AFRICAN MATHEMATICAL UNION

COMMISSION ON THE HISTORY OF MATHEMATICS IN AFRICA

AMUCHMA-NEWSLETTER-23

TABLE OF CONTENTS

Maputo (Mozambique), January 5, 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. MEETINGS, EXHIBITIONS, EVENTS

2.1 CIMPA School on the History of Mathematics (cf. AMUCHMA 21:7).

The International Center for Pure and Applied Mathematics (CIMPA) organised, in collaboration with Unesco-Egypt, from January 23 to February 3, 1999 in Mansurah (Egypt) a school on the **History of Mathematics in the Mediterrenean from Antiquity to the 18th century**. Claude Lobry and Roshdi Rashed coordinated the school. There were fifty-four participants (21 Egyptians, 12 Lebanese, 4 Moroccans, 2 Algerians, 2 Tunisians, 8 French, 2 Italians, 2 Indians, 1 Thai). The lectures were given at the faculty of Sciences of the El-Mansurah University. The following themes were presented:

* R. Rashed: *From Diophantus to Fermat*;
* C. Houzel, *From Euler to Gauss*;
* P. Crozet: *Plane geometry and the theory of conic sections*;
* R. Morelon: *Mathematical astronomy from Hipparchus to Copernicus*;
* H. Bellosta: *Infinitesimal geometry*;
* E. Giusti: *Western mathematics from the Renaissance to modern times*;
* M. Zerner: *Tangent problems from Newton to Leibniz*;
* J. Delattre: *Neopythagorican arithmetic*;
* F. Vofea: *History of Egyptian mathematics*;
* M. Benmiled: *Book X of Euclid's Elements*;

* R.K. Bhattacharyy: *History of Indian mathematics*;
* N. Farès: *The limits of Arab algebra: Sharaf al-Dîn al-Tûsî*.

2.2 European Summer School on the History of Mathematics (Belgium)

The 1999 European Summer School on the History of Mathematics took place in Louvain (Belgium) from 14 to 18 July. Two Maghrebian scholars conducted seminars at this summer school on the following themes

* Ahmed Djebbar (Algeria): *The Arabic phase of algebra*;
* Abdallah El Idrissi (Morocco): *Historical and didactical aspects of trigonometry*.

2.3 Seminar on Mathematics and Culture (Canary Islands)

The Faculty of Mathematics of the University of La Laguna (Tenerife, Canary Islands) organised an interdisciplinar seminar entitled "*Mathematics and Culture: New Tendencies in Ethnomathematics and the History of Mathematics*" (5 to 7 October 1999). The following themes were presented:

* Paulus Gerdes (Mozambique): *Ethnomathematics: Origins, development and some tendencies*;
* Paulus Gerdes: *Examples of mathematical ideas south of the Sahara*;
* José Barrios García (Canary Islands): *Mathematical ideas of the Guanches of Tenerife*.

On October 7, Paulus Gerdes delivered at the same Faculty the inaugural lecture of the 1999-2000 academic year, entitled "*On geometry south of the Sahara*".

2.4 Workshop on Mathematics and Mathematics Education in Africa

Mohamed El Tom (Sudan), chairman of the African Mathematical Union Commission on Mathematics Education (AMUCME) and visiting professor at Teachers College, Columbia University (New York, USA), organised on the weekends of November 6 and 7 and November 13 and 14, 1999, a workshop on mathematics and mathematics education in Africa. The following talks were related to the history of mathematics education in Africa:

* Eric Karuhije (Uganda): *Mathematics education in Uganda in historical perspective*;
* Paulus Gerdes (Mozambique): *Mathematics and mathematics education in Mozambique in historical perspective*;
* Bruce Vogeli (USA): *US involvement in African Mathematics education development*.

2.5 National Colloquium on Teaching Mathematics in the University (Algeria)

Professor Rachid Bebbouchi of the Mathematics Department of the Houari Boumediene University of Algiers (Algeria), organised from November 27 to

30, 1999, a National Colloquium on the Teaching of Mathematics in Algeria. Several papers were presented related to the history of mathematics:

* Ahmed Djebbar: *Role of the history of mathematics in the teaching of mathematics*;
* Youcef Guergour: *Some themes from the history of geometry for use in teaching*;
* Youcef Atik: *The method of exhaustion in the Arab mathematical tradition*;
* Kaddour Guerbati: *Mathematics and poetry: yesterday and today*.

2.6 Papers presented at recent meetings

* At the International Study days on Number (Peyresc, France, 7-10 September 1999), Ahmed Djebbar (Algeria) presented a paper on "*From the thought number to the idea of number: some aspects of arithmetic praxis and its continuation in Andalusia and the Maghreb*".

* On October 11, 1999, Paulus Gerdes (Mozambique) gave a lecture on "*Culture and Mathematics in Africa*" at the Centre for African and Development Studies of the Higher Institute for Economy and Management of the Technical University of Lisbon (Portugal).

* At the Colloquium held in Marrakech (Morocco, 14-16 October 1999) on Ibn Tufyal, a philosopher from the 12th century who lived in Marrakech, Ahmed Djebbar (Algeria) presented a paper on "*Mathematical and astronomical activities in Andalusia and in the Maghreb during the time of Ibn Tufayl*".

* The first theme "*Arabic Mathematics and its influence on European science*" of the seminar on "Galilei and the beginnings of modern science" was presented by Ahmed Djebbar (Algeria) on October 25, 1999, at the University of La Laguna and on October 26 at the University of Las Palmas (Canary Islands). The seminar is organised by the 'Fundación Canaria Orotava de Historia de la Ciencia'.

