

ABSTRACTS

EDITED BY ALBERT C. LEWIS

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, with an extra copy sent directly to the editor of the Book Reviews Department if the publisher wishes to accelerate the process. Materials should be sent to Dr. Albert C. Lewis, Humanities Research Centre, Box 7219, Austin, TX 78712.

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.

The indexing terms (in captials) refer only to aspects of the publication of interest to historians of mathematics, including some topics in general history of science and historiography, but not other topics unless there is a fairly close link with mathematics or its history.

MR 46 #3255 means that the item is numbered 3255 in volume 46 of Mathematical Reviews. RZ 1973 #3A14 means that the item is numbered 3A14 in the third number of the 1973 volume of the Referativny Zhurnal. Z 50 4 means volume 50, page 4 of the Zentralblatt. Isis 102, 45 means item 45 in the 102nd Isis Critical Bibliography.

In order to facilitate reference and indexing, entries are given serial numbers which appear at the end following the symbol #. The serial numbers of books are underlined.

A name in parentheses at the end of an entry indicates the abstractor. In this issue there are abstracts by Albert C. Lewis, H. Mehrtens, L. F. Meyers, and C. J. Tee.

- ACLOQUE PAUL 1981 Oscillations et stabilité selon Foucault; Critique historique et expérimentale. Préface de Pierre Costabel. Paris: Centre National de la Recherche Scientifique. xiv + 149 pp. Illustrated. Paperbound. ISBN 2-222-02849-3. (Collection des Travaux de l'Académie Internationale d'Histoire des Sciences, No. 28.) An account of LÉON FOUCAULT's work on oscillation and stability. J. M. BINET. J. V. PONCELET. (ACL) #1763
- ALEKSANDROV P S 1979 The GENERAL TOPOLOGY school at MOSCOW UNIVERSITY. (Russian) Vestnik Moskovskogo Universiteta Ser. I. Matematika, Mehanika No. 6, 3-6. (ACL) #1764
- ALEXANDROV P S et al. 1981 A. I. MARKUSHEVICH as a historian of mathematics. HM 8, 125-132. (ACL) #1765
- (ANONYMOUS) 1979. Academician Profesor Gheorghe VRANCEANU. Studii și Cercetări Matematice 31, 385-386. (In Romanian.) OBITUARY. DIFFERENTIAL GEOMETRY. (L. F. MEYERS) #1766
- (ANONYMOUS) 1980. List of works of Paul TURÁN. Acta Arithmetica 37, 21-34. BIBLIOGRAPHY of 244 items. (L. F. MEYERS) #1767
- (ANONYMOUS) 1980. Paul TURÁN (1910-1976). Acta Arithmetica 37, 1. (In English, with PORTRAIT in frontispiece.) Very brief biography. (L. F. MEYERS) #1768
- (ANONYMOUS) 1981. Bronisław KNASTER. Fundamenta Mathematicae 111, inserted before p. 1. (In French.) OBITUARY. PORTRAIT. (L. F. MEYERS) #1769
- BECHER HARVEY W 1980 Woodhouse, Babbage, Peacock, and modern ALGEBRA. HM 7, 389-400. GEORGE PEACOCK. CHARLES BABBAGE. ROBERT WOODHOUSE. (ACL) #1770
- BHĀSKARĀCHĀRYĀ 1980 Bhāskarāchāryā's Bījagaṇita and Its English Translation. Translated by Professor S. K. Abhyankar. Poona, India: Bhāskarāchāryā Pratishthana, 106/6 Brandawane. 59 pp. Rs. 5. Twelfth-century Indian ALGEBRA. Sanskrit with English translation. (ACL) #1771
- BIALAS V 1980 Internationaler Kongress über Wissenschaftsentwicklung 1848-1918. Budapest 16.-19. September 1980. Berichte zur Wissenschaftsgeschichte 3, 226-228. Theme: Matters of development of science and technology in Central Europe during 1848-1918. H. Wussing spoke on the principal line of development in the period 1850-1920, reflecting political and social developments. L. Nový spoke on social and scientific matters relating to the development of scientific institutions. (L. F. MEYERS) #1772
- BUCK R CREIGHTON 1980 Sherlock Holmes in Babylon. American Mathematical Monthly 87, 335-345. A description of the decipherment and interpretation of the BABYLONIAN mathematical cuneiform tablet Plimpton 322. (Reprinted in Cryptologia 5 (1981).) (ACL) #1773
- BÜHLER WALTER KAUFMANN 1981 Gauss: A Biographical Study. Berlin et al.: Springer-Verlag. viii + 208 pp. Illustrated. \$16.80. C. F. GAUSS. According to the author this is "addressed to the contemporary mathematician and scientist, not to the historian of science or the psychologist collecting the scalps of great men." The numerous quotations are translated into English with the original usually given in the footnotes. Appendixes are devoted to the organization of Gauss' collected works, a survey of the secondary literature, and an index to Gauss' works. (ACL) #1774
- BUTZER PAUL L 1981 An outline of the life and work of E. B. CHRISTOFFEL (1829-1900). HM 8, 243-276. (ACL) #1775
- BUTZER P L & FEHER F 1980. Bericht über das Internationale Christoffel-Symposium in Aachen und Monschau, 8.-11. November 1979. Berichte zur Wissenschaftsgeschichte 3, 193-201. Sesquicentennial observance. Brief biography. (He was born in Monschau.) Section titles: Christoffel im Rahmen seiner Zeit; Christoffels nicht geometrische Veröffentlichungen; Christoffels Beiträge zur Differentialgeometrie und deren Anwendungen. This is probably the first symposium on Christoffel. Festschrift in preparation. (L. F. MEYERS) #1776

