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ABSTRACTS

Edited by DAVID E. ZITARELLI

The purpose of this department is to give sufficient information about the subject matter of each publication to enable users to decide whether to read it. It is our intention to cover all books, articles, and other materials in the field.

Books for abstracting and eventual review should be sent to this department. Materials should be sent to Prof. David E. Zitarelli, Department of Mathematics, Temple University, Philadelphia PA 19122, U.S.A. (e-mail: V5319E @ TEMPLEVM.BITNET or V5319E @ VM.TEMPLE.EDU)

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In order to facilitate reference and indexing, entries are given abstract numbers which appear at the end following the symbol #. A triple numbering system is used: the first number indicates the volume, the second the issue number, and the third the sequential number within that issue. For example, the abstracts for Volume 20, Number 1, are numbered: 20.1.1, 20.1.2, 20.1.3, etc.

For reviews and abstracts published in Volumes 1 through 13 there are an *author index* in Volume 13, Number 4, and a *subject index* in Volume 14, Number. 1.

The initials in parentheses at the end of an entry indicate the abstractor. In this issue there are abstracts by Víctor Albis (Bogotá), Donald W. Bushaw (Pullman, WA), Ronald Calinger (Washington), Irene Caratelli (Cori, Italy), Louise S. Grinstein (Brooklyn), Wilifred Lagler (Tübingen), Ivica Martinović (Dubrovnik), James V. Rauff (Decatur, IL), and David E. Zitarelli.

AGARD, EGBERTO. El surgimiento de los números irracionales en Grecia [The Emergence of Irrational Numbers in Greece], in *Memorias de la séptima reunión centroamericana y del Caribe sobre formación de profesores e investigación en matemática educativa,* Panamá: Univ. de Panamá, 1993, pp. 264–269. An account of irrational numbers in ancient Greece. (VA) #22.1.1

ALCARCÓN, JESÚS; RIGO, MIRELA; AND WALDEGG, GUILLERMINA. La ciencia analítica en la primera mitad del siglo XIX: El teorema del valor intermedio [Analytic Science in the First Half of the 19th Century: The Intermediate Value Theorem], *Mathesis (México)* **10** (1994), 93–113. The word "analytic" was used in the 19th century to make various fields of knowledge legitimate as "scientific." However, even in one field the meaning of "analytic" may have different interpretations, as the authors endeavor to show by examining distinct proofs of the intermediate value theorem. (VA) #22.1.2

ALEXANDER, DANIEL S. *A History of Complex Dynamics: From Schröder to Fatou and Julia,* Brunswick/Wiesbaden: Vieweg, viii + 165 pp., 1994, DM 58, $42. (DEZ) #22.1.3

ALVAREZ, CARLOS J. Sur l'origine de l'hypothèse du continu, *Sciences et techniques en perspective* **26** (1993), 250–273. The author traces the evolution of the continuum hypothesis in the work of Cantor. It

0315-0860/95 $6.00

is shown how the problem of the continuum hypothesis arose naturally from Cantor's work with infinite sets and transfinite numbers. Cantor's changing attitude about the truth of the continuum hypothesis is also discussed. (JVR) #22.1.4

ANGLIN, W. S. *Mathematics: A Concise History of Philosophy*, New York: Springer-Verlag, 1994, 272 pp., hardbound, $39. An introductory textbook for a one-semester course in the history and philosophy of mathematics that emphasizes three topics: infinity, the nature of motion, and Platonism. (DEZ) #22.1.5

ARIAS, ANA CECILIA. *See* #22.1.136.

AUSEJO, ELENA, AND HORMIGÓN, MARIANO (eds.) *Messengers of Mathematics: European Mathematical Journals (1800–1946)*, Madrid: Siglo XXI veintiuno editores, 1993, xxiv + 298 pp., paperbound. The book contains the Proceedings of the *Simposio internacional de periodismo científico* (1991), held in Saragossa. Each contribution is abstracted separately. (VA) #22.1.6

AUSEJO, ELENA, AND MILLÁN, ANA. The Spanish Mathematical Society and Its Periodicals in the First Third of the 20th Century, pp. 159–187 in #22.1.6. A report on three journals published by the Spanish Mathematical Society: *Revista de la Sociedad Matemática Española, Revista matemática Hispano-Americana,* and *Matemática elemental.* (VA) #22.1.7

AUSEJO, ELENA, AND VELAMAZÁN, MARÍA ÁNGELES. *LLULL, Revista de la Sociedad Española de Historia de las Ciencias y de las Técnicas. Índice de los volúmenes 11–15 (1988–1992)*, Zaragoza: Sociedad Española de Historia de las Ciencias y las Técnicas, 1993, 55 pp. Indexes for the Spanish history of science journal *LLULL.* (VA) #22.1.8

AUSEJO, ELENA. *See also* #22.1.160.

BALDINI, UGO. Boscovich e la tradizione gesuitica in filosofia naturale: Continuità e cambiamento, pp. 81–133 in #22.1.35. Discusses traditional and new components in Bošković's natural philosophy in the context of the Jesuit tradition, particularly in relation to *Philosophia mentis et sensuum* by Giovanni Battista Tolomei. Contains two appendices: "Bošković in the catalogues kept in the Archivum Romanum SJ (1724–1741)" and "Professors of mathematics and natural philosophy at the Collegium Romanum (1661–1745)." (IM) #22.1.9

BENDA, JULIEN. Una concepción moderna de la historia de la ciencia [A Modern Conception of the History of Science], *Lecturas matemáticas* **14** (1993), 109–117. Spanish translation of a paper that originally appeared in the 12th Congrès International de Philosophie des Sciences (1949), Vol. VII (1952), pp. 45–50. (VA) #22.1.10

BENECERRAF, PAUL. Qué no prodrían ser los números [What Numbers Could Not Be], *Mathesis (Mexico)* **9** (1993), 317–343. Spanish translation of the article that appeared in *The Philosophical Review* **74** (1965), 47–73. (VA) #22.1.11

BERNOULLI, JACOB. *Der Briefwechsel von Jacob Bernoulli*, Basel/Boston: Birkhäuser, 1993, xxii + 305 pp., hardbound, SwFr 148, DM 168, ÖS 1310.40. The correspondence of Jacob Bernoulli, compiled and annotated by André Weil, with the help of Clifford Truesdell and Fritz Nagel. (DEZ) #22.1.12

BERNOULLI, JACOB. *Der Werke von Jacob Bernoulli*, Band 4: *Reihentheorie*, Basel/Boston: Birkhäuser, 1993, xxii + 298 pp., hardbound, SwFr 148, DM 168, ÖS 1310.40. The work of Jacob Bernoulli on series, compiled and annotated by André Weil, with historical notes by Patrícia Radelet-de Grave and Martin Mattmüller. (DEZ) #22.1.13

BERNOULLI, JACOB. Teoría de probabilidades (*Ars Conjectandi, 4a. Parte*, Basilea, 1713) [The Theory of Probability (*Ars Conjectandi, Part IV*, Basil, 1713)], *LLULL* **16** (1993), 389–418. Spanish translation by Andrés Rivadulla of Part IV of Jacob Bernoulli's *Ars conjectandi*, based on the R. Hausner edition (Leipzig, 1899). There are also notes by the translator. (VA) #22.1.14

BETSCH, GERHARD. Praktische Geometrie zur Zeit Mercators, in Irmgard Hantsche, *Mercator—Ein Wegbereiter neuzeitlichen Denkens*, Bochum: Universitätsverlag Dr. N. Brockmeyer, 1994, pp. 121–139. (WL) #22.1.15