* At the First Ethnomathematics Congress of Bolivia (Santa Cruz de la Sierra, Bolivia, 27-30 October 1999), Paulus Gerdes spoke about the development of mathematics education and ethnomathematics in Mozambique. The Congress was coordinated by Oscar Pacheco Rios, Chairman of the Bolivian Ethnomathematics Study Group.

* On November 16, 1999, Paulus Gerdes (Mozambique) conducted at Rutgers University (New Brunswick NJ, USA) a seminar on "*Mathematical aspects of the weaving of the 'milala' dance bell in northern Mozambique*".

* At the National Colloquium on Non-Linear Analysis, organised by professor M. S. Moulay at the Houari Boumediène University (22-24 November, 1999, Algiers, Algeria), Ahmed Djebbar gave the opening address entitled "*Mathematical paradigms during the history of the elaboration of the concept of real number*".

* On November 25, 1999, Ahmed Djebbar (Algeria) gave a public address on "*Scientific activities in the Maghreb during the Ottoman epoch*" at the occasion of the celebrations of the millennial of the foundation of the city of Algiers (Algeria).

* On December 11, 1999, Ahmed Djebbar (Algeria) presented the paper "*Contribution of Arab mathematicians to algebra*" at the Franco-Italian Colloquium on "Italian algebraists" (Lille, France).

* On December 17, 1999, Ahmed Djebbar (Algeria) presented the paper "*Montucla's treatment of the history of Arab mathematics and astronomy*" at the Colloquium organised at the occasion of the bicentenary of the death of Montucla, the first great French historian of mathematics (Lyon, France).

3. CURRENT RESEARCH INTERESTS

* Abdelmalek Bouzari is preparing a doctoral thesis ('thèse d'état') at the University of Annaba (Algeria) on "The conic sections in the Kitab al-istikmal of al-Mu'taman (11th century): Contribution to the study of the history of geometry in Andalusia and in the Maghreb".

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.

Professor David Singmaster (UK) sent us the following query:

* "There is a puzzle, often called Solomon's Seal, which has a small board with three holes. The loop of a string is passed through the center hole and the two ends are passed through the loop. A ring is placed on each of the strings and then each end is passed through an end hole and tied. It looks like two oops hanging off the board with a ring on each loop. The object is to get the two rings onto one of the loops. In 1975, Fred Grunfeld's Games of the World, p. 267, calls this 'an African puzzle'. Since then, this has been repeated in other books. However, I can find no source or evidence for this assertion. Perhaps Grunfeld first came across the puzzle in Africa. In European literature, the puzzle is depicted and described as far back as 1636 in Germany, 1725 in France and 1747 in Italy. Do you know anything about this or similar topological puzzles in Africa? Indeed, anything about African puzzles would interest me."

The Solomon's Seal described is equivalent to the 'pèn' puzzle from West Africa (Guinean forest). I describe it (and some other topological puzzles) in

my paper "On mathematics in the history of Sub-Saharan Africa" (*Historia Mathematica*, New York, Vol. 21, 1994, 345-376). Several references are indicated. My source on the 'gèn' game was the book by C. Beart: "*Jeux et jouets de l'Ouest Africain*", IFAN, Dakar, 1955, p. 413 (PG).

Dr. Michael Morelli (USA) sent us the following query:

* 'What do you know about math books in the 14th century university library of Timbuktu that was uncovered by Henry Louis Gates of Harvard University?"

5. THESES

* In June 1999, **Abdelmalek Bouzari** defended at the E.N.S. of Algiers (Algeria) a 'Magister' thesis, entitled "*The conic sections in the Arab mathematical tradition through a treatise attributed to al-Khazin (10th century)*".
  The thesis contains a historical presentation of the conic sections in the Greek and Arab traditions, a critical edition – on the basis of two existing manuscripts – of a text from the 10th century, attributed to the mathematician al-Khazin, and a mathematical analysis of the contents of this text.

* Also in June 1999, **Khadidja Kouidri** defended at the E.N.S. of Algiers (Algeria) a 'Magister' thesis, entitled "*The method of false position in the Arab mathematical tradition*".
  This thesis contains an analysis of a certain number of Arab texts produced between the 10th and the 14th century, which deal with the solution of linear equations and of systems of linear equations by means of the methods of false position.

6. SOURCES

6.1 Further sources on numeration in Africa (Cf. AMUCHMA 22:4, 6-10)

(Paulus Gerdes)

Ludwig Gerhardt, **Zahlensysteme in der nigrianischen Plateausprachen – Import und Export in Naira und Schilling**
[Numeral systems in Nigerian Plateau languages – Import and export in Naira and Shilling], manuscript, Würzburg (Germany), 1985
(see English language version, 1987).

Ludwig Gerhardt, **Some remarks on the numerical systems of Plateau languages**, *Afrika und Übersee*, 70 (1987), 19-29

Discusses the transition from duodecimal to decimal numeration in some languages belonging to the eastern Kainju group (like Eggon) and some Western and central Plateau languages (Nigeria).

Hubert Grimme, **Nachtrag zu A. Klingenhebens Studie über die Berberischen Zählenmethoden** [Comments on A. Klingenheben's study of the Berber methods of counting], *Zeitschrift für Eingeborenensprachen*, 17 (1926/27), 230-234

Complements Klingenheben's paper with further information on the vigesimal numeration.