- CHARBONNEAU LOUIS 1981 Congrès Annuel, Canadian Society for the History and Philosophy of Mathematics/Société Canadienne d'histoire et de philosophie des mathématiques. HM 8, 191-192. (ACL) #1777
- CLAGETT MARSHALL 1980 ARCHIMEDES in the Middle Ages. Volume 4: A Supplement on the Medieval Latin Traditions of Conic Sections (1150-1566). Part I: Texts and Analysis. Part II: Bibliography, Diagrams, and Indexes. Philadelphia: The American Philosophical Society. 2 vols. Illustrated. \$30.00. (Memoirs of the American Philosophical Society, Vol. 137, Parts A and B.) ALHAZEN. WITELLO. WILLIAM OF MOERBEKE. JOHANN WERNER. ALBRECHT DÜRER. ORONCE FINE. FRANCESCO MAUROLICO. (ALC) #1778
- COHEN G L & SHANNON A G 1981 JOHN WARD's method for the calculation of pi. HM 8, 133-144. (ACL) #1779
- D'AMORE BRUNO 1981 ETTORE CARRUCCIO--The man and the scientist. HM 8, 235-242. (ACL) #1780
- DASTON LORRAINE J 1980 Probabilistic expectation and rationality in classical PROBABILITY THEORY. HM 7, 234-260. (ACL) #1781
- DAUBEN JOSEPH W 1980 Mathematicians and World War I: The international diplomacy of G. H. HARDY and GÖSTA MITTAG-LEFFLER as reflected in their personal correspondence. HM 7, 261-288. (ACL) #1782
- DAVIS PHILIP J & HERSH REUBEN 1981 The Mathematical Experience. Boston et al.: Birkhauser. xix + 440 pp. Illustrated. \$24.00, ISBN 3-7643-3018-X. An attempt "to capture the inexhaustible variety presented by the mathematical experience," making use of the history and philosophy of mathematics as well as of mathematical exposition. Treatment of general questions, such as "How much mathematics is now known?" and particular topics, such as "the stretched string," and "the Riemann Hypothesis." Bibliography of 18 pages. (ACL) #1783
- DICK AUGUSTE 1981 EMMY NOETHER 1882-1935. Translated by H. I. Blocher. Boston/Basel/Stuttgart: Birkhäuser. xiv + 193 pp. Illustrated. \$12.95. ISBN 3-7643-3019-8. A popular biography with list of publications by Noether. Also included are the complete obituaries by B. L. van der Waerden, H. Weyl, and P. S. Alexandrov. (ACL) #1784
- DJEBBAR A 1981 Enseignement et recherche mathématiques dans le Maghreb des XIII^e-XIV^e siècles (étude partielle). Orsay: Université de Paris-Sud, Département de Mathématique, Bât. 425. 147 pp. Reproduced typescript. (Publications Mathématiques d'Orsay, No. 81-02.) Mathematical instruction and research in MAGHRIB (or Maghreb) of the 13th and 14th centuries. In this "partial study" several aspects of algebra, symbolism in algebra, and the theory of numbers and combinatorics are considered with reference to original manuscripts. ARABIC. (ACL) #1785
- ECHVERRIA JAVIER 1979 L'analyse géométrique de Grassmann et ses rapports avec la caractéristique géométrique de LEIBNIZ. Studia Leibnitiana 11, 223-273. H. G. GRASSMANN "certainly created a new branch of mathematics ... (but) what this results in is quite different, and at times even divergent, from the Leibnizian version" of the CHARACTERISTICA GEOMETRICA. (ACL) #1786
- EGMOND WARREN VAN 1980 Practical Mathematics in the ITALIAN RENAISSANCE: A Catalog of Italian Abacus Manuscripts and Printed Books to 1600. Firenze: Istituto e Museo di Storia della Scienza. xliv + 442 pp. Paperbound. (Supplement to the Annali dell'Istituto e Museo di Storia della Scienza, 1980, Fascicolo 1.) Described in full bibliographical detail are 300 manuscripts and 153 abacus books printed between 1476 and 1600 plus 33 later editions of these works, located in nearly 100 libraries. (ACL) #1787
- ELFVING GUSTAV 1981 The History of Mathematics in FINLAND, 1828-1918. Helsinki: Societas Scientiarum Fennica. 195 pp. Illustrated. Paperbound. ISBN 951-653-098-2. (The History of Learning and Science in Finland 1828-1918, 4a.) The author is Emeritus Professor of Mathematics at the University of Helsinki. Biographical accounts of about

