



AFRICAN MATHEMATICAL UNION

COMMISSION ON THE HISTORY OF MATHEMATICS IN AFRICA

AMUCHMA-NEWSLETTER-26

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Centro de Investigação Etnomatemática, Maputo (Mozambique), 11.11.2002

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 Conferences of Ahmed Djebbar at the Island of Reunion (9-16 February 2002)

At the invitation of the Science-Resource Association and of the Institute for Research in Mathematics Education (IREM) of Saint-Denis (Reunion), Ahmed Djebbar (Algeria) gave four lectures on the history of mathematics:

- * “The Arabic phase of algebra” (February 9, Saint Gilles);
- * “The circulation of Arabic sciences around the Mediterranean Sea” (February 12, Saint Pierre, Association of Friends of the University);
- * “The circulation of Arabic mathematics around the Mediterranean Sea” (February 13, University of Saint Denis);
- * “Birth and development of Arabic mathematics” (February 14, University Institute of Teacher education of Saint-Denis).

2.2 International colloquium on Euclid’s *Elements* (May 15-16, Lille, France)

An international colloquium on “The reception of Euclid’s *Elements* in the Middle Age and in the Renaissance” took place at the University of Lille 3 (France). The following communications were presented:

- * Sonia Brentjes: Ms Mumbai, Mulla Firuz R. I. 6, (a copy of) the oldest known variant of an Arabic version of Euclid’s *Elements*?

- * Tony Levy: Euclid's *Elements* in the Middle Age: the testimony of the Hebraic texts;
- * Bijan Vahabzadeh: The commentary of an-Nayrizi on the definitions of the fifth Book of the *Elements*;
- * Max Lejbovicz: The first school witness of the Arab-Latin Euclid;
- * Jean-Marie Nicolle: The teaching of Euclid in the 14th century: the geometry textbook of Jean de Murs, *De arte mesurandi*;
- * Jean-Luc Solère: Axiomatic order as a model of philosophic writing in Antiquity and in the Middle Ages;
- * Ahmed Djebbar and Bernard Vitrac: Two examples of introductory scholia in connection with the history of the text of Euclid's *Elements*;
- * Edouard Mehl: The interpretative stakes of the scholium of proposition 18 of Book XIII until Kepler and Descartes;
- * Jean Celeyrette and Edmond Mazet: The study of the movement "tanquam penes ausam" and "tanquam penes effectus" in Albert de Saxe's *Tractatus proportionum*;
- * Maria-Rosa Massa-Estève: The use of the fifth Book of the *Elements* in Geometriae Speciosae Elementa (1659) of Pietro Mengoli;
- * Joël Biard and Sabine Rommevaux: The incommensurability of the diagonal and the side of a square in Blaise of Parma's *Questiones* on the *Tractatus of proportionibus* of Bradwardine.

2.3 7th Maghrebian Colloquium on the History of Arabic Mathematics (Marrakech, Morocco, May 30 – June 1, 2002)

The opening session of the 7th Maghrebian Colloquium on the History of Arabic Mathematics chaired by Abdellah Saaf, Morocco's Minister of the National Education. Abdelhadi Tazi, member of the Royal Academy of Morocco, delivered the opening lecture "On intellectual activity in the medieval Maghreb." Ahmed Djebbar presented the closing lecture "On mathematics in the imperial Maghreb of the 12th and 13th centuries."

The following papers were presented at the colloquium:

- * Paul Kunitzsch (University of Munich, Germany): Some observations on the Hindu-Arabic numbers based on a new manuscript of *Kitâb al-Bayân d'al-Hassâr*;
- * Elena Ausejo and Mariano Hormigon (University of Saragoza, Spain): The question of Arabic influences on the mathematical work of Ramon Lull;
- * Mahdi Abdeljaouad (I.F.C, Tunis, Tunisia): The mathematical manuscript of Jerba: a practice of algebraic symbols from the Maghreb in full maturity;
- * Louis Charbonneau (UQAM, Montreal, Canada): Can the history of mathematics change the attitudes of the pupils towards mathematics?;
- * Bilani Hassan (University of Alep, Syria): Use of contemporary techniques for the reconstruction of the ancient astronomical instruments: the example of the astrolabe;
- * Danoun Abd l-wahid (University of Mawsil, Iraq): The contributions of the astronomers of Andalusia to the development of the astronomical tables;