Carl Hoffmann, **Zur Verbreitung der Zahlwortstämme in Bantu-sprachen** [On the distribution of number word roots in Bantu languages], *Afrika und Übersee*, 37:2 (1952/3), 65-80

Discusses the distribution of the roots for the number words 1 to 10. For the number words 2 to 5 and 10 the uniformity is greater than for the number words for 1, and 6 to 9 (p. 78).

August Klingenheben, **Zu den Zählenmethoden in den Berbersprachen** [On the counting methods in the Berber methods], *Zeitschrift für Eingeborenen-sprachen*, 17 (1926/27), 40-51

Analyses different numeration systems in Berber languages in north-west Africa: mostly decimal, sometimes quinar-trigesimal (Nefusa language), sometimes vigesimal (Sus region [Morocco]) and the interaction with Arabic.

Theodor Kluge, **Die Zahlbegriffe der Sudansprachen, ein Beitrag zur Geistesgeschichte der Menschen** [The number concepts in the Sudanese languages, a contribution to the spiritual history of man], edition of the author, Berlin-Steglitz, 1937, 260 pp., 17 maps

Presents the number words in 976 Sudanese languages and dialects, organised in 16 regional groups from the Senegal-Guinea to the Nile-Chad. A comparative analysis of the languages in each group is included. The sources (mostly grammars and dictionaries) used by the author are indicated.

Theodor Kluge, **Die Zahlbegriffe der Australier, Papua und Bantuneger nebst einer Einleitung über die Zahl; ein Beitrag zur Geistesgeschichte des Menschen** [The number concepts of the Australian, the Papua and the Bantu Negroes together with an introduction to number; a contribution to the spiritual history of man], edition of the author, Berlin-Steglitz, 1938, 304 pp., 6 maps

The section on Bantu languages presents first the number words in 274 Bantu languages (and dialects), organised by geographical region (197-

276), followed by a comparative analysis of the number word root and structure (277-300). The sources used by the author are not indicated.

G. Lindblom, **The magic significance of numbers**, in: *The Akamba in British East Africa*, 1908, 306-310

"... Odd numbers are generally considered disastrous or at least unlucky ..." A contrary state of affairs is encountered "at a medicine man's divination, as the pebbles that fall out of his calabash are a good omen if they are odd and vice versa..." (p. 306).

Carl Meinhof, **Rezension von M. Schmidl 'Zahl und Zählen in Afrika'**, *Zeitschrift für Kolonialsprachen*, 6 (1915-1916), 251-252

Review of #49.

Carl Meinhof, **Rezension von K. Sethe 'Von Zahlen und Zahlworten bei den alten Ägyptern und was für andere Völker und Sprachen daraus zu lernen ist'**, *Zeitschrift für Kolonialsprachen*, 8 (1917-1918), 268-270

Review of the book by K. Sethe. The author is criticised for the fact that he advances with a comparison with Semitic languages, but forgets to study the relationship with African languages.

K. Sethe**, Von Zahlen und Zahlworten bei den alten Ägyptern und was für andere Völker und Sprachen daraus zu lernen ist. Ein Beitrag zur Geschichte von Rechenkunst und Sprache** [On numbers and numerals among the ancient Egyptians and what can be learned from them concerning other peoples. A contribution to the history of arithmetic and language], Trübner, Straßburg, 1916, 147 pp.

Bairu Tafla, **Some remarks on numerical idioms recurring in Ethiopian history**, *Afrika und Übersee*, 70 (1987), 73-98

"… certain numbers [e.g. 2, 4, 40, 44, 80, 7] in the Semitic languages of Ethiopia form components of idiomatic expressions in which they lose their accurate mathematical significance and assume figurative meanings, or connotations which have no relation whatsoever to their original meaning. Some imply greatness, wholeness or totality; others indicate excessiveness of amount, or fantastical size" (p. 92.

Anton Vorbichler, **Zahlensysteme des Balese-Obi und des Mamwu (Mangbetu-Efe-Gruppe der zentralsudanesischen Sprachen** [Number systems of the Balese-Obi and Mamwu (Mangbetu-Efe-Group of the central African languages)], *Afrika und Übersee*, 1983, Vol. 66, 131-140

Comparative study of numeration in the Balesi-Obi (decimal) and Mamwu languages spoken in Northeastern Congo / Zaire, based on data collected in the period 1954-1960. In the Mamwu language exist basic

number words for 1, 2, 3, 4, 5, and 10, and by using also the terms ‘elí’ (hand), ‘qarú’ (foot) and ‘múdo’ (human, 20), the cardinals are formed.

(to be continued)

6.2 Further sources on String Figures in Africa

(Cf. AMUCHMA 9; #175, 193, 214, 223, 228; AMUCHMA 21:7)

Recent issues of the *String Figure Magazine* contains the following information related to the African continent:

* Border between two countries, collected by E. D. Earthy from the Thonga people of Mozambique, Africa [Vol. 3(4), December 1998, 11-14], based on information contained in the book *Valenga Women*, Oxford University Press, London, 1953, 95-101, written by E.D. Earthy;
* The eagle and its nest, collected by Hugh Tracey from the Mashona people of Southern Zimbabwe [Vol. 4(1), March 1999, 11-15], based on the paper “**String Figures (*madandi*) found in Southern Rhodesia**”, *Southern Rhodesia Native Affairs Department Annual*, 1936-37, Vol. 14, 78-88, by Tracey;
* A bed, collected by William Cunnington at the south end of Lake Tanganyika [Vol. 4(3), September 1999, 16-18], based on information contained in the paper “**String figures and tricks from Central Africa**”, *Journal of the Royal Anthropological Institute*, Vol. XXXVI, 1906, 121-131 by Cunnington.

