AFRICAN MATHEMATICAL UNION

COMMISSION ON THE HISTORY
OF MATHEMATICS IN AFRICA

AMUCHMA-NEWSLETTER-1

Eduardo Mondlane University, Maputo, Mozambique, 25.06.1987

Chairman: Paulus Gerdes (Mozambique)
Secretary: Ahmed Djebbar (Algeria)
Members: Georges Njock (Cameroon), Maasouma Kazim (Egypt), J. Mutio (Kenya), Lawrence Shirley (Nigeria), Geoffrey Mmari (Tanzania), Mohamed Souissi (Tunisia), Claudia Zaslavsky (USA)

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0. “WELCOME”

From the President’s Desk

It is my great pleasure and privilege to write this “welcome” for the first edition of the newsletter of the AMU Commission on the History of Mathematics in Africa (AMUCHMA).

Since the creation of this Commission under the dynamic leadership of Professor Paulus Gerdes by the current Executive Committee of the African Mathematical Union, the commission has demonstrated clearly its intention to make effective contribution to our knowledge of the history of Mathematics in Africa through conscientious implementation of its declared programme of activities including the publication of a Newsletter which is now a reality.

I should like to congratulate Professors Gerdes and Djebbar for the successful publication of this first newsletter which contains sections on the aims and objectives of the Commission, papers presented at recent conferences and congresses, current research interest of workers in areas related to History of Mathematics in Africa as well as an interesting section titled ‘[1]Have you read?”.

In bidding this newsletter a hearty welcome, I should like to commend it very highly to the Mathematical, Historical, Archaeological and other relevant communities in Africa and other continents as a medium for exchange of news, ideas and information on various aspects of History of Mathematics in Africa.

Long Live A.M.U.!. Long Live AMUCHMA.!

Professor A. 0. Kuku
President African Mathematical Union

1. FORMATION OF AMUCHMA

At the 1986 2nd Pan-African Congress of Mathematicians in Jos (Nigeria), the newly elected Executive Committee of the African Mathematical Union (A.M.U.) decided to create an A.M.U. Commission on the History of Mathematics in Africa (AMUCHMA) with the following objectives:

a) to improve communication among those interested in the history of mathematics in Africa;

b) to promote an 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 eurocentristic bias in the historiography of mathematics;

d) to cooperate with any and all organisations pursuing similar objectives.

The main forms of activity of the AMUCHMA- are as follows:

a) publication of a newsletter (two times a year);

b) setting-up a documentation centre;

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

2. MEETINGS

2.1. 2ND PAN-AFRICAN CONGRESS OF MATHEMATICIANS

report by L. Shirley

One of the sections of the 2nd Pan-African Congress of Mathematicians (23-29.3.1986, University of Jos, Jos, Nigeria) was dedicated to the history of mathematics in Africa. Five papers were presented.

Enukoha, I.O.: Counting and geometry in traditional Ibibio and Efik societies

Enukoha has earlier studied traditions of Igbo mathematics and now, as he lives in the Efik-Ibibio culture area, he has begun the study of mathematics of Efik-Ibibio traditions. His paper concentrated on describing the Efik-Ibibio counting words system, which is a mixture of base five and base ten, and the local concepts of lines and shapes.

Gerdes, P.: On the reconstruction of the history of geometrical thinking in Africa

Gerdes presented a stimulating demonstration of links between Mozambique traditional basket-weaving patterns and concepts of geometry, including a remarkably novel approach to the discovery and proof of “Pythagoras” (so-called) theorem.

Kani, A.M.: The history of 'Ilm al-Hisab' (arithmetic) in Nigeria

Kani pointed out to aspects of mathematics in Islam, especially as studied by the Islamic scholars of pre-colonial northern Nigeria, and notably by Muhammed ibn Muhammed al Katsinawi (c.1740) who worked on ‘magic squares’ and numerological patterns.

Ojoade, J.O.: The number ‘three’ in African lore with foreign analogies

The paper of Ojoade had less history and more culture, a humorously comprehensive run through the many ways the number ‘three’ occurs in Nigeria and world culture.

Shirley, L.H.: Ethnomathematics in the history of African mathematics
Shirley had done the organisation and coordination of the history section of the Congress. In his paper he used the concept of ‘ethnomathematics’ to take a broader view of mathematics, including cultural aspects, local technology, and everyday applications, in considering the history of mathematics. By using such local aspects in mathematics not only does the history become more relevant to African students, but also the mathematics itself is made more real.