- * Richard Lorch (University of Munich, Germany): The treaty of *al-Farghânî* on the construction of the astrolabe;
- * Michel Guillemot (University Paul Sabatier, Toulouse, France): From the fragments of Berlin to Pythagoras' relationships;
- * Abdellatif El-Houta (Delegation M.E.N, El-Jadida, Morocco): The science of time and popular astronomy;
- * Abdelmalek Bouzari (ENS Kouba, Algiers, Algeria): Some aspects of conics in the Andalusian mathematical tradition;
- * Angel Ramirez, (I.E.S La Rioja, Spain): The dominant philosophy in the 20th century on mathematics and the marginalisation of the history of the mathematical contributions of non-European cultures;
- * Kheira Megri (National Centre for Scientific Research, Paris, France): How Ibn al-Haytam and Kamâl ad-dîn al-Fârisî revolutionized the optics?;
- * El-Idrissi Abdellah (ENS, Marrakech, Morocco): The history of Arabic mathematics in teacher education: examples inspired by trigonometry;
- * Puig Roser (University of Barcelona, Spain): The *sphea* (*safiha*) of az-Zarqali according to the *Kitâb jâmi' al-mabâdi' wa l-ghâyât fî 'ilm al-mîqât* [Book on the principles and aims of the science of time] of al-Hasan al-Murrâkushî;
- * Gert Schubring (University of Bielefeld, Germany): Methods for the analysis of historic textbooks of mathematics;
- * Sami Khalid and Azzedine Lazrak (University Cadi Ayyad, Marrakech, Morocco): Symbolic notation, the turning point of Arabic mathematics;
- * Len Bergren (Fraiser University, Canada): Abû l-Jûd's contributions to mathematics;
- * Jens Hoyrup (Roskilde University, Denmark): Early *abbaco* algebra as a source of indirect information about little known Arabic traditions;
- * Menso Folkerts (University of Munich, Germany): The relation of the Hindu-Arabic numbers and the medieval abacus;
- * Y. Dold-Samplonius (University of Heidelberg, Germany): Magic of *Muqarnas* with video;
- * Hmida Hadfi (I.F.C, Tunis, Tunisia): Study of Ibn al-Hâim's comment on al-Yâsamîniya and precision of these sources (from the Maghreb and oriental);
- * Ould Sidaty Bachir (I.N.P, Nouakchot, Maurinania): Mathematics through inheritances: problem of Mecca;
- * Sahli Belkacem (ENS, Kouba, Algiers, Algeria): The Amicable Numbers in the Maghrebian mathematical tradition;
- * Emilia Calvo (University of Barcelona, Spain): The permanence of the treaties on *mîqât* in the Maghreb in the 14th and 15th centuries: Ibn al-Bannâ and al-Jadarî;
- * Philipo Spagnolo (University of Palermo, Italy): Research in mathematics education and history: a semiotic approach;
- * Randy K. Schwartz (Michigan, United States): Introducing Arab Historical Methods to a Two-Year College in the US;
- * Mercé Comes (University of Barcelona, Spain): The localities in al-Maghrib and the meridian of water in the *Tâj al-azyâj* [The crown of astronomic tables];
- * Sonja Brentjes (University of Frankfurt, Germany): The bibliographic Moslem dictionaries as sources for a sociocultural history of the old sciences;

- * Pierre Pinel (University Paul Sabatier, Toulouse, France): The astronomical interpretation of the Spherics of Menelaos by Abu Nasr and al-Tusi;
- * Driss Lamrabet (University Mohammed V, Rabat, Morocco): Mathematical riddles in the Maghrebian mathematical tradition: example of Ibn Haydur;
- * Anissa Harbilli (ENS, Kouba, Algiers, Algeria): Some processes of approximation in the mathematical writings from the Maghreb of the 12th–14th centuries;
- * Fulvia Furinghetti (University of Geneva, Italy): History as a tool for mathematics education and for research in mathematics;
- * Ulrich Rebstock (University of Freiburg, Germany): Some remarks on al-Kitâb al-Hâwî li al-a^cmâl as-sultâniyya wa rusûm al-hisâb ad-dîwâniyya [The book on the royal procedures and the signs of administrative calculation];
- * Rouan Omar (ENS, Marrakech, Morocco): Historic Evolution of the Moroccan programs of probability and statistics at the secondary and college levels;
- * Ezzaim Laabid (ENS, Marrakech, Morocco): The problems of inheritance and mathematics in the Maghreb of the 12th –14th centuries: an attempt to synthesis;
- * Taha Abd al-Quddous (University Paul Sabatier, Toulouse, France): Remarks on some terms used in the first translations of Menelaos' spherics;
- * Abdelaziz Razzouki (ENS, Marrakech, Morocco): The art of war in the Moslem West: a bibliographical Study.

At the last of the colloquium a round table was organised on History and Pedagogy of Mathematics (HPM).

2.4 Colloquium dedicated to (10-13 July, Safi, Morocco)

On the occasion of the sixtieth birthday of the mathematician Mohamed Akkar, his former students, led by Mohamed Chidami, one of the Vice-president of the African Mathematical Union (AMU), organized an international colloquium on “Statistics in functional spaces” that took place in his home town Safi. Morocco's Minister of the National Education and Secretary of State for Scientific Research attended the opening session of the colloquium and the ceremony of honoring. About one hundred scholars mostly from Morocco but also from Algeria, Benin, Burkina Fasso, France, Germany, Poland, and South Africa took part. Jan Persens, President of AMU, gave the closing address. Twenty five papers on statistics in connection with functional analysis and four papers of general interest were presented. Ahmed Djebbar (Algeria) presented the paper entitled “Debates and controversies among Arabic mathematicians (9th-14th centuries).”

2.5 Papers presented at recent meetings

- * At the International Symposium “Indigenous Knowledge Systems and the Endogenisation of Education in Africa” (University of Pretoria, Pretoria, South Africa, 22-23 February 2002), Paulus Gerdes (Mozambique) presented the paper “Exploring the potential of mathematical ideas embedded in African cultural activities.”