The *Bulletin of the International String Figure Association* includes the paper:

* Carey C.K. Smith: **String Figures from the Congo** (1997, Vol. 4, 135-184). “The article presents sixty-seven string figures gathered at Upoto in the former Belgian Congo by Mrs. Ethel M. Smith during the years 1910-1914. Among her informants were members of the Lingombe, Lifoto, Ngombe, Ngwenzali, and Ngwengali tribes. Unlike F. Starr’s Congo collection published in 1909, the Smith collection includes methods of construction for each figure. In an appendix to this article, the author presents methods for making thirty-nine of the sixty-two figures described by Starr.” The Starr’s collection may be found in the following paper:
* F. Starr: **Ethnographic notes from the Congo Free State**, *Proceedings of Davenport Academy of Sciences*, 1909, vol. 12, 148-175

The book “**Fascinating String Figures**” (Dover, New York, 1999) contains a compilation of articles from the String Figure Magazine. It includes two figures from Africa: “A hammock” (Zanzibar, Tanzania) and “Two eyes” (Liberia).

The web-page of the International String Figure Association (ISFA) is:

www.isfa.org

7. REPRINTS

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:

Volumes 14-15: *Codex Leidensis 399,1. Euclidis Elementa ex interpretatione **al-Hadschdschadschii** cum commentariis **al-Narizii**. Arabice et latine editerunt notisque instruxerunt R. O. **Besthorn** et J. L. **Heiberg***. Reprint of the Edition Kopenhagen 1897-1905. Edited by Fuat Sezgin. 1997, 735 pp.

Volume 16: *The Commentary of **Pappus** on Book X of Euclid's Elements. Arabic text and translation by William **Thomson** with remarks, notes and a glossary of technical terms by Gustav **Junge** and William Thomson*. Reprint of the Edition Cambridge 1930. Edited by Fuat Sezgin. 1997, 298 pp.

Volume 17: ***Euclid in the Arabic Tradition***. *Texts and Studies. Collected and reprinted*. I. Edited by Fuat Sezgin in collaboration with M. Amawi, C. Ehrig-Eggert, and E. Neubauer. 1997, 340 pp.
This volume contains the following papers:

* Franz Woepcke: Sur les traductions arabes de deux ouvrages perdus d'Euclide (1-31);
* Ludwig Oftendinger: Beiträge zur Wiederherstellung der Schrift des Euklides über die Theilung der Figuren (33-52);
* Moritz Steinschneider: Die "mittleren" Bücher der Araber und ihre Bearbeiter (54-96);
* Moritz Steinschneider: Euklid bei den Arabern. Eine bibliographische Studie (97-126);
* Moritz Steinschneider: Simplicius, der Mathematiker (127-128);
* Maximilian Curtze: Das angebliche Werk des Euklides über Waage (129-130);
* Maximilian Curtze: Zwei Beiträge zur Geschichte der Physik im Mittelalter. I. Das Buch Euklids de gravi et levi (131-134);
* Hermann Weissenborn: Die Übersetyung des Euklid aus dem Arabischen in das Lateinische durch Adelhard von Bath nach zwei Handschriften der Kgl. Bibliothek in Erfuhrt (135-160);
* Antonio Favaro: Notizie storico-critiche sulla Divisione delle aree (161-186);
* Johnan L. Heiberg: Die Nachrichten der Araber (187-209);

* Johnan L. Heiberg: Die arabische Tradition der Elemente Euklid's (211-231);
* Johnan L. Heiberg: Beiträge zur Geschichte der Mathematik im Mittelalter. I. Liber Archimenidis de comparatione figuraram circularium ad rectilineas. II. Euklid's Elemente im Mittelalter (233-264);
* Johnan L. Heiberg: Paralipomena zu Euklid II (266-271);
* Martin Klamroth: Über den arabischen Euklid (272-328).

Volume 18: ***Euclid in the Arabic Tradition***. *Texts and Studies. Collected and Reprinted*. II. Edited by Fuat Sezgin in collaboration with M. Amawi, C. Ehrig-Eggert, and E. Neubauer. 1997, 324 pp.
This volume contains the following papers:

* Rasmus O. Besthorn: Über den Commentar des Simplicius zu den Elements (1-2);
* Heinrich Suter: Einiges aus Nassir ed-Dins Euklidausgabe (3-6);
* Heinrich Suter: Review of: *Codex Leidensis 399* (8-18);
* Heinrich Suter: Zur Frage des von Nairiyi zitierten Mathematikers "Diachasimus";
* Heinrich Suter: Über den Kommentar des Muhammed ben 'Abdelbâgî zum zehnten Buche des Euklides (20-37);
* Heinrich Suter: Der Kommentar des Pappus zum X. Buch des Euklides aus der arabischen Übersetyung des Abû 'Othman al-Dimashki ins Deutsche übertragen (39-110);
* Mansion: Sur le commentaire dßAnaritius relatif aux Éléments d'Euclide (111-113);
* Karl Lokotsch: Avicenna als Mathematiker, besonders die planimetrischen Bücher seiner Euklidübersetzung (115-141);
* Razmond Archibald: Euclid's Book on Divisions of Figures with a restoration based on Woepcke's text and on the *Practica geometricae* of Leonardo Pisa (143-236);
* Giuseppe Furlani: Bruchstücke einer syrischen Paraphrase der "Elemente" des Euklides (237-287);
* Eilhard Wiedemann: Zu der Redaktion von Euklids Elementen durch Nasir al Dîn al Tûsî (288-296);
* Gotthelf Bergsträßer: Pappos' Kommentar zum Zehnten Buch von Euklid's Elementen. Beiträge zu Text und Übersetzung (297-324).