2.2. FIRST INTERNATIONAL COLLOQUIUM IN ALGER ON THE HISTORY OF ARABIC MATHEMATICS

report by A. Djebbar

The 1st International Colloquium in Alger on the History of Arabic Mathematics was held at the 'École Normale Superieure', Kouba-Alger, Algeria, December 1-3, 1986. The Colloquium was organized under the auspices of the Ministry of Higher Education. The opening session took place in the presence of the Minister of Higher Education, the Secretary of Culture of the F.L.N. Party and the responsible in charge of the High Council for the Arabic language. About 200 scholars, high school teachers, 4th year students, inspectors of mathematics and journalists attended the Colloquium. Television, radio and journals gave great publicity to the event.

Twelve papers (8 in Arabic, 4 in French) were contributed. They dealt with four great themes:

1. Mathematics in the Arabic-Islamic civilization (C.Bouamrane, Algeria);
2. Arabic mathematics of the East (M. Abdeljaoud & H. Hadfi, Tunisia ; R. Bebbouchi & K. Taleb, Algeria; K. Jaouiche, France);
3. Arabic mathematics of the West-Andalusia and Maghreb (M. Aballagh, Morocco; A.Djebbar, Algeria; Y.Guergour,Algeria; J. Hogendijk, Netherlands; A. Sadallah, Algeria; M.Souissi, Tunisia; T.Zemouli, Algeria);
4. The transmission of Arabic mathematics to Europe (J. Sesiano, Switzerland).

At the closing session of the Colloquium some recommendations were read and adopted. Directly related to the history of mathematics it was recommended:

1. To try to organize in Algeria every two years an International Colloquium on the History of Arabic mathematics;
2. To try to publicize a Maghrebian journal on the history of science that divulges the classic Arabic science in general and Maghrebian in particular;
3. To invite for research manuscripts owned by private individuals.

The proceedings of the Colloquium will be published in Arabic and French. List of the contributed papers:

1. M. Aballagh: Comparative study of Talkhis and Raf al-hijab of Ibn al-Banna'
2. M. M. Abdeljaoud & H. Hadfi: "The problems that cannot be solved" according to the book Al-fawa'id al-baha'iya of Ibn al-Khawwam (1245-1324)
3. C. Bouamrane: The sciences and their development in the civilization of the Islam.
4. R. Bebbouchi & K. Taleb: The infinitely great quantities of Thabit Ibn Qurra.
5. A. Djebbar: Some aspects of algebra in the mathematical tradition of the Mussulman West.
6. Y. Guergour: A Maghrebian mathematician of the 14th century, Ibn Quufudh al-Qasantini (1339-1406).
7. J. P. Hogendijk: The Kitab al-istikmal of Al-Mu'taman Ibn Hud, an important source for the history of ancient and medieval geometry.
8. K. Jaouiche: Analysis and synthesis in the Arabic-Islamic mathematics: the book of Ibn al-Haytham.
9. A. Sadallah: Some Scientific practices in Algeria during the period of scientific retardation.
10. J. Sesiano: The "Liber Mahamaleth", a Latin mathematical treatise composed in the 12th century in Spain.
11. M. Souissi: The Maghrebian mathematical school: some examples of its works and certain of its particularities.
12. I. Zemouli: The Uriuza of Ibn al-Yasamin on irrational quadratic numbers.

2.3. INTERNATIONAL COLLOQUIUM ON THE HISTORY OF FRACTIONS (PARIS)

report by A.Djebbar

An International Colloquium on the History of Fractions, entitled "Histoire des fractions et fractions d'histoire" was held at the Center for Juridical and Historical Studies, Paris (France),January 30-31 ,1987. The colloquium was organized by P. Benoit, K. Chemba and J. Ritter. The following were contributed papers concerning the history of mathematics in Africa:

1. J. Ritter: Metrology and the prehistory of fractions.
2. E. M. Bruins: The construction of numerical tables in Egypt and Babylonia.
3. M.Caveing: The arithmetical statute of Egyptian “quantieme”.
4. M.Guillemot: Do the operational notations and practices permit us to talk about Egyptian fractions?
5. M. Aballagh: Fractions between theory and practice with Ibn al-Banna’ al-Marrakushi (1256-1321).
6. A. Djebbar: The treatment of fractions in the mathematical tradition of the Maghreb.

