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.BINET or V5319E @ VM.TEMPLE.EDU)

Readers are invited to send reprints, autoabstracts, corrections, additions, and notices of publications that have been overlooked. Be sure to include complete bibliographic information, as well as transliteration and translation for non-European languages. We need volunteers willing to cover one or more journals for this department.

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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 Irving Anellis (Ames, IA), Thomas L. Bartlow (Villanova, PA), Catherine Goldstein (Paris), Albert C. Lewis (Hamilton), Ivica Martinović (Dubrovnik), and David E. Zitarelli.

ANELLIS, IRVING H. Book Review, *Modern Logic* 3(1993), 401–406. A review of Robert W. Burch, *A Peircean Reduction Thesis: The Foundation of Topological Logic*, Lubbock: Texas Tech Univ. Press, 1991. Charles Peirce's Reduction Thesis states that all polyadic relations with more than three terms can be reduced to a combination of monadic, dyadic, and triadic relations. The core of Burch's book presents a proof of a formalized version of the Thesis. The reviewer asks what relationship the Thesis has to the work of Tarski and his students on representable relation algebras and whether Burch's efforts contradict that work. (IA) #21.3.1

ANELLIS, IRVING H. Book Review, *Modern Logic* 4, No. 2 (1994), 210–218. A comparative review of two works on logic: Fania Cavaliere, *La logica formale in Unione Sovietica: Gli anni del dibattio, 1946–1965* [*Formal Logic and Dialectical Materialism in the Soviet Union: The Years of Debate, 1946–1965*], Florence: La Nuova Italia Editrice, 1990, 140 pp., lira 42,000, and A. R. D. Mathias, Logic and Terror, pp. 117–132 in *Jahrbuch 1990 der Kurt-Gödel-Gesellschaft*, Vienna: Kurt-Gödel-Gesellschaft, 1991. (IA) #21.3.2

ANELLIS, IRVING H. Book Review, *Modern Logic* 4, No. 2 (1994), 226–233. A review of three textbooks written in the former Soviet Union and a comparison of the way logic was taught there with the way

it is taught in the West. The textbooks, all in Russian, are Alexandra Getmanova, *Logic*, Moscow: Progress Publishers, 1989; A. Ivin, *The Laws of Logic*, Moscow: Molodaya Gvardia, 1983; and A. Getmanova, M. Panov, and V. Petrov, *Logic Made Simple: A Dictionary*, Moscow: Progress Publishers, 1990. (DEZ)   #21.3.3

ANELLIS, IRVING H. Editorial, *Modern Logic* 3(1993), 326–330. The year 1993 marked the centenary anniversary of the publication of Vol. 1 of Frege's *Grundgesetze der Arithmetik*. A brief sketch is given of the place of the *Grundgesetze* in Frege's work and the impact it has had in history of logic and for the philosophy of logic. (IA)   #21.3.4

ANELLIS, IRVING H. Grigori Mints on Proof Theory in the USSR, 1925–1969, *Modern Logic* 4, No. 2 (1994), 220–226. Biographical comments on Grigori Efroimovich Mints followed by a review of #21.3.61. (DEZ)   #21.3.5

ANELLIS, IRVING H. In Memoriam, *Modern Logic* 4, No. 1 (1994), 79–83. Memorial notices on the deaths of William Glenn Clark (p. 79), Alan H. Mekler (p. 79), John George Kemeny (p. 80), Max August Zorn (pp. 80–81), F. A. Medvedev (p. 81), Hiu Fai "Hilfrid" Chau (p. 81), Adolf Pavlovich Yushkevich (pp. 81–82), Friedrich Christian Simon Josef Kaulbach (pp. 82–83), and Paul Arthur Schilpp (p. 83.) (DEZ)   #21.3.6

ANELLIS, IRVING H. Memories of Medvedev—A Kind and Gentle Bear, *Modern Logic* 4, No. 2 (1994), 196–206. The author recounts his meeting with, and impressions of, the historian of mathematics Feodor Andreevich Medvedev (1923–1993). A list of some of Medvedev's publications is appended. (DEZ)   #21.3.7

ANELLIS, IRVING H. Translator's Introduction: Father Pavel Florenskij, *Modern Logic* 4, No. 2 (1994), 157–161. Introduction to the anonymous paper "P. A. Florenskij" by "N. N." *See also* #21.3.66. (IA)   #21.3.8

ANELLIS, IRVING H. *See also* #21.3.69.

ANGELLELLI, IGNACIO. Critical Remarks on Michael Dummett's *Frege and other Philosophers, Modern Logic* 3 (1993), 387–400. A review essay on Michael Dummett, *Frege and Other Philosophers*, Oxford: Clarendon Press, 1991, xiv + 330 pp. (IA)   #21.3.9

AUJAC, GERMAINE. *La sphère, instrument au service de la découverte du monde*, Caen: Varia, Paradigme, 1993, 379 pp. A reproduction of various essays and papers on ancient spherics and their applications, from Autolycus of Pitane to Sacrobosco. (CG)   #21.3.10

BAAS, NILS A. Sophus Lie, *The Mathematical Intelligencer* 16, No. 1 (1994), 16–19. A brief biography of Sophus Lie originally presented to the Royal Norwegian Academy of Sciences in 1992. (TLB)
                                      #21.3.11

BARNETT, J. F. *See* #21.3.56.