Volume 19: ***Euclid in the Arabic Tradition***. *Texts and Studies. Collected and reprinted*. III. Edited by Fuat Sezgin in collaboration with M. Amawi, C. Ehrig-Eggert, and E. Neubauer. 1997, 310 pp.
This volume contains the following papers:

* David Smith: Euclid, Omar Khayyam, and Saccheri (1-6);

* Albert G. Kapp: Arabische Übersetzer und Kommentatoren Euklid's, sowie deren math.-naturwiss. Werke auf Grund des Ta'rikh al-Hukama des Ibn al-Qifti (8-121);
* M.-A Kugener: Les versions latines des "Éléments" d'Euclide conservées à la bibliothèque publique de Bruges (122-124);
* Claire Baudoux: La version syriaque des "Éléments" d'Euclide (125-127);
* Claire Baudoux: Une édition polyglotte orientale des "Éléments" d'Euclide : La version arabe d'Ishâq et ses dérivées (128-129);
* Gustav Junge: Das Fragment der lateinischen Übersetzung des Pappus-Kommentars zum 10. Buche Euklids (131-147);
* Clemens Thaer: Die Euklid-Überlieferung durch Al-Tûsî (148-153);
* Clemens Thaer: Euklids Data in arabischer Fassung (155-163);
* A. S. Ünver: Avicenna's praise of Euclid (164-166);
* Edward B. Plooij: Euclid's conception of ratio and his definition of proportional magnitudes as criticized by Arabian commentators (167-243);
* Marshall Clagett: The medieval Latin translation from the Arabic of the Elements of Euclid, with special emphasis on the versions of Adelard of Bath (244-270);
* 'Abdalhamid Sabra: "Burhan" Nasiraddin al-Tusi 'ala musadarat Uqlidis al-hamisa [The demonstration of Euclid's fifth postulate by Nasiraddin al-Tusi] (272-309).

Volume 23: ***Abu Kamil Shuja' ibn Aslam (3rd/9th cent.)***. *Texts and Studies. Collected and reprinted*. III. Edited by Fuat Sezgin in collaboration with M. Amawi, C. Ehrig-Eggert, and E. Neubauer. 1997, 262 pp.
This volume contains the following papers:

* Gustavo Sacerdote: Il trattato del pentagono e del decagono di Abu Kamil Shogia' ben Aslam ben Mohamed. Per la prima volta publicato in italiano (1-26);
* Heinrich Suter: Die Abhandlung des Abu Kamil Shoga' b. Aslam "über das Fünfeck und das Zehneck" (27-54);
* Heinrich Suter: Das Buch der Seltenheiten der Rechenkunst von Abu Kamil el-Misri. Übersetzt und mit Kommentar versehen (56-76);
* Louis Karpinski: The algebra of Abu Kamil Shoka' ben Aslam (78-93);
* Louis Karpinski: The algebra of Abu Kamil (95-106);
* Josef Weinberg: Die Algebra des Abu Kamil Soga' ben Aslam (107-251).

(to be continued)

8. HAVE YOU READ?

8.1 On the History of Mathematics in Africa

#286 Bentaleb, Farès: **Sharh Talkhis a'mal al-hisab** (Commentary on the summary of arithmetic operations), Dâr al-Gharb al-islami, Beyrouth, (Lebanon), 1999

Critical edition and translation into French of the commentary, written by the mathematician al-Qalasâdî (d. 1486), on the famous handbook "Summary of arithmetic operations" of the maghrebian mathematicians Ibn al-Bannâ (d. 1321).

#287 Guergour, Youcef: **Les différents systèmes de numération au Maghreb, à l'époque ottomane**: **l'exemple des chiffres rûmî** (The different systems of numeration in the Maghreb during the Ottoman epoch: Example of the rumi ciphers), Prepublication, *Cahier du Séminaire Ibn al-Haytham*, Alger, no. 9, April 1999, 11-22

Presents a system of numeration, called "rumi ciphers" or "ciphers of Fez" or "register ciphers", composed of 27 distinct symbols. This system was used in the Extreme Maghreb (today's Morocco) in administration and in accounting.

#288 Meinhof, Carl: **Ein magisches Quadrat auf einem Hausa-Amulett** (A magic square on a Hausa amulet), *Zeitschrift für Eingeborenensprachen*, 1923/24, 14, 224-226 (Cf. #159, 179, 237)

Reconstructs and analyses a 7x7 magic square on a Hausa amulet (Nigeria), reproduced in C, Robinson's '*Specimens of Hausa-Literature*' (Cambridge, 1896). We are dealing with a bordered or concentric magic square: taking away the successive borders, the smaller squares remain magic. Meinhof calls it a Stifelius' square after Michael Stifel, who discussed this type of magic square in his '*Arithmetica integra*' (1544).

