu l-Hassan ‘Ali ibn ‘Abdarrahman (d. 399/1009). Texts and Studies. Collected and reprinted. Vol. I.* Edited by Fuat Sezgin in collaboration with M. Amawi, C. Ehrig-Eggert, and E. Neubauer. 1997, VI, 278 pp.

This volume contains the following papers:

- * A letter from the Rev. Mr. Richard Dunthorne to the Rev. Mr. Richard Mason F.R.S. and keeper of the Woodwardian Museum at Cambridge, concerning the acceleration of the moon (1-10);
- * George Costard: Translation of a passage in Ebn Younes, with some remarks thereon (11-23);
- * Jean Bernouilli: Examen des remarques de M. Costard sur les éclipses d’Ibn-Jounes (25-36);
- * Jean Bernouilli: Recherches sur une éclipse de lune observée au caire en 979 et comparée avec les Tables de Mayer (37-53);
- * Armand-Pierre Caussin de Perceval: Kitab az-Zij al-kabir al-hakimi rasad as-saih Abi l-Hassan ‘Ali ibn ‘Abdarrahman ibn Ahmad ibn Yunis / Le livre de la grande table Hakémite, observée par le Sheikh Abdouhassan Ali ibn Abderrahman, ebn Ahmad, ebn Iounis (54-278).

Volume 25: *Ibn Yunis Abu l-Hassan ‘Ali ibn ‘Abdarrahman (d. 399/1009). Texts and Studies. Collected and reprinted. Vol. II.* Edited by Fuat Sezgin in collaboration with M. Amawi, C. Ehrig-Eggert, and E. Neubauer. 1997, VI, 318 pp.

This volume contains the following papers:

- * Jean-Baptiste Joseph Delambre: Ebn Younis et Aboul Wefa (1-96);
- * Louis-Amélie Sédillot: La grande Table hakémite (97-101);

- * Armin Wittstein: Die von Ibn Junis in Kairo beobachteten Mond- und Sonnenfinsternisse. Nach Theodor von Oppolzer's "Kanon der Finsternisse" berechnet (102-104);
- * Carl Schoy: Das 20. Kapitel der grossen haekemitischen Tafeln des Ibn Yunis: Ueber die Berechnung des Azimuts aus der Hoehe und der Hoehe aus dem Azimut" (105-119);
- * Carl Schoy: Ueber eine arabische Methode, die geographische Breite aus der Hoehe der Sonne im 1. Vertikal ("Hoehe ohne Azimut") zu bestimmen (120-129).
- * Carl Schoy: Die Bestimmung der geographischen Breite eines Ortes durch Beobachtung der Meridianhoehe der Sonne oder mittels der Kenntniss zweier anderen Sonnenhoehen und den zugehoerigen Azimuten nach dem arabischen Text der haekimitischen Tafeln des Ibn Yunus (131-149).
- * Carl Schoy: Beitrage zur arabischen Trigonometrie (Originalstudien nach unedierten arabisch-astronomischen Manuscripten) (150-185).
- * Carl Schoy: Ueber den Gnomonschatten und die Schattentafeln der arabischen Astronomie. Ein Beitrag zur arabischen Trigonometrie nach unedierten arabischen Handschriften (187-215).
- * Carl Schoy: Die Gnomonik der Araber (217-315).
- * J. H. Reynolds: The Hakemite Tables of Ebn Younis (316-317).

Volume 41: *Traité des instruments astronomiques des Arabes composé au treizième siècle par Abu l-Hasan 'Ali al-Marrakushi (VII/XIII s.) intitulé Jami' al-mabadi' wa-l-ghayat. Partiellement traduit par Jean-Jacques Sédillot et publié par Louis-Amélie Sédillot. Tome I-II.* Reprint of the Edition Paris 1834-1835. Edited by Fuat Sezgin. Introduction in French and Arabic, 1998, X, 619, 4 pp., 38 plates

Volume 42: *Al-Marrakushi Abu 'Ali al-Hassan ibn 'Ali ibn 'Umar (7th / 13th cent.) Texts and Studies. Collected and reprinted.* Edited by Fuat Sezgin in collaboration with M. Amawi, C. Ehrig-Eggert, and E. Neubauer. 1998, VI, 364, 6 pp., 38 plates.