2.4. PAPERS PRESENTED AT RECENT MEETINGS

At the Nairobi session (10-15.11.1985) of the Special Committee on Africa of the United Nations University: L’Afrique, berceau de la mathématique mondiale? (Africa, the cradle of world mathematics, 11 pp.) by the first president of the African Mathematical Union (1976-1986), Henri Hogbe-Nlend. This paper is intended as an introduction on the contribution of Ancient Africa to world mathematics. After underlying the negro-African character of pharaonic Egypt and analyzing the dialectics of intuitive and deductive reasoning, it is stated that mathematics in pharaonic Africa was intuitive, demonstrative and rational; Africa is the mother of Geometry.

At the Annual General Meeting of the Mathematics Association of Tanzania (May 1986): The history of mathematics in Tanzania (12 pp.) by Beniel R. Seka. The paper describes the development of the mathematics curriculum in Tanzania since Independence. A distinction between three periods is made: “the traditional mathematics era, the modern era and the present era which lends from both traditional and modern mathematics”.

At the 5th Symposium Association of the Southern African Mathematical Sciences Association, Maseru Lesotho (15-19.12.1986), On the history and teaching of geometry in Africa: the Pythagorean Proposition as an example by Paulus Gerdes. Some African cultural contexts (sand drawings, decorative motifs, plaiting and knotting patterns) are shown that could have led in the past to the discovery of the so-called Pythagorean proposition and can be used in the classroom to stimulate ‘reinvention’ by the students of this important theorem.

3.1 THESES IN PROGRESS OR COMPLETED

Abdoulaye Elimane Kane (Department of Philosophy, University of Dakar, Senegal), will complete a doctoral dissertation this year ('These d'état') on "Oral numeration systems in west sub-Saharan Africa". Probable defense: June 1987.

Youcef Guergour (École Normale Supérieure, Alger, Algeria) is preparing a thesis ("Magistère") on "The life and works of the Maghrebian mathematician Ibn Ounfudh". Probable defense: October 1987.

Touhami Zemouli (École Normale Supérieure, Alger, Algeria) is preparing a thesis ("Magistère") on "The life and the mathematical work of Ibn al-Yasamin". Probable defense: October 1987.

Mohamed Aballagh, a Moroccan researcher, is completing a doctoral thesis ("Nouvelle Thèse") in Paris (France) on "The philosophical-mathematical treatise of Ibn al-Banna': Raf al-Hijab an Wujuh a mal al-Hisab". Probable defense: June 1987.

Mamman Musa (Ahmadu Bello University, Zaria, Nigeria) completed an M.Ed. thesis, entitled: "The mathematical heritage of the Hausa People: a resource guide for mathematics teaching". Data gathered from library research plus extensive interviews with various local experts. He summarizes mathematics in daily life, measures, art, religion, etc. for the Hausa culture of northern Nigeria. Illustrated.

Alberta H. Carmichael (Ahmadu Bello University, Zaria, Nigeria) completed an Ph.D. thesis, entitled: "The development of mathematical concepts and skills among un-schooled Nupe children". A Piagetian-type study of children of the Nupe group of Central Nigeria. With Piagetian interviews of 336 children, she found skills developing better than concepts, and some interesting differences by sex and urban-rural distinctions.

4.1 CURRENT RESEARCH INTERESTS

Beniel R.Seka is preparing a monograph on the history of the Mathematics Association of Tanzania.

Dorothy Washburn prepares a monograph on the two-dimensional symmetries on the raffia cloths of the Bakuba, Zaire. Her past studies of pattern symmetry have been on ceramics from Neolithic Greece, the American Southwest Pueblo cultures, pre-Columbian Peruvian textiles, and California Indian basketry.

Gay Robins and Charles Shute are preparing a commentary on the Rhind Mathematical Papyrus (Ancient Egypt), to be published in 1987. It is intended to offer an up-to-date appraisal of the early Egyptian contribution to mathematics, emphasizing numerological as well as practical aspects.

U. Rebstock (University of Tübingen, F. R. of Germany) is preparing a book entitled "Katalog arabischer Handschriften in Mauritanien", that contains a catalogue of Arabic manuscripts in Mauritania, including some repertories on mathematics.