BLAY, MICHEL. *Les raisons de l'infini: Du monde clos à l'univers mathématique*, Paris: Gallimard, 1993, 258 pp., paperbound, Fr 110. (DEZ) #22.1.16

BORGATO, M. T., FIOCCA, A., AND PEPE, L. *Notizia delle ricerche in storia delle matematiche (Anni MCMLXXIX–MCMLXXXVIII)* [*A Note on Research in the History of Mathematics (1979–1988)*], Ferrara: Universitá degli Studi de Ferrara, 1989, paperbound, 16 pp. A report on the main line of research in the history of mathematics carried out by members of the mathematics department during the 1980s. Most of the research concerns the history of mathematics in Italy from the time of Descartes to World War II. (IC) #22.1.17

BOS, HENK J. M. Calculus in the Eighteenth Century: The Role of Applications, pp. 113–127 in #22.1.21. A survey of 18th-century applications of calculus, including a discussion of the time dependence of the idea of "applications," based on encyclopedia accounts from the 1730s and 1780s. The area of hydrodynamics illustrates the paper's theme. (DEZ) #22.1.18

BOS, HENK J. M. Christian Huygens, pp. 59–81 in #22.1.21. A discussion of the life, personality, and scientific achievements of Christian Huygens, followed by an elaboration of three reasons for the discrepancy between the high quality of Huygens's work and his restricted influence. (DEZ) #22.1.19

BOS, HENK J. M. Elements of Mathematics: They Are No Longer What They Used to Be, pp. 141–163 in #22.1.21. A contrast of three books that have the word "Elements" in the title: Euclid's *Elements*, Christian von Wolff's *Elementa matheseos universae* (1730), and Bourbaki's *Éléments de mathématique*. The author concludes that the *Elements* function as codification of certain styles of mathematics and thereby provide matter for discussion and disagreement. (DEZ) #22.1.20

BOS, HENK J. M. *Lectures in the History of Mathematics*, Providence/London: American Mathematical Society/London Mathematical Society, 1993, x + 197 pp., hardbound, $86. A collection of eleven essays, ten of which appeared earlier, based on occasional lectures that were sometimes published in inaccessible places. The two recurring themes are when a problem was considered solved and when an object was considered known. The first two essays deal with curves in the 17th century, the next six with special topics from the 17th century to the 19th century, and the last three with the history of mathematics in a larger context. All of the essays are abstracted separately. (DEZ) #22.1.21

BOS, HENK J. M. Mathematics and Its Social Context: A Dialogue in the Staff Room, with Historical Episodes, pp. 181–197 in #22.1.21. Discusses episodes from the history of mathematics that are relevant to current opinions and arguments on the use of mathematics in society and the social influence of mathematics. (DEZ) #22.1.22

BOS, HENK J. M. "Queen and Servant": The Role of Mathematics in the Development of the Sciences, pp. 165–180 in #22.1.21. A survey of the role mathematics has played in the development of the sciences based on E. T. Bell's *Mathematics: Queen and Servant of Science*. Breakthroughs in four fields are examined: uniform circular motion in astronomy, gradual change in mathematical physics, uncertainty in statistics, and organized complexity in computer science. (DEZ) #22.1.23

BOS, HENK J. M. Recognition and Wonder: Huygens, Tractional Motion, and Some Thoughts on the History of Mathematics, pp. 1–21 in #22.1.21. An investigation into the motives of Christian Huygens for studying tractional motion permits the author to discuss the nature of, and wonder of, the history of mathematics. Examples are also taken from Babylonian tablets and Poncelet's "principe de continuité." (DEZ) #22.1.24

BOS, HENK J. M. The Closure Theorem of Poncelet, pp. 129–140 in #22.1.21. An examination and comparison of three proofs of the closure theorem due to J. -V. Poncelet in 1813–1814, C. G. J. Jacobi in 1828, and P. A. Griffiths in 1976. The author concludes (p. 137) that "although the proofs are clearly related . . . the differences . . . are so marked that they cannot be called the same." (DEZ) #22.1.25

BOS, HENK J. M. The Concept of Construction and the Representation of Curves in Seventeenth-Century Mathematics, pp. 23–36 in #22.1.21. Examines the representation of a curve by Huygens and Leibniz, the trisection of an angle by Descartes, and two calculus-of-variations problems solved by Jacob Bernoulli, to illustrate two themes from 17th-century mathematics. (DEZ) #22.1.26

BOS, HENK J. M. The Fundamental Concepts of the Leibnizian Calculus, pp. 83–99 in #22.1.21. A presentation of the fundamental concepts of calculus as developed by Leibniz from 1675 and published in 1684. Leibniz's program is based on sums (quadrature) and differences (tangents), and since the arithmetic operations are reciprocal the corresponding calculus operations are reciprocal too. There also is a contrast between Leibnizian calculus and modern calculus. (DEZ) #22.1.27

BOS, HENK J. M. The Lemniscate of Bernoulli, pp. 101–111 in #22.1.21. The author raises several questions regarding the understanding of mathematics in a given period by examining the development of the lemniscate with two Bernoullis, Leibniz, and Huygens. (DEZ) #22.1.28

BOS, HENK J. M. The Structure of Descartes's *Géométrie,* pp. 37–57 in #22.1.21. A study of the structure of *La Géométrie* by René Descartes, including the kind of geometry problems attacked and the types of constructions allowed. Also analyzes how algebra was used to decide the simplicity of a construction and to determine which curves were permissible. (DEZ) #22.1.29

BOYD, JAMES N. *See* #22.1.92.

BRIGAGLIA, ALDO. A Comparison of the Relations between Mathematics and Physics in Boscovich and d'Alembert, pp. 195–213 in #22.1.35. (IM) #22.1.30

BRIGAGLIA, ALDO. The Circolo Matematico di Palermo and its *Rendiconti:* The Contribution of the Italian Mathematical Community to the Diffusion of International Mathematical Journals, pp. 71–93 in #22.1.6. Describes the struggle of Guccia and De Franchis to turn the *Rendiconti* into a truly international mathematical journal. (VA) #22.1.31

BRITTAN, GORDON G. The Role of the Law of Continuity in Boscovich's Natural Philosophy, pp. 215–227 in #22.1.35. Discusses the concept "law of continuity" in *Theoria philosophiae naturalis.* (IM) #22.1.32

BUCCIANTINI, MASSIMO, AND TORRINI, MAURIZIO (eds.) *Geometria e atomismo nella scuola galileiana,* Florence: Leo S. Olschki, 1992, viii + 213 pp., paperbound, L 44,000. (DEZ) #22.1.33

BURNETT, CHARLES (ed.) *Glosses and Commentaries on Aristotelian Logical Texts: The Syriac, Arabic, and Medieval Latin Tradition,* London: Warburg Institute of the Univ. of London, 1993, vi + 192 pp., paperbound, £24. (DEZ) #22.1.34

BURSILL-HALL, PIERS (ed.). *R. J. Boscovich: Vita e attività scientifica/His Life and Scientific Work.* Rome: Istituto della Enciclopedia Italiana, 1993, 643 pp., hardbound. Proceedings of an International

Symposium held in Rome, May 23–27, 1988, by an organization of the Istituto della Enciclopedia Italiana and the Accademia dei Quaranta to mark the 200th anniversary of death of Rugjer Bošković. Papers by U. Baldini, G. G. Brittan, Ž. Dadić, S. D'Agostino, J. Dhombres, R. W. Farebrother, M. Feingold, B. Gower, S. J. Harris, F. A. Homann, L. Indorato, D. M. Ivanović, I. Martinović, P. Nastasi, D. Papineau, L. Pepe, R. E. Rider, E. Stipanić, and R. Tolomeo are abstracted separately. (IM) #22.1.35

