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Abstracts

Edited by Glen Van Brummelen

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 Glen Van Brummelen, Bennington College, Bennington, VT 05201, U.S.A. (E-mail: gvanbrum@bennington.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 Francine Abeles (Kean, NJ), Joe Albree (Montgomery, AL), Calvin Jongsma (Sioux Center, IA), Albert C. Lewis (Indianapolis, IN), Ivica Martinovic (Dubrovnik, Croatia), and Glen Van Brummelen.

Abraham, Ralph; and Ueda, Yoshisuke, eds. *The Chaos Avant-Garde. Memories of the Early Days of Chaos Theory*, River Edge, NJ: World Scientific Publishing, 2000, viii+221 pp. This is a collection of papers by Steve Smale, Yoshisuke Ueda, Ralph Abraham, Edward Lorenz, Christian Mira, Floris Takens, T.Y. Li, James A. Yorke, and Otto E. Röessler. These personal accounts by members of the “chaos avant-garde” include Smale’s horseshoe (1959), Ueda’s evidence for chaotic dynamics (1961), Lorenz’s single attractor (by 1963), and Li’s and Yorke’s 1975 use of the word “chaos.” The longest contribution is that of Mira on I. Gumowski and a Toulouse research group. The review by Carmen Chicone in *Mathematical Reviews* **2003e**:37002 places this work in the context of other histories of chaos theory and other introductions to the subject. (ACL) #30.4.1

Aghayani Chavoshi, Jafar. Omar Khayyam and the Arithmetical Triangle, *International Journal of Science & Technology of the University of Kashan* **1** (2) (2000), 15–20. Argues that Pascal's triangle was found and used by al-Karajī and Omar Khayyam. (GVB) #30.4.2

Agwu, Nkechi; Smith, Luella; and Barry, Aissatou. Dr. David Harold Blackwell, African American Pioneer, *Mathematics Magazine* **76** (1) (2003), 3–14. Although Blackwell, the seventh African American to earn a Ph.D. in mathematics, did research in Markov chains, game theory and statistics, he is also a caring teacher, leader, and civic scientist. (GVB) #30.4.3

Alberts, Gerard. Historian for the Public and for Colleagues [in Dutch], *Nieuw Archief voor Wiskunde* (5) **2** (3) (2001), 248–250. One of four consecutive articles in this journal on the life and work of Dirk Struik. See also #30.4.38, #30.4.87, and #30.4.181. (GVB) #30.4.4

Al-Bīrūnī, Abu'l-Rayḥān Muḥammad ibn Ahmad. *Exhausting All Possible Ways in the Construction of the Astrolabe* [in Arabic], edited by Muḥammad Akbar Jawādī al-Husaynī, Mashhad: Islamic Research Foundation of Astan Quds Razavi, 2001, 104+282 pp. This work contains all of the ways that al-Bīrūnī (11th century) knew for the construction of astrolabes. It is based on three manuscripts, including the ms. “nearest to the original” (1290). A biographical study of al-Bīrūnī, many drawings and annotations, and several indexes are included. See the review by Emilia Calvo in *Mathematical Reviews* **2003f**:01006. (JA) #30.4.5

Aleksandrov, Aleksandr Danilovich. *Academician Aleksandr Danilovich Aleksandrov. Reminiscences. Publications. Other Material* [in Russian], edited by G.M. Idlis and O.A. Ladyzhenskaya, Moscow: Nauka, 2002, 400 pp. Contains biographical sketch and articles on an influential physicist as well as some of Aleksandrov's own reminiscences and essays on the history of science. See the review by Roger L. Cooke in *Mathematical Reviews* **2003d**:01044. (CJ) #30.4.6

Andreev, Anton V. Theoretical Foundations of Confidence (Strokes for a Sketch of P.A. Nekrasov) [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **4** (39) (1999), 98–113. The author concludes that Nekrasov was the first who “metaphorically compared probability with another (‘fourth’) dimension of reality,” and that he “offered an understanding of the relationship between probabilistic and discrete views of the world which anticipated quantum mechanics.” (GVB) #30.4.7

Angelelli, Ignacio. See #30.4.47.

Anosov, D.V. On the History of the Deduction of Kepler's Laws from the Laws of Mechanics [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **5** (40) (2000), 9–25. This paper contains a discussion of more than 10 solutions of Kepler's problem that have appeared over the past 300 years. Solutions by I. Newton, J. Bernoulli, and J. Herman are especially noted. See the review by Sergei G. Zhuravlev in *Mathematical Reviews* **2003f**:70001. (JA) #30.4.8

Armatta, Michel. Maurice Fréchet, Statisticien, Enquêteur et Agitateur Public, *Revue d'Histoire des Mathématiques* **7** (1) (2001), 7–65. Although Fréchet is known particularly for his contributions to analysis, he was also a statistician. From 1934 to 1936 he participated in a campaign against the improper use of the correlation coefficient at the International Institute of Statistics. (GVB) #30.4.9

Arnol'd, V.I. The Mathematical Duel over Bourbaki [in Russian], *Vestnik Rossiiskaya Akademiya Nauk* **72** (3) (2002), 245–250. Describes a debate between the author and J.-P. Serre on the influence of Bourbaki on mathematics. (GVB) #30.4.10

Astroh, Michael; Grattan-Guinness, Ivor; and Read, Stephen. A Survey of the Life of Hugh MacColl (1837–1909), *History and Philosophy of Logic* **22** (2) (2001), 81–98. A report of recent findings on the life of the Scottish logician, about which little information has heretofore been available. (GVB) #30.4.11

Atiyah, Sir Michael; and Iagolnitzer, Daniel, eds. *Fields Medallists' Lectures*, River Edge, NJ: World Scientific / Singapore: Singapore Univ. Press, 1997, 644 pp. A collection of lectures given by Fields Medallists from 1936 to 1994. A second edition, due shortly, will extend the period to 2002. (GVB) #30.4.12

Aubin, David; and Dahan Dalmedico, Amy. Writing the History of Dynamical Systems and Chaos: *Longue Durée* and Revolution, Disciplines and Cultures, *Historia Mathematica* **29** (2002), 273–339. Discusses the historiography of dynamical systems, in particular the tensions arising from confrontations between those who hailed “chaos” as a new field and those who attributed it to Poincaré. (GVB) #30.4.13

Avigad, Jeremy. See #30.4.66.

Bagheri, Mohammad. In Memoriam: Abolghassem Ghorbani (1912–2001), *Historia Mathematica* **29** (2002), 244–246. A short account of the life of this Iranian historian of mathematics, with a list of his 10 books on the history of mathematics in Islamic civilization. (GVB) #30.4.14

Bain, Jonathan. See #30.4.190.

Barbin, Évelyne; and Guitart, René. Algèbre des Fonctions Elliptiques et Géométrie des Ovals Cartésiennes, *Revue d'Histoire des Mathématiques* **7** (2) (2001), 161–205. Using research on Cartesian ovals between 1850 and 1913, the authors demonstrate the revival of geometric methods and their interplay with analytic calculations to solve the same problems. (GVB) #30.4.15

Barner, Klaus. Der Verlorene Brief des Gerhard Frey [The Lost Letter of Gerhard Frey], *Mitteilungen der Deutschen Mathematiker-Vereinigung* **2002** (2), 38–44. This is an account of Frey's proposal, made about 1984, of a “bridge” between Fermat's last theorem and the modularity of an elliptic curve, and of how this idea spread in the mathematical community. See the review by Rolf Berndt in *Mathematical Reviews* **2003f**:01036. (JA) #30.4.16

Barry, Aissatou. See #30.4.3.

Basso, Paola. *Filosofia e Geometria: Lambert Interprete di Euclide* [Philosophy and Geometry: Lambert as Interpreter of Euclid], Florence: Univ. of Milan, 1999, x+263 pp. This book is a study of J.H. Lambert, with emphasis on his architectonic and on his attempt to transform philosophy into a deductive science, modeled on Euclid's approach to geometry. It relates him to other work of his time and since by philosophers such as Christian Wolff, Leibniz, Kant, and Husserl. It includes an index to terms and a bibliography. See the review by Victor V. Pambuccian in *Mathematical Reviews* **2003e**:01016. (ACL) #30.4.17

Beckman, Bengt. *Codebreakers: Arne Beurling and the Swedish Crypto Program during World War II*, Providence: American Mathematical Society, 2003, 259 pp., \$39. Often overlooked in favor of the story of the cracking of the Enigma code, the story of Swedish cryptanalysts' success in cracking the German G-Schreiber code used for strategic military communications in 1940 is told. (GVB) #30.4.18

Bečvář, Jindřich. Algebra in the 16th and 17th Centuries [in Czech], in Jindřich Bečvář and Eduard Fuchs, eds., *Mathematics in the 16th and 17th Centuries* [in Czech], Prague: Prometheus, 1999, pp. 161–236. The contributions of del Ferro, Tartaglia, Cardano, Chuquet, Pacioli, the German Rechenmeister, Viète, Harriot, Oughtred, Girard, Descartes, Wallis, and Newton to algebra are described. Their work is viewed in the context of the numerical solution of algebraic equations and the history of mathematical notation. See the review by Štefan Porubský in *Mathematical Reviews* **2003e**:01010. (ACL) #30.4.19

Bečvář, Jindřich, et al. *Mathematics in Medieval Europe* [in Czech], Prague: Prometheus, 2001, 447 pp. The 13 papers from the 4th Seminar on the History of Mathematics, held in Jevičko in 1999, can be grouped as follows: five papers on general characteristics of medieval mathematics; three papers on schools and libraries of the time; two biographical studies (Gerbert of Aurillac and Leonardo of Pisa); one paper on physics; and two papers on geometry and church architecture. The papers are listed individually as #30.4.21, #30.4.22, #30.4.23, #30.4.24, #30.4.25, #30.4.26, #30.4.27, #30.4.28, #30.4.112, #30.4.158, #30.4.159, #30.4.173, and #30.4.180. See the review by Jan Čižmár in *Mathematical Reviews* **2003f**:01010. (JA) #30.4.20

Bečvář, Jindřich. Gerbert of Aurillac (Sylvester II) [in Czech], in #30.4.20, pp. 185–229. (GVB) #30.4.21

Bečvář, Jindřich. Leonardo of Pisa – Fibonacci [in Czech], in #30.4.20, pp. 265–339. (GVB) #30.4.22

Bečvář, Jindřich. The Middle Ages [in Czech], in #30.4.20, pp. 7–63. (GVB) #30.4.23

Bečvář, Jindřich. The Seven Liberal Arts [in Czech], in #30.4.20, pp. 65–101. (GVB) #30.4.24

Bečvářová, Martina. Computational Algorithms in the Middle Ages [in Czech], in #30.4.20, pp. 231–263. (GVB) #30.4.25

Bečvářová, Martina. Medieval Libraries [in Czech], in #30.4.20, pp. 141–149. (GVB) #30.4.26

Bečvářová, Martina. Medieval Schools [in Czech], in #30.4.20, pp. 121–139. (GVB) #30.4.27

Bečvářová, Martina. Medieval Universities [in Czech], in #30.4.20, pp. 341–375. (GVB) #30.4.28

Beeley, Philip; and Scriba, Christoph. *Correspondence of John Wallis (1616–1703), vol. 1 (1641–1659)*, Oxford: Oxford Univ. Press, 2003, 608 pp., \$195. This collection contains 198 correspondences with Fermat, Cromwell, and Huygens, among others. (GVB) #30.4.29

Ben-Israel, Adi. The Moore of the Moore–Penrose Inverse, *Electronic Journal of Linear Algebra* **9** (2002), 150–157. This paper includes a biographical study of E.H. Moore (1862–1932), an account of Moore's extension of the matrix inverse, and some excerpts from Moore's book *General Analysis* (1935). See the review by K. Chandrasekhara Rao in *Mathematical Reviews* **2003f**:01039. (JA) #30.4.30

Bennett, Matthew; Schatz, Michael F.; Rockwood, Heidi; and Wiesenfeld, Kurt. Huygens's Clocks, *Royal Society of London. Proceedings. Series A. Mathematical, Physical and Engineering Sciences* **458** (2019) (2002), 563–579. Discusses the validity of Huygens's work on synchronization of clocks in the light of more recent experiments. See the review by Llewelyn G. Chambers in *Mathematical Reviews* **2003d:01014**. (CJ) #30.4.31

Berndt, Bruce C.; Spearman, Blair K.; and Williams, Kenneth S. Commentary on an Unpublished Lecture by G.N. Watson on Solving the Quintic, *Mathematical Intelligencer* **24** (4) 2002, 15–33. George Neville Watson's (1886–1965) Cambridge University lecture notes from 1948, which were discovered in 1995 by the first author, describe a method that applies to any solvable quintic polynomial. Watson's interest in this topic (he is better known for his 1922 treatise on Bessel functions) was sparked by his reading of S. Ramanujan's work on class invariants. The authors supply welcome comments and employ current mathematical terms in their presentation. (FA) #30.4.32

Berndt, Rolf. See #30.4.16.