- * At the mathematics department of the Federal University of Pernambuco (Recife, Brazil, May 2, 2002), Paulus Gerdes (Mozambique) presented the paper “From traditional Angolan drawings to the discovery of Lunda-designs and cyclic matrices”. At the UNESCO conference on “Paulo Freire, Education and Social Transformation” (Recife, Brazil, May 2-4, 2002), Paulus Gerdes presented the theme “How to recognize and value mathematical knowledge embedded in cultural practices. The case mathematical ideas in Africa” (May 4).
- * On the occasion of the Science Feast (15-20 July 2002, Tunis, Tunisia), the Director of the Science City of Tunis, Tahar Gallali, organised two international colloquiums: “Science and Society” (July 15-17) and the 2nd International Meeting on “Scientific Culture around the Mediterranean and in the Middle East (July 18-19). During the first colloquium, Ahmed Djebbar (Algeria) gave a lecture entitled “Scientific excellence from the 8th in the 12th century.”
- * At the mathematics department of the University of Florence (Italy, September 9, 2002), Paulus Gerdes (Mozambique) presented the paper “Geometrical ideas from African cultures.”
- * At the department of cultural and social anthropology and in the interdisciplinary course on culture and development of the Catholic University of Leuven (Belgium, October 21-25, 2002), Paulus Gerdes (Mozambique) gave four lectures on ethnomathematics and geometrical ideas in African cultural practices.

2.6 Launch of books

- * At a well attended ceremony chaired by Alcido Nguenha, Mozambique’s Minister of Education, the new Portuguese language edition of Paulus Gerdes’ book *Lusona: Recreações geométricas de África* [Lusona: Geometrical Recreations from Africa], was launched on April 19, 2002, in Maputo. The book (cf. #241) is simultaneously published by Moçambique Editora (Maputo, Mozambique) and Texto Editora (Lisbon, Portugal).

3. CURRENT RESEARCH INTERESTS

None were reported.

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. THESES

On June 20, 2002, Abdulcarimo Ismael (Universidade Pedagógica, Maputo, Mozambique) was awarded a Ph.D. degree by the University of Witwatersrand (Johannesburg, South Africa). His thesis advisors were Paul Laridon (South Africa) and Paulus Gerdes (Mozambique). The thesis is entitled “An ethnomathematical study of Tchadji – about a Mancala type board game played in Mozambique and possibilities for its use in Mathematics Education” (478 pp.). The first part of the thesis includes an analysis of the mathematical considerations (e.g. mental calculation, geometrical pattern recognition, probability) of *tchadji* players from Mozambique Island. It compares this four-row version of mancala with other versions and a section is dedicated to its history. The second part of the thesis discusses the author’s experience in using the game in teaching probability theory at the university level, and in teaching some elements of probability in upper secondary schools in the north of the country.

6. SOURCES

None were reported.

7. HAVE YOU READ?

7.1 On the History of Mathematics in Africa

- #349 Anselin, Alain: Les gestes du nombre, in: Alain Anselin, *La Cruche et le Tilapia, Une lecture africaine de l’Egypte nagadéenne*, Éditions de l’UNIRAG, Abymes, Guadeloupe, 1996, pp. 103-115

Presents a comparative analysis of number words in Ancient Egypt and several African languages. The chapter analyses different ways of counting and presents a ‘human ecology’ of the numbers in Ancient Egyptian.

- #350 Barrios García, José: *Tara*: A study of the Canarian astronomical pictures. Part I: Towards an interpretation of the Gáldar Painted Cave, in: Florin Stanescu (Ed.), *Proceedings of the Third SEAC meeting*, Lucian Blaga University, Sibiu (Romania), 1999, 24-36 [SEAC = Société Européenne pour l’Astronomie dans la Culture, European Society for Astronomy in Culture]

“The first part of the paper analyses the archaeological, ethnohistorical and linguistic evidence that led the author to propose that in the 14th – 15th centuries the Berber populations of Grand Canary Island systematically recorded numerical, astronomical and calendrical data by means of certain geometrical figures named *tara*, painted in white, red and black on wooden planks and on the walls of certain caves. One main conclusion of the study was the

discovery of the use of a type of chess board of 3 vertical x 4 horizontal squares, named *acano* by the author, to represent 12 moons” (CF. AMUCHMA 19: 4.1).

- #351 Barrios García, José: *Tara: A study of the Canarian astronomical pictures. Part II: The acano chess board*, in: C. Jaschek and F. Atrio Barandela (Eds.), *Proceedings of the IVth SEAC meeting “Astronomy and Culture”*, Universidad de Salamanca, Salamanca (Spain), 1997, 47-54 [SEAC = Société Européenne pour l’Astronomie dans la Culture, European Society for Astronomy in Culture]

The paper presents the *acano* as a Berber lunar calendar and shows “how to number its squares to force the solstitial, equinoctial and eclipse moons to move across the board with very simple and stable patterns. These patterns provide a safe and clear mnemonic guide for performing on the *acano* an easy calculus of seasonal and eclipse moons over extended periods of time, just using the difference in days of the lunar year with either the solar year or the eclipse year to perform an elementary saw function on the squares. This calculus establishes the octaeteris, the metonic cycle and the 135-moon eclipse cycle as basic periods of the *acano*. ... The proposed calculus on the *acano* would reveal an unsuspected high level of Canarian mathematical astronomy [in the 14th - 15th centuries] and pose the question of the origin of this set of techniques” (CF. AMUCHMA 19: 4.1).