CAJAS DOMÍNGUEZ, FERNANDO. El carácter tecnológico de la matemática educativa [The Technological Character of Mathematics Education], in *Memorias de la séptima reunión centroamericana y del Caribe sobre formación de profesores e investigación en matemática educativa,* Panamá: Univ. de Panamá, 1993, pp. 276–281. (VA) #22.1.36

CAJAS DOMÍNGUEZ, FERNANDO. ¿Necesitan teorías los educadores de matemática? [Do Mathematics Teachers Need Theories?], in *Memorias de la séptima reunión centroamericana y del Caribe sobre formación de profesores e investigación en matemática educativa,* Panamá: Univ. de Panamá, 1993, pp. 270–275. Mathematics education. (VA) #22.1.37

CAMPBELL-KELLY, MARTIN. Charles Babbage and the Assurance of Lives, *IEEE Annals of the History of Computing* **16** (3)(1994), 5–14. A description of Babbage's role in the development of life insurance and the reform of the life insurance industry. It points out the significance of his book *Assurance of Lives.* (LSG) #22.1.38

CAMPOS, ALBERTO. *Axiomática y geometría desde Euclides hasta Hilbert y Bourbaki* [Axiomatics and Geometry from Euclid to Hilbert and Bourbaki], Santafé de Bogotá: A. Campos, 1994, 717 pp. *See* #22.1.40. (VA) #22.1.39

CAMPOS, ALBERTO. *Introducción a la lógica y la geometría griegas anteriores a Euclides* [*Introduction to Greek Logic and Geometry before Euclid*], Santafé de Bogotá: A Campos, 1994, 600 pp. The first of two very good textbooks intended for students in the social sciences. It includes very well posed questions at the end of each chapter. *See* #22.1.39. (VA) #22.1.40

CASTRO FERNÁNDEZ, EDWIN. *See* #22.1.115.

CHERONI, ALCIÓN. Política y ciencia en la Revolución francesa [Politics and Science in the French Revolution], *Galileo* **2a** época, No. 5–6(1990), 3–24. (VA) #22.1.41

COOK, DANIEL J., AND ROSEMONT, HENRY, JR. *Writings on China: Gottfried Wilhelm Leibniz,* Peru, IL: Open Court, 1994, 160 pp., paperbound, $16.95, hardbound, $32.95. A collection of writings by Leibniz on one of his major, but little addressed, interests, the country of China. Leibniz compares Chinese and European civilizations and reveals his thoughts on future relations between the two. (DEZ) #22.1.42

CORRY, LEO. La teoría de las proporciones de Eudoxio interpretada por Dedekind [Eudoxus' Theory of Proportions Interpreted by Dedekind], *Mathesis (México)* **10** (1994), 1–24. Author's abstract: The article presents and discusses the arguments for and against the historical thesis, according to which Eudoxus' theory of proportions fully anticipated modern theories of the irrational numbers, such as Dedekind's and Weierstrass'. Special stress is laid upon Dedekind's theory of cuts, and upon Dedekind's own interpretation of the putative connection between his theory and Eudoxus'. This interpretation throws new light upon interesting aspects of the historiographical dispute concerning Eudoxus and Dedekind, and of 19th-century mathematics as well. (VA) #22.1.43

CROMBIE, A. C. *Styles of Scientific Thinking in the European Tradition: The History of Argument and Exploration Especially in the Mathematical and Biomedical Sciences and Arts,* London: Duckworth, 1994, 3 vols., xxxii + vi + vi + 2456 pp., hardbound, £180. (DEZ) #22.1.44

D'AGOSTINO, SALVO. Boscovich's Physical Theory of Space and Matter, pp. 41–48 in #22.1.35. Discusses the 18th-century mathematization of mechanics versus Rugjer Bošković's *Theoria philosophiae naturalis*. (IM) #22.1.45

DADIĆ, ŽARKO. On Boscovich's Theoretical Astronomy, pp. 245–254 in #22.1.35. Discusses Rugjer Bošković's approach in determining the orbits of celestial bodies in the period 1746–1785. (IM) #22.1.46

DAUBEN, JOSEPH W. Matemáticas: La perspectiva de un historiador [Mathematics: A Historian's Perspective], *LLULL* **16** (1993), 23–41. The author discusses who should write the history of mathematics, departing from A. Weil's suggestion that only mathematicians, and only the best, are qualified to discuss and write the history of mathematics. (VA) #22.1.47

DAVIS, PHILIP J. Otto Neugebauer: Reminiscences and Appreciation, *The American Mathematical Monthly* **101** (1994), 129–131. Personal account of some characteristics of the historian of mathematics, Otto Neugebauer, including an Escher-like photo. (DEZ) #22.1.48

DE CASTRO KORGI, RODRIGO. La demostración del último teorema de Fermat ha sido anunciada en Cambridge, Inglaterra [The Proof of Fermat's Last Theorem Has Been Announced in Cambridge, England], *Lecturas matemáticas* **14** (1993), 129–135. News about A. Wiles' proof of Fermat's last theorem. (VA) #22.1.49

DE CASTRO KORGI, RODRIGO. Mitos y realidades sobre fórmulas para calcular números primos [Myths and Truths about Formulas for Calculating Prime Numbers], *Lecturas matemáticas* **14** (1993), 77–101. Historical account about formulas for computing prime numbers and the *n*th prime. (VA) #22.1.50

DE GANDT, FRANÇOIS. Cavalieri's Indivisibles and Euclid's Canons, in Peter Barker and Roger Ariew (eds.), *Revolution and Continuity: Essays in the History and Philosophy of Early Modern Science*, Washington, D.C.: Catholic Univ. of America Press, 1991, 157–182. (RC) #22.1.51

DE ICAZA HERRERA, MIGUEL, AND GARCÍA GARCÍA, RAMIRO. Propiedades mecánicas de la cicloide y su fundamentación geométrica [Mechanical Properties of the Cycloid and its Geometric Foundation], *Mathesis (México)* **9** (1993), 369–390. The first of a series of papers presenting classical works on mechanics, treated geometrically by early mathematicians, in a more modern approach that is more accessible to modern readers. This paper presents Newton's solutions to the brachistochrone curve. (VA) #22.1.52

DE LORENZO, JAVIER. La razón constructiva matemática y sus harceres [Constructive Mathematical Reasoning], *Mathesis (México)* **9** (1993), 129–153. Author's abstract: Inside the conceptual bubble, constructive mathematical reason appears in three different ways: figural, global, and computational. Each of them is briefly analyzed, together with their corresponding methodological, epistemological, and stylistic problems. S–P logical form with regard to the figural case, function–argument in relation to the global one, and algorithmic rules with respect to the computational way will be considered as well as some shades of the meanings of proof, definition, truth. (VA) #22.1.53

DELL L'AGLIO, LUCA. Des glissements dans l'historiographie des mathématiques: Le cas du *Bolletino de bibliographia e storia delle scienze matematiche* de Gino Loria, pp. 283–297 in #22.1.6. A discussion and comparison of the differences and similarities between two Italian journals, B. Boncompagni's *Bolletino di bibliographia e storia delle scienze matematiche e fisiche* and G. Loria's *Bolletino di bibliographia e storia delle scienze matematiche*. (VA) #22.1.54

DEMIDOV, SERGEI S. La revue *Matematicheskii sbornik* dans les années 1866–1935, pp. 235–256 in #22.1.6. The history of *Matematicheskii sbornik*, the official journal of the Moscow Mathematical Society, during the period 1866–1935. Some bibliometric results are produced and used for a better

understanding of the journal, including accounts of N. D. Braschmann and D. T. Egorov. (VA) #22.1.55