This volume contains the following papers:

- * Dominique François Jean Arrago and Charles Mathieu: Rapport sur un Mémoire de M. Am. Sédillot, sur les instruments astronomiques des Arabes (1-3);
- * Jean-Baptiste Biot: Sur un mode d'énonciation des longitudes terrestres, particulier à certains écrivains arabes (Review of: Louis-Amélie Sédillot, *Traité des instruments astronomiques des Arabes, composé au XIIIe siècle par Abdoul-Hassan-Ali de Maroc.* Paris 1834 (5-43);
- * Louis-Amélie Sédillot: Mémoire sur les instruments astronomiques des Arabes (45-312);
- * Edward J. Stone: On Aboul hhasan's catalogue of 240 stars (3142-316);

- * Carl Schoy: Die geschichtliche Entwicklung der Polhoehenbestimmungen bei den aelteren Voelkern (317-350);
- * August Wedemeyer: Der Mittagshafir und –halazun von Abul Hassan. Die aelteste Messkarte zur bestimmung von Sonnenhoehen (with remarks by Carl Schoy) (352-364).

(to be continued)

8. HAVE YOU READ?

8.1 On the History of Mathematics in Africa

- #297 Aballagh, Mohamed: **Introduction à l'étude de l'influence d'Ibn al-Banna sur les mathématiques en Egypte à l'époque ottomane** [Introduction to the study of the influence of Ibn al-Banna on mathematics in Egypt during the Ottoman epoch], in: E. Ihsanoglu, A. Djebbar & F. Günergün (Eds.), *Science, Technology and Industry in the Ottoman World. Proceedings of the XXth International Congress of History of Science (Liège, 20-26 July 1997)*, Brepols Publisher, Turnhout, 2000, Vol. VI, 75-80.

The author presents information concerning the circulation of mathematics in the north of Africa through the example of three works of Ibn al-Banna.

- #298 Djebbar, Ahmed: **Figurate Numbers in the Mathematical Tradition of al-Andalus and the Maghreb**, *Suhayl*, Barcelona, Vol. 1 (2000), 57-70.

The paper analyses certain contributions made in Andalusia and the Maghreb to the theme of figurate numbers. These numbers are a geometrical representation of numbers and had been created by the Pythagorean School. The oldest known study of these numbers is found in the "Introduction to Arithmetic" by Nicomachus. A Arabic translation of this work circulated in Andalusia and in the Maghreb from the 10th century onwards.

- #299 Djebbar, Ahmed: **Les activités mathématiques au Maghreb à l'époque ottomane** [Mathematical activities in the Maghreb during the Ottoman epoch], in: E. Ihsanoglu, A. Djebbar & F. Günergün (Eds.), *Science, Technology and Industry in the Ottoman World. Proceedings of the XXth International Congress of History of Science (Liège, 20-26 July 1997)*, Brepols Publisher, Turnhout, 2000, Vol. VI, 49-66.

The paper presents some unpublished information on the mathematical activities in the region of the Maghreb that, from the 16th century onwards was under the political authority of the

Ottoman power of Istanbul. A comparison is made between these activities and those in the Western Maghreb which were autonomous.

- #300 Euclid of Alexandria: **Les Éléments. Vol. III: Livre X: Grandeurs Commensurables et Incommensurables. Classification des Lignes Irrationelles**, trans. Bernard Vitrac, Presses Universitaires de France, 1998, viii + 433 pp.
An annotated translation of book X of Euclid's "Elements" (cf. #94, 141, 180). Review by H. Guggenheimer in *Mathematical Reviews* 99m:01004.
- #301 Gerdes, Paulus: **On the production of mathematical knowledge in central and southern Africa**, *Communications of the Centre for Advanced Studies of African Society (CASAS)*, Cape Town, Occasional paper, no. 7, 1999, 18 pp.
Text of a paper presented at the Fourth World Archaeological Congress, 10-14 January 1999, University of Cape Town, South Africa.
- #302 Gerdes, Paulus: **Gerade und Ungerade – Zu einigen mathematischen Aspekten der mattenflechterei der Yombe-Frauen am unteren Kongo** [Even and odd – On some mathematical aspects of the plaiting of mats by Yombe women in the Lower Congo], in: J. Blankenagel & W. Spiegel (eds.), *Mathematikdidaktik aus Begeisterung fuer die Mathematik. Festschrift fuer Harald Scheid*, Ernst Klett Verlag, Stuttgart (Germany), 2000, 83-93.
Analysis of mathematical aspects of the mats plaited by women of the Yombe people in the Lower Congo area at the end of the 19th century and the beginning of the 20th century.
- #303 Guergour, Youcef: **Les différents systèmes de numération au Maghreb : l'exemple des chiffres rumi** [The different numeration systems in the Maghreb: The example of the rumi cyphers], in: E. Ihsanoglu, A. Djebbar & F. Günergun (Eds.), *Science, Technology and Industry in the Ottoman World. Proceedings of the XXth International Congress of History of Science (Liège, 20-26 July 1997)*, Brepols Publisher, Turnhout, 2000, Vol. VI, 67-74.
The author presents and analyses a type of a non-positional numeration system with 27 symbols used by the administration in the Western Maghreb.
- #304 Lebourg, Daryn: **Egyptian Astrometeorology**, in: J. Tattersall (ed.), *Proceedings of the Canadian Society for the History and Philosophy of*