BAZHANOV, V. A. The History of Logic and "University" Philosophy in Russia: The View from Kazan, *Modern Logic* 4, No. 2 (1994), 109–147 [in Russian]. On the basis of investigations of archival materials, a picture is drawn of the conceptual and social history of "university" philosophy and logic in Russia (19th to mid-20th centuries.) The emphasis is placed on those features of Russian philosophy and logic which were characteristic of the philosophers and logicians of Kazan. (IA)   #21.3.12

BAZHANOV, V. A. The Imaginary Geometry of N. I. Lobachevsky and the Imaginary Logic of N. A. Vasiliev, *Modern Logic* 4, No. 2 (1994), 148–156. This article deals with conceptual parallels between N. I. Lobachevsky's and N. A. Vasiliev's ideas. The emphasis is placed on heuristic prompts connected with Lobachevsky's geometry which promoted the construction of imaginary logic by N. A. Vasiliev. (IA)   #21.3.13

BERNHARDT, JEAN. Empirisme rationnel et statut des universalia: Le problème de la théorie de la science chez Hobbes, *Revue d'Histoire des Sciences* **46**(1993), 131–152. Studies the relationships between Hobbes and the Aristotelian tradition and the Euclidean principles of the geometrical sciences. (CG)   #21.3.14

BERNHARDT, JEAN. La question du vide chez Hobbes, *Revue d'Histoire des Sciences* **46**(1993), 225–231. Traces the modification of Hobbes's opinion from a vacuist position to his adoption of a plenum theory. (CG)   #21.3.15

BKOUCHE, RUDOLF. Variations autour de la réforme de 1902–1905. Pp. 180–213 in #21.3.38. Explains the reform of the French Mathematical Society during 1902–1905 against the background of the empiricist tradition of the Lumières and analyzes the geometrical content of old and new textbooks. (CG)   #21.3.16

BORIA, VITTORIO. *Marin Mersenne: Educator of Scientists*, Ph.D. dissertation, The American University, 1989. Mersenne spent about 40 years promoting a greater interest in science. He also made contributions to music, number theory, functions, and physics. Thanks to his mediation, many scholars could communicate among themselves, sharing the results of their studies. Source: *Dissertation Abstracts International* A 51/05, p. 1538, Nov. 1990. (ACL)   #21.3.17

BOSCOVICH, RUGGIERO GIUSEPPE. *Lettere per una storia della scienza (1763–1786)*. Roma: A cura di Rita Tolomeo, Accademia Nazionale delle Scienze detta dei XL, Documenti Boscovichiani 3, 1991, 393 pp., paperback. "Prefazione" by Giovan Battista Marini-Bettòlo (pp. 3—6), "Introduzione" by Rita Tolomeo (pp. 7–56), commentary (pp. 327–358.) The first part contains 177 letters of Rugjer Bošković to his pupil Francesco Puccinelli in the period 1763–1786, the second part includes Bošković's correspondence regarding the proposal for his journey to California, particularly with James Douglas Morton and Joseph Xavier Liesganig (29 items from 1766–1767). The correspondence mentions numerous prominent mathematicians, as well as several Jesuit mathematicians and astronomers. (IM)
                                                                                                                                #21.3.18

BRACK-BERNSEN, LIS, AND SCHMIDT, OLAF. Bisectable Trapezia in Babylonian Mathematics, *Centaurus* **33**(1990), 1–38. "Brother problems" in ancient texts—dividing a field among brothers given certain conditions—are usually simple. The one in text AO 17264, however, turns out to be rather difficult. Full details of the text are given. (ACL)   #21.3.19

BURCH, ROBERT W. *See* #21.3.1.

CAVALIERE, FANIA. *See* #21.3.2.

CHORBACHI, WASMA'A KHALID. *Beyond the Symmetries of Islamic Geometric Patterns: The Science of Practical Geometry and the Process of Islamic Design*, Ph.D. dissertation, Harvard University, 1989. From the abstract: The survey of the literature reveals the methodology necessary for achieving a better understanding of Islamic geometric design and stresses the necessity for the use of a common scientific language of group theoretic symmetry notation in order to discuss and communicate about Islamic geometric pattern design in a precise manner. Source: *Dissertation Abstracts International* A 51/01, p. 4, July 1990. (ACL)   #21.3.20

CIFOLETTI, GIOVANNA CLEONICE. *La méthode de Fermat: Son statut et sa diffusion*, Cahiers d'Histoire et de Philosophie des Sciences, Paris: Belin, 1990–1991, 243 pp. Analysis of the method of Fermat for finding tangents and searching for extrema. The historical context and the notion of method, the variants in the formulation, and the transformations brought about during its diffusion (Herigone, Huygens) are studied. (CG)   #21.3.21

CORRY, LEO. Estructuras algebraicas y textos algebraicos del siglo XIX, *LLULL* **14**, No. 126 (1991), 7–30. The author analyzes the content of some of the more widely used algebra textbooks in France and Germany at the turn of the century. Special attention is given to Heinrich Webster's *Lehrbuch*

der Algebra (1895) and B. L. van der Waerden's *Moderne Algebra* (1930.) Reviewed by Josep Pla I Carrera in *Modern Logic* 3(1993), 407. (IA)   #21.3.22

COTTE, MICHEL. L'approche mathématique du pont suspendu chez Marc Seguin, 1822–1826, *Revue d'Histoire des Sciences* 46(1993), 233–257. An examination of Seguin's papers shows that he had at first developed an efficient mathematical model for the prediction of the behavior of suspension cables independent of the Navier analytical theory. Includes comments on the status of mathematics in early industrial France. (CG)   #21.3.23