- #352 DeYoung, Gregg: *Astronomy in Ancient Egypt*, in: Helaine Selin (Ed.), *Astronomy across Cultures, The History of Non-Western Astronomy*, Kluwer Academic Publishers, Dordrecht, 2000, 475-508

“Ancient Egypt had a wide-ranging but essentially qualitative understanding of the heavens. The regularity of the annual inundations removed the necessity to make extensive predictions of future meteorological or climatological events. Despite making extensive observations, the reliance on extremely simple observational devices effectively prevented the growth of any complex theories or predictive algorithms. The primary concern seems to have been connected with time measurement, both for agricultural and religious purposes, as well as articulating analogies that were taken to point toward the possibility of a future life through constant rebirth, like the celestial lights” (p. 507).

- #353 Djebbar, Ahmed: *La production scientifique arabe, sa diffusion et sa réception au temps des croisades: l’exemple des mathématiques* [Arab scientific production, its diffusion and reception at the time of the crusades: the example of mathematics], in: *Actes du Colloque International sur “Occident et Proche-Orient: Contacts scientifiques au temps des croisades”* (Louvain-la-Neuve, 24-25 mars 1997), Brepols, Brussels, 2000, 343-368

Study of the different types of circulation of mathematical knowledge since the 12th century, inside the muslim empire,

between the East and the West, and outside this empire to Latin Europe.

- #354 Djebbar, Ahmed: Omar Khayyâm et les activités mathématiques en pays d'Islam aux XIe-XIIe siècles [Omar Khayam and mathematical activities in the Islamic countries during the 11th–14th centuries], *Farhang* (Teheran), Vol. 12, No. 29-32, 2000, 1-31
Paper dedicated to the life and work of Omar Khayyâm (d. 1131), in relationship with the scientific and cultural activities of his time.
- #355 Djebbar, Ahmed: La place et le rôle de l'imagination dans les activités mathématiques de la tradition arabe médiévale [The place and role of imagination in the mathematical activities of the medieval Arab tradition], in: A. Benmaïssa (Ed.), *Actes du Colloque International sur "Imagination and Sciences"* (Rabat, 1998), Publications de la Faculté des Lettres et des Sciences Humaines, Rabat, 2000, 153-176
Study of the different interventions of the imagination among the mathematicians of the Islamic countries, both in their scientific practice and their discours.
- #356 Djebbar, Ahmed; Rommevaux, Sabine & Vitrac, Bernard: Remarques sur l'histoire du texte des Eléments d'Euclide [Remarks on the history of the text of Euclid's Elements], *Archives for the History of Sciences*, No. 55, 2001, 221-295
A comparative study of certain aspects of the contents of the three great traditions of Euclid's Elements, those of ancient Greece, of the Arab translators and commentators and of the medieval Latin translators and commentators.
- #357 Djebbar, Ahmed: Les transactions dans les mathématiques arabes: classification, résolution et circulation [Transactions in Arab mathematics: classification, solution and circulation], in: *Actes du Colloque International "Commerce et mathématiques du Moyen Âge à la Renaissance, autour de la Méditerranée"* (Beaumont de Lomagne, 13-16 mai 1999), Editions du C.I.H.S.O, Toulouse, 2001, 327-344
An analysis of the different transaction problems and the solution procedures included in the known Arab mathematical manuals that were published between the 9th and the 14th century.
- #358 Djebbar, Ahmed: Pratiques savantes et savoirs traditionnels en pays d'Islam: l'exemple des sciences exactes [Scholarly practices and traditional knowledge in Islamic countries: the example of the exact sciences], in: *Actes du Colloque International sur "Science and Tradition: Roots and wings for Development"*, (Académie Royale des Sciences d'Outre Mer & UNESCO, Bruxelles, 5-6 avril 2001), Brussels, 2002, 62-86
Partial analysis and reflection about the relationships between two types of knowledge that are often separated, in the discours on science, but that have known important interactions. The question is

illustrated by the study of the complex relationships that existed between the oral and written transmission and the theoretic and practic aspects of scientific activity in the countries of the Islam.