Jacques Navez (University of Burundi) is doing research on pre-colonial numeration systems and on the evolution of mathematics curricula at secondary level.

5. SEMINARS

A research seminar, entitled 'Ibn al-Haytham' on the history of Arabic mathematics took place in 1986/1987 at the Mathematics Department of the 'École Normale Supérieure' (Kouba-Alger, Algeria). It was organized by A. Djebbar with the support of Y. Guergour and T. Zemouli. The following lectures were delivered:

M. Aballagh (4.11.86): An example of bio-bibliographic work in the history of mathematics: the life and the works of Ibn al-Banna'(1256-1321).

A. Djebbar (28.2.87): The research instruments used in the history of mathematics.

Y. Guergour (1.3.87): Some aspects of magic squares in the Maghreb mathematical tradition.

T. Zemouli (28.3.87): Heritages and mathematics: the example of the 3rd chapter of the algebra book of Al-Kwarizmi (780-850).

Y. Benrebia (29.3.87): The perfect compasses and the tracing of the conic sections by the mathematicians of the l0th-12th centuries.

M. Zerrouki (10.4.87): Fractions in the mathematical tradition of the Maghreb through an anonymous manuscript.

A. Djebbar (11.4.87): The contribution of Arab mathematicians to the elaboration of the real number concept.

A. Bouzari (16.5.87): The epistle of Al-Rhazin (10th century) on the utilization of conic sections in Arabic mathematics of the 10th century.

A. Laib (17.5.87): Some aspects of infinitesimal analysis in the 11th century through the epistle of Ibn al-Haytham on the volume of a sphere.

6. EDUCATION

A 1 semester course on the history of mathematics started, for the first time in Algeria, in February 1987 for the 4th year students of the 'École Normale Supérieure' (Kouba-Alger). The course is given by A. Djebbar, with the assistance of Y. Guergour and T. Zemouli to lead the work sessions. The programme touches different aspects of mathematics in all societies (Babylonian, Egyptian, Chinese, Indian, Greek, Arab, with some modest information on mathematics in sub-Saharan Africa and in the America of the Aztecs and Incas). This year, privileged attention has been given to Arabic mathematics, in order to respond to a pressing demand of the students who discovered - sometimes with real and profound emotion - a whole scientific and cultural world, unknown to them.

About l20 people - among them the Deputy-Minister of Education, mathematician João C. Beirão - attended a series of three public lectures, at the Eduardo Mondlane University in Maputo (Mozambique), delivered by Paulus Gerdes, on the history of mathematics in Africa. These lectures were organized under auspices of the Mozambican Association of Friends of Mathematics and were devoted to:

1. The awakening of geometrical thinking in Africa (13.8.86);
2. Mathematics in Ancient Egypt (27.8.86);
3. Mathematics in the regions of Islamic influence (10.9.86).

7. HAVE YOU READ?

Readers are encouraged to submit contributions to 'Have you read?'.
N.B. Supply complete bibliographic information: names of author(s), complete titles of books or of both the article and journal; for journals include both the volume and date; for books, edition, copyright date, publisher, place and country of publication.

#1. Almeida, António de: Sobre a matemática dos Indígenas da Guine Portuguesa, in: Boletim Cultural da Guine Portuguesa, Lisbon (Portugal), Vol.6, 1947, 389-440.

Deals with numerals, arithmetic operations, measurement, monitary system and time reckoning in Guine Bissau.

#2. Crowe, Donald: The geometry of African art I. Bakuba art, in: Journal of Geometry, München (Western Germany), Vol.1, 1971, 169-182;
The geometry of African art II. Acatalog of Benin patterns, in: Historia Mathematica, New York (USA), Vol.2, 1975, 253-271;
The geometry of African art III.The smoking pipes of Begho, in: C. Davis, B. Grünbaum, F.Sherk (ed.), The geometric vein, the Coxeter Festschrift, Springer Verlag, New York, 1982, 177-189;
Symmetry in African art, in: Ba Shiru, Journal of African Languages and Literature, Vol.11, no. 1, 1982, 57-71.

These papers investigate the repeated patterns found in African art, classifying them on the basis of the 24 plane crystallographic groups. Of these, seven admit translations in only one direction (the corresponding patterns are called strip patterns), while the remaining 17 admit two independent translations (so-called plane patterns).