10	45	44	7	11	12	46
9	19	34	17	20	35	41
8	18	24	23	28	32	42
49	37	29	25	21	13	1
48	36	22	27	26	14	2
47	15	16	33	30	31	3
4	5	6	43	39	33	40

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

#289 Andrzejeweskis, B. W.: **The use of Somali in Mathematics and Science**, *Afrika und Übersee*, Vol. 63, 1980, 103-117

Discusses the ways in which Somali language has been used in mathematics and science teaching in Somalia since 1972, substituting the use of the foreign languages, Italian, English and Arabic. In particular, it analyses the formation of new scientific terms by composition, semantic shift and borrowing.

#290 Eglash, Ron: **African Fractals: Modern Computing and Indigenous Design**, Rutgers University Press, Piscataway, 1999, 258 pp.

This beautifully illustrated book "introduces readers to fractal geometry and explores the ways it is expressed in African cultures. Drawing on interviews with African designers, artists, and scientists, Eglash investigates fractals in African architecture, traditional hairstyling, textiles, sculpture, painting, carving, metalwork, religion, games, practical craft, quantitative techniques, and symbolic systems. He also examines the political and social implications of the existence of African fractal geometry" (cf. #254-258).

#291 Gerdes, Paulus: **On culture and mathematics education in (southern) Africa**, in: Bernard Hodgson et al. (Eds.), *8th International Congress on Mathematical Education. Selected Lectures*, S.A.E.M. Thales, Sevilla (Spain), 1998, 221-231

Presents a short overview of research on culture, mathematics, and mathematics education in Africa south of the Sahara, concentrating on southern Africa.

#292 Vergani, Teresa: **Ethnomathematics and symbolic thought. The culture of the Dogon**, ZDM, *International Reviews on Mathematical Education*, Karlsruhe, 1999, Vol.2, 66-70

The paper deals with "the following aspects of the culture of the Dogons (Mali): the specific mythological context and the related cognitive system; fundamental poles in the Dogon numerical symbology; the density of 5's significance; the spiral as a choreography of thought; ethnomathematics 'logosymbols' as 'event' and social meaning; educational implications (transcultural expression of thought and feeling)"..

#293 Zaslavsky, Claudia: **Count on your fingers African style**, Black Butterfly Children's Books, New York, 1999 (illustrations by Wangechi Mutu)

New edition of #21. The book "guides children through the animated activity of the marketplace, showing the traditional finger counting of various African peoples – the Masai, the Kamba, and the Taita in Kenya; the Zulu of South Africa; and the Mende of Sierra Leone".

8.3 Other publications on the History of Mathematics by African mathematicians

#294 Djebbar, Ahmed: **,Les mathématiques dans l'Oeuvre d'Ibn Sina** (Mathematics in the works of Avicenna), *Actes des Journées d'Etudes Avicenne (Marrakech (Maroc), 25-26 septembre 1998)*, Groupe d'Etude Ibn Sina (G.E.I.S.), 1999, 51-70

Presents the essential aspects of the contribution of the great philosopher and physician Avicenna (d. 1037) to the domains of mathematics and astronomy.

8.4 Publications on the History of Mathematics and the African Diaspora

None were reported.

8.5 Reviews

#295 Krause, Henning (Bielefeld, Germany): Paulus Gerdes' "Ethnomathematik dargestellt am Beispiel der Sona Geometrie", *Spektrum der Wissenschaft*, September 1998, 118-120 (cf. #236)

#296 Schmeikal, Bernd (Vienna, Austria): Paulus Gerdes' "Ethnomathematik dargestellt am Beispiel der Sona Geometrie", *Mathematical Reviews*, 1998, 6078-6080 [98j:01003] (cf. #236)

9. ANNOUNCEMENTS

9.1 French language edition of the AMUCHMA Newsletter

From 2000 onwards, the French language edition of the AMUCHMA Newsletter, realised by Ahmed Djebbar, will be distributed by the 'Groupe d'Histoire et de Diffusion des Sciences d'Orsay' (G.H.D.S.O.), directed by Professor Paul Brouzeng. Note the new address:

Ahmed Djebbar: G.H.D.S.O., Bt. 407, Université Paris-Sud, 91405 Orsay Cedex, France
(E-mail: ahmed.djebbar@ghdso.u-psud.fr)

9.2 6th Maghrebian Colloquium on the History of Arabic Mathematics

The 'Ecole Normale Supérieure' of Algiers will organise, together with the Algerian Society for the History of Mathematics, the 6th Maghrebian Colloquium on the History of Arabic Mathematics, to take place in Algiers from November 20-22, 2000. For more information:

Youcef Atik, Département de Mathématiques, E.N.S., Vieu Kouba, B.P. 92, 16050 Kouba, Alger, Algeria (Fax: +213-2-58 31 42)
(By E-mail, contact Abdelmalek Bouzari: bouzari@hotmail.com)

9.3 New Study Group on the History of Mathematics (Morocco)

After the realisation of the International Colloquium on Mathematics Education, that took place in May 1999 in Safi (Morocco), a Study Group on the History of Mathematics (G.R.H.M.) was created in El-Jadida (Morocco). The group is composed of four teacher educators, eighth high school teachers, four inspectors and four university lecturers. Khalid Ennaciri is one of the coordinators of the Study group and Ahmed Djebbar (Algeria) was elected honorary president. For more information:

Khalid Ennaciri, no.7, Immeuble Breija, Boulevard Bir Inzarane, El-Jadida, Morocco (E-mail: khalidennaciri@hotmail.com)