DHOMBRES, JEAN. Boscovich aux prises avec le calcul différentiel: Art nouveau des inégalités et pratiques anciennes, pp. 437–465 in #22.1.35. Contains the translation of Bošković's treatise *De circulis osculatoribus* (1740) into French. (IM) #22.1.56

DHOMBRES, JEAN. La méthode fonctionnelle chez J. F. Pfaff: Une filiation leibnizienne, *Sciences et techniques en perspective* **26** (1993), 97–147. A translation into French from Latin and a commentary of Pfaff's "Programma inaugurale" of 1788 that positions Pfaff's work in the history of analysis. It is shown, among many other results, that Pfaff anticipated Cauchy's proof of the binomial theorem. (JVR) #22.1.57

DHOMBRES, JEAN. Las progresiones infinitas: El papel del discreto y del continuo en el siglo XVII [Infinite Progressions: The Role of the Continuum and the Discrete in the 17th Century], *LLULL* **16** (1993), 43–114. This paper illustrates a sway of inspiration during the first part of the 17th century from the geometric continuum to discrete algebraic properties and back to the continuum, using texts from Grégoire de Saint-Vincent's *Opus geometricum* (in particular, his deinition for the limit of a series) and Fermat's writing on the quadrature of hyperbolae. Included are developments in geometric series and limits of series. (VA) #22.1.58

DHOMBRES, JEAN. Ser matemático francés en 1795 [Being a French Mathematician in 1795], *Galileo* **2a** época, No. 5–6 (1990), 25–47. An account of the activities of Laplace, Lagrange, and Monge in 1795 that describes the École polytechnique and descriptive geometry. (VA) #22.1.59

DHOMBRES, JEAN, AND OTERO, MARIO H. Les *Annales de mathématiques pures et appliquées:* Le journal d'un homme seul au profit d'une communauté enseignante, pp. 3–70 in #22.1.6. Bibliometric essay on Gergonne's *Annales:* authors, the nationality of each author, and the importance of geometry. (VA) #22.1.60

EDGERTON, SAMUEL Y., JR. *The Heritage of Giotto's Geometry: Art and Science on the Eve of the Scientific Revolution,* Ithaca, NY/London: Cornell Univ. Press, 1991, xii + 319 pp. (DEZ) #22.1.61

FAJ, ZDRAVKO. The Opinion of Stjepan Gradić on the Application of Indivisibles in Physics [in Croatian], *Anali Zavoda za povijesne znanosti Hrvatske akademije znanosti i umjetnosti u Dubrovniku* **31** (1993), 31–44. Discusses the correspondence between Stjepan Gradić and Honorè Fabri regarding Galileo's triangle. (IM) #22.1.62

FAREBROTHER, RICHARD WILLIAM. Boscovich's Method for Correcting Discordant Observations, pp. 225–261 in #22.1.35. Discusses Bošković's algorithm exposed in his supplement to the second volume of Benedikt Stay's epic *Recentioris philosophiae . . . libri X* (1760). (IM) #22.1.63

FEINGOLD, MORDECHAI. A Jesuit among Protestants: Boscovich in England c. 1745–1820, pp. 511–526 in #22.1.35. Discusses the impact of Boscovichean ideas on British scientists. (IM) #22.1.64

FIGUEROA MATTA, GEOVANNI. *See* #22.1.115.

FIOCCA, A. *See* #22.1.17.

FLORES DE LA MOTTA, IDALIA. El infinito: Diálogo entre Bertrand Russell y Jorge Luis Borges [The Infinite: A Dialogue between Bertrand Russell and Jorge Luis Borges], *Mathesis (México)* **9** (1993), 295–308. A fictitious dialogue on infinity between Russell and Borges. (VA) #22.1.65

FREUD, ROBERT. *Grosse Augenblicke aus der Geschichte der Mathematik,* Mannheim: B. I. Wissenschaftsverlag, 1994. (RC) #22.1.66

FRITSCH, GERDA. *See* #22.1.68.

FRITSCH, HARALD. *An Equation That Changed the World: Newton, Einstein, and the Theory of Relativity*, Chicago/London: Univ. of Chicago Press, 1994, xix + 279 pp., hardbound, $29.95. In a style reminiscent of Galileo's *Dialogue on the Two Chief World Systems* the author weaves an imaginary account of a meeting of Isaac Newton, Albert Einstein, and a modern physicist. The dialog reveals the nature of much of modern physics. The book is a translation from the original 1988 German edition, *Eine Formel verändert die Welt: Newton, Einstein und die Relativitätstheorie*. (DEZ) #22.1.67

FRITSCH, RUDOLF, AND FRITSCH, GERDA. *Der Vierfarbensatz*, Mannheim/Leipzig/Vienna/Zurich: B. I. Wissenschaftsverlag, 1994, 257 pp., 38 DM. An account of the history of the four-color theorem. (DEZ) #22.1.68

GANITANAND. Prof. S. N. Sen (1918–1992), A Great Scholar and Writer in the Field of History of Science, *Gaṇita-Bhāratī: Bulletin of the Indian Society for History of Mathematics* **15**, Nos. 1–4 (1993) 79–83. Obituary of the Indian historian of science, Samarendra Nath Sen. (DEZ) #22.1.69

GARCÍA, GARCÍA, RAMIRO. *See* #22.1.52.

GISPERT, HÉLÈNE. Le milieu mathématique français et ses journaux en France et en Europe (1870–1914), pp. 133–158 in #22.1.6. For the period in the title the author explores the following themes: French mathematical journals and *l'Enseignement mathématique*, the contents of these journals, and the authors themselves in relation to their institutions and professions. (VA) #22.1.70

GÓMEZ BERMÚDEZ, CARLOS. Sistemas de números, infinito y teoría de conjuntos en la obra de Cantor [Number Systems, Infinity, and Set Theory in Cantor's Work], Doctoral Dissertation, University of Barcelona, 1993. Putting aside all philosophical considerations, the author tries to show, in an internal way, how Cantor arrived at his set theory, starting from his original purpose of extending the notion of number up to ordinals and cardinals. (VA) #22.1.71

GONZÁLEZ DE POSADA, FRANCISCO (ed.) *Leonardo Torres Quevedo*, Madrid, Fundación Banco Exterior, 1992, 433 pp. A book on the life and work of the Spanish engineer/mathematician Leonardo Torres Quevedo. (VA) #22.1.72

GOWER, BARRY. Boscovich on Probabilistic Reasoning and the Combination of Observations, pp. 263–279 in #22.1.35. Discusses probabilistic reasoning in Bošković's masterpiece *Theoria philosophiae naturalis* (1758) and questions Bošković's nonprobabilistic approach to his 1760 method of combining observations. (IM) #22.1.73

GRANT, HARDY. Leibniz and the Spell of the Continuous, *The College Mathematics Journal* **25** (1994), 291–294. A discussion of Leibniz's views on the law of continuity in geometry. (DEZ) #22.1.74

GRATTAN-GUINNESS, IVOR. European Mathematical Education in the 1900s and 1910s: Some Published and Unpublished Surveys, pp. 117–130 in #22.1.6. Some comments on mathematics education in the early 20th century. (VA) #22.1.75

GROMPONE, JUAN A. Lógica dialéctica [Dialectic Logic], *Galileo* **2a** época, No. 3–4(1989), 5–134. A history of dialectic logic. (VA) #22.1.76

GRÜNBAUM, BRANKO, AND SHEPHARD, G. C. A New Look at Euler's Theorem for Polyhedra, *The American Mathematical Monthly* **101** (1994), 109–128. Contains a section (pp. 122–127) on the history of Euler's theorem for polyhedra from the time of Euler until 1992. (DEZ) #22.1.77