#3. Djebbar, A.: Enseignement et recherche mathématiques dans le Maghreb des XIIIe-XIVe siecles (étude partielle), Publications Mathématiques d'Orsay, Vol.81-02, Paris (France), 1981, 146 pp.

Partial study on mathematical education and research in the Maghreb countries during the 13th and 14th centuries. Contains chapters on algebra (classification of equations, solution of quadratic equations), symbolism and algebra (symbolism in the 14th century, examples of the use of symbols) and on number theory and combinatorics (combinatorics before the 13th

century, combinatorics in the Maghreb and examples of combinatoric problems).

#4. Djebbar, A: L'analyse combinatoire au Maghreb: l'exemple d'Ibn Mun'im (XIIe-XIIIe s.), Publications Mathématiques d'Orsay, Vol.85-01, Paris (France), 1985, 124p.

Contains a commentary and a translation of section XI of 'Fiqh al-Hisab', a manual written by Ibn Mun'im (Maghreb) between 1207 and 1212. On the basis of some linguistic problems (number of Arabic words of given length etc.), Ibn Mun'im develops his combinatorics. He presents an arithmetic triangle (the so-called Pascal's triangle) and deduces the equivalents of formulas like

$$C^{p-1}_{p-1} C^{p}_{n} = C^{p-1}_{n-1} + C^{p-1}_{n-2} + \ldots + C^{p-1}_{p-1},$$

$$P_n = n!,$$

$$P^{k_1,\ldots k_r} = \frac{P_n}{P^{k_1}. \ldots . P^{k_r}},$$

centuries before Cardano, Tartaglia, Mersenne, Frenicle, etc., in Europe.

#5. Gerdes, Paulus: Three alternate methods of obtaining the ancient Egyptian formula for the area of a circle, in: Historia Mathematica, New York (USA), Vol.12, 261-268.

New conjectures on the origin of the ancient Egyptian formula for the area of a circle are formulated on the basis of an examination of old African craft techniques, e.g. the transformation of an elongated rectangle in the form of a coiled rope into a circle.

#6. Gerdes, Paulus: How to recognize hidden geometrical thinking: a contribution to the development of anthropological mathematics, in: For the Learning of Mathematics, Montreal (Canada), Vol. 6, 1986, no. 2, 10-12, 17.

Deals with a method for recognizing geometrical thinking 'hidden' in the forms of traditional - African - objects, like baskets, pots, fish traps, houses.

#7. Giacardi, Livia and Tullio Viola: Il calcolo del volume del tronco di piramide nella matematica egizia (Discussione sulle ipotesi piu importanti gia proposte), in: Atti della Accademia delle Scienze di Torino, Torino (Italy), Vol.111, 1976-1977, 441-453.

Contains a brief analysis of the hypotheses of Gunn and Peet, Vogel, Neugebauer, Van der Waerden and Gillings on the origin of the ancient Egyptian formula for the volume of a truncated pyramid.

#8. Giacardi, Livia and Tuliio Viola: Saggio su un possibile calcolo dei volumi di alcuni poliedri nella matematica egizia, in: Atti della Accademia delle Scienze di Torino, Torino (Italy), Vol.111,1976-1977, 523-537.

Proposes a new deduction of the ancient Egyptian formula for the volume of a truncated pyramid, based on the successive determination of the volumes of particular pyramids and prisms.

#9. Lumpkin, Beatrice: Africa in the mainstream of mathematics history, in: I. van Sertima (ed.), Blacks in science; Transaction Books, New Brunswick NJ (USA) and London (UK), 1983, 100-109

"For thousands of years, Africa was in the mainstream of mathematics history. This history began with the first written numerals of ancient Egypt, a culture whose African origin has been reaffirmed by the most recent discoveries of archaeology. With a longer period of scientific work than any other area of the world, progress in mathematics continued on the African continent through three great periods, ancient Egyptian, Hellenistic and Muslim". "Although all peoples and continents have played a role in the history of mathematics, the contributions of Africa are still unacknowledged by western historians".

#10. Lumpkin, Beatrice: A young genius in old Egypt, Dusable Museum Press, Chicago (USA), 1979, 24 pp.

Booklet for children with information on ancient Egyptian number symbols and addition procedure.

#11. Mmari, Geoffrey: The United Republic of Tanzania: mathematics for social transformation, in: F. Swetz (ed.), Socialist Mathematics Education, Burgundy Press, Southampton PA (USA), 1978, 301-350.