fifty mathematicians are given along with descriptions of their mathematical contributions. Included are: N. G. AF SCHULTÉN; LORENZ LINDELÖF; GÖSTA MITTAG-LEFFLER; HJALMAR MELLIN; E. R. NEOVIUS; ERNST LINDELÖF; J. W. LINDBERG; SEVERIN JOHANSSON. Photographs of most of the subjects are reproduced. (ACL) #1788

ENGELBERG DON & GERTNER MICHAEL 1981 A marginal note of MERSENNE concerning the "Galileian Spiral." HM 8, 1-14. (ACL) #1789

ENGELSMAN S B 1981 Tagung "Geschichte der Mathematik im Mathematischen Forschungsinstitut Oberwolfach." HM 8, 67-79. (ACL) #1790

ERDÖS P 1980 Some personal reminiscences of the mathematical work of Paul TURÁN. Acta Arithmetica 37, 3-8. Some interesting problems in NUMBER THEORY that Turán worked on (often with ERDÖS). (L. F. MEYERS) #1791

FEISLEBEN HANS-CHRISTIAN 1978 Geschichte der Navigation. 2nd ed. Wiesbaden: Franz Steiner. viii + 152 pp. (ACL) #1792

FRIBERG JÖRAN 1981 Methods and traditions of BABYLONIAN MATHEMATICS: Plimpton 322, Pythagorean triples, and the Babylonian triangle parameter equations. HM 8, 277-318. (ACL) #1793

FRISINGER H HOWARD 1981 The solution of a famous two-centuries-old problem. The LEONHARD EULER-LATIN SQUARE conjecture. HM 8, 56-60. (ACL) #1794

GANI J 1981 The spread of epidemics. Mathematical Chronicle 10, 1-11. Surveys of mathematical studies of epidemics, by JOHN GRAUNT, DANIEL BERNOULLI, W. FARR, J. BROWNLFEE, W. H. HAMER, and recent investigators. (G. J. Tee) #1795

GERKE KARL & HARBORTH HEIKO 1981 Zum Leben des Braunschweiger Mathematikers RICHARD DEDEKIND. Pp. 657-694 in G. Spies, ed., Brunswiek 1031-Braunschweig 1981. Festschrift zur Ausstellung (Braunschweig: Städtisches Museum). Brief biography with some new information, family tree, 24 pages of illustrations of homes, family, manuscripts, and portraits of Dedekind at 13, 24 (color), 37, 55, and 72 years. (H. Mehrtens) #1796

GHEORGHIEV GH 1981 ALBERT EINSTEIN and the development of differential geometry. Noesis: Travaux du Comité Roumain d'Histoire et de Philosophie des Sciences, 7, 9-16. GEORG PICK. DAVID HILBERT. A. MYLLER. (ACL) #1797

GILLISPIE CHARLES C 1979 Memoirs inédits ou anonymes de LAPLACE sur la théorie des erreurs, les polynômes de LEGENDRE, et la philosophie des probabilités. Revue d'Histoire des Sciences et de leurs Applications 32, 223-279. (ACL) #1798

GOLDSTEIN B R 1981 The Hebrew astronomical tradition: New sources. Isis 72, 237-251. Appendix 3 contains a list of eight mathematical fragments from the Cairo Geniza (L. F. Meyers) #1799

GRABINER JUDITH V 1981 The Origins of Cauchy's rigorous CALCULUS. Cambridge, Mass. MIT Press. x + 252 pp. \$30.00. ISBN 0-262-07079-0. The 19th-century revolution in calculus created by A.-L. CAUCHY is studied in terms of his transformation of certain 18th-century notions into the modern concept of rigor. The key terms are: inequalities, limit, continuity, convergence, derivative, and integral. The origins of Cauchy's rigor "grew, not principally out of [the 18th-century's] discussions of foundations but from other, quite different parts of its work." J.-L. LAGRANGE was crucial as a transition figure. (ACL) #1800