Mathematics, University of Ottawa Press, Ottawa (Canada), 1998, 151-163.

Presents evidence of the use of astronomical phenomena to make weather predictions in Egypt in the 4th century BC.

#305 Mehesz, Kornel Zoltan: **Secretos de la Matematica Egípcia, Griega y Hindu** (Secrets from Egyptian, Greek and Hindu mathematics), Editorial Diogenes, Corrientes (Argentina)

Deals mostly with mathematics from the Hellenistic period and links with other cultures, particularly with regard to cube roots, unsolved geometrical problems, and the regular pentagon.

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

#306 Brenner, Klaus-Peter: **Chipendani und Mbira: Musikinstrumente, nicht-begriffliche mathematik und die Evolution der harmonischen Progressionen in der Musik der Shona in Zimbabwe** (Chipendani and Mbira: Musical instruments, non-lexical mathematics and the evolution of the harmonic progressions in the music of the Shona in Zimbabwe), Vandenhoeck & Ruprecht, Goettingen (Germany), 1997, 559 pp. (plus 2 CDs)

The author presents an English language summary (pp. 367-374), entitled: "Hypotheses on the role of the 'chipendani' mouth bow, of the non-lexical mathematics and of the 'mbira' lamellophone in the evolution of the harmonic progressions of Shona music."

#307 Djebbar, Ahmed: **Les récréations dans les mathématiques du monde musulman** [Mathematical recreations in the Islamic world], *La Recherche*, special issue, May-June 2000, 70-72

The paper presents little known element about the recreational and game aspects of Arab mathematics from the East and from the Maghreb.

#308 Gerdes, Paulus: **Le cercle et le carré: Créativité géométrique, artistique et symbolique de vannières et vanniers d'Afrique, d'Amérique, d'Asie et d'Océanie** [The circle and the square: Geometric, artistic and symbolic creativity of female and male basket weavers from Africa, America, Asia, and Oceania], L'Harmattan, Paris (France) / Montreal (Canada), 2000, 301 pp. (preface by Maurice Bazin)

Presents, on the one hand, a comparative and structural analysis of a type of plaited circular tray or basket cover, produced in several regions of Africa, America, Asia and Oceania, and, on the other hand, some elements of a catalogue, complemented by comments on the cultural context, the techniques and some implied

geometrical ideas. Chapters 2 to 5 deal with Africa: The Bedik in Senegal (Chapter 2, 23-76); The Twsa, the Tonga and the Chope in south-east Mozambique (Chapter 3, 77-100); The Makonde and Makhuwa in north-east Mozambique (Chapter 4, 101-130), *Varia Africana* (Chapter 5, 131-148).

- #309 Getz, Chonat: **Computer generation of geometric designs woven into the *izimbenge* using algorithmic processes developed in the field of fractal geometry**, *South African Journal of Science*, Vol. 95, October 1999, 434-439

“Geometric designs woven into copper wire baskets (*‘izimbenge’*) by the Zulu people of South Africa have been analysed and regenerated on a computer using algorithmic processes developed mainly in the field of fractal geometry. The mathematical concept of self-similarity is used to facilitate the comprehension of several aspects of fractal geometry. The algorithmic processes used are the deterministic algorithm, the random iteration algorithm and the escape time algorithm”.