Analyses the history of mathematics education in Tanzania before and after Independence.

#12. Njock, Georges E.: Mathématiques et environnement socio-culturel en Afrique Noire, in: Presence Africaine, New Bilingual Series no. 135, 3rd Quarterly, 1985, 3-21.

Stresses that it is very urgent to study the history of mathematics in Africa, as colonialism and neo-colonialism neglected the existence of mathematics in Black Africa. “Pure mathematics is the art of creating and imagining. In this sense black art is mathematics”. The author gives a summary of the development of numeration systems, arithmetics and mathematical games in Africa.

#13. Robins, Gay and Charles C.D.Shute: Mathematical bases of ancient Egyptian architecture and graphic art, in: Historia Mathematica, New York (USA), Vol. 12, 1985, 107-122.

“Deals with the trigonometric basis of pyramid architecture and disposes of the erroneous notion that pyramidal dimensions intentionally incorporate irrational numbers”.

#14. Santos, Eduardo dos: Sobre a matemática dos Ouiocos de Angola, in Garcia da Orta, Lisbon (Portugal), Vol 3 no. 2, 1960, 257-271.

Paper on the mathematics (numerals ,arithmetical operations, measures, coins, time reckoning and geometrical vocabulary) of the Tchokwe of North-East Angola.

#15. Shirley, Lawrence: History of mathematics in Nigerian mathematics classrooms: values and problems, in: Abacus, the Journal of the Mathematical Association of Nigeria, Ilorin (Nigeria), Vol. 12, 1986, 123-133.

Discusses the “problem of making the history of mathematics culturally relevant in the Nigerian setting when much of the recorded historical

developments in mathematics have been Mediterranean, Arab and European".

#16. Souissi, Mohamed: Un texte d'Ibn al Banna sur les nombres parfaits, abondants, deficients et aimables, Hamdard National Foundation, Karachi (Pakistan), 1975, 14 pp.

Translation of a manuscript of Ibn al Banna' (1256-1321, Maghreb) on perfect, abundant, deficient and amicable (friendly) numbers.

#17. Souissi, Mohamed: Présentation et analyse du traité "Somme des principes et des conclusions"par le savant astronome Marocain al-Hasan al Marrakusi (était vivant en1281), in: Cahiers de Tunisie, Tunis, (Tunisia), Vol.XXX, 1982, 273-286.

Analyses the treatise "Summary of principles and conclusions" by the Morrocan astronomer al-Hasan al-Marrakusi (13th century). This treatise may be considered the culmination of astronomic literature written in Arab. It gives a summary of the results obtained by al-Hasan's predecessors and adds his own observations and solutions.

#18. Williamson, John: Dabida numerals, in: African Studies, Vol.2, 1943, 215-216.

"While searching for Dabida ways of using arithmetics, for the purpose of making the early studies of young children easier and more interesting, it was discovered that several sets of 'numerals' exist'.' These sets are described. The Dabida inhabit the Taita hills in Kenya.

#19. Williamson, Kay & A. O. Timitimi: A note on ho number symbolism, in: African Notes, (Nigeria), Vol. 5, no. 93, 1970, 9-16.

"Among the Kolokuma Ijo of the Niger Delta odd numbers in general, and three in particular, are associated with men; while even numbers in general, and four in particular, are associated with women. The number seven is associated with the great divinities of the clan, such as Kolokuma Egbesu, and is therefore normally avoided". The paper gives examples.

#20. Zaslavsky, Claudia: Africa counts; Number and Pattern in Africa Culture, Prindle, Weber & Schmidt Inc., Boston (USA), 1973, 328p.; a recent

paperback edition: Lawrence Hill & Co.,520 Riverside Av., Westport, Connecticut (USA); Hungarian translation Africa Szaniol, Gondalet, Budapest (Hungary), 1984.

Already classical introduction to the mathematical heritage of Africa south of the Sahara. Includes chapters on 'Numbers-words, gestures, significance', 'Numbers in daily life', 'Mathematical recreations', 'Pattern and shape', and two regional studies on southwest Nigeria and East Africa. Bibliography with 191 references.
Review by R. Wilder in: Historia Mathematica, New York, Vol. 2, 1975, 207-210.

#2l. Zaslavsky, Claudia: Count on vour finger African style, Harper & Row, New York (USA), 1980.