- #359 Djebbar, Ahmed: *La phase arabe de l'histoire de l'algèbre* [The Arab phase in the history of algebra], in: Actes de la Troisième Université d'Été Européenne sur "*Histoire et épistémologie dans l'éducation mathématique*" (Louvain-la-Neuve, 15-18 juillet 1999), Université Catholique de Louvain, Louvain, 2001, Vol. 2, 203-217
Summary of the most significant developments in algebra during the Arab phase, that is between the 9th and 15th century. An important place is given to algebraic activities in Andalusia and in the Maghreb.
- #360 Djebbar, Ahmed : *Las Matemáticas árabes y su papel en el desarrollo de la tradición científica europea* [Arab mathematics and its role in the development of the European scientific tradition], in: *Galileo y la gestación de la ciencia moderna*, (La Laguna and Las Palmas de Gran Canaria, October 1999 - May 2000), Fundación Canaria Orotava de Historia de la Ciencia, Las Palmas, 2001, 23-34
Paper presented at the Universities of La Laguna and Las Palmas [Canarian Islands] in which information is given about the role of Andalusia in the development of certain mathematical activities and their diffusion to medieval Europe.
- #361 Gerdes, Paulus: Mathematics in Mozambique, *The Mathematical Intelligencer*, New York, 2002, Vol. 24, No. 2, 26-29
Short overview of the development of mathematical activity in Mozambique since the Independence of the country in 1975.
- #362 Jones, Alexander (Ed.): *Astronomical Papyri from Oxyrhynchus*, American Philosophical society, Philadelphia, 1999, 2 Vol., xiv + 495 pp.
Translation of and commentary on astronomical papyri found in an early 20th century dig at the Roman provincial capital of Oxyrhynchus, Egypt. Offers a glimpse of the state of astronomy around the time of Ptolemy.
- #363 Lumpkin, Beatrice: Mathematics used in Egyptian Construction and Bookkeeping, *The Mathematical Intelligencer*, New York, 2002, Vol. 24 No. 2, 20-25
Presents "examples from ancient construction and bookkeeping practices [which] indicate that the development of relatively modern concepts, such as recognition of zero as a quantity and the metricizing of space, has a long history, going back at least 4,700 years in ancient Egyptian mathematics. The examples include a bookkeeping balance sheet with many columns containing zero remainders and numbered construction lines at pyramids and mastabas. The same symbol, nfr, was used for the zero remainders and the zero reference point on the construction guidelines. A third

example was a very interesting architect's diagram that gave vertical coordinates for points located on a curve. The horizontal spacing of the points appears to be one cubit apart."

- #364 Rossi, Corinna & Christopher A. Tout: Were the Fibonacci Series and the Golden Section Known in Ancient Egypt, *Historia Mathematica*, New York, Vol. 29, 2002, 101-113

"The Fibonacci series and the Golden Section have often been used to explain the proportions of ancient Egyptian art and architecture. All such theories, however, are based on our modern mathematical system. They have never been examined in the realm of ancient Egyptian mathematics, as we understand it from studying the surviving mathematical sources. This article analyses the compatibility of the Fibonacci series with ancient Egyptian mathematics and suggests how an ancient scribe could have handled it. The conclusion is that concepts such as phi and the convergence to phi have little in common with the surviving ancient Egyptian mathematical documents and that they are quite far from the ancient Egyptian mentality" (p. 101)

- #365 Snedegar, Keith: Astronomical practices in Africa south of the Sahara, in: Helaine Selin (Ed.), *Astronomy across Cultures, The History of Non-Western Astronomy*, Kluwer Academic Publishers, Dordrecht, 2000, 455-473

The paper presents an overview of pre-colonial astronomical practices. The paper is structured in the following sections: sources of evidence, astronomical practices in the built environment, Khoisan sky lore, time reckoning in agricultural communities, cosmology and social cohesion, astronomical practice as an indicator of cultural exchange, colonialism and the decline of African astronomical practices.

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

- #366 Ascher, Marcia: *Mathematics Elsewhere: An Exploration of ideas Across Cultures*, Princeton University Press, Princeton, 2002

Some sections are related to the African continent. The first chapter is about divination and includes detailed discussions of Sikidy, as practiced in Madagascar, and Ifa, as practiced by the Yoruba (Nigeria). In the third chapter, which is about calendars. There is a brief mention of the Akan calendar. The fifth chapter includes a detailed discussion of the Gada system (essentially a system of social organization) of the Borana. And the seventh chapter has brief mentions of the Tchokwe *sona* (Angola) and designs of the Kuba (Congo).

- #367 Barrios García, José: Sobre la existencia de censos de población entre los antiguos Canarios (Gran Canaria, Siglos XIV-XV), in: *XIII Coloquio de*

Historia Canario-Americana, Ediciones del Cabildo de Gran Canaria, las palmas de Gran Canaria, 2000, 1697-1704

The paper analyses the sources on the existence of indigenous population census on the Canary Islands during the 14th and 15th centuries.

- #368 Bleicher, Michael N.: Egyptian fractions, in: Anatole Beck, Michael N. Bleicher & Donald W. Crowe, *Excursions into Mathematics. The Millennium Edition*, A. K. Peters, Natick MA, 2000, 421-434

Presents a “number of solved and unsolved problems” related to Egyptians fractions. The problems which “arise from the oldest known mathematical manuscripts” are “easily accessible to the mathematical novice” (p. 421).

- #369 Gerdes, Paulus: *Lusona: Recreações geométricas de África* [Lusona: Geometrical Recreations from Africa], Moçambique Editora, Maputo (Mozambique) and Texto Editora, Lisbon (Portugal), 2002, 128 pp.

New Portuguese language edition (original edition Maputo, 1991). Presents examples of traditional pictograms, called ‘(lu)sona’, from north-eastern Angola and geometrical recreations inspired by them. The reader is presented with certain figures in the style of the ‘sona’ and invited to find the missing figure(s) (cf. #109, 120, 172-174, 236, 273, 279 and the latest bilingual edition English / French: #241).