- #310 Hansen, Keven: **Teaching mathematics (and history) with Egyptian fractions**, in: D. Curtin, D. Otero, and J. Wine (eds.), *Combined Proceedings of the Sixth and Seventh Midwest History of Mathematics Conferences*, University of Wisconsin, La Crosse (USA), 1999, 218-230

Presents a survey of computational and representational methods for Egyptian fractions up to the present. The author provides examples to include in a discrete mathematics course.

- #311 Wedgwood, Camilla: **Oxen inspanned**, *Spring Figure Magazine*, Vol. 4, No. 4, December 1999, 20-24

Reproduction of the making of a string figure by the Kxatla people of Botswana, originally included in the paper “String figures from Bechuana Protectorate”, *Bantu Studies*, Johannesburg, 1930, Vol. IV, 215-268

8.3 Other publications on the History of Mathematics by African mathematicians

- #312 Djebbar, Ahmed: **Les livres arithmétiques des *Éléments* d’Euclide dans le traite d’al-Mu’tanan du XI^e siècle** [The arithmetic books of Euclid’s *Elements* in the study of al-Mu’tanan of the 11th century], *LLULL, Revista de la Sociedad Española de Historia de las Ciencias y de las Técnicas*, 1999, Vol. 22 (no. 45), 589-653

“This paper studies the first chapter of *Kitab al-Istikmal*, a work of the 11th century by al-Mu’tanan Ibn Hud, a mathematician from al-Andalus who was the king of Zaragoza between 1081 and 1085.

Different chapters of this remarkable work in the Arabic mathematical tradition have already been studied in the last decade, while others are still in progress”.

- #313 E. Ihsanoglu, Ahmed Djebbar & F. Günergun (Eds.), **Science, Technology and Industry in the Ottoman World. Proceedings of the XXth International Congress of History of Science (Liège, 20-26 July 1997)**, Brepols Publisher, Turnhout, 2000, Vol. VI., 152 pp.
See #297, 299, 303.
- #314 Djebbar, Ahmed: **Le nombre, la racine et le bien** [Number, root and richness], *Les Cahiers de Science et Vie*, 2000, no. 56, 42-48
The paper is addressed to high school and college students. It presents, in an anecdotal form, some information about the birth of algebra and its development since the first Babylonian practices until the arrival of algebra in Europe from the 12th century onwards.
- #315 Djebbar, Ahmed: **Un poète algébriste** [A algebraist poet], *Les Cahiers de Science et Vie*, 2000, no. 56, 50-55
The paper is addressed to young pupils and presents the life and works of the poet and mathematician Omar al-Khayyam (d. 1139).

8.4 Publications on the History of Mathematics and the African Diaspora

None were reported.

8.5 Reviews

- #316 D'Ambrosio, Ubiratan (São Paulo, Brazil): Paulus Gerdes' "Femmes et Géométrie en Afrique Australe / Women, Art and Geometry in Southern Africa", www.mox.uniandes.edu.co/voc/Paulus_Gerdes.htm (cf. #193, 274, 175)
- #317 Hoeyrup, Jens (Roskilde, Denmark): Paulus Gerdes' "Ethnomathematik dargestellt am Beispiel der Sona Geometrie", *Zentralblatt Mathematik*, no. 908.01001 (cf. #236)
- #318 Inoue, Noriyuki (Waterbury, USA): Paulus Gerdes' "Geometry from Africa: Mathematical and Educational Explorations", *Newsletter of the International Study Group on Ethnomathematics*, 2000, 15(1), 9-10 (cf. #279)
- #319 Michalowicz, Karen Dee (Fairfax, USA): Paulus Gerdes' "Geometry from Africa: Mathematical and Educational Explorations", www.maa.org/reviews/gerdes.html (cf. #279)

- #320 Peterson, Ivars (Washington, USA): Paulus Gerdes' "Geometry from Africa: Mathematical and Educational Explorations" and Ron Eglash's "African Fractals: Modern Computing and Indigenous Design", *Science News* [www.sciencenews.org/sn_arc99/11_27_99/mathland.htm] (cf. #279, 290)
- #321 Vaquero Martinez, José (Spain): Paulus Gerdes' and Gildo Bulafo's "Sipatsi: Technology, Art and Geometry in Inhambane", *LLULL, Revista de la Sociedad Española de Historia de las Ciencias y de las Técnicas*, Zaragoza, 1999, 22(45), 943-944 (cf. #132, 153, 219)