GUPTA, R. C. Clas-Olof Selenius (1922–1991), An Expert in Indian Cyclic Method, *Ganita-Bhāratī: Bulletin of the Indian Society for History of Mathematics* **15,** Nos. 1–4 (1993), 74–78. Homage to the Finnish mathematician and historian of mathematics, Clas-Olof Selenius. (DEZ) #22.1.78

HARRIS, STEVEN J. Boscovich, the "Boscovich Circle" and the Revival of the Jesuit Science, pp. 527–548 in #22.1.35. Discusses the reception of Rugjer Bošković's natural philosophy within the Society of Jesus, and contains the appendix "Jesuit Commentaries on Bošković's *Theoria.*" (IM) #22.1.79

HINSLEY, F. H., AND STRIPP, ALAN. *Code Breakers: The Inside Story of Bletchley Park,* New York, Oxford Univ. Press, 1993, xxi + 321 pp., hardbound, $25. See the review of Paul Tyri in *The Mathematics Teacher* **87** (1994), 455. (DEZ) #22.1.80

HOMANN, FREDERICK A. On Boscovich's *De natura et usu infinitorum* and Other Mathematical Works: Translation and Commentary, pp. 407–436 in #22.1.35. Includes also a translation of Bošković's paper "Su i logaritmi delle quantità negative" of 1767. (IM) #22.1.81

HORMIGÓN, MARIANO. Alguna prensa no es mentirosa: A propósito de las revistas matemáticas [Some Press Is Not Mendacious: A propos of Mathematical Journals], pp. vii–xxiv in #22.1.6. A humanistic and personal view of mathematical journals. (VA) #22.1.82

HORMIGÓN, MARIANO. Ciencia y felicidad: A un cuarto de siglo del 68 [Science and Happiness: Twenty-five Years Later], *LLULL* **16** (1993), 115–158. (VA) #22.1.83

HORMIGÓN, MARIANO. García de Galdeano and *El progreso matemático,* pp. 95–115 in #22.1.6. A discussion of Spanish mathematics journals that focuses on the vicissitudes of García Galdeano's *El progreso matemático.* (VA) #22.1.84

HORMIGÓN, MARIANO. *See also* #22.1.6.

HORVÁTH, J. Recuerdos de mis años en Bogotá [Remembrances of My Years in Bogota], *Lecturas matemáticas* **14** (1993), 119–128. (VA) #22.1.85

HOWSON, COLIN, AND URBACH, PETER. *Scientific Reasoning: The Bayesian Approach,* Chicago/LaSalle, IL: Open Court, second ed. 1993, xx + 470 pp., hardbound $49.95, paperbound $21.95. (DEZ) #22.1.86

HUTCHINSON, T. P. *Version 2 (History and Archaeology) of Essentials of Statistical Methods,* Adelaide, South Australia: Bumsby Scientific Publishing, 1993, xii + 152 pp., paperbound, Aus $17, $12, £7, Can $15, Y 1300. (DEZ) #22.1.87

INCHAUSTI, MARTHA. Entrevista con José Luis Massera [Interview with José Luis Massera], *Galileo* **2a** época, No. 7–8 (1990), 49–62. An interview with the Uruguayan mathematician José Luis Massera. (VA) #22.1.88

INDORATO, LUIGI, AND NASTASI, PIETRO. Boscovich and the *Vis Viva* Controversy, pp. 169–182 in #22.1.35. Discusses Rugjer Bošković's solution to the *vis viva* controversy in his booklet *De viribus vivis* (1745) and in his letters to Francesco Maria Zanotti. (IM) #22.1.89

ISRAEL, GIORGIO, AND MILLÁN-GASCA, ANA. La correspondencia entre Vladimir A. Kostitzin y Vito Volterra (1933–1962) y los inicios de la biomatemática [The Correspondence between Vladimir A. Kostitzin and Vito Volterra (1933–1962) and the Origins of Biomathematics], *LLULL* **16** (1993), 159–224. The scientific collaboration between Vladimir Kostitzin and Vito Volterra lead to the solution of theoretical problems related to the application of mathematics to biology, and a discussion of the significance of this application. Biomathematics and integral equations are treated. (VA) #22.1.90

IVANOVIĆ, DRAGIŠA M. On Some Aspects of Boscovich's Curve, pp. 49–57 in #22.1.35. Discusses Bošković's method of presenting his curve of forces. (IM) #22.1.91

JOHNSON, ART. *Classic Math: History Topics for the Classroom,* Palo Alto: Dale Seymour Publications, 1994, vii + 173 pp., paperbound, $24.95. See the review by James N. Boyd in *The Mathematics Teacher* **87** (1994), 455. (DEZ) #22.1.92

JULLIEN, VINCENT. L'existence du plan dans les *Éléments de géométrie* de Roberval, *Sciences et techniques en perspective* **26** (1993), 41–74. A commentary on the second book of Gilles Persone de Roberval's unpublished 1675 manuscript, *Éléments de géométrie*. The author discusses Roberval's plan for the text and its historical context. Also included is a reproduction of the second book of Roberval's manuscript. (JVR) #22.1.93

KEISLER, E. JEROME. Stephen Cole Kleene, 1919–1994, *Notices of the American Mathematical Society* **41**(1994), 792–793. Obituary of the renowned logician S. C. Kleene, who was the main developer of recursive function theory. (DEZ) #22.1.94

KING, DAVID A. *Astronomy in the Service of Islam,* Brookfield, VT: Variorum, 1993, 347 pp., $94.95. A collection of 14 essays based on new sources that explain how science was applied to various aspects of Islamic ritual in the Middle Ages. The last part of the book is concerned with the earliest Islamic mathematical methods and tables for finding directions to Mecca. (DEZ) #22.1.95

KNOBLOCH, E. Les courbes analytiques simples chez Leibniz, *Sciences et techniques en perspective* **26** (1993), 74–96. The author presents a previously unpublished work by Leibniz on the general theory of simple analytic curves. Leibniz's approach is purely geometric and does not utilize infinitesimals. (JVR) #22.1.96

KNOBLOCH, EBERHARD. *See also* #22.1.101.

KOELBLEN, SABINE. Un exercice de combinatoire: Les relations issues de la figure sécante de Ptolemée, ou les règles des six quantités en proportion, *Sciences et techniques en perspective* **26** (1993), 1–21. A discussion of a problem in combinatorial mathematics arising from the ratios of the sides of certain triangles in Proposition 13 of Ptolemy's *Almagest*. The solutions of Thabit ibn Qurra, Maurolycus, Cardan, Campanus, and Ahmad ibn Yusuf are examined and classified into two types. (JVR) #22.1.97

KOLATA, GINA. At Home in the Elusive World of Mathematics, *The New York Times,* October 12, 1993, B5 and B7. An ingratiating sketch of John H. Conway. (DWB) #22.1.98

KREYSZIG, ERWIN. On the Calculus of Variations and Its Major Influences on the Mathematics of the First Half of Our Century. Part I, *The American Mathematical Monthly* **101**(1994), 674–678. Overview of the development of the calculus of variations from Johann Bernoulli to Karl Weierstrass, emphasizing the birth of the theory with Leonhard Euler. (DEZ) #22.1.99

KRULL, FRED N. The Origin of Computer Graphics within General Motors, *IEEE Annals of the History of Computing* **16** (3) (1994), 40–56. A description of developments in computer graphics technology at General Motors from 1958 to 1967. The history of a joint project between GM and IBM for development of new and unique computer graphics hardware is detailed. The features of the Design Augmented by Computer (DAC-1) system are summarized. (LSG) #22.1.100