- #370 Tuchscherer, Konrad: The lost script of the Bagam, *African Affairs, The Journal of the Royal African Society*, London, 1999, 98 (390), 55-77

The paper presents new information on the Bagam script, an autochthonous writing system from Cameroon, which has now fallen into extinction. On page 73 are illustrated the numerals for one to ten. On page 77 the author notes the possible connection of the Bagan numerals to the Bamum numerals.

- #371 Verran, Helen: *Science and an African logic*, The University of Chicago Press, Chicago, 2001, 277 pp.

The author, who taught at Obafemi Awolowo University in Ile-Ife (Nigeria) between 1979 and 1986, reflects on how science, mathematics, and logic come to life in Yoruba primary schools. She describes how she “went from the radical conclusion that logic and math are culturally relative... to a new understanding of all generalizing logic.”

- #372 Zaslavsky, Claudia: *Math Games and Activities from around the World*, Chicago Review Press, 1998, 146 pp.

Book for children for ages 9 and up. Includes several examples of mathematical games or activities from Africa, like: [three-in-a-row games] *Shisima* from Kenya (4-5), *Tsoro yematatu* from Zimbabwe (8-9), *Dara* from Nigeria (18-19); [Mankala board games] *Easy oware* from Ghana (22-23), *The real oware* game from Ghana (24-25), *Giuthi* from Kenya (28-29); [More board games] *Yoté* from

West Africa (42-43); [Games of chance] *Igba-ita* from Nigeria (52-53); [Puzzles with numbers] Magic squares from West Africa (64-65), Dividing the camels from North Africa (73-74), The Ishango bone from Congo (75); [Puzzles without numbers] Crossing the river in Liberia (81), Crossing the river with jealous husbands from Kenya (82), The snake and the swallow's nest from Angola (84), The Chokwe story tellers from Angola (85-86), Decorations on the walls from Angola (87), How the world began from Angola (88-89), Children's networks from Congo (90-91); [Geometry all around us] Round houses in Kenya (100), Cone-cylinder houses in Kenya (101-102), The pyramids of ancient Egypt (105-106); [Repeating patterns] African patterns from Congo (127-129), *Adinkra* cloth from Ghana (133-134).

#373 Zaslavsky, Claudia: *Jogos e Atividades Matemáticas do Mundo Inteiro* Editora Artes Médicas Sul, Porto Alegre (Brazil), 2000
Translation into Portuguese of #372 by Pedro Theobald.

#374 Zaslavsky, Claudia: *Math Games and Activities from around the World* [in Chinese], Yuan T. Lee Foundation, Taipei, Taiwan, 2002
Chinese language edition of #372.

7.3 Other publications on the History of Mathematics by African mathematicians

None were reported.

7.4 Publications on the History of Mathematics and the African Diaspora

None were reported.

7.5 Reviews

- #376 Ascher, Marcia (Ithaca, USA): Paulus Gerdes' 'Geometry from Africa', *Mathematical Reviews*, MR2000e:01009 (cf. #279)
- #377 Ashbacher, Charles (Hiawatha, USA): Paulus Gerdes' 'Geometry from Africa', *Journal of Recreational Mathematics*, 2000, 30(1), 59 (cf. #279)
- #378 Gingerich, Owen: Alexander Jones' 'Astronomical Papyri from Oxyrhynchus', *Mathematical Reviews*, MR2001j:01009 (cf. #362)
- #379 Wertheim, Margaret, (USA): Helen Verran's 'Science and an African Logic', *The Los Angeles Times*, Dec. 23, 2001 (cf. #371)
- #380 Zaslavsky, Claudia (New York, USA): Paulus Gerdes' 'Geometry from Africa', *Humanistic Mathematics Network Journal*, 2000, 23, 55-57 (cf. #279)

7.6 Mathematical books published in Africa

None were reported.

7.7 Books published by African mathematicians outside Africa

None were reported.

8. ANNOUNCEMENTS

8.1 CONFERENCES AND WORKSHOPS IN AFRICA

SMCI Symposium

The Mathematical Society of Côte d'Ivoire (SMCI, Ivory Coast) is organizing a symposium on "Probability, Statistics and Applications", to take place at the University of Cocody, Abidjan, Côte d'Ivoire (May 5-10, 2003). For more information, contact:

Modeste N'zi, UFRMI, Université de Cocody Abidjan, 22 BP 582
Abidjan 22, Côte d'Ivoire (E-mail: nzim@ci.refer.org, Fax: 225 / 22 48
64 00), or

Etienne Desquith, IRMA, Université de Cocody Abidjan, 22 BP 2030
Abidjan 22, Côte d'Ivoire (E-mail: irmath@globeaccess.net,
desquith@hotmail.com)

SAMSA Symposium

The next Symposium of the Southern African Mathematical Sciences Association (SAMSA) will be held at the University of South Africa (Unisa, Pretoria) from 9 to 13 December 2002. The themes of the symposium are: Research in mathematics; Applications of mathematics in industry and finance; Mathematics education. For more information, contact:

Zwelethemba Mpono, Unisa, Pretoria, South Africa (E-mail:
mponoze@unisa.ac.za 64), or

Temba Shonhiwa, SAMSA Secretary, University of Zimbabwe (E-mail: temba@maths.uz.ac.zw)

