RESENHAS

SBHMAT'S FIRST PUBLICATIONS

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In its first two years of existence, the Brazilian Society for the History of Mathematics (SBHMat) has published nine books on various topics in the History of Mathematics and two scholarly journals. About half of these works also treat of the relation between the History of Mathematics and Mathematics Education, revealing the continuing concern of many SBHMat members with Mathematics teaching. These works will be reviewed here.

- *Facetas do Diamante: Ensaios sobre Educação Matemática e História da Matemática* (*Facets of the Diamond: Essays on Mathematics Education and the History of Mathematics*), John A. Fossa (Ed.). Rio Claro: SBHMat, 2000. (272 pages.)

This volume, published in December of 2000, is divided into three sections, consisting of four articles on Mathematics Education, four articles on the History of Mathematics and two articles on the relation between these two areas of research. Since it will be reviewed separately in this journal, further comments need not be supplied here.

- *Série: Textos de História da Matemática* (*Series: Texts on the History of Mathematics*), John A. Fossa, General Editor.

The books in this series have their origin in mini-courses given at the IV National Seminar on the History of Mathematics in Natal, RN. This was the first of these meetings to be held under the auspices of SBHMat, which was founded at the III National Seminar in Vitória, ES, in 1999. Six volumes were published in April 2001 and the seventh in the following July. Three more volumes are expected to come out before the end of the year. The seven volumes that have already appeared will be reviewed here.

1. *Primeiro Livro dos Elementos de Euclides* (*The First Book of Euclid's Elements*), Irineu Bicudo (Trans.). Rio Claro: SBHMat, 2001. (85 pages.)

The translation into Portuguese, directly from the Greek, of Book I of Euclid's *Elements* is the first part of a larger project, the translation of all thirteen books of Euclid's masterpiece, which is expected to appear soon. The translation itself is masterful, resulting in a very clear and easy to read text. Unfortunately, there is no scholarly commentary or notes. It is hoped that these will be supplied in a second edition and/or the full translation.

2. *Geometria e Outras Metrias* (*Geometry and Other Metries*), Arlete de Jesus Brito and Dione Lucchesi de Carvalho. Rio Claro: SBHMat, 2001. (122 pages.)

Various activities for the teaching of Geometry, inspired by the history of this discipline, are presented here, especially with respect to the area of plane figures, symmetry and volume. There is also a nice discussion of various ways in which geometrical knowledge can be represented. The last chapter is a dialogue between the two authors on the other "Metries", which is to say some of the other measures one should take into account in the teaching of geometry.

3. *Estudos sobre o Número Nupcial* (*Studies on the Nuptial Number*), Glenn W. Erickson and John A. Fossa. Rio Claro: SBHMat, 2001. (133 pages.)

The authors' solution to an outstanding problem in Plato scholarship is the starting point for an integrated reconstruction of aspects of Plato's cosmology, astrology and chemistry. It is also shown how all of this is related to the allegory of the Divided Line. Finally, an earlier Pythagorean doctrine on the geometrical forms of the four material elements is derived from the study of arithmetical fluxes. A more extensive review of this work is to appear in *Princípios* (Natal, RN).

4. *O Desenvolvimento do Pensamento Geométrico: Uma Proposta Pedagógica* (*The Development of Geometrical Thought: A Pedagogical Proposal*), Maria Terezinha de Jesus Gaspar and Suzeli Mauro. Rio Claro: SBHMat, 2001. (122 pages.)

The two problems of squaring the circle and doubling the cube are discussed in this volume. The historical roots of these problems in the mathematics of the *Sulvasutras* is recounted, followed by an ample account of how they were formulated and treated in Ancient Greece. More modern results, including the impossibility of the constructions, are treated sketchily. A twenty page appendix giving biographical information on the major players closes the volume.

5. *Tópicos de História da Trigonometria* (*Topics in the History of Trigonometry*), Bernadete Barbosa Morey. Rio Claro: SBHMat, 2001. (52 pages.)
This volume sets the stage for the discussion of the history of trigonometry by describing Babylonian astronomy and how it later developed as part of Greek science. The main objective of the volume, however, is a careful, and interesting, interpretation of the table of chords in Ptolemy's *Almagest*.

6. *Elementos sobre o Desenvolvimento da Teoria da Medida* (*Elements of the Development of the Measure Theory*), Rosa Lúcia Sverzut Baroni, Marcelo Salles Batarce and Vanderlei Marcos do Nascimento. Rio Claro: SBHMat, 2001. (63 pages.)

This history of the mathematical study of measure begins with a discussion of Zeno's paradoxes. It is then shown how these problems reappear with the birth of the

Calculus. Finally, the more general question of the measure of arbitrary sets is presented. Each of the three authors wrote a chapter separately, resulting in a certain lack of harmony in the presentation. Nevertheless, it is an interesting introduction to the history of Measure Theory.

7. *Laboratório de História da Matemática*, (*History of Mathematics Laboratory*), Eduardo Sebastiani Ferreira. Rio Claro: SBHMat, 2001. (68 pages.)