LEIBNIZ, GOTTFRIED WILHELM. *De quadratura arithmetica circuli ellipseos et hyperbolae cujus corollarium est trigonometria sine tabulis,* Göttingen: Vandenhoeck & Ruprecht, 1993, 160 pp., paperbound, DM98, ÖS 765, SwFr 99.50. A critical edition with commentary by Eberhard Knobloch. (DEZ) #22.1.101

LIVINGSTON, CHARLES. *Knot Theory,* Washington: MAA, 1993, xviii + 240 pp., $31.50. A book that covers the history and foundations of knot theory up to the Jones and Kauffman polynomials. (DEZ) #22.1.102

LLOMBART, JOSÉ. *Crónica científica.* The articles of the Mathematics Section, pp. 267–281 in #22.1.6. A discussion of the mathematical papers that appeared in the Spanish journal *Crónica científica: Revista internacional de ciencias.* Among the authors, Lauro Clariana is distinguished. (VA) #22.1.103

LLOMBART, JOSÉ. Mathematical Journals in the Basque Country in the First Third of the Twentieth Century, pp. 189–202 in #22.1.6. A study on the journals *Gaceta de matemáticas elementales—gaceta de matemáticas* and *Revista del centro de estudios científicos,* which fitted into the project of the establishment of a Basque University. (VA) #22.1.104

LUEBKE, DAVID MARTIN, AND MILTON, SYBIL. Locating the Victim: An Overview of Census-Taking, Tabulation Technology, and Persecution in Nazi Germany, *IEEE Annals of the History of Computing* **16** (3) (1994), 25–39. This article examines a misuse of technology during World War II by showing how two national censuses, a system of resident registration, and several special racial databases were used to locate groups eventually slated for deportation and death. The possible role played by Hollerith tabulation technology is also described. (LSG) #22.1.105

MAITI, N. L. *See* #22.1.120.

MALET, ANTONI. Factors religiosos i culturals a la filosofia natural de Newton: Anti-mècanicisme a l'Anglaterra de la Restauració [Religious and Cultural Factors in Newton's Natural Philosophy: Anti-mechanism in Restoration England], *LLULL* **16** (1993), 505–535. The author suggests that Newton's *Principia mathematica* is best understood as an expression of the religious and philosophical trends prevailing in Restoration England, Newton's book being a powerful antidote against atheism and determinism. (VA) #22.1.106

MARCHISOTTO, ELENA ANNE, AND ZAKERI, GHOLAM-ALI. An Invitation to Integration in Finite Terms, *The College Mathematics Journal* **25** (1994), 295–308. An explication of the theory of functions that can be integrated in terms of elementary functions in the work of Liouville and Chebyshev. Many of the examples cited are appropriate for use in calculus courses. (DEZ) #22.1.107

MÁRQUEZ, GUSTAVO. Un caso de ciencia normal en Uruguay de 1880 a 1915 [A Case of Normal Science in Uruguay from 1880 to 1915], *Galileo* **2a.** época, No. 7–8 (1990), 5–36. A study of the influence of the Observatorio meteorológico del Colegio Pío de Villa Colón in the development of Uruguayan scientists. (VA) #22.1.108

MARRONE, G., AND PEDRO, A. Desarrollo histórico del concepto de convergencia uniforme [Historical Development of the Concept of Uniform Convergence], pp. 282–286 in *Memorias de la séptima reunión centroamericana y del Caribe sobre formación de profesores e investigación en matemática educativa,* Panamá: Univ. de Panamá, 1993. Uniform convergence with Cauchy, Seidel, and Stokes. (VA) #22.1.109

MARTÍNEZ, MARÍA LAURA. La propuesta científico-tecnológica de Eduardo Acevedo desde el Ministerio de Industrias entre 1911 y 1913 [The Scientific and Technological Proposal of Eduardo Acevedo from the Industries Ministry between 1911 and 1913], *Galileo* **2a.** época, No. 7–8 (1990), 37–47. Discusses the history of science and technology in Uruguay. (VA) #22.1.110

MARTINOVIĆ, IVICA. Boscovich on the Problem of *Generatio Velocitatis*: Genesis and Methodological Implications, pp. 59–79 in #22.1.35. Discusses Rugjer Bošković's approach to the generation of velocity in six different sources from the period 1745–1770. (IM) #22.1.111

MATTMÜLLER, MARTIN. *See* #22.1.13.

MEHRA, JAGDISH. *The Beat of a Different Drum: The Life and Science of Richard Feynman*, Oxford: Clarendon Press, 1994, xxxii + 630 pp., hardbound $35. (DEZ) #22.1.112

MERKER, CLAUDE. La "géométrie calculante" de Pascal dans le *Traité des sinus du quart de cercle*, *Sciences et techniques en perspective* **26** (1993), 22–40. The author shows that certain calculations with infinite sums in Pascal's *Traité des sinus du quart de cercle* (written in 1658) anticipate the modern notions of the line integral, change of variable, double and triple integrals, and integration by parts. (JVR) #22.1.113

METROPOLIS, N., AND ROTA, GIAN-CARLO. *A New Era in Computation*, Cambridge, MA: MIT Press, 1993, xvi + 241 pp., paperbound, $13.95. A collection of articles that appeared originally in *Daedalus* **121** (1)(1992). (DEZ) #22.1.114

MILLÁN, ANA. *See* #22.1.7 and #22.1.90.

MILTON, SYBIL. *See* #22.1.105.

MORA ALPÍZAR, GERARDO, CASTRO FERNÁNDEZ, EDWIN, AND FIGUEROA MATTA, GEOVANNI. La trisección del ángulo, polinomios de tercer grado y construcciones [The Trisection of the Angle, Third Degree Polynomials, and Constructions], pp. 287–293 in *Memorias de la séptima reunión centroamericana y del Caribe sobre formación de profesores e investigación en matemática educativa*, Panamá: Univ. de Panamá, 1993. Examines the work of Bombelli. (VA) #22.1.115

MORA-CHARLES, M. S. Leibniz y los dos problemas de Méré [Leibniz and the Two Problems of de Méré], *LLULL* **16** (1993), 241–264. The paper tries to establish Leibniz's contacts with Pascal with respect to probability theory and the solution of the two problems proposed by Méré to Pascal. (VA) #22.1.116

MORALES, LEONEL. Mayan Geometry, *ISGEM Newsletter* **9** (1) (1993), 1–4. A study of some aspects of the geometry found in the daily activities of the Mayas, such as ceramics, weaving, and architectural designs and shapes. (VA) #22.1.117

MORDELL, L. J. Tres lecciones sobre el último teorema de Fermat [Three Lectures on Fermat's Last Theorem], *Lecturas Matemáticas* **14** (1993), 1–35. Spanish translation of L. J. Mordell's 1921 booklet on Fermat's last theorem. (VA) #22.1.118

MORENO, LUIS ENRIQUE. Cálculo: Una perspectiva histórica y didáctica [Calculus: An Historic and Didactic Perspective], *Matemáticas: Enseñanza universitaria* **3**(1993), 71–78. The author proposes that each teacher's conception of mathematics determines substantially that teacher's teaching practice, and that mathematics should be viewed as an activity rather than a product. (VA) #22.1.119

MUKHERJEE, R. N. *Discovery of Zero and its Impact on Indian Mathematics*, Calcutta: Das Gupta & Co., 1991, xvi + 276 pp., Rs 125. See the review by N. L. Maiti in *Ganita-Bhāratī: Bulletin of the Indian Society for History of Mathematics* **15**, Nos. 1–4(1993), 97–98. (DEZ) #22.1.120

MURILLO, MARIO. *See* #22.1.135.