9.4 Death of Mohamed Al-Manouni

Mohamed Al-Manouni, one of the great specialists on the cultural history of the Maghreb died on August 28, 1999 in Rabat (Morocco) at the age of 80. He is the author of a certain number of works and original papers which deal partially or completely with the history of mathematics in the Maghreb and, more precisely, in the extreme (western) Maghreb. He is also the author of a series of catalogues that contain important information on mathematical manuscripts that may be found in Moroccan public and private libraries.
Works and papers published by Al-Manouni (all in Arab):

- *The sciences and arts in the time of the Almohads*, Rabat, 1977;
- *Catalogue of manuscripts in the an-Nasiriya library*, Al-Muhammadiya, Impremerie Fudala, 1985;
- The teachers and authors of geometry in the Sa^{c}adian Maghreb, *Da^{c}wat al-haqq*, Rabat, no. 3, 1965, 101-104;
- *Pages on the Moroccan civilisation in the time of the Merinids*, Rabat, Imprimatlas, 1979;
- Note on the activities related to the study of mathematics and astronomy in Maknes, *Al-Manahil*, no. 30, 1984, 32-87;
- Activity of mathematical studies in Morocco during the fourth period of the Middle Ages, *Al-Manahil*, no. 33, 1985, 77-115;
- *The civilisation of the Almohads*, Casablanca, Tubqal, 1989.

9.5 SAMSA Journal

The Southern Africa Mathematical Science Association (SAMSA) will launch in the near future its journal. The "SAMSA Journal is a publication aimed at bringing to the fore the many varied research results by mathematicians in the southern African region, thereby capturing the interest and enthusiasm of the scientific community. The journal will publish carefully selected papers originating from sources in pure mathematics, applied mathematics, mathematics education and in industrial applications, but their common viewpoint should be a contribution, with a practical outcome, to the socio-economic, scientific and technological development of the region. Especially

welcome for publication will be papers that are case studies, with long term impact, of relevance to the Southern African region. Although papers describing research results of fundamental interest to mathematicians will also receive preferential treatment".

For more information, contact:

Patrick Phiri, Chairman SAMSA, c/o Department of Mathematics, Private Bag 4, Kwaluseni, Swaziland
(E-mail: phiri@science.uniswa.sz)

9.6 SAMSA-XII Conference

The XIIth conference of the Southern Africa Mathematical Science Association (SAMSA) will take place at the University of Swaziland (Kwaluseni Campus) from December 6 to 8, 2000. The general theme of the conference is "Emerging mathematical methodologies, computer applications and environments". Papers in the fields of mathematics and computer science education, ethnomathematics and the history of mathematics are also wellcome.

For more information, contact:

Patrick Phiri, Chairman SAMSA, c/o Department of Mathematics, Private Bag 4, Kwaluseni, Swaziland
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10. ADDRESSES OF SCHOLARS, INSTITUTIONS AND PUBLISHERS MENTIONED IN THIS NEWSLETTER

* Atik, Youcef: Département de mathématiques, E.N.S. de Kouba, 16050 Vieux Kouba, Algiers, Algeria;
* Bebbouchi, Rachid: Département de mathématiques, U.S.T.H.B., B.P. 32, El Alia, Bab Ezzouar, Algiers, Algeria;
* Bellosta, H.: Centre d'Histoire des sciences et des philosophies arabes et médiévales, URA 1085, CNRS, 7 rue Guy Moquet, B.P. 8, 94801 Villejuif, France;
* Benmiled, M.: Département de mathématiques, Faculté des Sciences, Université Tunis II, Campus du Belvédère, Tunis, Tunisia;
* Bentaleb, Farès: Dar Al-Gharb Al-Islami, B. P. 113-5787, Beyrouth, Lebanon
* Black Butterfly Children's Books: P.O. Box 461 Village Station, New York, NY 10014 (Tel. +212 941 0202; Fax: +212 941 0011)
* Bouzari, Abdelmalek: Département de mathématiques, E.N.S. de Kouba, 16050 Vieux Kouba, Algiers, Algeria (E-mail: bouzari@hotmail.com);
* Brouzeng, Paul: Directeur G.H.D.S.O., Bt. 307, Université Paris-Sud, 91405 Orsay Cedex, France;

* Crozet, P.: Centre d'Histoire des sciences et des philosophies arabes et médiévales, URA 1085, CNRS, 7 rue Guy Moquet, B.P. 8, 94801 Villejuif, France
* Djebbar, Ahmed: G.H.D.S.O., Bt. 307, Université Paris-Sud, 91405 Orsay Cedex, France (E-mail: ahmed.djebbar@ghdso.u-psud.fr)
* Eglash, Ron: Comparative Studies, 308 Dulles Hall, 230 West 17th Ave., Ohio State University, Columbus OH 43210-1311 (E-mail: eglash.1@osu.edu)
* El Idrissi, Abdallah: Département de mathématiques, E.N.S. de Marrakech, B.P. S 41, Marrakech, Morocco;
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* Ennaciri, Khalid: no. 7, Immeuble Breija, Boulevard Bir Inzarane, El-Jadida, Morocco (E-mail: khalidennaciri@hotmail.com);
* García, José Barrios: Depto. de Análisis Matemático, Universidad de La Laguna, 38271 La Laguna (Tenerife), Islas Canarias, Spain (Fax: +34-22-604023; E-mail: jbarrios@ull.es)
* Giusti, E: Dipartemento di Matematica, Universita di Firenze, Viale Margagni 67/A, 50134 Florence, Italy;
* Guerbati, Kaddour: Institut de Chimie Industrielle, Centre Universitaire, Ouargla, Algeria;
* Guergour, Youcef: Département de mathématiques, E.N.S. de Kouba, 16050 Vieux Kouba, Algiers, Algeria (E-mail : guergour@hotmail.com);
* Houzel, C.: Département de mathématiques, Université Paris VI, 75005, Paris Cedex, France;
* International String Figure Association (ISFA) : P.O.Box 5134, Pasadena, California 91117, USA (Tel./Fax.: 626-305-9055; E-mail : webweavers@isfa.org)
* Karuhije, Eric: Vice Commissioner, Ministry of Education, Uganda
* Kouidri, Khadidja, Département de mathématiques, E.N.S. de Kouba, 16050 Vieux Kouba, Algiers, Algeria;
* Krause, Henning: Fakultaet fuer Mathematik, Universitaet Bielefeld, Germany
* Morelon, R.: Centre d'Histoire des sciences et des philosophies arabes et médiévales, URA 1085, CNRS, 7 rue Guy Moquet, B.P. 8, 94801 Villejuif, France;
* Morelli, Michael: Department of Mathematics, Statistics and Computer Science, 237c Harvey Hall, University of Wisconsin-Stout, Mnemonie, WI 54751, USA (E-mail: morellim@uwstout.edu)
* Moulay, Mohamed-Said: Département de mathématiques, U.S.T.H.B., B.P. 32, El Alia, Bab Ezzouar, Algiers, Algeria;
* Rashed, Rosdi: Centre d'Histoire des sciences et des philosophies arabes et médiévales, URA 1085, CNRS, 7 rue Guy Moquet, B.P. 8, 94801 Villejuif, France;