GRATTAN-GUINNESS IVOR 1980 GEORG CANTOR's influence on BERTRAND RUSSELL. History and Philosophy of Logic 1, 61-93. "In some respects the influence is positive ... but in various ways negative influence is evident, for Russell adopted alternative views about the form and foundations of SET THEORY." (ACL) #1801

GRAY JEREMY 1980 A note on KARL M. PEARSON. HM 7, 444. (ACL) #1802

- GUPTA R C 1981 Fourth Annual Conference of the Indian Society for History of Mathematics. HM 8, 351-355. (ACL) #1803
- HAHN R 1981 More light on Charles the Obscure. Isis 72, 83-86. Jacques Charles, mathematician, has been confused with Jacques Alexandre César Charles, of Charles' Law. This article supplements J. B. Gough, "Charles the Obscure," Isis (1979) 70, 576-579. (L. F. MEYERS) #1804
- HALÁSZ G 1980 The number-theoretic work of Paul TURÁN. Acta Arithmetica 37, 9-19. NUMBER THEORY. POWER SUM METHOD. ZETA FUNCTION. PARTITIONS. UNIFORM DISTRIBUTION. (L. F. MEYERS) #1805
- HAWKINS THOMAS 1980 Non-Euclidean geometry and Weierstrassian mathematics: The background to Killing's work on LIE ALGEBRAS. HM 7, 289-342. (ACL) #1806
- HEIMS STEVE J 1980 JOHN VON NEUMANN and NORBERT WIENER: From Mathematics to the Technologies of Life and Death. Cambridge, Mass.: MIT Press. \$19.95. Traces a "philosophical/psychological" strain in the lives of von Neumann and Wiener that affected their work, style, and political and social concerns. (ACL) #1807
- HONIC PETER SCOTT 1980 History and mathematical analysis of the FUSEE. Pp. 114-120 in K. Maurice and O. Mayr, eds., The Clockwork Universe: German Clocks and Automata, 1550-1650 (New York: Neale Watson Academic Publications). A history of the attempts to overcome the problem of the nonconstancy of the force provided by spiral springs in clocks. PIERRE VARIGNON. BENJAMIN MARTIN. (ACL) #1808
- HUSTER LUDGER 1981 Dokumentation zur Entwicklung der Mathematik-Didaktik im 19. Jahrhundert Elementarschulbereich. Bielefeld, West Germany: Universität Bielefeld, Institut für Didaktik der Mathematik. 145 pp. (Schriftenreihe Ges IDM, 26/1981.) Catalog of German 19th-century books and articles on the methodology of elementary school mathematics teaching; 297 entries with short descriptions of contents. (H. Mehrtens) #1809
- JARNÍK VOJTĚCH 1981 Bolzano and the Foundations of Mathematical Analysis. On the Occasion of the Bicentennial of BERNARD BOLZANO. Prague: Society of Czechoslovak Mathematicians and Physicists. 89 pp. Illustrated. A twenty-page introduction on the "life and scientific endeavour" by Jaroslav Folta is followed by an account of Bolzano's mathematical work by Jarník, Professor of Mathematics at Charles University. Photographic reproductions of several images of Bolzano are given. (ACL) #1810
- JONES CHARLES V 1981 Annual Meeting of the History of Science Society, 1980. HM 8, 192-194. (ACL) #1811
- JORDAN STEVEN L 1981 American attempts to solve NEWTON'S PASTURAGE PROBLEM. HM 8, 145-160. (ACL) #1812
- KAHN DAVID 1980 On the origin of polyalphabetic substitution. Isis 71, 122-127. CIPHER SYSTEM. (ACL) #1813
- KAISER W 1980 Verdrängte Wissenschaften. XVIII. Symposium der Gesellschaft für Wissenschaftsgeschichte. 15.-17. Mai 1980 in Marburg. Berichte zur Wissenschaftsgeschichte 3, 203-206. Iatromathematics involved the influence of the stars on the body and human health, in particular "mathematical" methods of prognosis and treatment using a horoscope, mostly in the 15th and 16th centuries. Astrophysics has pushed positional astronomy into the background. Other, nonmathematical, cast-aside sciences were discussed. (L. F. Meyers) #1814
- KATZ VICTOR J 1981 The history of DIFFERENTIAL FORMS from Clairaut to Poincaré. HM 8, 161-188. (ACL) #1815
- KEPLER JOHANNES 1981 Mysterium Cosmographicum; the Secret of the Universe. Translation by A. M. Duncan. Introduction and commentary by E. J. Aiton. New York: Abaris Books. 267 pp. Illustrated. First English translation of the first major astronomical work by Kepler (1596). (ACL) #1816