Bernstein, S.N. Chebyshev's Influence on the Development of Mathematics, *The Mathematical Scientist* **26** (2) (2001), 63–73. Biographical article reprinted from the book *From Markov to Kolmogorov*, a collection of translations by O.B. Sheĭnin. See the review by Roger L. Cooke in *Mathematical Reviews* **2003d:01032**. (CJ) #30.4.33

Betti, Renato. From Equations to Cardano, From Cardano to Algebra: The Long History of Algebraic Equations [in Italian], *Lettera Matematica Pristem* **41** (2001), 40–45. One of four consecutive articles in this journal on the life and work of Gerolamo Cardano in honor of his 500th birthday. See also #30.4.73, #30.4.163, and #30.4.200. (GVB) #30.4.34

Biard, Joël. See #30.4.147.

Block, Henry W. A Conversation with Richard Barlow, *Statistical Science* **16** (4) (2001), 368–388. Discussion with a founder of modern reliability theory. Presents views on the foundations of statistics and on the relationship between mathematics, statistics, and engineering as well as their impact on military and industrial applications in the U.S. during the latter half of the 20th century. See the review by Pierre Crepel in *Mathematical Reviews* **2003d:62004**. (CJ) #30.4.35

Bogen, James. Wittgenstein's *Tractatus*, in Stuart G. Shanker, ed., *Philosophy of Science, Logic and Mathematics in the Twentieth Century*, London: Routledge, 1996, pp. 157–192. Discusses the *Tractatus* and the responses it prompted. See the review by Roman Murawski in *Mathematical Reviews* **2003d:01022**. (CJ) #30.4.36

Boniface, Jacqueline; and Schappacher, Norbert. “Sur le Concept de Nombre en Mathématique”: Cours Inédit de Leopold Kronecker à Berlin (1891), *Revue d'Histoire des Mathématiques* **7** (2001), 206–275. After a 10-page preface discussing Kronecker's philosophy of the foundations of mathematics, this paper presents “a complete transcription of the only extant set of notes” of Kronecker's last lecture on number theory. See the review by Albert C. Lewis in *Mathematical Reviews* **2003f:01022**. (JA) #30.4.37

Bos, Henk. From the Ivory Towers [in Dutch], *Nieuw Archief voor Wiskunde* (5) **2** (3) (2001), 244–247. One of four consecutive articles in this journal on the life and work of Dirk Struik. See also #30.4.4, #30.4.87, and #30.4.181. (GVB) #30.4.38

Bottazzini, Umberto; and Dahan Dalmedico, Amy, eds. *Changing Images in Mathematics*, London: Routledge, 2001. This collection focuses on the development of mathematics in the past 200 years seen through the eyes of different nationalities, schools, and historical movements. (GVB) #30.4.39

Bromberg, Shirley; and Rivaud, Juan José. Fermat and Differential and Integral Calculus, *Miscelánea Matemática* **34** (2001), 59–71. Restatements of Fermat's well-known problems that involved techniques later recognized as parts of differential and integral calculus are presented. See the review by Ivor Grattan-Guinness in *Mathematical Reviews* **2003f**:01017. (JA) #30.4.40

Bru, Bernard; and Yor, Marc. Comments on the Life and Mathematical Legacy of Wolfgang Doeblin, *Finance and Stochastics* **6** (1) (2002), 3–47. Contains a biographical sketch plus a description of some mathematical work done 60 years ago but only recently made public. See the review by U. Krengel in *Mathematical Reviews* **2003d**:01034. (CJ) #30.4.41

Bruckner, Andrew M.; and Thomson, Brian S. Real Variable Contributions of G.C. Young and W.H. Young, *Expositiones Mathematicae* **19** (4) (2001), 337–358. The authors point out that most of the papers attributed to W.H. Young alone were in fact joint work with Grace. In his review in *Mathematical Reviews* **2003e**:01030, F. Smithies notes that the paper concentrates on the point-set aspects of real-variable theory, while fields are omitted such as the work on integration theory and their joint expository paper of 1912 on variants of the Riesz–Fischer theorem. (ACL) #30.4.42

Bührke, Thomas; and Loos, Andreas. *Das Verschwundene Genie: Rätsekfragen zu Persönlichkeiten aus Naturwissenschaft und Technik [The Hidden Genius: Puzzles on Persons in Science and Technology]*, Munich: Deutscher Taschenbuch Verlag, 2002, 190 pp. The first part of the book contains biographies of people whose identities are to be guessed by the reader; the second half gives the solutions, photographs, and further biographic information. (GVB) #30.4.43

Burrows, Brian L. See #30.4.139.

Calvo, Emilia. See #30.4.5, #30.4.54, and #30.4.84.

Chabás, José. See #30.4.79.

Chambers, Llewelyn G. See #30.4.31, #30.4.114, and #30.4.196.

Chandra Hari, K. *Vākyakaraṇa – A Study*, *Indian Journal of History of Science* **36** (3–4) (2001), 127–149. An examination of the computational technique in this astronomical text. The planetary longitudes for the Sun, Moon, and Mars are “remarkably accurate,” but the text fares less well with Mercury, Jupiter, and Saturn. (GVB) #30.4.44

Chicone, Carmen. See #30.4.1.

Cialdea, Alberto; and Lanzara, Flavia. Some Contributions of G. Fichera to the Theory of Partial Differential Equations, in Albert Cialdea, ed., *Homage to Gaetano Fichera*, Rome: Aracne Editrice, 2000,

pp. 79–143. Gaetano Fichera made substantial contributions to the development of physics (especially elasticity) and to corresponding parts of the theory of partial differential equations. There is a list of Fichera's 256 published papers and 18 books (1941–1999). See the review by M. Zerner in *Mathematical Reviews* **2003f**:35003. (JA) #30.4.45

Ciarletta, Michele. See #30.4.89.

Čižmár, Jan. See #30.4.20.

Čižmár, Ján. The Origin and Development of Algebraic Geometry [in Slovak], in Jindřich Bečvář and Eduard Fuchs, eds., *Man—Art—Mathematics* [in Czech], Prague: Prometheus, 1996, pp. 72–105. After two sections on prehistory, this article focuses on developments in the past two centuries. (GVB) #30.4.46

Cooke, Roger L. See #30.4.6 and #30.4.33.

Copeland, B. Jack. The Genesis of Possible Worlds Semantics, *Journal of Philosophical Logic* **31** (2) (2002), 99–137. The author suggests that in the modern period the subject of possible worlds semantics may have begun with C.S. Peirce. The account begins, however, with Wittgenstein and systematically proceeds up through the 1960s with Geach, Hintikka, Drake, and Kripke. The review by Ignacio Angelelli in *Mathematical Reviews* **2003e**:03004 lists the topics covered by the 21 sections. (ACL) #30.4.47

Crabbs, Robert Alan. Gaspard Monge and the Monge Point of the Tetrahedron, *Mathematics Magazine* **76** (3) (2003), 193–203. An account of the mathematical content of Monge's two papers of 1809 and 1811, both entitled "Sur la Pyramide Triangulaire." (GVB) #30.4.48

Crepel, Pierre. See #30.4.35.

Crespo, Teresa. See #30.4.61.

Cullen, Christopher. The First Complete Chinese Theory of the Moon: The Innovations of Liu Hong c. A.D. 200, *Journal for the History of Astronomy* **33** (1) (2002), 21–39. Liu Hong's theory takes into account both the first inequality of the moon's motion in longitude, and the moon's motion in latitude—perhaps the first full lunar theory from China. (GVB) #30.4.49

D'Agostino, Salvo. From Rational Numbers to Dirac's Bra and Ket: Symbolic Representation of Physical Laws, *Physics in Perspective* **4** (2) (2002), 216–229. Symbols interacted with physical concepts in a variety of ways from the 1850s to the 1930s: Wilhelm Weber introduced an absolute system of units, allowing proportionalities to be replaced by equations; James Clerk Maxwell used dimensional quantities and more complex symbols in his electromagnetic and kinetic theories; various symbols for complex numbers, operators, and matrices allowed physicists to pass from the representation of metrical properties of physical systems to higher-level mathematical objects. (GVB) #30.4.50

D'Ambrosio, Umberto. See #30.4.128.

Dahan Dalmedico, Amy. See #30.4.13 and #30.4.39.

Dawson, John W., Jr. See #30.4.151.

De Morgan, Augustus. See #30.4.156.

Deac, Iuliu. *Encyclopedic Dictionary of Mathematicians*, vol. 1 [in Romanian], Pitești: Editura Universității din Pitești, 2001, xxii+355 pp. A collection of short biographies of famous mathematicians from antiquity to the present; this volume contains A–J. (GVB) #30.4.51

Dear, Peter. Mathematics and Morality on the Cusp of Modernity, *Revue d'Histoire des Mathématiques* 7 (2) (2001), 277–293. Uses examples from the early modern period to the early 19th century to argue for the consideration of historical pedagogical motives for studying mathematics, to encourage “an understanding of mathematical pedagogy that refuses to treat it as unproblematic, and that seeks answers in social and cultural history.” (GVB) #30.4.52

Dershowitz, Nachum. See #30.4.148.

Diaconis, Persi. G.H. Hardy and Probability???. *Bulletin of the London Mathematical Society* 34 (4) (2002), 385–402. Survey on aspects of Hardy’s work in number theory that found application in probability theory. See the review by S.L. Segal in *Mathematical Reviews* 2003d:01023. (CJ) #30.4.53

Djebbar, Ahmed. Les Activités Mathématiques au Maghreb à l’Époque Ottomane (XVIe–XIXe Siècles) [Mathematical Activity in Maghreb During the Ottoman Empire (XVIth–XIXth Centuries)], in Ekmeleddin Ihsanoglu, Ahmed Djebbar, and Feza Günergün, eds., *Science, Technology and Industry in the Ottoman World*, Turnhout: Brepols, 2000, pp. 49–66. The political, social, and cultural context of mathematics in Maghreb is described as well as mathematical developments preceding the Ottoman period, especially the 14th century and Ibn al-Bannā’. The Ottoman period itself included works in languages other than Arabic, such as Amazigh and Turkish. The author also considers the introduction of European science and technology, especially in the 18th century. See the review by Emilia Calvo in *Mathematical Reviews* 2003e:01005. (ACL) #30.4.54

Duda, Roman. See #30.4.98.