DATHE, UWE. Freges Weg vom Logizismus zum Versuch einer Geometrischen Grundlegung der Arithmetik, *Modern Logic* 3(1993), 336–344. The author traces the development of Gottlob Frege's views on the foundations of arithmetic from the conception of logicism to the attempt to lay geometrical foundations for arithmetic. He also discusses the philosophical sources of mathematics, especially in the works of Bruno Bauch and Richard Hönigswald. (DEZ)   #21.3.24

DAUBEN, JOSEPH W. Essay Review, *Historia Mathematica* 20(1993), 437–446. A review of Jean-Claude Martzloff, *Histoire des mathématiques chinoises*, Paris: Masson, 1988, 375 pp. The reviewer praises the author for writing a history of Chinese mathematics in which the emphasis is on context first and content second. "Readers may actually begin to appreciate the true value of what Chinese mathematics accomplished." (DEZ)   #21.3.25

DIJK, GERT VAN. Thomas Joannes Stieltjes: Honorary Doctor of Leiden University, *The Mathematical Intelligencer* 16, No. 1 (1994), 52–53. A brief account of Stieltjes' life includes photographs, a street sign commemorating him in Leiden, and his gravestone in Toulouse. (TLB)   #21.3.26

DILLER, ANTONI. Is the Concept *Horse* an Object?, *Modern Logic* 3(1993), 345–366. Philosophical discussion of linguistic considerations from Frege's "Uber Begriff und Gegenstand" arising from Frege's treatment in the *Grundgesetze* of defining numbers in terms of "falling under a concept." (IA)   #21.3.27

DOLNIKOWSKI, EDITH WILKS. *Thomas Bradwardine's View of Time: A Study of The Interrelationship of Natural Philosophy and Theology in the Fourteenth Century*, Ph.D. dissertation, Michigan State University, 1990. This dissertation examines the extent to which Bradwardine's expertise in natural philosophy influenced his theological outlook, as expressed in *De causa Dei*, by considering his view of time as a mathematical, philosophical, and theological concept. It reveals that Bradwardine employed the conventional Augustinian–Boethian distinction between the temporal existence of created being and the eternal timelessness of God to justify those controversial positions on predestination, grace, and free will which have led to a major historiographical debate about the true direction of his theology. Source: *Dissertation Abstracts International* A 51/09, p. 3185, March 1991. (ACL)   #21.3.28

DUMMETT, MICHAEL. *See* #21.3.9.

EDNEY, MATTHEW HENRY. *Mapping and Empire: British Trigonometrical Surveys in India and the European Concept of Systematic Survey, 1799–1843*, Ph.D. dissertation, The University of Wisconsin at Madison, 1990. From the abstract: The Great Trigonometrical Survey of India, under William Lambton (1799–1823) and George Everest (1823–1843), is examined to understand the cultural, social, political, and personal motivations of modern systematic surveys. The Survey's geodetic work was supported as much for the cultural benefit of refining Newton's theories (and so reinforcing basic Enlightenment philosophy) as for the social benefits of patronage of the arts and sciences. The belief that cartography is a progressive science is a construct of modernity and is therefore questionable. Source: *Dissertation Abstracts International* A 51/05, p. 1725, Nov. 1990. (ACL)   #21.3.29

EL-DALLAI, AHMAD SALIM. *The Astronomical Work of Sadr Al-Shariᶜah: An Islamic Response To Greek Astronomy*, Ph.D. dissertation, Columbia University, 1990. This dissertation explores the astronomical work of the 14th-century Bukharan astronomer ᶜUbayd Allah b. ᶜud Sadr al-Shari ᶜah al-Thānī (d. 1347 AD), a religious scholar who produced several renowned works. His only work on

astronomy is in the tradition of an ongoing original astronomical research aimed at reforming Ptolemaic astronomy. Sadr al-Shari ᶜah's knowledge of, and competence in, diverse disciplines is an example of the state of education and level of scholarship in a 14th-century Muslim urban setting. Source: *Dissertation Abstracts International* A 52/02, p. 661, August 1991. (ACL) #21.3.30

FAUVEL, JOHN. Book Review, *Centaurus* 33(1992), 281–283. A review of *Facets of Seventeenth Century Mathematics in the Netherlands* by J. A. van Maanen. (ACL) #21.3.31

FERREIRÓS, JOSÉ. On the Relations between Georg Cantor and Richard Dedekind, *Historia Mathematica* 20(1993), 343–363. An analysis of the correspondence and the personal meetings between Georg Cantor and Richard Dedekind. The article examines their respective approaches to set theory prior to their first encounter, then considers possible interchanges of ideas on six subsequent meetings. The author concludes that "contrary to the commonly accepted view, they did not enjoy a strong collaboration . . . [and] the 19th century ended with two rather different set theories." (DEZ) #21.3.32

FREGE, GOTTLOB. Letter to Bertrand Russell, 22 June 1902, *Modern Logic* 3(1993), 334–335. A photographic reproduction of Frege's letter to Russell in which Frege responds to Russell's famous letter of 6 June 1902 informing Frege that he has found a contradiction in the *Grundgesetze der Arithmetik*. (IA) #21.3.33