8.6 Mathematical books published in Africa

- #322 Masanja, Verdiana G. (Ed.): **Conference Proceedings. XI SAMSA Symposium on the Potential of Mathematical Modeling of Problems from the SAMSA Region**, Mathematics Department, University of Dar Es Salaam, Dar Es Salaam (Tanzania), 1997, 395 pp. Conference proceedings of the XI Southern Africa Mathematical Sciences Association (SAMSA) Symposium, 18-23 August 1997, Arusha (Tanzania).

9. ANNOUNCEMENTS

9.1 CONFERENCES AND WORKSHOPS IN AFRICA

- * **Workshop on "Innovative Ways of Teaching Mathematical Sciences"**

The Vista University Workshop on "Innovative Ways of Teaching Mathematical Sciences" took place on 7 March, 2000 in Pretoria, South Africa. For more information, contact:

R. Anguelov, Department of Mathematics, Vista University, (Mamelodi), Private bag X1311, Silverton 0127, South Africa (Fax: 2712-8010210/9 Ext. 2144; e-mail: anglv-r@marlin.vista.ac.za; web-page: <http://www.vista.ac.za/vista/academic/sta/innohome.html>)

- * **Conference on "Geometry, Algebra and Applications"**

To celebrate its 75th anniversary, the Faculty of Science of Cairo University organised from 10-16 March 2000 a conference on "Geometry, Algebra and Applications". For more information, contact:

B.T. Hassan, Department of Mathematics, Faculty of Science, Cairo University, Orman, Giza, Egypt (Fax: 202-5727556; e-mail: BTHassan@math-sci.Cairo.eun.eg or MOASMOHS@frcu.eun.eg)

*** The Third International Conference on Abstract Analysis in Africa**

The Third International Conference on Abstract Analysis (ICAA) in Africa took place from 26-30 June 2000 in Berg-en-Dal, South Africa. For more information, contact:

Conference Secretariat, Department of Mathematics & Applied Mathematics, University of Pretoria, Pretoria 0002, South Africa
(Fax: 2712-420-3893; e-mail: icaa@math.up.ac.za; web-page: <http://www.math.up.ac.za/icaa>)

*** Symposium of the AMU Commission on Pan-African Mathematics Olympiads**

The first Symposium of the African Mathematical Union Commission on Pan-African Mathematics Olympiads took place from October 31 to November 6, 2000 in Kairouan, Tunisia. For more information, contact:

Nouzha El Yacoubi, Department of Mathematics and Informatics, P.O.Box 1014, Rabat, Morocco (Tel: 212 7 20 71 30; fax: 212 7 77 30 44; E-mail: elyac-sb@fsr.ac.ma)

*** Fourth Mathematical Symposium of Senegal**

The Fourth Mathematical Symposium of Senegal, organised by the Mathematical Society of Senegal, will take place from 20-23 November 2000 in Dakar, Senegal. For more information, contact:

Mary Teuw Niane, Département de Mathématiques, Université Cheikh Anta Diop, Dakar (E-mail: niane@ugb.sn or cmdiop@ucad.sn)

*** The Third Southern Hemisphere Symposium on Undergraduate Mathematics Teaching**

The Third Southern Hemisphere Symposium on Undergraduate Mathematics Teaching will take place from 1-5 July 2001 in Berg-en-Dal, South Africa. The symposium is organised by the South African Mathematics Education Reform Network (SAMERN). For more information, contact:

Johann Engelbrecht, c/o Department of Mathematics & Applied Mathematics, University of Pretoria, Pretoria 0002, South Africa
(Fax: 2712-420-3893; E-mail: samern@scientia.up.ac.za; Web-page: <http://science.up.ac.za/delta01>)

9.2 WEBSITES

*** Old Mathematics Books on the Canary Islands**

In the context of the Mathematical Year 2000, José Barrios and his colleagues at the University of La Laguna organised a virtual exhibition on “Libros antiguos de matemáticas en la ULL”, old mathematics books at Library of the University of La Laguna, Islas Canarias, Spain. The exhibition may be visited at:

www.ull.es/bull/lam2000

* **Website of the School of Mathematics and Statistics, University of St. Andrews, Scotland**