NAGEL, FRITZ. *See* #22.1.12.

NASTASI, PIETRO. *See* #22.1.89.

NOVÝ, LUBOŠ. Las matemáticas en la *Enciclopedia* de Diderot y D'Alembert [Mathematics in the Diderot and D'Alembert *Encyclopédie*], *LLULL* **16** (1993), 265–284. Author's abstract: In this paper

the idea and the role of mathematics presented in Diderot and D'Alembert's *Encyclopédie* is considered, taking into account the *Discours préliminaire* and the main mathematical articles. These views are placed in the context of the general evolution of mathematics, particularly during the 18th century. (VA) #22.1.121

NOVÝ, LUBOŠ. Le *Journal tchèque des mathématiques et de la physique*, pp. 219–233 in #22.1.6. The purpose of the paper is to clear up the foundation and evolution of the journal in the title up to World War I. The first part contains a quantitative analysis of some other journals that are used to examine the cultural, social, and political conditions under which the first Czech mathematical journal was born and evolved. (VA) #22.1.122

NURZIA, LAURA. The *Periodico di matemático* (1886–1946), pp. 203–218 in #22.1.6. An examination of the activities of the Italian journal, *Periodico di matemática*, with special reference to the directorship of F. Enriques. (VA) #22.1.123

OBREGÓN TORRES, DIANA. *Sociedades científicas en Colombia. La invención de una tradición. 1859–1936* [*Colombian Scientific Societies. The Invention of a Tradition. 1859–1936*], Santafé de Bogotá: Banco de la República, 1992, 341 pp. The attempts of Colombian scientists to found organizations in order to gain institutional space and professional status, during the period indicated in the title. (VA) #22.1.124

OTERO, MARIO H. *See* #22.1.60.

PAPINEAU, DAVID. Boscovich and the Newtonian Analysis of Impact, pp. 183–194 in #22.1.35. Discusses the significance of Rugjer Bošković's denial of contact between bodies. (IM) #22.1.125

PÉCOT, JEAN-BERNARD. Les théories spectrales de Hilbert et de Schmidt, *Sciences et techniques en perspective* **26** (1993), 206–249. A discussion of the development of spectral theory in the work of Hilbert and his student, Schmidt. It is shown how weaknesses in Hilbert's first attempt led to his second. This article is a companion piece to #22.1.127. (JVR) #22.1.126

PÉCOT, JEAN-BERNARD. Les théories spectrales de Poincaré, *Sciences et techniques en perspective* **26** (1993), 173–205. A discussion of two spectral theories developed by Poincaré with particular attention to Poincaré's intuitionism. Strong parallels to the work of Hilbert are shown. *See* #22.2.126. (JVR) #22.1.127

PEPE, LUIGI. Boscovich and the Mathematical Historiography of His Time: An Unpublished Letter by d'Alembert, pp. 491–509 in #22.1.35. Considers opinions on Rugjer Bošković by Lagrange, d'Alembert, and Laplace. The second part is concerned with the assessment and evaluation of Bošković's work in histories of mathematics or of Italian literature from the end of the 18th century to the first decades of the 19th century. (IM) #22.1.128

PEPE, LUIGI. *See also* #22.1.17.

PETROVA, S. S. Cauchy et le calcul symbolique, *Sciences et techniques en perspective* **26** (1993), 148–154. A discussion of Cauchy's 1823–1827 work with the calculus of operations. The author shows that Cauchy, following Brisson, used the symbolic form $F(D) = f(x)$ for a linear differential equation with constant coefficients long before Heaviside applied it to electrical circuit analysis. (JVR) #22.1.129

PORTZ, HELGA. *Galilei und der heutige mathematikunterricht*, Mannheim/Leipzig/Vienna/Zurich: B. I. Wissenschaftsverlag, 1994, 236 pp., 48 DM. (DEZ) #22.1.130

PUIG, LUIS. El *De numeris datis* de Jordanus Nemorarius como sistema matemático de signos [Jordanus Nemorarius' *De numeris datis* as a Mathematical System of Symbols], *Mathesis (México)* **10**

(1994), 47–92. The author describes part of *De numeris datis* from a semiotic theory of mathematics, including its place in the history of algebra. There are semiotic interpretations. (VA) #22.1.131

RADELET-DE GRAVE, PATRICIA. *See* #22.1.13.

RAGEP, F. J. *Nasir al-Din al-Tusi's Memoir on Astronomy,* New York: Springer-Verlag, 1992, two-vol. set, Volume 1, 380 pp., Volume 2, 220 pp., hardbound, $98. Volume 1 contains a biography of Nasir al-Din al-Tusi as well as the translation of his influential Arabic treatise on astronomy. (DEZ) #22.1.132

RASHED, ROSHDI. *Géométrie et dioptrique au Xe siècle: Ibn Sahl, al-Quhi, Ibn al-Haytham,* Paris: Les Belles Lettres, 1993, cliv + 315 + vii pp., FFr 1300. (DEZ) #22.1.133

RIDER, ROBIN E. In a Foreign Language: Boscovich and Algebra, pp. 467–476 in #22.1.35. Discusses Rugjer Bošković's textbook on algebra (1752) and concludes that algebra was always a foreign language for him. (IM) #22.1.134

RIGO, MIRELA. *See* #22.1.2.

RIVADULLA, ANDRÉS. *See* #22.1.14.

RODRÍGUEZ CONSUEGRA, FRANCISCO. Lo que son y lo que no son los números [What Numbers Are and Are Not], *Mathesis (México)* **9** (1993), 309–315. An introductory note to a celebrated paper of Benecerraf. (VA) #22.1.135

RODRÍGUEZ, PEDRO, ARIAS, ANA CECILIA, AND MURILLO, MARIO. ¿Es el pensamiento un patrimonio occidental? [Is Thought an Occidental Patrimony?], pp. 294–299 in *Memorias de la séptima reunión centroamericana y del Caribe sobre formación de profesores e investigación en matemática educativa,* Panamá: Univ. de Panamá, 1993. The authors present evidence of mathematical thought in pre-Hispanic Central American cultures that provides a negative answer to the question in the title of the paper. (VA) #22.1.136

ROLLERI, JOSÉ LUIS. Crítica a la interpretación subjetivista de la probabilidad [Critique on the Subjective Interpretation of Probability], *Mathesis (México)* **9** (1993), 405–417. An analysis of the subjective interpretations of probability, especially one due to D. E. Finetti, showing that their philosophical consequences make them inadmissible. (VA) #22.1.137

ROTMAN, BRIAN. *Ad Infinitum . . . The Ghost in Turing's Machine: Taking God out of Mathematics and Putting the Body Back In: An Essay in Corporeal Semiotics,* Palo Alto, CA: Stanford Univ. Press, 1993, xviii + 203 pp., hardbound, $39.50, paperbound, $12.95. (DEZ) #22.1.138

ROTMAN, BRIAN. *Signifying Nothing: The Semiotics of Zero,* Palo Alto, CA: Stanford Univ. Press, 1993, xviii + 203 pp., paperbound, $12.95. A reprint of the 1987 original published by St. Martin's Press. *See* #15.2.67. (DEZ) #22.1.139

RUIZ, ÁNGEL. *Ciencia y tecnología en la construcción del futuro* [*Science and Technology in the Construction of the Future*], San José: Asociación Costarricense de Historia y Filosofía de la Ciencia, Ediciones Guayacán, 1991, 280 pp. (VA) #22.1.140