Durnová, Helena. The Past and Present in Mathematics [in Czech], in Jindřich Bečvář and Eduard Fuchs, eds., *Mathematics Throughout the Ages. II*, Prague: Prometheus, 2001, pp. 106–137. Discusses the achievements of various women in mathematics, including Hypatia, Agnesi, du Châtelet, Somerville, Lovelace, Germain, Kovalevskaya, and Noether. (GVB) #30.4.55

Eastwood, Bruce Stansfield. Johannes Scottus Eriugena, Sun-Centred Planets, and Carolingian Astronomy, *Journal for the History of Astronomy* 32 (4) (2001), 281–324. Explains a puzzling astronomical passage by John the Scot in a way that does not require it to be an anticipation of Tycho Brahe’s geoheliocentric system. See the review by Glen R. Van Brummelen in *Mathematical Reviews* 2003d:01012. (CJ) #30.4.56

Efimova, Elena Anatol’evna. On the Development of Symbolic Calculus in the Last Third of the 19th Century [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) 3 (38) (1998), 383–390. Reviews the history of symbolic methods for solving differential equations from 1865 to the time of O. Heaviside. (GVB) #30.4.57

Èl’strodt, Yu.; and Ul’rich, Peter. On a Handwritten Manuscript of B. Riemann on the Theory of Functions of a Complex Variable (“A Real Sheet of Complex Riemann Function Theory”) [in Russian],

Istoriko-Matematicheskie Issledovaniya (2) **4** (39) (1999), 230–252. Translated from a paper in English that appeared in *Historia Mathematica* in 1999 (see #27.2.53); these notes from Riemann to Georg August Thieme explained in particular his version of Dirichlet’s Principle. (GVB) #30.4.58

Embrechts, Paul. See #30.4.178.

Epple, Moritz. Did Brouwer’s Intuitionistic Analysis Satisfy Its Own Epistemological Standards? in Vincent F. Hendricks, Stig Andur Pedersen, and Klaus Frovin Jørgensen, eds., *Proof Theory: History and Philosophical Significance*, Dordrecht: Kluwer, 2000, pp. 153–178. This paper describes some of the epistemological problems inherent in justifying Brouwer’s intuitionistic analysis and set theory. See the review by Wim Ruitenburg in *Mathematical Reviews* **2003f**:03003. (JA) #30.4.59

Ermolaeva, N.S. A Letter from S.A. Bernshtein to S.N. Bernshtein and the Moscow School of the Theory of Functions [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **5** (40) (2000), 152–163. “This letter sheds light on the history of the Moscow school of the theory of functions given by one of Luzin’s students.” (GVB) #30.4.60

Escribano, José Javier; and Español, Luis. A 1915 Paper on Galois Theory by Sixto Cámara [in Spanish], in Luis Español and Juan L. Varona, eds., *Margarita Mathematica* [in Spanish], Logroño: Univ. de La Rioja, 2001, pp. 463–475. Discusses Sixto Camara’s paper and its importance for introducing Galois theory in Spain. See the review by Teresa Crespo in *Mathematical Reviews* **2003d**:12001. (CJ) #30.4.61

Español, Luis. See #30.4.61.

Ethegaray y Eizaguirre, José. The Newton of the North [in Spanish], *La Gaceta de la Real Sociedad Matemática Española* **5** (1) (2002), 162–173. This article on the life and works of Niels Henrik Abel accompanies an announcement of the new Abel Prize. (GVB) #30.4.62

Eves, Howard. *Mathematical Reminiscences*, Washington, DC: Mathematical Association of America, 2001, xii+186 pp. In this book, Eves (b. 1911) relates accounts of his own (mostly) mathematical experiences in anecdotes and photographs. See the review by Albert C. Lewis in *Mathematical Reviews* **2003f**:00009. (JA) #30.4.63

Fedorov, B.I. B. Bolzano as a Precursor of Constructivism. II. [in Russian], in A.S. Karpenko, ed., *Logical Investigations. No. 8*, Moscow: “Nauka”, 2001, pp. 210–216. Devoted to an analysis of Bolzano’s ideas on constructivity. See the review by Roman Murawski in *Mathematical Reviews* **2003d**:01018. (CJ) #30.4.64

Feferman, Solomon. Highlights in Proof Theory, in Vincent F. Hendricks, Stig Andur Pedersen, and Klaus Frovin Jørgensen, eds., *Proof Theory: History and Philosophical Significance*, Dordrecht: Kluwer, 2000, pp. 11–31. Excellent survey on proof theory up to the 1960s, written so nonspecialists can understand the topic. See the review by Thomas Strahm in *Mathematical Reviews* **2003d**:03094. (CJ) #30.4.65

Feferman, Solomon. The Significance of Weyl’s *Das Kontinuum*, in Vincent F. Hendricks, Stig Andur Pedersen, and Klaus Frovin Jørgensen, eds., *Proof Theory: History and Philosophical Significance*, Dordrecht: Kluwer, 2000, pp. 179–194. This paper “provides an informal overview of the type of pred-

icativity espoused by Herman Weyl in his 1913 monograph, *Das Kontinuum*,” followed by “a modern reconstruction” and “a discussion of the ways and extent to which real analysis can be carried out in such a predicative framework.” See the review by Jeremy Avigad in *Mathematical Reviews* **2003f**:03004. (JA) #30.4.66

Fibonacci. *Fibonacci's Liber Abaci: A Translation into Modern English of Leonardo Pisano's Book of Calculation*, translated by L.E. Sigler, New York: Springer-Verlag, 2002, 672 pp. This is an intentionally literal translation of the first and only complete edition (the Boncompagni edition of 1857) of this fundamental work into any modern language. Minimum annotations, explanations, and references are provided. See the review by Warren Van Egmond in *Mathematical Reviews* **2003f**:01011. (JA) #30.4.67

Florenskii, P.A. An Essay on Mill's Theory of the Inductive Origins of Geometric Concepts [in Russian], foreword and comments by V.A. Shaposhnikov, *Istoriko-Matematicheskie Issledovaniya* (2) **3** (38) (1998), 32–73. The report contained in this paper was made by Florenskii, given in 1901 at a seminar in Moscow University, concerning the philosophy and psychology of mathematics. (GVB) #30.4.68

Franchella, Miriam. *Like Platonic Love: Kantism and Platonism in the Mathematical Philosophy of the Twentieth Century* [in Italian], Milan: LED—Edizioni Universitarie di Lettere Economia Diritto, 2001, 199 pp. Discusses trends in 20th-century foundations of mathematics and the extent to which Kant's and Plato's ideas may be involved. See the review by Eduard Glas in *Mathematical Reviews* **2003d**:00004. (CJ) #30.4.69

Freguglia, Paolo. The Study of Algebraic Logic at the Turn of the Twentieth Century: The Theory of Logical Equations [in Italian], in Evandro Agazzi and Nikla Vassallo, eds., *George Boole: Philosophy, Logic, Mathematics* [in Italian], Milan: FrancoAngeli, 1998, pp. 75–96. Traces the history of the algebraic theory of logical equations, including the works of Boole, Schröder, Peano, Poretskiĭ, W.E. Johnson, A. Del Re, and L. Couturat. (GVB) #30.4.70

Galante, Davide. Classical Logic and Chinese Language Structure, *Metalogicon* **14** (2) (2001), 141–166. Reasoning in Chinese classics is examined, showing that formal logic applies to Chinese writing as well as that in Indo-European languages. See the review by Fuxing Shen in *Mathematical Reviews* **2003d**:03005. (CJ) #30.4.71

Gallavotti, Giovanni. Quasi Periodic Motions from Hipparchus to Kolmogorov, *Atti della Accademia Nazionale dei Lincei. Classe di Scienze Fisiche, Matematiche e Naturali. Rendiconti Lincei. Serie IX. Matematica e Applicazioni* **12** (1) (2001), 125–152. Using lunar theory as an example the author traces how the notion of describing all motion in terms of composition of uniform circular motion has been refined through the contributions of Hipparchus, Ptolemy, Copernicus, Kepler, and Newton. Discoveries relating to system stability, beginning with Poincaré, led to the modern theory of chaos and the contribution of Kolmogorov. See the review by Sandro Vaienti in *Mathematical Reviews* **2003e**:34075. (ACL) #30.4.72

Galuzzi, Massimo. See #30.4.143.

Gasser, James. See #30.4.169.

Gatto, Romano. The Great Art [in Italian], *Lettera Matematica Pristem* **41** (2001), 35–39. One of four consecutive articles in this journal on the life and work of Gerolamo Cardano in honor of his 500th birthday. See also #30.4.34, #30.4.163, and #30.4.200. (GVB) #30.4.73

Gavroglu, Kostas; and Simões, Ana. Preparing the Ground for Quantum Chemistry in Great Britain: The Work of the Physicist R.H. Fowler and the Chemist N.V. Sidgwick, *British Journal for the History of Science* **35** (2) (2002), 187–212. Although Fowler and Sidgwick did not make original contributions to quantum chemistry, they helped to nurture the fledgling field and its autonomy vis-à-vis physics and chemistry. “Viewing quantum chemistry as a branch of applied mathematics became an emblematic characteristic of the practice of the new discipline in Great Britain.” (GVB) #30.4.74

Gearhart, Clayton A. Planck, the Quantum, and the Historians, *Physics in Perspective* **4** (2) (2002), 170–215. Discusses whether Planck himself may have been aware in some way of the beginnings of the quantum revolution in his 1900 derivation of an expression for the spectrum of black-body radiation. (GVB) #30.4.75

Germain, P. Sur Quelques Éléments du Renouveau de la Mécanique au Cours du Dernier Demi-Siècle [On Some Elements of the Resurgence of Mechanics During the Last Half-Century], *Revue Roumaine de Mathématiques Pures et Appliquées* **46** (2–3) (2001), 189–205. Discusses aspects of the development of mechanics in the latter half of the 20th century. See the review by Jesus Hernandez in *Mathematical Reviews* **2003d**:01024. (CJ) #30.4.76

Gingrich, Owen. The Trouble with Ptolemy, *Isis* **93** (1) (2002), 70–74. Shows how Ptolemy ingeniously used limited observational data to develop a model for the motion of Venus. See also #30.4.183. See the review by R. Nadal in *Mathematical Reviews* **2003d**:01006. (CJ) #30.4.77

Glas, Eduard. See #30.4.69.

Goldstein, Bernard R. On the Babylonian Discovery of the Periods of Lunar Motion, *Journal for the History of Astronomy* **33** (1) (2002), 1–13. A reconstruction of the parameters of lunar motion that allowed the Babylonians to predict lunar eclipses accurately. Through it the author argues that precise observations and long time periods of astronomical records would not have been necessary to produce the values found in the texts. (GVB) #30.4.78

Goldstein, Bernard R.; and Chabás, José. The Maximum Solar Equation in the Alfonsine Tables, *Journal for the History of Astronomy* **32** (4) (2001), 345–348. The maximum solar equation in the Parisian Alfonsine Tables (2;10°) is not found in any other text or table. The authors argue that John of Murs’s derivation of this parameter was probably not from specific dated observations; rather, he found it in a copy of the Castilian Alfonsine Tables available to him. (GVB) #30.4.79

Goldstein, Laurence. How Original a Work is the *Tractatus Logico-Philosophicus*? *Philosophy* **77** (2002), 421–444. This paper compares Wittgenstein’s ideas on the nature of logic, propositions, etc. with the earlier opinions of Bolzano, Husserl, Frege, and Russell. See the review by Roman Murawski in *Mathematical Reviews* **2003f**:01034. (JA) #30.4.80

Grattan-Guinness, Ivor. See #30.4.11 and #30.4.40.