FULLER, A. T. *See #21.3.56.*

GABRIEL, GOTTFRIED. Fictional Objects? A "Fregean" Response to Terrence Parsons, *Modern Logic* 3(1993), 367–375. A philosophical consideration of Terrence Parsons' treatment of fictional arguments from the Fregean standpoint. (IA) #21.3.34

GARRISON, JAMES WESLEY. *Geometry as a Source of Theory-Ladenness in Early Modern Physics*, Ph.D. dissertation, The Florida State University, 1981. The author fixes the source of the geometric influence on early modern physics in Book 5 of Euclid's *Elements*, where the Eudoxian theory of proportion is developed for magnitudes in general. He argues that it is the concept of magnitude in general that develops into the concept of physical magnitude or physical variable. The geometrical method of analysis works backward from that which is already known and was generalized by simply introducing variables for unknowns in solving equations. The method may be further generalized to become the core of the experimental method, where the known quantities become the independent variables and the unknowns the dependent. The work of Nicole Oresme, Galileo Galilei, René Descartes, and Isaac Newton is examined. Source: *Dissertation Abstracts International* A 42/10, p. 4558, April 1982, (ACL) #21.3.35

GERDES, PAULUS. *L'ethnomathématique comme nouveau domaine de recherche en Afrique*, Institut supérieur de pedagogie Mozambique, 1993, 85 pp. The author explains what ethnomathematics is and how it should be used in training teachers, with various detailed examples. The book includes an important bibliography, and theoretical as well as practical reflections. (CG) #21.3.36

GETMANOVA, ALEXANDRA. *See #21.3.3*

GILAIN, CHRISTIAN. La théorie qualitative de Poincaré et le problème de l'intégration des équations différentielles. Pp. 215–242 in #21.3.38. On Poincaré's memoir "Sur les courbes" published between 1881 and 1886. The author analyzes the content and the history of this long paper, which proposes a qualitative theory of differential equations and articulates it with problems that seem to occur in the analytical work of Poincaré during the same period. (CG) #21.3.37

GISPERT, HÉLÈNE. *La France Mathématique. La Societé Mathématique de France (1870–1914)*, Cahiers d'Histoire et de Philosophie des Sciences, Paris: Belin, 1991, 423 pp. A study of the first years of the French Mathematical Society. Papers by R. Bkouche, C. Gilain, C. Houzel, J. P. Kahane, and M. Zerner are abstracted separately. *See #20.1.37.* (CG) #21.3.38

GRAY, JEREMY. Green and Green's Functions, *The Mathematical Intelligencer* **16**, No. 1 (1994), 45–47. This article gives a short account of the life of George Green and the gradual acceptance of Green's Theorem and Green's functions. (TLB) #21.3.39

HALLYN, F. La troisième loi de Kepler et la psychologie de la découverte, *Archives Internationales d'histoire des sciences* **43**(1993), 131. A recent experiment in which students deduced the law from some numerical data has been used as an explanation for Kepler's discovery. The author criticizes this misconception of the historical production of science. (CG) #21.3.40

HAWKINS, BENJAMIN S., JR. Pierce and Frege: A Question Unanswered, *Modern Logic* **3**(1993), 376–383. Collects and examines the evidence, much of it largely circumstantial, on the question of whether Charles Peirce and Gottlob Frege knew of each other's work in logic. (IA) #21.3.41

HAYASHI, T., KUSUBA, T., AND YANO, M. The Correction of the Mādhava Series for the Circumference of a Circle, *Centaurus* **33**(1990), 149–174. This paper examines the two theories proposed thus far on the derivation of the correction of Mādhava's series (ca. 1400) for the circumference of a circle, and gives a new one. (ACL) #21.3.42

HOUZEL, CHRISTIAN. Aux origines de la géométrie algébrique: Les travaux de Picard sur les surfaces (1884–1905). Pp. 243–276 in #21.3.38. Picard developed a transcendental theory of surfaces using integrals of algebraic functions in two variables. His point of view is an extension of Riemann's in the case of curves. A detailed analysis of his main papers is provided. (CG) #21.3.43

HØYRUP, JENS. On Parts of Parts and Ascending Continued Fractions: An Investigation of the Origins and Spread of a Peculiar System, *Centaurus* **33**(1990), 293–324. Two ways of denoting fractional numbers occur as a standard idiom in Arabic mathematics: multiplicative parts (parts of parts) and multiplicative–additive parts (ascending continued fractions.) The methods, however, are to be found in a number of cultures and epochs—Babylonian, medieval European, ancient Greek and Egyptian—and raise the question of interdependence versus independent development by accident. (ACL) #21.3.44

HUYLEBROUCK, D. Captain Mangin-Bocquet's Contribution to Mathematics, *The Mathematical Intelligencer* **16** No. 1 (1994), 8–9. This article quotes French newspapers on the triple murder committed in 1917 by French mathematician Andre Bloch. Captain Mangin-Bocquet was one of those who treated Bloch for mental illness. (TLB) #21.3.45

IBRAGIMOV, NAIL H. Sophus Lie and Harmony in Mathematical Physics, on the 150th Anniversary of His Birth, *The Mathematical Intelligencer* **16** No. 1 (1994), 20–28. This article discusses several ways of using Lie's application of group theory to differential equations in mathematical physics. (TLB) #21.3.46

IVIN, A. *See* #21.3.3.