8.2 CONGRESSES

22nd International Congress on the History of Science

The 22nd International Congress on the History of Science will take place in China in 2005. The preparatory secretariat is housed at the Institute for the History of Natural Science, Chinese Academy of Sciences, 137 Chao Nei Street, Beijing 10001, People's Republic of China (Fax: 86-10-6401-7637). Web site:

www.22-ichs.ihns.ac.cn

8.3 WEBSITES

- * International Association for Science and Cultural Diversity (IASCUD)

IASCUD launched its website in October 2002. The book “Science and Cultural Diversity: Filling a gap in the History of Science”, edited by Juan Saldaña can be downloaded from IASCUD’s website:

<http://iascud.univalle.edu.co>

- * Indigenous Knowledge World Wide (IKWW)

The *Indigenous Knowledge World Wide Newsletter*, published by NUFFIC (PO Box 29777, 2502 LT The Hague, The Netherlands) is also available online:

www.nuffic.nl/ik-pages/ikww

8.4 JOURNALS

Indilinga: African Journal of Indigenous Knowledge Systems

The first issue of the *Indilinga: African Journal of Indigenous Knowledge Systems* was launched on the 2nd of March 2002 at the 4th African Renaissance International Conference in Durban, South Africa. The second issue will have as theme “research methods for indigenous knowledge systems.” For more information, contact the editor:

Queeneth Mkabela, Private bag x10, Isipingo, 4110 South Africa (Fax: 27-31-90 93 011; E-mail: nmkabela@hotmail.com).

8.5 APPOINTMENTS / PROMOTIONS

- * AMUCHMA’s secretary Ahmed Djebbar, former Minister of Education of Algeria, has been appointed full professor of mathematics and history of mathematics at the University of Lille 1 (France)
- * AMUCHMA’s associate member José Barrios Garcia has been promoted to full professor of mathematical analysis at the University of La Laguna, Tenerife, Canary Islands (Spain)

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

- Abdeljaouad, Mahdi: I.F.C, 43 rue de la liberté, 2019 Le Bardo, Tunis, Tunisia (mahdi.abdeljaouad@isefc.rnu.tn)
- Anselin, Alain: Sciences du Langage, Faculté des lettres, Université des Antilles Guyane, 97232 Schoelcher, Martinique FWI (alain-anselin@wanadoo.fr)
- Ascher, Marcia: 524 Highland Road, Ithaca, New York 14850, USA (aschaca@clarityconnect.com)

- Ashbacher, Charles D.: Editor Journal of Recreational Mathematics (71603.522@compuserve.com)
- Ausejo, Elena: Seminario de Historia de la Ciencia, Facultad de Ciencias (Matemáticas), Ciudad Universitaria, E-50009 Zaragoza, Spain (ichs@posta.unizar.es)
- Barrios Garcia, José: Dpto. de Análisis Matemático, Universidad de La Laguna, 38271 La Laguna, Tenerife, Canary Islands, Spain (Fax: 34-22-604023; E-mail: Jbarrios@ull.es)
- Bergren, Len: Department of Mathematics, Simon Fraser University, Burnaby B. C., Canada V5A 1S6 (berggren@sfu.ca)
- Bilani, Hassan: Faculty of Engineering, University of Aleppo, Aleppo, Syria
- Bleicher, Michael N.: Chairman, Mathematics Department, Clark Atlanta University, Atlanta, Georgia (bleicher@math.wisc.edu)
- Bouzari, Abdelmalek : ENS Kouba, Département de mathématiques, 16050 Vieux Kouba, Algiers, Algeria (bouzari@hotmail.com)
- Brentjes, Sonja: J.W. Goethe University, Frankfurt am Main, Germany (sbrentjes@hotmail.com)
- Calvo, Emilia: Departamento de Arabe, Facultad de Filología, University of Barcelona, Gran Via 585, 08007 Barcelona, Spain
- Charbonneau, Louis : UQAM, 1193 carré Philippe, Montreal, Canada
- Comes, Mercé: Departamento de Arabe, Facultad de Filología, University of Barcelona, Gran Via 585, 08007 Barcelona, Spain
- Danoun, Abd I-wahid: University of Mossoul, Mossoul, Iraq
- DeYoung, Gregg: Science Department, American University, P.O.B. 2511, 113 Sharia Kasr El-Aini, Cairo, Egypt
- Dold-Samplonius, Yvonne: University of Heidelberg, Türkenlouisweg 4, 6903 Neckargemünd, Germany (dold@math.uni-heidelberg.de)
- Editora Artes Médicas Sul Ltda.: Av. Jeronimo de Ornelas, 670 900040-340 Porto Alegre, RS, Brazil (Tel. 51-330-3444, Fax 51-330-2378)
- El-Houta, Abdellatif: Inspecteur, Delegation M.E.N, El-Jadida, Morocco
- *El Idrissi*, Abdellah: ENS de Marrakech, B. P. S 41, Marrakech, Morocco (aelidrisi@ensma.ac.ma)
- Folkerts, Menso: Institut für Geschichte der Naturwissenschaften der Universität München, Postfach 26 01 02, Museumsinsel 1, D-8000 Munich 26, Germany (M.Folkerts@lrz.uni-muenchen.de)
- Furinghetti, Fulvia: Department of mathematics, University of Genova, via Dodecaneso 35, 16146 Genova, Italy (furinghe@dima.unige.it)
- Guillemot, Michel: Département de mathématique, University Paul Sabatier, 31400 Toulouse, France (guillemo@cict.fr)
- Hadfi, Hmida: I.F.C, 43 rue de la liberté, 2019 Le Bardo, Tunis, Tunisia
- *Harbili*, Anissa : ENS Kouba, Département de mathématiques, 16050 Vieux Kouba, Algiers, Algeria (anissa_harbili@yahoo.fr)
- Hormigon, Mariano: Seminario de Historia de la Ciencia, Facultad de Ciencias (Matemáticas), Ciudad Universitaria, E-50009 Zaragoza, Spain (hormigon@posta.unizar.es)
- Hoyrup, Jens: Institute of Communication Research, Roskilde University, P.O. Box 260, 4000 Roskilde, Denmark (jensh@ruc.dk)
- Ismael, Abdulcarimo: Departamento de Matemática, Universidade Pedagógica, C.P. 4040, Maputo, Mozambique (abdulcarimoismael@hotmail.com)