Gray, Jeremy J. In Memoriam: John Fauvel (21 July 1947, Glasgow—12 May 2001, Leamington Spa), *Historia Mathematica* **29** (3) (2002), 239–243. This account of the life and work of John Fauvel includes a bibliography of Fauvel's publications in the history of mathematics. (GVB) #30.4.81

Grigoryan, A.A. The Probability Theory of R. von Mises: History and Philosophical and Methodological Foundations [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **3** (38) (1998), 198–220. The author critiques von Mises's axiomatization of probability theory, the first to appear. It was later replaced by Kolmogorov's axioms. (GVB) #30.4.82

Grosholz, Emily R. The Partial Unification of Domains, Hybrids, and the Growth of Mathematical Knowledge, in Emily Grosholz and Herbert Breger, eds., *The Growth of Mathematical Knowledge*, Dordrecht: Kluwer, 2000, pp. 81–91. Discusses how one area of mathematics contributes to another, focusing on Descartes's development of analytic geometry and on the approach of Leibniz to mathematics. See the review by Alvin M. White in *Mathematical Reviews* **2003d**:00006. (CJ) #30.4.83

Guergour, Youcef. Les Différents Systèmes de Numérotation au Maghreb à l'Époque Ottomane: L'Exemple des Chiffres Rūmī [The Various Systems of Enumeration in Maghreb During the Ottoman Empire: The Example of the Rūmī Numbers], in Ekmeleddin Ihsanoglu, Ahmed Djebbar, and Feza Günergün, eds., *Science, Technology and Industry in the Ottoman World*, Turnhout: Brepols, 2000, pp. 67–74. This study of rūmī numbers includes a treatise by Ibn al-Bannā' and an analysis of it. The role of the numbers in the Maghrib and their use among the Andalusian and Maghribi mathematicians is described. See the review by Emilia Calvo in *Mathematical Reviews* **2003e**:01006. (ACL) #30.4.84

Guevich, D.Yu.; and Guzevich, I.D. War, Captivity and Mathematics [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **4** (39) (1999), 189–230. A notebook written in 1813 in Saratov by J.V. Poncelet, one of the founders of projective geometry and taken prisoner after Napoleon's invasion of Russia, was found by the authors. This article comments on the differences between its contents and Poncelet's published works. (GVB) #30.4.85

Guitart, René. *See* #30.4.15.

Gundlach, K.-B. *See* #30.4.94.

Guzevich, I.D. *See* #30.4.85.

Hahn, Alexander J. The Pendulum Swings Again: A Mathematical Reassessment of Galileo's Experiments with Inclined Planes, *Archive for History of Exact Sciences* **56** (4) (2002), 339–361. An important article discussing Galileo's experimentation with motion along an inclined plane and how this functioned in Galileo's thinking. See the review by William R. Shea in *Mathematical Reviews* **2003d**:01015. (CJ) #30.4.86

Harmsen, Ger. At the Front of the Communist Youth Movement [in Dutch], *Nieuw Archief voor Wiskunde* (5) **2** (3) (2001), 234–241. One of four consecutive articles in this journal on the life and work of Dirk Struik. See also #30.4.4, #30.4.38, and #30.4.181. (GVB) #30.4.87

Hartmann, Georg. *Hartmann's Practika: A Manual for Making Sundials and Astrolabes with the Compass and Rule*, translated from the German and edited by John Lamprey, Bellvue, CO: John Lamprey, 2002, 310 pp. Hartmann (1489–1564) was a designer and builder of mathematical instruments, he

discovered the magnetic dip, and he produced three previously unpublished manuscripts (the *Collectanea mathematica praeprimis gnomonicam spectantia*, translated here with “excellent figures”). See the review by William R. Shea in *Mathematical Reviews* **2003f**:01060. (JA) #30.4.88

Hauser, R.A.; and Kirchner, N.P. A Historical Note on the Entropy Principle of Müller and Liu, *Continuum Mechanics and Thermodynamics* **14** (2) (2002), 223–226. Short note shows that the principle discussed is a special case of the affine form of Farkas’s Lemma. See the review by Michele Ciarletta in *Mathematical Reviews* **2003d**:80001. (CJ) #30.4.89

Hayashi, Takao. See #30.4.157.

Henry, John. Void Space, Mathematical Realism, and Francesco Patrizi da Cherso’s Use of Atomistic Arguments, in Christoph Lüthy, John E. Murdoch, and William R. Newman, eds., *Late Medieval and Early Modern Corpuscular Matter Theories* (Leiden/Boston/Köln: Brill, 2001), pp. 133–161. The author evaluates Petrić’s use of atomistic arguments in the first two books of *Pancosmia* (1591), particularly in the second book *De spacio mathematico*. See also #30.4.121. (IM) #30.4.90

Hernandez, Jesus. See #30.4.76.

Hiscock, Nigel. *The Wise Master Builder. Platonic Geometry in Plans of Medieval Abbeys and Cathedrals*, Aldershot: Ashgate, 2000, xviii+340 pp. This book is a comparative analysis, supported by 28 figures and 107 plates, of 27 plans of medieval abbeys and cathedrals. The conclusion is that “there is a high degree of correlation between the system of Platonic geometry and plans of buildings,” i.e., “between Christian Platonist thought and the design of religious architecture.” See the review by Eberhard Knobloch in *Mathematical Reviews* **2003f**:01012. (JA) #30.4.91

Hogendijk, Jan P. Two Editions of Ibn al-Haytham’s *Completion of the Conics*, *Historia Mathematica* **29** (2002), 247–265. Hogendijk responds to claims by Roshdi Rashed that his 1985 edition of this work was faulty, comments on Rashed’s 2000 edition of the same treatise, and questions some of Rashed’s interpretations. (GVB) #30.4.92

Hogendijk, Jan P. See also #30.4.124 and #30.4.146.

Howarth, Richard J. Fitting Geomagnetic Fields before the Invention of Least Squares. I. Henry Bond’s Predictions (1636, 1668) of the Change in Magnetic Declination in London, *Annals of Science* **59** (4) (2002), 391–408. Bond’s successful predictions of this change were performed by fitting quadratic and cubic functions to the observational data, anticipating Mayer’s method by over a century. (GVB) #30.4.93

Høyrup, Jens. *Lengths, Widths, Surfaces. A Portrait of Old Babylonian Algebra and Its Kin*, New York: Springer-Verlag, 2002, xiv+459 pp. The author presents a compendium of the present state of knowledge of Babylonian algebra. It includes an introduction to the number system, metrology, and translation issues. The book is mainly devoted to a close analysis of texts but also includes a discussion of the general nature of Babylonian mathematics, its possible origins, and later developments from it. See the review by K.-B. Gundlach in *Mathematical Reviews* **2003e**:01002. (ACL) #30.4.94

Høyrup, Jens. See also #30.4.141 and #30.4.187.

Hritonenko, Natali. See #30.4.171 and #30.4.172.

Huet, Gérard. Śrī Yantra Geometry, *Theoretical Computer Science* **281** (1–2) (2002), 609–628. The author claims: “This study offers a more precise analysis of Śrī Yantra than was previously available in the published literature.” T. Thirvikraman in a review, *Mathematical Reviews* **2003e**:01009, asserts that the author may not have seen many scholarly articles on the subject. (ACL) #30.4.95

Hykšová, Magdalena. Life and Work of Karel Rychlík, in Eduard Fuchs, ed., *Mathematics Throughout the Ages*, Prague: Prometheus, 2001, pp. 258–286. Rychlík is best known for his writings on the work of B. Bolzano. His important contributions to valuation theory and several other areas of mathematics are not as well known because they were published in Czech; all of these are discussed in detail here. See the review by Štefan Porubský in *Mathematical Reviews* **2003f**:01043. (JA) #30.4.96

Iagolnitzer, Daniel. See #30.4.12.

Idlis, G.M. See #30.4.6.

Jakić, Mirko. Do Computers Confirm the Thesis of the Ontological Foundation of Logic? [in Croatian], *Filozofska Istraživanja* **23** (1) (2003), 93–105. Computers confirm the thesis of the ontological foundation of logic through formal implication and formal logical deduction founded on the category of identity. The author finds implicit confirmations of the thesis in Russell and Gentzen. (IM) #30.4.97

James, I.M. Combinatorial Topology Versus Point-Set Topology, in C.E. Aull and R. Lowen, *Handbook of the History of General Topology*, vol. 3, Dordrecht: Kluwer, 2001, pp. 809–834. Explains the historical background (mainly in the United States) of the split of topology into two main branches and discusses the role of homotopy theory in this. See the review by Roman Duda in *Mathematical Reviews* **2003d**:01025. (CJ) #30.4.98

James, Ioan. *Remarkable Mathematicians*, Washington, DC: Mathematical Association of America, 2002, 320 pp. This collection of 60 profiles of mathematicians born between 1700 and 1910 covers the era when mathematics was freed from its classical origins to develop into its modern form. (GVB) #30.4.99

Joel, J.S. See #30.4.137.

Johnstone, Peter. Elements of the History of Locale Theory, in C.E. Aull and R. Lowen, *Handbook of the History of General Topology*, vol. 3, Dordrecht: Kluwer, 2001, pp. 835–851. Good exposition of the history of pointless topology by an expert in the field. See the review by Jiri Rosický in *Mathematical Reviews* **2003d**:01026. (CJ) #30.4.100

Jones, Alexander. Eratosthenes, Hipparchus, and the Obliquity of the Ecliptic, *Journal for the History of Astronomy* **33** (1) (2002), 15–19. A discussion of the value found in the *Almagest* for the obliquity of the ecliptic ($23;51,20^\circ$), presenting evidence from Strabo that both Eratosthenes and Hipparchus used a value very close to this one. (GVB) #30.4.101

Kahle, Reinhard. See #30.4.160.

Kamareddine, Fairouz; Laan, Twan; and Nederpelt, Rob. Types in Logic and Mathematics before 1940, *Bulletin of Symbolic Logic* **8** (2002), 185–245. The “heart of this paper is a lengthy and precise

development” of the Russell–Whitehead ramified theory of types followed by “translations into and comparisons with λ -calculus systems.” See the review by E. Mendelson in *Mathematical Reviews* **2003f**:03013. (JA) #30.4.102

Kinderlehrer, David. *See* #30.4.109.

Kirchner, N.P. *See* #30.4.89.

Klement, Kevin C. Russell’s Paradox in Appendix B of the *Principles of Mathematics*: Was Frege’s Response Adequate?, *History and Philosophy of Logic* **22** (1) (2001), 13–28. Discusses the correspondence between Russell and Frege in 1902 and 1903 based on the paradox in Appendix B of the *Principles of Mathematics*. The author argues that the answer to the question in the paper’s title is negative. (GVB) #30.4.103

Knobloch, Eberhard. *See* #30.4.91 and #30.4.131.

Knorr, Wilbur R. The Impact of Modern Mathematics on Ancient Mathematics, *Revue d’Histoire des Mathématiques* **7** (1) (2001), 121–135. Advocates a view of history of mathematics that is faithful to what it meant to do mathematics at the time being considered. See the review by Michael Otte in *Mathematical Reviews* **2003d**:01005. (CJ) #30.4.104

Kostyrko, Pavel. *See* #30.4.162 and #30.4.191.

Kracht, Manfred W. *See* #30.4.109.

Krantz, Steven G. *Mathematical Apocrypha: Stories and Anecdotes of Mathematicians and the Mathematical*, Washington, DC: Mathematical Association of America, 2002, xiv+214 pp. Many of the stories in this book are contemporary and have not previously appeared in print. They are intended to “convey the nature of the mathematical enterprise and give the reader a glimpse of mathematical culture.” (GVB) #30.4.105

Krantz, Steven G.; and Parks, Harold R. *The Implicit Function Theorem. History, Theory, and Applications*, Boston: Birkhäuser, 2002, xii+163 pp. “The book provides a complete historical account of the implicit function theorem, presents and analyzes various proofs of this and related results, and discusses many generalizations, recent developments, and applications.” See the review by B. Mordukhovich in *Mathematical Reviews* **2003f**:26001. (JA) #30.4.106

Krengel, U. *See* #30.4.41.