JESSEP, DOUGLAS M. Of Analytics and Indivisibles: Hobbes on the Method of Modern Mathematics, *Revue d'Histoire des Sciences* **46**(1993), 153–193. Examines Hobbes's reaction to the analytic geometry of Descartes (which he rejected) and to the method of indivisibles (which he accepted as Cavalieri presented it but rejected in Wallis's form). (CG) #21.3.47

JOHNSTON, STEPHEN. Iberia in the Golden Age: Mathematical Sciences and Their Uses, 1500–1700, *BSHS Newsletter* **41**(1993), 16–18. A report of a meeting supported by the British Society for the History of Science, held at Imperial College in London (March 31–April 3, 1993), on mathematics in Spain, Portugal, and their colonies during the 16th and 17th centuries. (IM) #21.3.48

KAHANE, JEAN-PIERRE. Séries de Fourier, Séries de Taylor, Séries de Dirichlet: Un aperçu de l'importance des travaux des mathématiciens français dans la période 1880–1910. Pp. 277–297 in #21.3.38. The period 1880–1910 witnessed a spectacular development of analysis: the representation of functions by series of various types, problems of convergence, measure, applications of analysis to number

theory, etc. This paper explains the main contributions of French mathematicians in these domains. (CG)   #21.3.49

KHEIRANDISH, ELAHEH. *The Medieval Arabic Tradition of Euclid's "Optika,"* dissertation for the doctorate at Harvard University, 1991, 831 pp. Advisor: A. I. Sabra. From the abstract: A critical edition and English translation of an early (9th-century) Arabic version of Euclid's *Optika,* with a historical commentary. It is supplemented by a new edition of Tusi's later (13th-century) recension, as well as a full or partial presentation of a number of mostly unknown related Arabic (and Persian) texts from both periods, all of which are discussed as part of a medieval Arabic tradition in Euclidean optics. The early Arabic text is demonstrated to be linked to both the widely circulated Greco-Latin version of Euclid's text and to the important and influential *Kitab al-Manazir* of Ibn al-Haytham. The medieval Arabic Euclidean tradition is shown to have a notable position in the changing orientation of the discipline, from an emphasis on subjective elements in vision to involving objective elements of the measured world. Dissertation Abstracts Order No: AAC 9131973. (ACL)   #21.3.50

KUSHNER, BORIS A. Memories of Mech.–Math. in the 'Sixties, Inspired by Uspensky's *JSL* Article on Kolmogorov's Work in Logic, *Modern Logic* **4,** No. 2(1994), 165–195. The author shares his memories and impressions of the logicians at Moscow State University's Department of Mechanics and Mathematics. The article complements the significant paper: V. A. Uspensky, Kolmogorov and Mathematical Logic, *Journal of Symbolic Logic* **57**(1992), 385–412. (IA)   #21.3.51

KUSUBA, T. *See* #21.3.42.

LATTIS, JAMES M. *Christopher Clavius and the "Sphere of Sacrobosco": The Roots of Jesuit Astronomy on the Eve of the Copernican Revolution,* Ph.D. dissertation, The University Of Wisconsin at Madison, 1989. This dissertation examines Christopher Clavius's *Commentary* on the *Sphere of Sacrobosco,* a textbook on astronomy published between 1570 and 1618. It argues that in the late 16th century, Ptolemaic cosmology was seen by its defenders as a complete, coherent, and mathematical view of the cosmos—simultaneously integrating the observed astronomical phenomena with Aristotelian physics and the testimony of sacred writings. This analysis also presents Clavius's response to the claims of natural philosophers and skeptics that mathematical astronomy was incapable of yielding certainty about the nature of the heavens. Source: *Dissertation Abstracts International* A 51/01, p. 273, July 1990. (ACL)   #21.3.52

LENNEY, STEPHEN PAUL. *G. F. B. Riemann and Fourier Series,* dissertation for the doctorate at Illinois State University, 1991, 117 pp. Advisor: Arnold J. Insel. Few undergraduates have ever read an original paper by a famous mathematician or learned of the historical or scientific context in which the mathematics evolved. In an attempt to rectify this situation on a small scale, the author prepared a self-study module that describes the origin of Fourier series in the solution of the vibrating string problem and problems of heat diffusion, gives a brief biography of Riemann, provides an annotated study guide to a portion of a paper by Riemann on Fourier analysis and the Riemann integral, and describes events in Fourier theory after Riemann with special emphasis on the Gibbs phenomenon and an application to signal processing. The module was field tested and the results support the claim that a student who has taken an undergraduate real analysis course will have sufficient background to complete the module successfully. Dissertation Abstracts Order No: AAC 9203031. (ACL)
#21.3.53

LUČIĆ, JOSIP (Ed.) *Liber statutorum doane Ragusii MCCLXXVII,* Dubrovnik: Historijski arhiv, 1989, 155 pp., hardcover. Transcribed and translated by Josip Lučić. Bilingual Latin–Croatian edition of the Customs Statute-Book of the Republic of Dubrovnik from 1277, accompanied by "Index personarum, materiae et locorum" by Milica Lučić (pp. 79–87), and a facsimile of the codex (pp. 89–143.) It contains precepts, an oath, sanctions, examinations, and definitions regarding measurement in 13th-century Dubrovnik. Various measures mentioned in the codex are explained in the special list on p. 9. (IM)   #21.3.54