* Rios, Oscar Pacheco: Centro Pedagógico de Informática, Casilla 2068, Santa Cruz de la Sierra, Bolivia (Tel/Fax: +591-3-371693; E-mail: cepdi@amboro.movinet-bo.com)
* Rutgers University Press : 100 Joyce Kilmer Avenue, Piscataway, NJ 08854-8099, USA (Tel. +732-445-7762, ext. 626; Fax: +732-445-7039; Web: http://rutgerspress.rutgers.edu)
* Schmeikal, Bernd: Kundmanngasse 26/8, A-1030 Vienna, Austria
* Singmaster, David : Professor of Mathematics, School of Computing, Information Systems and Mathematics, Southbank University, London, SE1 0AA, United Kingdom (Tel: 0171-815 7411; fax: 0171-815 7499; E-mail: david.singmaster@sbu.ac.uk)
* Vergani, Teresa: Universidade Aberta, Rua da Escola Politécnica 147, P-1250 Lisboa, Portugal (E-mail: tvergani@univ-ab.pt)
* Vogeli, Bruce: Program in Mathematics, Teachers College, Columbia University, Box 210, 525 West 120th Street, New York, NY 10027-6696, USA (Tel. +212 678-3381; Fax: +212 678-4048; E-mail: tcmath@columbia.edu)
* Zaslavsky, Claudia: 45 Fairview Av. #13-1, New York, NY 10040, USA
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11. NEW RECIPIENTS

In issue 6 of the AMUCHMA Newsletter, we included its distribution list. In the meantime the distribution list has undergone many changes. Both hard copies and electronic versions of the AMUCHMA-Newsletter are distributed, as well as it is now accessible on the world-wide-web. It seems useful from now on to present in each issue the list of new recipients in Africa, in order to stimulate contact within and between countries. Here follows the list for issue #23:

* Afealete, Edem Kwasi: 310 Unity Hall, University of Science & Technology, Kumasi, Ghana (E-mail : oletegon@avuust.africaonline.com.gh)
* Atsu-Swanzy, John: 617 Ronald Avenue, Glassboro NJ 08028, USA (E-mail: atsuswan@math.udel.edu)
* Campbell, Cade: P.O.Box 43311, Washington DC 20010, USA (E-mail: MathHealth@AOL.com)
* Centro de Estudos Africanos: Universidade de São Paulo, C.P. 2530, 01060-970, São Paulo SP, Brazil (cea@edu.usp.br)
* Daffe, Amadou: 524 south 42nd Apt 3, Philadelphia, PA 19104, USA (e-mail: Amadou.Daffe@gecapital.com)
* Genevier, Christian: Afrique en Créations, 51 rue Saint Anne, 75002 Paris, France (E-mail: genevier@aec.asso.fr, genevier3@wanadoo.fr)

* Greene, Anthony: 2863 Pine Knoll Drive 100 G, Auburn Hills, Michigan 48326, USA (E-mail: greene.anthony@worldnet.att.net)
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* Murphy, Timothy: POB 20234, Las Vegas, NV 89112, USA (E-mail: roadskolar@netscape.net)
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* Shulman, Bonnie: Dept. Mathematics, Bates College, Lewiston, ME 04240, USA (E-mail: bshulman@abacus.bates.edu)

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12. 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.

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

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

Send requests to the Chairman

Paulus Gerdes: Universidade Pedagógica, C.P. 915, Maputo, Mozambique (Fax: 258-1-422113; E-mail: pgerdes@virconn.com)

for the **English** version;

or to the Secretary

Ahmed Djebbar: : G.H.D.S.O., Bt. 407, Université Paris-Sud, 91405 Orsay Cedex, France
(Fax: 33-1-47015917; E-mail: Ahmed.Djebbar@wanadoo.fr; ahmed.djebbar@ghdso.u-psud.fr)

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

Readers who would like to receive the **AMUCHMA Journal in Portuguese** should contact the chairman, C.P. 915, Maputo, Mozambique.

14. 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/amuchma_online.html

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