Künzi, Hans-Peter A. Nonsymmetric Distances and their Associated Topologies: About the Origins of Basic Ideas in the Area of Asymmetric Topology, in C.E. Aull and R. Lowen, *Handbook of the History of General Topology*, vol. 3, Dordrecht: Kluwer, 2001, pp. 853–968. Detailed survey with extensive bibliography on the history of asymmetric topology. See the review by Salvador Romaguera in *Mathematical Reviews* **2003d**:54001. (CJ) #30.4.107

Laan, Twan. *See* #30.4.102.

Ladyzhenskaya, O.A. *See* #30.4.6.

Lanzara, Flavia. See #30.4.45.

Laurinčikas, Antanas. On Sprindžuk's Works in *Lietuvos Matematikos Rinkinys, Lietuvos Matematikos Rinkinys* **40** (2000), Special Issue, 226–231. In 1932, K. Mahler introduced a classification of transcendental numbers. A conjecture arising from it was proved by V.G. Sprindzhuk in 1967. This note outlines the work of Sprindzhuk up to 1962. The review by John H. Loxton in *Mathematical Reviews* **2003e**:11078 provides the main mathematical results. (ACL) #30.4.108

Lewis, Albert C. See #30.4.37 and #30.4.63.

Lewy, Hans. *Hans Lewy Selecta*, 2 vols., edited and with a preface and biographical sketch of Lewy by David Kinderlehrer, Boston: Birkhäuser, 2002, vol. 1: xvi+357 pp., vol. 2: xviii+446 pp. Almost all of the publications of H. Lewy (1904–1988) are presented chronologically: volume 1, 1925–1951; and volume 2, 1952–1989. In volume 1, following the brief biographical sketch, there are eight additional essays concerning Lewy's life and various aspects of his work. See the review by Manfred W. Kracht in *Mathematical Reviews* **2003f**:01062a and **2003f**:01062b. (JA) #30.4.109

Li, T.Y. See #30.4.1.

Loos, Andreas. See #30.4.43.

Lorenz, Ralph. See #30.4.1.

Loxton, John H. See #30.4.108.

Lukoschik, Bernd. Realismus und Instrumentalismus im Weltbild des Frühen Einstein [Realism and Instrumentalism in the Worldview of the Young Einstein], *Philosophia Naturalis* **39** (1) (2002), 111–140. The author argues that, relative to the usual views, Mach's influence on Einstein was limited and that Einstein was more of a rational realist. The reviewer in *Mathematical Reviews* **2003e**:01027, Arne Schirmacher, notes that though the study relies on a close reading of Einstein there is little reference to other secondary literature treating Einstein's philosophical views. (ACL) #30.4.110

Lumpkin, Beatrice. Mathematics Used in Egyptian Construction and Bookkeeping, *Mathematical Intelligencer* **24** (2) (2002), 20–25. The author discusses ancient construction and bookkeeping examples that provide evidence of the development at least 4700 years ago of such modern concepts as the quantity zero, and the coordinatization of space. (FA) #30.4.111

Mačák, Karel. A Commentary on Four Illustrations from Boëthius's "Arithmetic" [in Czech], in #30.4.20, pp. 103–119. (GVB) #30.4.112

Mačák, Karel. On a Small Comenius' Work Geometry and Geodesy, in Eduard Fuchs, ed., *Mathematics Throughout the Ages*, Prague: Prometheus, 2001, pp. 37–50. The author's focus on a geometrical work by Comenius is intended to reveal how this educational theorist taught in practice. Comenius's own education is described and several problems are worked through, including the quadrature of the circle. See the review by Bernard Rouxel in *Mathematical Reviews* **2003e**:01013. (ACL) #30.4.113

Mahoney, Michael S. Huygens and the Pendulum: From Device to Mathematical Relation, in Emily Grosholz and Herbert Breger, eds., *The Growth of Mathematical Knowledge*, Dordrecht: Kluwer, 2000, pp. 17–39. This is an account of how Huygens came to realize that the cycloid is the trajectory of a tautochronic pendulum. It describes various approximations that Huygens used and to what extent he depended on earlier work by Galileo. See the review by Llewelyn G. Chambers in *Mathematical Reviews* **2003e**:01014. (ACL) #30.4.114

Mardešić, Sibe; and Segal, Jack. History of Shape Theory and its Application to General Topology, in C.E. Aull and R. Lowen, *Handbook of the History of General Topology*, vol. 3, Dordrecht: Kluwer, 2001, pp. 1145–1177. The history of shape theory is described from the work of P.S. Aleksandrov, A. Kurosh, S. Lefschetz, and others in the 1920s and 1930s, through K. Borsuk and the work of the authors. This is followed by an account of its applications. See the review by Š. Ungar in *Mathematical Reviews* **2003e**:54001. (ACL) #30.4.115

Martini, Horst. See #30.4.194.

Martinović, Ivica. Petrić's *Index Pancosmiae* [in Croatian], *Filozofska Istraživanja* **19** (1–2) (1999), 139–191. The “Bibliographical Appendix” on pp. 173–190 offers an index of the *adiecta* to the first edition of *Nova de universis philosophia* (1591), a masterpiece of an extremely complex structure. The article also includes a comparative analysis of *Index Pancosmiae* and *Index in Panaugiam, et Panarchiam*, and both subject indices contain mathematical entries. (IM) #30.4.116

Martinović, Ivica. Rudjer Bošković and America, *Kolo* **10** (3) (2000), 7–29. Analyzes Bošković's geodetic researches between 1747 and 1770, including American data, and illuminates why Bošković failed to join the astronomical expedition to California, planned for the period 1767–1769. (IM) #30.4.117

Martinović, Ivica. Rudjer Bošković's Expert Analyses in Hydraulic Engineering, in Valentin Pozaić, ed., *Jesuits among the Croats: Proceedings of the International Symposium “Jesuits in the Religious, Scientific and Cultural Life Among the Croats” October 8–11, 1990* (Zagreb: Institute of Philosophy and Theology SJ, 2000), pp. 65–87. The author also highlights the relationship between hydraulic problems and mathematical methods in Bošković's works published in 1765. The article is accompanied by the appendix “A catalogue of Bošković's manuscripts and published works on hydraulic engineering and hydrodynamics” with complete bibliographic data on pp. 85–87. (IM) #30.4.118

Martinović, Ivica. Stjepan Bašić's Interpretation of Bošković's Natural Philosophy in his *Synopsis universae philosophiae* from 1771 [in Croatian], *Prirodoslovlje* **1** (1) (2001), 121–146. From the author's abstract: “Bašić (1736–1826) arranged the chapter on Bošković's theory, placing it between Newton's *Regulae philosophandi* and the latter's law of motion. Though a true Boscovichian in his approach, the young Croatian Jesuit in Tuscany did not spare Bošković's natural philosophy from questioning, contributing thus to the reception of Newton's physics.” (IM) #30.4.119

Martinović, Ivica. The Reception of Bošković's Natural Philosophy at Princeton (1844–1846) [in Croatian], *Prilozi za Istraživanje Hrvatske Filozofske Baštine* **27** (2001), 147–162. On the reception of Bošković's natural philosophy over the Princeton years of Joseph Henry. From the author's summary: “This structural similarity [of Henry's and Bošković's approach to natural philosophy] did not exclude

different standpoints on some important topics: definition of mobility, the law of inertia, theoretical explanation of magnetism, and approach to the *vis viva*.” (IM) #30.4.120

Martinović, Ivica. John Henry’s Evaluations of Petrić’s Use of Atomistic Arguments [in Croatian], *Filozofska Istraživanja* **22** (1) (2002), 287–300. Essay review of John Henry’s article “Void Space, Mathematical Realism, and Francesco Patrizi da Cherso’s Use of Atomistic Arguments” (see #30.4.90). From the author’s abstract: “This article will undoubtedly influence future research on Frane Petrić’s thought in natural philosophy and the philosophy of mathematics.” (IM) #30.4.121

Martinović, Ivica. Optical Treatise of Marko Antun de Dominis: Genesis, Methodology, Significance [in Croatian], *Prilozi za Istraživanje Hrvatske Filozofske Baštine* **28** (2002), 67–145. From the author’s summary: “Even if Galileo’s public demonstration of the telescope on August 25, 1609 did influence the final version and publishing of de Dominis’s treatise *De radiis visus et lucis in vitris perspectivis et iride*, it retained the structure of de Dominis’s approach to optical problems from the time of his professorship in Padua and Brescia (1588–1595): the foundations of geometrical and physical optics, an abridged theory of optical lenses, explanation of the rainbow.” Bibliographical appendix “Sources of Marko Antun de Dominis’s *De radiis visus et lucis in vitris perspectivis et iride tractatus* (1611)” includes editions of Witelo, Cardano, and Clavius. (IM) #30.4.122

Massa Esteve, Maria Rosa. Relations between Algebra and Geometry in the Seventeenth Century [in Spanish], *LLULL* **24** (51) (2001), 705–725. The work of Pietro Mengoli (1625–1686) illustrates changing attitudes toward the complementary roles of geometry and algebra. (GVB) #30.4.123

Matvievskaia, G.P. Arabic Commentaries on Book X of Euclid’s *Elements* [in Russian], *Istoriko-Matematičeskie Issledovaniia* (2) **4** (39) (1999), 12–25. This is a brief survey article. The review by Jan P. Hogendijk in *Mathematical Reviews* **2003f**:01008 refers to more detailed work on this subject by the author, in English, in David A. King and George Saliba, eds., *From Deferent to Equant: A Volume of Studies in the History of Science in the Ancient and Medieval Near East in Honor of E.S. Kennedy*, New York: New York Academy of Sciences, 1987, pp. 253–277. (JA) #30.4.124

Matvievskaia, G.P., ed. *On the History of Mathematics in the Eighteenth Century. No. 1. On the Forthcoming 300th Anniversary of Leonhard Euler (1707–1783)* [in Russian], Orenburg: Iztadel’stvo Orenburgskogo Gosudarstvennogo Pedagogičeskogo Universiteta, 2000, 80 pp. Contains five papers (all in Russian) on a variety of aspects of Euler’s work; see also #30.4.126. The papers will be abstracted separately. (GVB) #30.4.125

Matvievskaia, G.P., ed. *On the History of Mathematics in the Eighteenth Century. No. 2. On the Forthcoming 300th Anniversary of Leonhard Euler (1707–1783)* [in Russian], Orenburg: Iztadel’stvo Orenburgskogo Gosudarstvennogo Pedagogičeskogo Universiteta, 2001, 80 pp. Another collection of six papers (all in Russian) on Euler; see also #30.4.125. The papers will be abstracted separately. (GVB) #30.4.126

Matvievskaia, G.P.; and Yusupova, G.È. Spherics in the Works of Scholars of the Medieval East [in Russian], *Istoriko-Matematičeskie Issledovaniia* (2) **6** (41) (2001), 353–365. Arabic commentaries on the *Spherics* of Theodosius (2nd century BC) and the *Spherics* by Menelaus (1st century AD) are surveyed. See the review by Jan P. Hogendijk in *Mathematical Reviews* **2003f**:01007. (JA) #30.4.127

Mawhin, Jean. L'Éternel Retour des Sommes de Riemann–Stieltjes dans l'Évolution du Calcul Intégral, *Bulletin de la Société Royale des Sciences de Liège* **70** (4–6) (2001), 345–364. The paper begins with the prehistory of integration from antiquity to Newton and Leibniz. Developments since then are sketched, including those due to Jean Bernoulli, Euler, and Cauchy. The main focus is on Riemann who the author claims presented the first theory of integration. This is followed by an account of the work of Lebesgue, Stieltjes, and, from the 1960s, Kurzweil and Henstock. See the review by Umberto d'Ambrosio in *Mathematical Reviews* **2003e**:28001. (ACL) #30.4.128

Mehrmann, Volker; and Schneider, Hans. Anpassen oder Nicht? Die Geschichte eines Mathematikers im Deutschland der Jahre 1933–1950 [Accommodation or Not? The History of a Mathematician in the Germany of the Years 1933–1950], *Mitteilungen der Deutschen Mathematiker-Vereinigung* **2002** (2), 20–26. This paper describes the career of the German mathematician Helmut Wielandt, viewing him as an example of a how a young scientist needed to make an accommodation with National Socialism in order to obtain a teaching position. See the review by Karl-Heinz Schlote in *Mathematical Reviews* **2003e**:01035. (ACL) #30.4.129

Mendelson, E. See #30.4.102.