LÜTZEN, JESPER. Book Review, *Centaurus* **32**(1989), 344–347. A review of *The Higher Calculus: A History of Real and Complex Analysis from Euler to Weierstrass* by Umberto Bottazzini. "This book is the best on the market on the history of analysis of the late 18th and the 19th centuries." (ACL)
#21.3.55

LYAPUNOV, A. M. *The General Problem of the Stability of Motion*, transl. A. T. Fuller, Bristol, PA: Taylor & Francis, 270 pp., $65. An English translation of Lyapunov's classical monograph of 1892. The work contains a biography of Lyapunov by V. I. Smirnov and a bibliography by J. F. Barnett. *Science* called Lyapunov "the father of nonlinear stability theory." (DEZ)
#21.3.56

MACDONNELL, JOSEPH. *Jesuit Geometers: A Study of Fifty-Six Prominent Jesuit Geometers During the First Two Centuries of Jesuit History*, St. Louis: The Institute of Jesuit Sources; Vatican City: The Vatican Observatory, 1989, 80 + 19 (appendices) + 6 (index) pp. This work focuses on instruments, research results in different branches of geometry, influences on other geometers, and attitudes toward teaching geometry. There are three appendices: "56 Prominent Jesuit Geometers," "Other Jesuit Geometers," and "Comparative Chronological Tables of Historical Events." Prominent scholars in Europe include Rugjer Josip Bošković, Christopher Clavius, Francesco Maria Grimaldi, Paul Guldin, Athanasius Kircher, Ignace Gaston Pardies, Andrea Pozzo, Vincenzo Riccati, Alphonse-Antoine de Sarasa, Girolamo Saccheri, Christopher Scheiner, and Gregory St. Vincent. Jesuit geometers in China include Matteo Ricci, Giacomo Rho, Johann Schall von Bell, and Ferdinand Verbiest. (IM)
#21.3.57

MALET, ANTONI. *Studies on James Gregorie (1638–1675)*, Ph.D. dissertation, Princeton University, 1989. This dissertation suggests that the contributions of James Gregorie, Isaac Barrow, and Isaac Newton are more closely related to one another than is usually acknowledged. By focusing on the origins of the notion of geometrical optical image, the author argues that Gregorie, Barrow, and Newton produced a methodological revolution in geometrical optics, that Gregorie's work is a counter-example to the standard thesis that geometry and algebra were opposed forces in 17th-century mathematics, and that Gregorie and Newton were idiosyncratic in their rejection of indivisibles. Research on the manuscripts of James Gregorie and David Gregory shows that David's *Geometria practica* is actually James's, and that David's optical book heavily borrows from James's optical manuscript. Source: *Dissertation Abstracts International* A 50/10, p. 3342, April 1990. (ACL)
#21.3.58

MANCUSO, PAOLO, AND VAILATI, EZIO. Detleff Clüver: An Early Opponent of the Leibnizian Differential Calculus, *Centaurus* **33**(1990), 325–344. Leibniz recognized Clüver as one of the main opponents of his differential calculus. This account is based on unpublished correspondence between Clüver and Leibniz. (ACL)
#21.3.59

MARTINOVIĆ, IVICA. Bošković's Unrealized Theory of Infinitesimals: Between Framework of the Theory and Application of the Method, *Filozofska istraživanja* **13**(1993), 453–474. Discusses four components in the mathematical work of Rugjer Bošković: impulses from the applied sciences, the basic idea and the short content of his theory of infinitesimals, problems he solved with the help of his infinitesimal methods, and problems he induced to evaluate the "power" and "elegance" of his infinitesimal methods. (IM)
#21.3.60

MARTZLOFF, JEAN-CLAUDE. *See* #21.3.25.

MATHIAS, A. R. D. *See* #21.3.2.

MINTS, GRIGORI. Proof Theory in the USSR 1925–1969, *Journal of Symbolic Logic* **56**(1991), 385–424. Reviewed in #21.3.5. (IA)
#21.3.61

MOHAMED, MOHINI. *The Lives and Contributions of Selected Non-Western Mathematicians During the Islamic Medieval Civilization*, Ed.D. dissertation, Temple University, 1990. This work presents material for teaching the history of mathematics and for teaching mathematics in a classroom using a historical approach based on the work of the Islamic mathematicians Al-Khowarizmi, Abu Jaafar

Muhammad Ibn Musa; Ibn al-Haytham, Abu Ali-Al-Hassan Ibn Al-Hassan; Al-Biruni, Abu Rayhan Muhammad Ibn Ahmad; Al-Khayyami (or Khayyam), Ghiyath al-Din Abul-Fath Umar; and Al-Tusi, Muhammad Ibn Muhammad Ibn Al-Hassan. Source: *Dissertation Abstracts International* A 51/03, p. 776, Sep. 1990. (ACL) #21.3.62

MONNA, A. F. Oswald Veblen, *The Mathematical Intelligencer* **16,** No. 1 (1994), 50–51. Monna tells of his discovery of the region in Norway from which Oswald Veblen's ancestors emigrated to the United States. (TLB) #21.3.63

MOONEY, JOHN. Colin Maclaurin and Glendaruel, *The Mathematical Intelligencer* **16,** No. 1 (1994), 48–49. This article describes a plaque in the church of Glendaruel commemorating Colin Maclaurin, his brother John and his father, also John, who was minister of the church when Colin was born. The surrounding countryside is also described. (TLB) #21.3.64