The website “www.history.mcs.st-andrews.ac.uk/history/Mathematicians” gives biographic information on various mathematicians, listed by country of birth. Abu Kamil, Ahmes, Diophantus, Euclid, Heron, Hypsicles, Menelaus, pappus, ptolemy, Serenus, Theon, Yunus are listed under Egypt. For instance, information on Hypathia can be found at:

www.history.mcs.st-andrews.ac.uk/history/Mathematicians/Hypathia.html

The only other African country listed is South Africa, where the following two South African born mathematicians are presented: Claude Chevalley (1909-1984) and Lionell Cooper (1915-1977).

* **Zimbabwe Mathematics Magazine**

The Mathematics Magazine produced by the Mathematics Department of the University of Zimbabwe is both available in a paper version and on the web

www.uzweb.uz.ac.zw/science/maths/zmaths/

9.3 INTERNATIONAL STUDY GROUP ON ETHNOMATHEMATICS

During the International Congress on Mathematics Education, the General Assembly of the International Study Group on Ethnomathematics (ISGEM) elected a new board. Paulus Gerdes (Mozambique) was elected President. Lawrence Shirley (USA) [he taught mathematics for many years in Ghana and Nigeria], Maria Luisa Oliveras Contreras (Spain), and Eduardo Sebastiani Ferreira (Brazil) were elected Vice-Presidents of ISGEM. For more information on ISGEM see its webpage:

www.cohums.ohio-state.edu/comp/isgem.htm

Readers interested in receiving the ISGEM-Newsletter may contact its editor:

Daniel Ness, EECE, Queens College CUNY, 65-30 Kissena Boulevard, Flushing, NY 11367, USA (E-mail: dn14@columbia.edu).

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

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- * Aït Ouassarah, Abderrahmane: Département de mathématiques, Faculté des sciences Semlalia, Marrakech, Morocco (E-mail: aitouassarah@ucam.ac.ma)
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- * Assali, Sidi Amar: E.N.S. de Kouba, Département de mathématiques, 16.050 Vieux Kouba, Alger, Algeria
- * Baraket, Sami: Département de mathématiques, Zarazouna, 7021, Tunisia (E-mail: Sami.Baraket@fst.rnu.tn)
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- * Bouzari, Abdelmalek: E.N.S. de Kouba, Département de mathématiques, 16.050 Vieux Kouba, Alger, Algeria (E-mail: bouzari@hotmail.com)
- * Brenner, Klaus-Peter: Musikwissenschaftliches Seminar der Georg-August-Universitaet Goettingen, Kurze Geismarstrasse 1, D-37073 Goettingen, Germany Tel. +49-551-39-5075; Fax: 49-551-39-9353; E-mail: musik@gwdg.de)
- * Buekenhout, Francis: Université Libre de Bruxelles / Académie Royale de Belgique (E-mail: fbueken@pop.ulb.ac.be)
- * Centre for Advanced Studies of African Society (CASAS): P.O. Box 352, Plumstead 7800, Cape Town, South Africa (Tel. +27-21-762-4454; E-mail: casas@iafrica.com)
- * Chidami, Mohamed: Université Mohamed V-Agdal, Faculté des Sciences, Département de Mathématique et Informatique, B.P. 1014, Rabat, Morocco (E-mail: chidami@fsr.ac.ma)
- * Daif, Ahmed: E.N.S. de Casablanca, Route d'El Jadida, Casablanca, Morocco
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- * Djebbar, Ahmed: G.H.D.S.O., Bt. 307, Université Paris-Sud, 91405 Orsay Cedex, France (E-mail: Ahmed.Djebbar@wanadoo.fr)
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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.

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Send requests to the Chairman

Paulus Gerdes: Centro de Investigação Etnomatemática /
Ethnomathematics Research Centre, C.P. 915, Maputo, Mozambique
(Fax: 258-1-460588; E-mail: pgerdes@virconn.com)

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Ahmed Djebbar: : G.H.D.S.O., Bt. 307, Université Paris-Sud, 91405
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13. 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

14. THANKS TO SIDA-SAREC

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