Mira, Christian. See #30.4.1.

Mollon, J.D. The Origins of the Concept of Interference, *Royal Society of London Philosophical Transactions. Series A. Mathematical, Physical, and Engineering Sciences* **360** (1794) (2002), 807–819. A discussion of the work of Thomas Young early in the 19th century, who was the first to generalize the concept of interference and apply it to compound tides, auditory beats, and colors of thin films. (GVB) #30.4.130

Mordukhovich, B. See #30.4.106.

Muntersbjorn, Madeline M. The Quadrature of Parabolic Segments 1635–1658. A Response to: “Tacit Knowledge and Mathematical Progress” by H. Breger, in Emily Grosholz and Herbert Breger, eds., *The Growth of Mathematical Knowledge*, Dordrecht: Kluwer, 2000, pp. 231–256. The quadrature of parabolic segments (in Cavalieri, Torricelli, Fermat, and Pascal) is taken as a case study showing how implicit knowledge (“knowhow” or “insight on the metalevel”) evolves into explicit and formal representation. See the review by Eberhard Knobloch in *Mathematical Reviews* **2003e**:00016. (ACL). #30.4.131

Murawski, Roman. See #30.4.36, #30.4.64, #30.4.80, and #30.4.134.

Nadal, R. See #30.4.77 and #30.4.183.

Nagano, Koichi. See #30.4.154.

Neal, Katherine. Mathematics and Empire, Navigation and Exploration: Henry Briggs and the Northwest Passage Voyages of 1631, *Isis* **93** (3) (2002), 435–453. Although Briggs died in 1630, he played a significant role in the navigational aspects of both Luke Foxe's and Thomas James's voyages in search of a northwest passage. The similarity of the techniques used in the competing missions shows how they shared a navigational culture. (GVB) #30.4.132

Nederpelt, Rob. See #30.4.102.

Němcová, Martina. *František, Josef Studnička, 1836–1903* [in Czech], Prague: Prometheus, 1998, 348+xix pp. Studnička made contributions to a variety of mathematical fields, including analysis, the theory of determinants, and quaternions. (GVB) #30.4.133

Otte, Michael. See #30.4.104.

Pambuccian, Victor V. See #30.4.17 and #30.4.189.

Parks, Harold R. See #30.4.106.

Parshin, A.N. Reflections on Gödel's Theorem [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **5** (40) (2000), 26–55. Some philosophical and methodological problems related to Gödel's incompleteness theorems are discussed. See the review by Roman Murawski in *Mathematical Reviews* **2003f**:03010. (JA) #30.4.134

Patricius, Franciscus. *Index Pancosmiae* [in Latin], *Dubrovnik* **8** (1–3) (1997), 152–178. Edited, amended, and translated into Croatian by Ivica Martinović. The subject index of Frane Petrić's *Pancosmia* (1591) includes basic geometrical notions and mathematical disciplines. (IM) #30.4.135

Paúl, Pedro J. Toeplitz [in Spanish], in Emilio Briales Morales, Alfonso Carriazo Rubio, Tomás Chacón Rebollo, Pedro Real Jurado, and Alvaro Romero Jiménez, eds., *Proceedings of the Meeting of Andalusian Mathematicians*, vol. I [in Spanish] (Seville: Univ. de Sevilla, 2001), pp. 211–230. The life and work of Otto Toeplitz (1883–1940) are described. He held chairs at Kiel and Bonn. After being removed by the Nazi regime in 1935 he obtained an appointment at the Hebrew University in Jerusalem. In addition to describing Toeplitz's main mathematical results, the author indicates further developments, in particular those made by the Seville group of functional analysts. There is an extensive bibliography. See the review by F. Smithies in *Mathematical Reviews* **2003e**:01036. (ACL) #30.4.136

Pechenkin, Alexander. The Concept of Self-Oscillations and the Rise of Synergetics Ideas in the Theory of Nonlinear Oscillations, *Studies in History and Philosophy of Modern Physics* **3** (2) (2002), 269–295. Shows how various historical developments related to self-oscillations arise out of a certain paradigm and ideology promoted by the Andronov–Mandelstam school. See the review by J.S. Joel in *Mathematical Reviews* **2003d**:34001. (CJ) #30.4.137

Peckhaus, Volker. See #30.4.177.

Phillips, Brian. David Vere-Jones's Influence on Statistical Education, *Journal of Applied Probability A* **38** (2001), 6–19. Vere-Jones's interests in mathematical and statistical education, stimulated in the early 1960s in Russia, grew in New Zealand in the 1970s and 1980s, and culminated in his pivotal role in the establishment of the International Association for Statistical Education. (GVB) #30.4.138

Pier, Jean-Paul. *Mathematical Analysis during the 20th Century*, New York: Oxford Univ. Press, 2001, x+428 pp. The introduction discusses the definition of analysis. Subsequent chapters cover the following topics: general topology (with a brief discussion of Abraham Robinson's non-standard analysis), integration and measure, functional analysis, harmonic analysis (von Neumann, Hardy, and Littlewood), Lie groups, theory of functions, ordinary and partial differential equations, differential

topology, probability, and algebraic geometry. The work is highly recommended by the reviewer, Brian L. Burrows, in *Mathematical Reviews* **2003e**:01028. (ACL) #30.4.139

Polyakova, T.S. Russian Paternalistic Traditions in Mathematics Education in the 18th Century and the First Half of the 19th Century, *Istoriko-Matematicheskie Issledovaniya* (2) **5** (40) (2000), 174–191. Both governmental and scholarly paternalism created favorable conditions for a productive mathematical educational state system of patronage; the scholarly traditions of patronage were established by Euler, S.E. Guryev, T.F. Osipovskii, and V.Ya. Bunyakovskii. (GVB) #30.4.140

Porubský, Štefan. See #30.4.19, #30.4.96, and #30.4.176.

Presas i Puig, Albert. *Praktische Geometrie und Kosmologie am Beispiel der Architektur* [Practical Geometry and Cosmology in the Example of Architecture], Munich: Institut für die Geschichte der Naturwissenschaften, 1998, 339 pp. This dissertation discusses certain cosmologies from ancient Egypt, from classical antiquity, and from the 15th century. Each of these cosmologies presuppose a world order based on proportion and numerical regularity. There is an extensive bibliography, but note the serious criticisms in the review by Jens Høyrup in *Mathematical Reviews* **2003f**:01069. (JA) #30.4.141

Pustovoitnov, N.A. The History of the Maxwell Problem in Control Theory [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **3** (38) (1998), 371–383. The problem of evaluating the stability of motion has had a rich history and been solved many times (in increasing generality) since it was posed in 1868 by Maxwell. (GVB) #30.4.142

Radloff, Ivo. Évariste Galois: Principles and Applications, *Historia Mathematica* **29** (2) (2002), 114–137. This paper aims to make the first, introductory, part of Galois's *Mémoire sur les Conditions de Résolubilité des Équations par Radicaux*, called *Principes*, understandable to the contemporary mathematician. It also surveys the second part concerning equations of prime degree, primitive equations, and the modular equation in the theory of elliptic functions. See the review by Massimo Galuzzi in *Mathematical Reviews* **2003e**:01021. (ACL) #30.4.143

Randrianantoanina, Beata. Norm-One Projections in Banach Spaces, *Taiwanese Journal of Mathematics* **5** (1) (2001), 35–95. The historical development of the theory is developed from the 1930s to the present; in addition, the paper contains proofs of main results, open problems, and a bibliography. (GVB) #30.4.144

Range, R. Michael. Extension Phenomena in Multidimensional Complex Analysis: Correction of the Historical Record, *Mathematical Intelligencer* **24** (2) (2002), 4–12. A detailed introduction to the major developments in multidimensional complex analysis beginning with F. Hartogs's theorem in 1906. The author claims that he has corrected major historical inaccuracies reported since the mid-1950s. Included are the overlooked pioneering articles by F. Severi (1931), H. Kneser (1936), and G. Fichera (1957) on Cauchy–Riemann functions. Appended is a bibliography that contains many original sources. (FA) #30.4.145

Rao, K. Chandrasekhara. See #30.4.30.

Rashed, Roshdi. *Les Mathématiques Infinitésimales du IXe au XIe Siècle. Vol. IV. Ibn al-Haytham: Méthodes Géométriques, Transformations Ponctuelles et Philosophie des Mathématiques* [Infinitesimal

Mathematics from the IXth to the XIth Century. Vol. IV. Ibn al-Haytham: Geometric Methods, Point Transformations and Philosophy of Mathematics], London: Al-Furqān Islamic Heritage Foundation, 2002, xiv+1064+viii pp. This is an Arabic edition, with French translation, of six texts on plane geometry by Ibn al-Haytham (ca. 965–1041). A substantial appendix includes texts and fragments by other medieval Islamic authors. See the detailed review by Jan P. Hogendijk in *Mathematical Reviews* **2003e**:01008. (ACL) #30.4.146

Rashed, Roshdi; and Biard, Joël, eds. *Les Doctrines de la Science de l'Antiquité à l'Âge Classique*, Leuven: Peeters Éditions, 1999, 277 pp. The 12 papers in this volume cover topics from the Greeks, medieval Islam, and the classical era. Some will be abstracted separately. (GVB) #30.4.147

Rashid, Salim. *See* #30.4.193.

Read, Stephen. *See* #30.4.11.

Reingold, Edward M.; and Dershowitz, Nachum. *Calendrical Calculations: The Millennium Edition*, Cambridge, UK: Cambridge Univ. Press, 2001, xxxii+423 pp. This second edition contains a number of corrections of errors, implementations of algorithms for conversion of the early Egyptian, Balinese, and several other calendars, revisions of the algorithms for several calendars, and a CD-ROM containing code for the algorithms in Lisp, Java, and Mathematica. (GVB) #30.4.148

Ren, Xin Xi. Berkeley and his Critique to the Early Calculus [in Chinese], *Journal of Northwest University* **32** (1) (2002), 101–104. Asserts that the critiques of the calculus in Berkeley's *Analyst* are correct and that it impelled the improvement of the foundations of the calculus. (GVB) #30.4.149

Reynolds, Andrew. *Peirce's Scientific Metaphysics. The Philosophy of Chance, Law, and Evolution*, Nashville: Vanderbilt Univ. Press, 2002, xii+228 pp. The author covers the scientific and philosophical background of Peirce's work, the influence of irreversibility in physics, Peirce's views on a parallel irreversibility in the mind, his views on physiology and evolution, his doctrine of cosmology and the origin of lawlikeness in the universe, and the details of how chance, according to Peirce, gives rise to law. In a review, *Mathematical Reviews* **2003e**:01022, Lawrence Sklar expresses skepticism that this account will convince contemporary analytic philosophers of the usefulness to them of Peirce's metaphysical views. (ACL) #30.4.150

Rivaud, Juan José. *See* #30.4.40.