MORSE, JOANN STEPHANIE. *The Reception of Diophantus' "Arithmetic" in the Renaissance,* Ph.D. dissertation, Princeton University, 1981. From the abstract: Regiomontanus' adaptation of the humanist program to mathematical studies led to the identification of the *Arithmetic* with algebra, and Diophantus became the ancient authority supporting the transformation of a vulgar art into a theoretical discipline. Bombelli and Viète effected reforms of algebra "in imitation of Diophantus." Xylander's translation and commentary was designed to begin a process of emendation and elaboration in which the mysteries of the text would be slowly revealed by future scholars. Bachet rejected that cooperative effort in favor of a definitive, historical edition. Bachet inadvertently undermined the humanist project by showing the classical origins of algebra to be inadequate to the mathematics of his day. Source: *Dissertation Abstracts International* A 42/07, p. 3278, Jan. 1982. (ACL) #21.3.65

N., N. P. A. FLORENSKIJ, *Modern Logic* **4,** No. 2 (1994), 162–164. A brief biographical sketch and an account of the martyrdom of the Moscow mathematician Father Pavel Aleksandrovich Florenskij by an anonymous author. See #21.3.8. (IA) #21.3.66

NEUENSCHWANDER, ERWIN. Der Nachlass von Erich Bessel-Hagen im Archiv der Universität Bonn, *Historia Mathematica* **20**(1993), 382–414. An overview of the life and mathematical career of Erich Bessel-Hagen (1898–1946) that presents his scientific merits and a list of his publications. Included are unpublished works of Bessel-Hagen and material from the estates of F. Hausdorff, F. London, O. Toeplitz, and F. Klein. (DEZ) #21.3.67

NOEL, LINDA HAND. *The Fundamental Theorem of Algebra: A Survey of History and Proofs,* dissertation for the doctorate at Oklahoma State University, 1991, 202 pp. Advisor: Alan Noell. This work details the history of the fundamental theorem of algebra. It gives biographical information on mathematicians whose work led to the proofs and provides proofs based on different branches of mathematics: Galois Theory, the Cauchy–Riemann equations, and the fundamental group of the circle. Dissertation Abstracts Order No: AAC 9220574. (ACL) #21.3.68

PANOV, M. *See* #21.3.3.

PENNINO, LUCIANO. *La logica simbolica nella produzione scientifica in lingua russa (1961–1983),* Rome/Naples: Collona di Logica Universale e Filosofia, 1990. See the review by Irving H. Anellis in *Modern Logic* **4,** No. 2 (1994), 218–219. (DEZ) #21.3.69

PETROV, V. *See* #21.3.3.

PLATO, JAN VON. Oresme's Proof of the Density of Rotations of a Circle through an Irrational Angle, *Historia Mathematica* **20**(1993), 428–433. A detailed study of Nicole Oresme's proof of a result on uniform circular motion. It concludes that Oresme possessed all the arguments needed for the proof to be conclusive. (DEZ) #21.3.70

POOL, JAMES C. T. James Wallace Givens, Jr., 1910–1993, *Notices of the American Mathematical Society* **41**(1994), 29–30. Obituary of James W. Givens. Numerical analysts study Givens rotations, which are matrices that arise in eigenvalue computations. (DEZ) #21.3.71

PRINS, JAN. Ward's Polemic with Hobbes on the Sources of His Optical Theories, *Revue d'Histoire des Sciences* **46**(1993), 195–223. Ward denied Hobbes's self-asserted originality on modern optics and accused him of plagiarizing Warner. The author suggests that this was not the case. (CG)   #21.3.72

RISKIN, ADRIAN. Copyrights and Wrongs, *The Mathematical Intelligencer* **16**, No. 1 (1994), 6–7. This opinion piece urges mathematicians to begin relying on electronic journals to share research results. It includes a very brief indication of the history of mathematics journals. (TLB)   #21.3.73

ROMANO, ANTONELLA. A propos des mathématiques jésuites: Notes et réflexions sur l'ouvrage d'Albert Krayer, *Mathematik im Studienplan der Jesuiten, Revue d'Histoire des Sciences* **46**(1993), 281–292. Essay review of the book *Mathematik im Studienplan der Jesuiten* by Albert Krayer. Sums up recent researches on themes related to local variations in Jesuit training in mathematics. (CG)
                                                                                          #21.3.74

ROMANO, DAVID GILMAN. *Athletics and Mathematics in Archaic Corinth,* Philadelphia: American Philosophical Society, 1993. This book deals with the literary, historical, epigraphical, and archaeological evidence which reveals the origin of the Greek Stadium in the 6th century B.C. It won the John Frederick Lewis Award as the best book published by the APS in 1993. (DEZ)   #21.3.75

ROWE, DAVID, E. *Felix Klein, David Hilbert, and the Göttingen Mathematical Tradition,* dissertation for the doctorate at City University of New York, 1992, 667 pp. Advisor: Joseph W. Dauben. From the abstract: Felix Klein (1849–1925) and David Hilbert (1862–1943) made Göttingen the preeminent mathematical center in the world. The present study focuses on Klein's development as a mathematician, the background to his Erlanger Programm of 1872, the role of "Anschauung" in his work on Riemann surfaces, and his principal achievements in function theory. Also included is a study of Klein's influence on the nascent research community in the United States, his participation at the 1893 Chicago Mathematical Congress, and his Evanston Colloquium lectures. Next the dissertation takes up Hilbert's early career, his partnership with Klein, and his early work on foundations, beginning with the *Grundlagen der Geometrie* of 1899 and the Paris lecture, "Mathematische Probleme." Hilbert and Klein shared a belief in mathematics as a part of human culture, a commitment that formed the basis of their alliance in Göttingen. A major goal of the present study is to place their Weltanschauungen in historical context and to suggest how these ideas shaped the modern Göttingen mathematical tradition. Dissertation Abstracts Order No: AAC 9224851. (ACL)   #21.3.76