This volume begins with a discussion of how to develop mathematical competencies in an experimental setting through the use of the history of mathematical concepts. The method is exemplified with a discussion of means, the problem of the duplication of the cube and the inverse tangent problem (for conics). The text interweaves these themes nicely, showing how they are all related to each other. Finally, a more detailed account of the history of mathematical investigations on tangents to a curve is presented.

- *Anais do IV Seminário Nacional de História da Matemática* (*Proceedings of the IVth National Seminar on the History of Mathematics*), John A. Fossa (Ed.). Rio Claro: SBHMat, 2001. (392 pages.)

The *Proceedings* came out in July of 2001, partially financed by CNPq, the Brazilian Government's agency for fomenting research. It contains the full texts of 33 presentations and abstracts of 23 further presentations. A special session of five presentations by students from the Federal University of Rio Grande do Norte (UFRN), Natal, RN, site of the conference is listed. The eleven mini-courses presented are also listed, as are the names and addresses of the 207 participants in the event.

The full texts include the two Plenary Conferences, which paralleled each other in many ways. The first was the opening address by Circe Mary Silva da Silva Dynnikov on the History of Mathematics in Brazil and its relation to politics. The other was given by Karen Virginia Hungar Parshall on the development of the mathematical research community in the United States between 1800 and 1945. The later was proffered in English and, thus, printed in English in the *Proceedings*. All the other contributions were in Portuguese.

The Parallel Conferences were constituted by the following scholars and their themes: André Luís Mattedi Dias on the first Brazilian mathematics journal; Fernando Raul de Assis Neto on Frege's logicism; Gert Schubring on new documents relating to Monteiro da Rocha; Luís Manuel Ribeiro Saraiva on Stockler's notion of limits; Manoel de Campos Almeida on the origin of numbers; Marcos Vieira Texeira on mathematics at the end of the 19th Century (not printed in full); Oscar João Abdounur on music and arithmetic from the 14th to the 16th Centuries; Peter Damerow on whether numbers are a biological inheritance or a human invention; Plínio Zornoff Táboas on the influence of the Italian mathematician Fantappiè on Brazilian mathematics; Ubiratan D'Ambrosio on the history of the Calculus of Variations; and Wagner Rodrigues Valente on the history of school mathematics in Brazil.

There were two Round Tables. The first was on the History of Mathematics and Mathematics Education, presided over by Iran Abreu Mendes with contributions from Carlos Roberto Vianna, Rômulo Marinho do Rêgo and Ruy Madsen Barbosa. The second was on the History of Mathematics and the Philosophy of Mathematics. It was presided over by Lígia Arantes Sad with contributions from Antônio Vicente M. Garnica and Fernando Raul de Assis Neto. The full text of all seven participants in these two Round Tables is contained in the *Proceedings*.

The *Proceedings* also contains the full text of 14 submitted papers. The authors and their topics are as follows: Cícero Monteiro de Souza on Joaquim Gomes de Souza; Cícero Monteiro de Souza and Silvana L. Pereira Cardoso on Pedro Nunes' algebra; Dulcyene Maria Ribeiro on Manoel de Azevedo Fortes; Elenice de Souza Lodron Zuin on the reform movement of 1931; João Ferreira dos Santos and John A. Fossa on the concept of *mathesis universales* in Descartes; Maria Eli Puga Beltrão on Felix Klein; Maria Laura Magalhães Gomes on Condorcet; Marta Figueredo dos Anjos, Janaína Alves Costa and John A. Fossa on George Boole; Moysés Gonçalves Siqueira Filho and Circe Mary Silva da Silva on Malba Tahan; Nello Allan on the history of rational approximations to irrational square roots; Pedro Paulo Scandiuzzi on the ethnomathematics of an Amerindian people; Renata Cristina Geromel Meneghetti on the history of the Calculus; Ruy Madsen Barbosa on anthyphairesis and the $\sqrt{3}$; and Virgínia Cardia Cardoso on Lakatos.

SBHMat also brought out two scholarly journals in April, 2001.

- *Revista Brasileira de História da Matemática* (*Brazilian Journal for the History of Mathematics*), biannual.

A research journal in the History of Mathematics, Volume 1, Number 1 contained five articles: Ubiratan D'Ambrosio on mathematics and navigation in the Age of Exploration (15th and 16th Centuries); Ivor Grattan-Guinness on mathematics and Christianity; Hans Wussing on implicit Group Theory in Gauss' treatment of Number Theory; Eduardo L. Ortiz on the introduction of quaternions into France; and Circe Mary Silva da Silva on Benjamin Constant's influence on mathematics teaching in Brazil.

- *História e Educação Matemática* (*History and Mathematics Education*), biannual.

This journal is intended as a pedagogical support for mathematics teachers (at all levels) in relation to the History of Mathematics and its role in the classroom. Volume 1, Number 1 contained the following material: A translation of an article from the *Mathematical Intelligencer* by W. S. Anglin in which he discusses various presuppositions on the nature of the History of Mathematics and how they relate to its use in the classroom; Carlos Roberto Vianna and Helena Noronha Cury on various definitions of 'angle" and their implications; André Luís Mattedi Dias on Omar Catunda; a reprint of an article published by Catunda in 1957 on the teaching of Mathematics; and two reviews.