Rivin, Igor. *See* #30.4.194.

Rockwood, Heidi. *See* #30.4.31.

Rodych, Victor. Wittgenstein on Gödel: The Newly Published Remarks, *Erkenntnis* **56** (2002), 379–397. This work continues the discussion over the extent to which Wittgenstein understood Gödel's first incompleteness theorem. See the review by John W. Dawson, Jr. in *Mathematical Reviews* **2003f**:03005. (JA) #30.4.151

Romaguera, Salvador. *See* #30.4.107.

Romano, Antonella. *Le Contre-Réforme Mathématique: Constitution et Diffusion d'une Culture Mathématique Jésuite à la Renaissance (1540–1640)*, Rome: École Française de Rome, 1999, xii+691 pp. This book on Jesuits, mathematics, and the Renaissance is divided into three parts: the question of mathematics in the early Company of Jesus and its colleges, from the Roman center to the French periphery (second half of the 16th century), and the time of professorships (first half of the 17th century). (GVB) #30.4.152

Rosický, Jiri. See #30.4.100.

Rössler, Otto E. See #30.4.1.

Rouxel, Bernard. See #30.4.113.

Rowe, David E. Einstein's Gravitational Field Equations and the Bianchi Identities, *Mathematical Intelligencer* **24** (4) 2002, 57–66. A wide ranging discussion of aspects of the early history of Einstein's General Theory of Relativity (GRT) and the importance in that history of the Bianchi identities. The author focuses on Einstein's equations, energy–momentum conservation, and Emmy Noether's results on identities derived from the classical Bianchi identities and from variational principles. Felix Klein's role during the period 1916–1919 is emphasized. (FA) #30.4.153

Ruitenbergh, Wim. See #30.4.59.

Sakai, Takashi. Curvature—Up to the 20th Century and Its Future [in Japanese], *Sūgaku* **54** (2002), 292–307. This paper is intended for beginners in global Riemannian geometry. It recounts some of the history (from 1840) of curvature and topology and “prospects” for the future of these subjects. See the review by Koichi Nagano in *Mathematical Reviews* **2003f**:53003. (JA) #30.4.154

Samoilenko, Anatoly M. Mykhailo Vasyl'ovych Ostrohrads'kyi, in A.G. Nikitin, V.M. Boyko, and R.O. Popovych, eds., *Symmetry in Nonlinear Mathematical Physics* (Kiev: Institut Matematiki), Part I, pp. 17–24. Ostrohrads'kyi, whose 200th birthday was observed in 2001, “laid the foundation for many areas in calculus, differential equations, and mathematical physics.” (GVB) #30.4.155

Sánchez Valencia, V. An Athenaeum Curiosity: De Morgan's Reviews of Boole and Jevon, *History and Philosophy of Logic* **22** (2) (2001), 75–79. De Morgan's reviews of Boole's and Jevon's works, reproduced here, appear to have gone unnoticed in the literature of the time. (GVB) #30.4.156

Śankaravarman. *Sadratnamālā of Śankaravarman* [in Sanskrit], edited and with an introduction in English by K.V. Sarma, *Indian Journal of History of Science* **36** (3–4) (2001), supplement, iv+58 pp. This critical edition of the Sanskrit astronomical manual is based on all of the available manuscripts. Written in 1819, this work contains some results that originated with the Mādhava school of the 15th and 16th centuries. See the review by Takao Hayashi in *Mathematical Reviews* **2003f**:01009. (JA) #30.4.157

Sarma, K.V. See #30.4.157.

Šarounová, Alena. Gothic Architecture and Geometry [in Czech], in #30.4.20, pp. 401–429. (GVB) #30.4.158

Šarounová, Alena. Gothic Windows [in Czech], in #30.4.20, pp. 431–445. (GVB) #30.4.159

Schappacher, Norbert. See #30.4.37.

Schatz, Michael F. See #30.4.31.

Schirmmacher, Arne. See #30.4.110.

Schlote, Karl-Heinz. See #30.4.129.

Schneider, Hans. See #30.4.129.

Schroeder-Heister, Peter. Resolution and the Origins of Structural Reasoning: Early Proof-Theoretic Ideas of Hertz and Gentzen, *Bulletin of Symbolic Logic* **8** (2) (2002), 246–265. Results relating to proof theory in the 1920s by Paul Hertz and Gerhard Gentzen are presented in modern notation. See the review by Reinhard Kahle in *Mathematical Reviews* **2003e**:03110. (ACL) #30.4.160

Schubring, Gert. Production Mathématique, Enseignement et Communication, *Revue d'Histoire des Mathématiques* **7** (2) (2001), 295–305. In a 1998 paper in the *Revue* (#27.1.24), Bruno Belhoste argued that the teaching of mathematics plays a vital role in the socialization and eventual constitution of mathematics. This note elaborates Belhoste's point "by generalizing, in particular, the notion of teaching as an element of communication inherent to all processes of production." (GVB) #30.4.161

Schwabik, Štefan. The Second Crisis in Mathematics or the Difficulty in Developing Differential and Integral Calculus [in Czech], in Jindřich Bečvář and Eduard Fuchs, eds., *Mathematics Throughout the Ages I*, Prague: Prometheus, 1998, pp. 7–60. A survey of the development of mathematical analysis from the 16th through the 19th centuries is presented. See the review by Pavel Kostyrko in *Mathematical Reviews* **2003f**:01020. (JA) #30.4.162

Scimemi, Benedetto. Gerolamo Cardano, Student in Padua, European Scientist [in Italian], *Lettera Matematica Pristem* **41** (2001), 46–47. One of four consecutive articles in this journal on the life and work of Gerolamo Cardano in honor of his 500th birthday. See also #30.4.34, #30.4.73, and #30.4.200. (GVB) #30.4.163

Scimone, Aldo. The First Two Hundred Years of the *Disquisitiones Arithmeticae* (1801–2001) [in Italian], *Lettera Matematica Pristem* **42** (2001), 47–58. Analyzes Gauss's work on binary quadratic forms and cyclotomy in its historical context. Poorly edited notation makes parts of the paper difficult to read. See the review by Alessandro Zaccagnini in *Mathematical Reviews* **2003d**:11002. (CJ) #30.4.164

Scriba, Christoph. See #30.4.29.

Segal, Jack. See #30.4.115.

Segal, S.L. See #30.4.53, #30.4.170, and #30.4.186.

Shapiro, Ilya. See #30.4.168.

Shaposhnikov, V.A. See #30.4.68.

Shea, William R. See #30.4.86 and #30.4.88.

Sheĭnin, O.B. On the Works of V.Ya. Bunyakovskii in Probability Theory [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **4** (39) (1999), 57–81. A translation from English of a paper which appeared in 1993 in *Archive for History of Exact Sciences*. (GVB) #30.4.165

Sheĭnin, O.B. See also #30.4.33.

Shell-Gellasch, Amy. Mina Rees and the Funding of the Mathematical Sciences, *American Mathematical Monthly* **109** (10) (2002), 873–889. Mina Rees, most widely known for her contributions to the development of computers in the 1950s, played a significant role in the funding of American mathematical research through her work with the Office of Naval Research between 1946 and 1953. (GVB) #30.4.166

Shen, Fuxing. See #30.4.71.

Shenitzer, Abe; and Stillwell, John, eds. *Mathematical Evolutions*, Washington, DC: Mathematical Association of America, 2002, 304 pp., \$37 (\$29.95 for MAA members). This collection of essays from the “The Evolution of...” column in the *American Mathematical Monthly* emphasizes ideas that are “classical” and date since 1800. (GVB) #30.4.167

Shifman, M. From Heisenberg to Supersymmetry, *Fortschritte der Physik* **50** (5–7) (2002), 552–561. The influence of Heisenberg’s book *Introduction to the Unified Field Theory of Elementary Particles* (1966) on D.V. Volkov and the discovery of supersymmetry is described. After an account of the concept of supersymmetry, the last section provides some historical information. See the review by Ilya Shapiro in *Mathematical Reviews* **2003e**:81183. (ACL) #30.4.168

Shin, Sun-Joo. *The Iconic Logic of Peirce’s Graphs*, Cambridge, MA: MIT Press, 2002, xii+208 pp. Most of this book provides “imaginative, rigorous, and extremely interesting” interpretations of Peirce’s graphic representation systems. The historical development of such systems is also discussed. See the review by James Gasser in *Mathematical Reviews* **2003f**:03002. (JA) #30.4.169

Shreiber, Peter. Ein Blick Zurück auf das 20. Jahrhundert [A Retrospective Look at the 20th Century], *NTM (N. S.)* **10** (1) (2002), 40–48. Points out, among other things, that mathematicians who make important discoveries often fail to understand the implications of their work and that computers may some day be seen as the most important development of 20th-century mathematics. See the review by S.L. Segal in *Mathematical Reviews* **2003d**:01028. (CJ) #30.4.170

Sigler, L.E. See #30.4.67.

Simões, Ana. See #30.4.74.

Simonov, R.A. Kirik’s “Teachings” is an Original Old Russian Work [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **4** (39) (1999), 25–56. A thorough textual analysis of the remarkable Russian manuscript, “Teaching . . .”, by the monk Kirik of Novgorod (AD 1136) leads the author of this paper to disassociate “Teaching . . .” from an 11th century Bulgarian work, now lost. See the review by Natali Hritonenko in *Mathematical Reviews* **2003f**:01014. (JA) #30.4.171

Simonov, R.A. New Material on the History of Mathematics in Old-Russia [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **5** (40) (2000), 244–271. This paper discusses three Old Russian

mathematical documents: one from the 14th century; the next from the end of the 15th and the start of the 16th century; and one from the early 18th century. The last shows the final form of the Old Russian letter-based numeric system. See the review by Natali Hritonenko in *Mathematical Reviews* **2003f**:01013. (JA) #30.4.172

Šiřma, Pavel. Arab Mathematics [in Czech], in #30.4.20, pp. 151–183. (GVB) #30.4.173

Škarica, Dario. Bošković's Analysis of Collision: A Methodological Aspect [in Croatian], *Prilozi za Istrařivanje Hrvatske Filozofske Bařtine* **27** (2001), 91–125. The author elucidates the role of the principle of continuity in Bošković's analysis of collision. (IM) #30.4.174

Škarica, Dario. Bošković's Metaphysical Proof of the Principle of Continuity [in Croatian], *Prilozi za Istrařivanje Hrvatske Filozofske Bařtine* **28** (2002), 179–205. The first part of the paper highlights the circumstances concerning the origin of Bošković's metaphysical proof of the principle of continuity, while in the second part the proof is subjected to criticism. The author demonstrates that it cannot be valid as an *a priori* proof. (IM) #30.4.175

Sklar, Lawrence. See #30.4.150.

Sklenáriková, Zita. On the History of Descriptive Geometry in Austria–Hungary [in Slovak], in Jindřich Bečvář and Eduard Fuchs, eds., *Mathematics Throughout the Ages, II* [in Czech], Prague: Prometheus, 2001, pp. 14–45. The author describes the development of descriptive-geometric oriented research and education in 18th and 19th century Austria–Hungary. It includes biographical accounts of František Tilšer (Tilscher), Rudolf Skuherský, Josef Schlesinger, Rudolf Němčık (Niemtschik), Rudolf Staudigl, Gustav A.V. Peschka, and Emil Koutný. See the review by Štefan Porubský in *Mathematical Reviews* **2003e**:01023. (ACL) #30.4.176

Smale, Steve. See #30.4.1.