SAGENG, ERIK LARS. *Colin Maclaurin and the Foundations of the Method of Fluxions,* Ph.D. dissertation, Princeton University, 1989. Maclaurin's motivations are investigated, and found in his views of the nature of mathematics and its role in natural philosophy and religion, and in his version of the history of mathematics. The author discusses the persistence of a system of foundations which had been shown by Berkeley to be faulty, when a system which met Berkeley's challenge was available. He suggests that the appeal of the older system lies in the powerful intuitive sense of what an instantaneous velocity is, based on empirical experience with objects in motion, and on the traditional framework for the discussion of instantaneous velocity. Source: *Dissertation Abstracts International* A 50–10, p. 3342, April 1990. (ACL)   #21.3.77

SARAIVA, LUIS MANUEL RIBEIRO. On the First History of Portuguese Mathematics, *Historia Mathematica* **20**(1993), 415–427. An examination of the works of F. de B. Garção Stockler (1759–1829), including a discussion of Stockler's book on the origins and development of mathematics in Portugal. This is the first known book on the history of mathematics in a particular country written in Western Europe. Jean Etienne Montucla's influence on Stockler is examined. (DEZ)   #21.3.78

SCHMIDT, OLAF. *See #21.3.19.*

SHER, R. B. Max Dehn and Black Mountain College, *The Mathematical Intelligencer* **16**, No. 1 (1994), 54–55. This article gives a short account of the progressive Black Mountain College and Max Dehn's association with it. There is a photograph of the marker for Dehn's grave and directions for finding it. (TLB)   #21.3.79

SHUB, MICHAEL. Mysteries of Mathematics and Computation, *The Mathematical Intelligencer* **16,** No. 1 (1994), 10–15. In an article primarily about the relation of theory and practice in computing the question of when John von Neumann knew of Alan Turing's Universal Machine is discussed. (TLB)

#21.3.80

SIEGMUND-SCHULTZE, REINHARD. Hilda Geiringer-von Mises, Charlier Series, Ideology, and the Human Side of the Emancipation of Applied Mathematics at the University of Berlin during the 1920s, *Historia Mathematica* **20**(1993), 364–381. The struggle of applied mathematics for cognitive and institutional independence is viewed against a backdrop of the controversy surrounding Hilda Geiringer's application for "Habilitation" at the University of Berlin and the roles played by Richard von Mises and Ludwig Bieberbach. (DEZ)

#21.3.81

SIGURDSSON, SKULI. *Hermann Weyl, Mathematics and Physics, 1900–1927,* dissertation for the doctorate at Harvard University, 1991, 320 pp. Advisor: Silvan S. Schweber. This study of the interaction between mathematics and physics during the first third of the 20th century analyzes the contributions of Hermann Weyl to the theory of integral equations, the general theory of relativity, and quantum mechanics. Weyl belonged to the select community of mathematicians and physicists that included Max Born, Richard Courant, Albert Einstein, David Hilbert, Theodore von Karman, Felix Klein, Hermann Minkowski, Wolfgang Pauli, and Arnold Sommerfeld. The dissertation describes how elite German mathematicians and physicists interacted with one another, investigated nature, reacted to political events, and formulated world views. Dissertation Abstracts Order No: AAC 9123042. (ACL)

#21.3.82

SMIRNOV, V. I. *See* #21.3.56.

TAUB, LIBA CHAIA. *Philosophy and Physics in Book One of "The Mathematical Syntaxis": An Examination of the "Aristotelianism" of Ptolemy,* Ph.D. dissertation, University of Oklahoma, 1987. This work examines the extent to which Aristotle's and Ptolemy's ideas about philosophy and physics coincide. By presenting his physical presuppositions, Ptolemy followed the tradition of Greek mathematical writers, beginning his work with a statement of his hypotheses. He presented evidence to show the agreement of the hypotheses with the phenomena, thereby justifying their adoption within his system. This precedent was followed by later astronomers, including Copernicus. Source: *Dissertation Abstracts International* A 48/02, p. 469, Aug. 1987. (ACL)

#21.3.83

THIEL, CHRISTIAN. Editor's Introduction, *Modern Logic* 3(1993), 331–333. A summary of the papers in this special issue on Frege by the guest editor, Christian Thiel. (IA)

#21.3.84

VAILATI, EZIO. *See* #21.3.59.

WILSON, ROBIN. Islamic mathematics and astronomy, II, *The Mathematical Intelligencer* **16,** No. 1 (1994), 76. This instance of Wilson's Stamp Corner displays six stamps commemorating Islamic mathematics of the 11th, 12th, and 13th centuries. (TLB)

#21.3.85

YANO, M. *See* #21.3.42.

ZERNER, MICHEL. Le règne de Joseph Bertrand (1874–1900). Pp. 298–322 in #21.3.38. Joseph Bertrand was probably not the most prominent, but possibly one of the most influential, mathematicians of his time. This paper examines various relationships he had with the mathematical community, his role, and his leadership. (CG)

#21.3.86