SABRA, A. I. *Optics, Astronomy and Logic,* Brookfield, VT: Variorum, 1994, 335 pp., $87.50. A collection of 17 essays that analyze how Greek thought was developed in the Islamic world with studies of work based on Euclid's geometry and on critiques of Ptolemaic astronomy. The history of logic is also examined. (DEZ) #22.1.141

SALADINO GARCÍA, ALBERTO. Dos científicos de la Illustración hispanoamericana [Two Scientists of the Hispano-American Enlightenment], Mexico City: Centro Coordinador y Difusor de Estudios Latinoamericanos, UNAM, 1990, 236 pp. Discusses the work of two Latin American scientists, J. A. Alzate and F. J. Caldas, in the 19th century. (VA) #22.1.142

SALIBA, GEORGE. *A History of Arabic Astronomy: Planetary Theories during the Golden Age of Islam*, New York/London: New York Univ. Press, 1994, x + 341 pp., hardbound, $40. (DEZ) #22.1.143

SAMSÓ, JULIO. Las ciencias de los antiguos en al-Andalus [The Sciences of the Ancients in Andalusia], Madrid: Editorial Mapfre, 1992, 501 pp. A welcome synthesis work on the history of sciences in medieval Andalusia. It considers Arabic, Spanish, and medieval sciences. (VA) #22.1.144

SÁNCHEZ, CLARA HELENA. Forjadores del desarrollo de la matemática en Colombia [Shapes of Colombian Mathematical Development], *Lecturas matemáticas* **14** (1993), 115–117. Biographical sketch of J. Horváth. *See also* #22.1.85. (VA) #22.1.145

SANTOS TRIGO, LUZ MANUEL. La naturaleza de las matemáticas y sus implicaciones didácticas [The Nature of Mathematics and its Teaching Implications], *Mathesis (México)* **9** (1993), 419–432. A discussion of the relationship between the foundations of mathematics and its learning. The paper identifies mathematical practice as one important component of the problem. (VA) #22.1.146

SCHOIJET, MAURICIO. *La ciencia mexicana en crisis* [*Mexican Science in Crisis*], Mexico City: Ediciones Nuevo Tiempo, 1991, 171 pp. The author analyzes and criticizes the actual Mexican recruiting and financing of the scientific researchers model. (VA) #22.1.147

SHEPHARD, G. C. *See* #22.1.77.

SIEGMUND-SCHULTZE, REINHARD. *Mathematische Berichterstattung in Hitlerdeutschland: Der Niedergang des "Jahrbuchs über die Fortschritte der Mathematik"*, Göttingen: Vandenhoeck & Ruprecht, 1993, x + 263 pp., paperbound, DM70. (DEZ) #22.1.148

STIPANIĆ, ERNEST. Sur le continu linéaire de Boscovich, pp. 477–489 in #22.1.35. Discusses Rugjer Bošković's attitudes on the continuity of a line and points at infinity in *De continuitatis lege* (1754) and *Theoria philosophiae naturalis* (1758). (IM) #22.1.149

STRIPP, ALAN. *See* #22.1.80.

SWETZ, FRANK (ed.) *From Five Fingers to Infinity: A Journey Through the History of Mathematics*, Peru, IL: Open Court, 1994, 704 pp., paperbound, $28.95, hardbound, $64.95. A survey of articles on the history of mathematics written for a general audience explaining the number system in terms of its history. (DEZ) #22.1.150

TATON, RENÉ. Évariste Galois et ses biographes: De l'histoire aux légendes, *Sciences et techniques en perspective* **26** (1993), 155–172. An evaluative discussion of biographical work on Galois since his death in 1832. The author argues that none of this work is totally in accord with the actual documents relevant to Galois' life and work. It is further shown that much of this work is heavily dependent upon highly political material written by Liouville, a biography by Dupuy, and fictional material written by Infeld. (JVR) #22.1.151

TIRADO SEGURA, FELIPE. La enseñanza de las matemáticas básicas, la historia como estructura curricular [The Teaching of Basic Mathematics: History as a Curriculum Structure], *Mathesis (México)* **9** (1993), 433–446. To solve certain problems in teaching basic mathematics the author proposes that a course on the history of the topics be taught beforehand. (VA) #22.1.152

TOLOMEO, RITA. Le Carte Boscovich nell'Archivio Romano della Compagnia di Gesù, pp. 133–148 in #22.1.35. Describes the manuscripts and correspondence of Rugjer Bošković kept in the Roman Archives of the Society of Jesus, including correspondence between Bošković and his professor of mathematics Orazio Borgondio. (IM) #22.1.153

TORRINI, MAURIZIO. *See* #22.1.33.

TOUSAINT, GODFRIED. Un nuevo vistazo a la segunda proposición de Euclides [A New Look at Euclid's Second Proposition], *Mathesis (México)* **9** (1993), 265–294. The author shows that the algorithm in Euclid's Book 1, Proposition 2 in the *Elements* establishing the equivalence between a collapsing compass and the power of a modern compass is beyond reproach if we use a 12th-century Arabic manuscript or a pre-Theonion 10th-century Greek manuscript, translated into Latin and French by Gerard of Cremona and Peyrard, respectively. (VA) #22.1.154

TRUESDELL, CLIFFORD. *See* #22.1.12.

TYRI, PAUL. *See* #22.1.80.

URBACH, PETER. *See* #22.1.86.

VAN DEN ENDE, JAN. The Number Factory: Punched-Card Machines at the Dutch Central Bureau of Statistics, *IEEE Annals of the History of Computing* **16**(3)(1994), 15–24. A description of the use of punched-card machinery for data processing at the Dutch Central Bureau of Statistics from 1899 to the mid-1960s. Factors discussed are the influence of the labor market, labor organization in data processing, and the establishment of a special data processing department. The statistical program development is related to a wider social context. (LSG) #22.1.155

VEGA, LUIS. La demostración "more geometrico": Notas para la historia de una extrapolación [The "More Geometrico" Proof: Notes for the History of an Extrapolation], *Mathesis (México)* **10** (1994), 25–45. The motto "more geometrico" hints at the systematic arrangement of deductive proofs according to what is supposed to be the paradigm of Euclid's *Elements*. The author introduces some suitable distinctions in the understanding of this motto at different historical moments. (VA) #22.1.156

VELAMAZÁN GIMENO, MARÍA ÁNGELES. La enseñanza de las matemáticas en las academias militares en España en el siglo XIX [The Teaching of Mathematics in 19th-Century Spanish Military Academies], Doctoral Dissertation, University of Saragossa, 1993. (VA) #22.1.157

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VELAMAZÁN, MARÍA ÁNGELES. The *Memorial de ingenieros*, pp. 259–266 in #22.1.6. A discussion of the mathematics contained in the Spanish journal *Memorial de ingenieros del ejército*. (VA) #22.1.159

VELAMAZÁN, MARÍA ÁNGELES, AND AUSEJO, ELENA. De Lagrange à Cauchy: El cálculo diferencial en las academias militares en España en el siglo XIX [From Lagrange to Cauchy: Infinitesimal Calculus in 19th-Century Spanish Military Academies], *LLULL* **16** (1993), 327–370. The original *ideal increments method* introduced by García San Pedro as the foundation of the concept of derivative was used in Spanish military academies throughout the 19th century. (VA) #22.1.160

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WALDEGG, GUILLERMINA. *See* #22.1.2.

WALLIS, P. J. *See* #22.1.161.

WALLIS, R. V., AND WALLIS, P. J. (eds.) *Index of British Mathematicians: Part III (1701–1800)*, Newcastle-upon-Tyne: R. V. Wallis (Project for Historical Bibliography), 1993, xxiv + 176 pp., £22. (DEZ) #22.1.161

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WEIL, ANDRÉ. *See* #22.1.12 and #22.1.13.

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