Picture book for ages 6-9 on traditional finger counting in the marketplace in Kenya, Sierra Leone, and in South Africa.

8. NOTES AND QUERIES

This section is reserved for questions that readers would like to have answers; 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 Editor. If you are answering a question, make a clear reference to the question. All readers may send both questions and answers. Each will be published with the name of the sender.

9. ANNOUNCEMENTS

Ahmed Djebbar (Algeria) will present at the 6th International Congress on Mathematical Education to be held in Budapest (Hungary), July 27-August 3, 1988, a paper entitled "The contents of mathematics education in North Africa during the Middle Ages and its role in education today" .

10. ADRESSES OF SCHOLARS AND INSTITUTIONS MENTIONED IN THIS NEWSLETTER

SCHOLARS:

1. Aballagh, Mohamed: Maison du Maroc, ch.306, 1 Bd. Jourdan, 75014 Paris, France.
2. Bebbouchi, Rachid: Université d'Oran, Institut des Mathématiques, B.P. 1524, Es-senia, Algeria.
3. Bouamrane, Cheikh: Institut de Philosophie, Université d'Alger, Karoubi, Algeria.
4. Bruins, E . M.: Joh. Verhulstraat 185, 1075 GZ Amsterdam, Netherlands.
5. Caveing, Maurice: 13, Bd. Beaumarchais, 75004 Paris, France.
6. Crowe, Donald: Mathematics Department, University of Wisconsin, 480 Lincoln Drive, Madison, Wisconsin 53706, USA.
7. Enukoha, I.: Faculty of Education, University of Calabar, Calabar, Nigeria.
8. Giacardi, Livia: Dipartimento di Matematica, Universita di Torino, Via Principe Amadeo 8, 10123 Torino, Italy.
9. Guergour, Youcef: Département de Mathématiques, E.N.S., 16050 Vieux Kouba, Alger, Algeria.
10. Guillemot, Michel: 10 Impasse de la Pelude, 31400 Toulouse, France.
11. Hadfi, Hamida: Institut Supérieur de la Formation Continue, 43 Rue de la Liberté, le Bardo, Tunis, Tunisia.
12. Hogbe-Nlend, Henri: Département de Mathématiques et Informatique, Université de Bordeaux 1, 351 Cours de la Libertation, 33405 Talence Cedex, France.
13. Hogendijk, Jan: Mathematisch Instituut, Rijksuniversiteit Utrecht, Budapestlaan 6, 3508 TA, Utrecht, Netherlands.
14. Jaouiche, Khalil: 128 Rue de la Croix Nivert, 75015 Paris, France.
15. Kane, Abdoulaye E.: Département de Philosophie, Université de Dakar, Dakar-Fann, Senegal.
16. Kani, A.M.: Northern Nigeria History Research Scheme, Department of History, Ahmadu Bello University, Zaria, Nigeria.
17. Lumpkin, Beatrice: 7123 S.Crandon, Chicago IL 60649, USA.
18. Mmari, Geoffrey: Vice-Chancellor, Sokoine University of Agriculture, P.0.Box 3000, Horogoro, Tanzania.
19. Navez, Jacques: Département de Mathématiques, Université du Burundi, B.P. 2700, Bujumbura, Burundi.
20. Njock, Georges: Département de Mathématiques, B.P. 812, Université de Yaounde, Yaounde, Cameroun.

21. Ojoade, J.0.: Centre for Development Studies, University of Jos, Jos, Nigeria.
22. Rebstock, U.: Orientalisches Seminar, Universität Tübingen, Münzgasse 30, 7400 Tübingen 1, F.R. Germany.
23. Robins, Gay: Christ's College, Cambridge CB2 3BU, England UK.
24. Sadallah, Aboulkacim: Institut d'Histoire, Université d'Alger, Karoubie, Alger, Algeria.
25. Santos, Eduardo dos: Instituto de Investigação Científica Tropical, Rua da Junqueira 86, 1300 Lisbon, Portugal.
26. Seka, Beniel: Institute of Education, P.O.Box 35094, Dar es Salaam,Tanzania.
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3. AMU Commission on the History of Mathematics in Africa (AMUCHMA~

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11. 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.

It is planned to edit the AMUCHMA-Newsletter also in French and Arabic. Those wishing to receive the AMUCHMA-Newsletter (English, French or Arabic) should write to the Chairman (English version) or to the Secretary (French and Arabic versions).