- Khalid, Sami and Lazrak, Azzedine: Département d'Informatique, University Cadi Ayyad, Marrakech, Morocco
- Kunitszch, Paul: Davidstrasse 17, 8000 Munich 81, Germany
- Laabid, Ezzaim : ENS de Marrakech, B. P. S 41, Marrakech, Morocco (ezzaimlaabid@hotmail.com)
- Lamrabet, Driss: Faculté des Sciences de l'Education, University Mohammed V, Rabat, Morocco
- Lorch, Richard: Institut für Geschichte der Naturwissenschaften der Universität München, Postfach 26 01 02, Museumsinsel 1, D-8000 Munich 26, Germany (R.Lorch@lrz.uni-muenchen.de)
- Lumpkin, Beatrice: 7123 S. Crandon, Chicago IL 60649, USA (Bealumpkin@aol.com)
- Megri, Kheira: 7 allée Fernand Léger, Bt. G, n° 33, 92000 Nanterre, France (k.megri@wanadoo.fr)
- Mkabela, Queeneth: Private bag x10, Isipingo, 4110 South Africa (Fax: 27-31-90 93 011; E-mail: nmkabela@hotmail.com)
- Omar, Rouan : ENS de Marrakech, B. P. S 41, Marrakech, Morocco
- Ould Sidaty, Bachir: I.N.P, Nouakchot, Maurinania
- Pinel, Pierre : Département de mathématique, University Paul Sabatier, 31400 Toulouse, France
- Puig, Roser: Departamento de Arabe, Facultad de Filologia, University of Barcelona, Gran Via 585, 08007 Barcelona, Spain (rpuig@lingua.fil.ub.es)
- Ramirez, Angel: I.E.S, La Rioja, Spain
- Razzouki, Abdelaziz: ENS de Marrakech, B. P. S 41, Marrakech, Morocco (razoukiaziz@hotmail.com)
- Rebstock, Ulrich: Alber-Ludwig Universität Freiburg, Postfach, D-79085 Freiburg, Germany
- Rossi, Corinna: Churchill College, Cambridge CB3 0DS, United Kingdom (cr208@hermes.cam.ac.uk)
- Sahli, Belkacem : Département de mathématique, Université de Sétif, Algérie (sahlib@yahoo.com)
- Schubring, Gert: Institut für Didaktik der Mathematik, Universität Bielefeld, Postfach 8640, D 4800 Bielefeld 1, Germany (gert.schubring@uni-bielefeld.de)
- Schwartz, Randy K.: College Schoolcraft, Michigan, United States
- Snedegar, Keith: History – 185, Utah valley State College, Orem, Utah 84058-5999, USA (snedegke@uvsc.edu)
- Spagnolo, *Philippo*: Vice Dean of G. R. M., Facolta Scienze della Formazione, University of Palermo, Via Archirafi 34, 90128 Palermo, Italy (spagnolo@math.unipa.it)
- Taha, Abd al-Qaddous: Département de mathématique, University Paul Sabatier, 31400 Toulouse, France
- Tout, Christopher A.: Churchill College, Cambridge CB3 0DS, United Kingdom (E-mail: cat@ast.cam.ac.uk)
- Tuchscherer, Konrad: St. John's University, Department of History, 8000 Utopia parkway, Jamaica, New York 11439, USA (tuchschk@stjohns.edu)
- Verran, Helen: Department of History and Philosophy of Science, University of Melbourne, Melbourne, Australia

- Yuan T. Lee Foundation: 7E, No. 75, Chung-Ching South Road, Section 2, Taipei, Taiwan R.O.C. (Esciences@ytleee.org.tw)
- Zaslavsky, Claudia: 45 Fairview Avenue, 13-1, New York, NY 10040, USA (czaslav@msn.com)

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: 258-1-460588; 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 14 74; E-mail: ahmed.djebbar@agat.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 accessible on the following website:

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

Visit also his "Mathematicians of the African Diaspora" web page:

<http://www.math.buffalo.edu/mad/00.INDEX/mad.html>