Smith, Luella. See #30.4.3.

Smithies, F. See #30.4.42 and #30.4.136.

Spalt, Detlef D. Cauchys Kontinuum. Eine Historiografische Annäherung via Cauchys Summensatz [Cauchy's Continuum. A Historiographic Approach via the Cauchy Sum Theorem], *Archive for History of Exact Sciences* **56** (4) (2002), 285–338. This historical analysis of Cauchy's 1821 theorem concerning the convergence of a series of continuous functions interprets his proof within an understanding of the definitions and conceptions as given by Cauchy. The author contends that while previous commentators have deemed Cauchy's theorem to be false, this was a result of interpreting it within their own understanding of analysis. The author claims that within Cauchy's own framework both his statement and his proof are valid. See the review by Volker Peckhaus in *Mathematical Reviews* **2003e**:01024. (ACL) #30.4.177

Spearman, Blair K. See #30.4.32.

Spreij, Peter. The Itô Formula without Stochastic Integration, *Nieuw Archiv voor Wiskunde* (5) **3** (2002), 21–22. This short note describes Wolfgang Doeblin's discovery of an equivalent to what is now known as Itô calculus. Doeblin's work (1939–1940) was handwritten and presented to the Académie

des Sciences in Paris in a sealed envelope. See the review by Paul Embrechts in *Mathematical Reviews* **2003f**:60006. (JA) #30.4.178

Stillwell, John. *See* #30.4.167.

Stokić, Zoran. *Newton-Duhem Epistemology* [in Serbo-Croatian], Belgrade: Zadužbina Andrejević, 1998, 142 pp. This dissertation on Newton's *Principia* argues that Newton created not only an applicable physical theory, but also “a new metaparadigm of thinking, a powerful holistic method that replaced an as great metaparadigm of thinking in natural sciences as was Aristotle's.” (GVB) #30.4.179

Štoll, Ivan. Physics and Astronomy in the Middle Ages [in Czech], in #30.4.20, pp. 377–400. (GVB) #30.4.180

Strahm, Thomas. *See* #30.4.65.

Struik, Dirk. Centennial Lecture: Dirk Struik's Farewell [in Dutch], *Nieuw Archief voor Wiskunde* (5) **2** (3) (2001), 226–233. One of four consecutive articles in this journal on the life and work of Dirk Struik. This is the text of a lecture delivered by Struik at a symposium on the occasion of his 100th birthday. See also #30.4.4, #30.4.38, and #30.4.87. (GVB) #30.4.181

Takens, Floris. *See* #30.4.1.

Tasic, Vladimir. *Mathematics and the Roots of Postmodern Thought*, Oxford: Oxford Univ. Press, 2001, 192 pp., \$30. This essay traces the root of postmodern theory to early 20th-century debates on the foundations of mathematics. (GVB) #30.4.182

Thomson, Brian S. *See* #30.4.42.

Thrivikraman, T. *See* #30.4.95.

Thurston, Hugh. Greek Mathematical Astronomy Reconsidered, *Isis* **93** (1) (2002), 58–69. Surveys arguments that have been proposed in recent years for revising the traditional understanding of the history of Greek astronomy. See also #30.4.77. See the review by R. Nadal in *Mathematical Reviews* **2003d**:01007. (CJ) #30.4.183

Tieszen, Richard. *See* #30.4.189.

Tikhomirov, V.M. On Some Peculiarities of 20th Century Mathematics [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **3** (38) (1998), 178–197. Mathematical practice has changed dramatically in the past century, in terms of scale, extent of subject matter, and internationalization. This paper “examines the sources of mathematical creativity, mathematics and nature, civilian and military applications of mathematics, mathematics and philosophy, and the main mathematical problems of the XXth century.” (GVB) #30.4.184

Tikhomirov, V.M. From the “Constellation of the Demigods” (On the Centenary of the Birth of L.A. Lyusternik) [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **5** (40) (2000), 112–119. Lyusternik made important contributions to differential equations, topology, the calculus of variations, functional analysis, geometry, and computational mathematics. (GVB) #30.4.185

Tomić, M. Jovan Karamata (1902–1967), *Bulletin. Classe des Sciences Mathématiques et Naturelles. Sciences Mathématiques* **26** (2001), 1–30. Article celebrating the Serbian analyst Karamata. See the review by S.L. Segal in *Mathematical Reviews* **2003d**:01042. (CJ) #30.4.186

Toth, Imre. *Aristotle and the Axiomatic Foundations of Geometry* [in Italian], Milan: Vita e Pensiero / Centro di Ricerche di Metafisica, 1997, 701 pp. Puts forward the thesis that a precursor to Saccheri's quasi-non-Euclidean geometry was developed by mathematicians associated with Plato's Academy. Extensively reviewed by Jens Høyrup in *Mathematical Reviews* **2003d**:01008. (CJ) #30.4.187

Ueda, Yoshisuke. See #30.4.1.

Ul'rich, Peter. See #30.4.58.

Ungar, Š. See #30.4.115.

Utkin, Vadim I. First Stage of VSS: People and Events, in Xinghuo Yu and Jian-Xin Xu, eds., *Variable Structure Systems: Towards the 21st Century*, Berlin: Springer-Verlag, 2002, pp. 1–32. Presents the history of variable structure systems, which originated mostly in the Soviet Union, from the 1950s to the present. (GVB) #30.4.188

Vaienti, Sandro. See #30.4.72.

Van Atten, Mark; Van Dalen, Dirk; and Tieszen, Richard. Brouwer and Weyl: The Phenomenology and Mathematics of the Intuitive Continuum, *Philosophia Mathematica* **10** (2002), 203–226. “This is a comparative study of Weyl's and Brouwer's notions of the intuitive continuum, with particular emphasis on their differences with respect to choice sequences.” See the review by Victor V. Pambuccian in *Mathematical Reviews* **2003f**:01032. (JA) #30.4.189

Van Brummelen, Glen R. See #30.4.56.

Van Dalen, Dirk. See #30.4.189.

Van Dongen, Jeroen. Einstein and the Kaluza–Klein Particle, *Studies in History and Philosophy of Science. B. Studies in History and Philosophy of Modern Physics* **33** (2002), 185–210. This paper summarizes the work of Einstein on Kaluza's unified field theory that resulted in a “no-go” theorem of Einstein and Pauli (1943). Work on the Kaluza theory during the 1980s is also discussed. See the review by Jonathan Bain in *Mathematical Reviews* **2003f**:83002. (JA) #30.4.190

Veselý, Jiří. Remarks on the History of the Gamma Function [in Czech], in Jindřich Bečvář and Eduard Fuchs, eds., *Man—Art—Mathematics* [in Czech], Prague: Prometheus, 1996, pp. 49–71. The paper includes the history that led to the definition of Euler's form of the gamma function. See the review by Pavel Kostyrko in *Mathematical Reviews* **2003e**:01047. (ACL) #30.4.191

Wassell, Stephen R. Rediscovering a Family of Means, *Mathematical Intelligencer* **24** (2) (2002), 58–65. An examination of the history of the arithmetic, geometric, and harmonic means from the time of the early Greeks and a discussion of the author's independent discovery of a theoretical family of means. Applications to architecture and music are included. (FA) #30.4.192

Weintraub, E. Roy. *How Economics Became a Mathematical Science*, Durham, NC: Duke Univ. Press, 2002, xiv+314 pp. This book is addressed at what the author regards as the need for a history of mathematical economics. Modern economics began with Alfred Marshall, though he did not approve of the acceptance of mathematics as a part of the subject. Other significant people in the history include G.C. Evans, Gerard Debreu, Cecil Phipps, F.Y. Edgeworth, Vito Volterra, Vilfredo Pareto, and Giorgio Israel. In a substantial review of the work in *Mathematical Reviews* **2003e**:01029 Salim Rashid takes friendly exception to a number of the author's interpretations; for example, on how to understand Debreu, who is credited by the author with transmitting a Bourbaki influence into the field in the US. Much depends on how one views the status of measurement and observation vis-à-vis the formal developments of both economics and mathematics. (ACL) #30.4.193

Weissbach, Bernulf; and Martini, Horst. On the Chiral Archimedean Solids, *Beiträge zur Algebra und Geometrie* **43** (1) (2002), 121–133. This historical survey also includes a way to construct semiregular solids from the Platonic solids. See the review by Igor Rivin in *Mathematical Reviews* **2003e**:52018. (ACL) #30.4.194

White, Alvin M. See #30.4.83.

Wiesenfeld, Kurt. See #30.4.31.

Wiesław, Witold. The Last Years of Jan Śniadecki's Life in the Light of Correspondence [in Polish], *Roczniki Polskiego Towarzystwa Matematycznego. Seria II. Wiadomości Matematyczne* **37** (2001), 47–61. Excerpts from the correspondence of Jan Śniadecki (1756–1830) are given which reveal the interaction between scientific work and the organization of university education, particularly as it relates to mathematics and its role in general education. Included are photographs of Śniadecki's house and his nearby tomb. The reviewer, Jaroslav Zemánek, in *Mathematical Reviews* **2003e**:01040, calls attention to Śniadecki's popular book on Copernicus, which also exhibits his views on these topics. (ACL) #30.4.195

Williams, Kenneth S. See #30.4.32.

Wünsch, Volkmar. Christiaan Huygens und die Theorie der Wellenausbreitung [Christiaan Huygens and the Theory of Wave Propagation], *Akademie Gemeinnütziger Wissenschaften zur Erfurt. Sitzungsbericht der Mathematisch-Naturwissenschaftlichen Klasse* **9** (1997/1999), 77–95. In the first section of this paper the author gives an account of the life and work of Huygens (1629–1695) followed by a discussion of the development and influence of his work on wave propagation and diffraction through the 19th century. The second section describes some 20th-century results relating to Hadamard's principles and, more briefly, Maxwell's, Weyl's, and Einstein's equations and particles with arbitrary spin. See the review by Llewelyn G. Chambers in *Mathematical Reviews* **2003e**:01015. (ACL) #30.4.196

Wüstner, Michael. Historical Remarks on the Surjectivity of the Exponential Function of Lie Groups, *Historia Mathematica* **29** (2002), 266–272. A critical discussion of 1892 works by F. Engel and E. Study on the exponential map of classical Lie groups. (GVB) #30.4.197

Yandell, Benjamin. *The Honors Class: Hilbert's Problems and Their Solvers*, Washington, DC: Mathematical Association of America, 2002, 300 pp., \$39. This account deals with both mathematical substance and biographical aspects of the problems and those who solved them. (GVB) #30.4.198

Yor, Marc. See #30.4.41.

Yorker, James A. See #30.4.1.

Yusupova, G.È. See #30.4.127.

Zaccagnini, Alessandro. See #30.4.164.

Zaitsev, E.A. Latin Versions of Euclid's *Elements* and Hermeneutics in the 12th Century [in Russian], *Istoriko-Matematicheskie Issledovaniya* (2) **5** (40) (2000), 222–232. In this paper on peculiarities of these translations, “attention is drawn to the parallel between the appearance of proofs in geometry, the rediscovery of Aristotle's logic, and the birth of causal explanation (ad physicam) in natural philosophy.” (GVB) #30.4.199

Zanca, Attilio. On the Five-Hundredth Anniversary of the Birth of Gerolamo Cardano, Physician and Mathematician [in Italian], *Lettera Matematica Pristem* **41** (2001), 27–34. One of four consecutive articles in this journal on the life and work of Gerolamo Cardano in honor of his 500th birthday. See also #30.4.34, #30.4.73, and #30.4.163. (GVB) #30.4.200

Zemánek, Jaroslav. See #30.4.195.

Zerner, M. See #30.4.45.

Zhuravlev, Sergei G. See #30.4.8.

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