

ABSTRACTS

The purpose of the abstracts is to give sufficient information about the subject matter of each publication to enable readers to decide whether to read it. No review or evaluation is intended. The indexing terms (in boldface capitals) 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. We hope to publish cumulative subject indices.

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

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.

*The symbol * in the margin indicates a publication that deserves more discussion than it may ordinarily get in the Reviews Department (either because it is an article rather than a book or because it is such a large book that a single review cannot deal with it fully). Readers are invited to comment by letter for our Correspondence Department and by submitting manuscripts of reviews or articles.*

GNEDENKO, B V 1973 ANDREI NIKOLAEVICH KOLMOGOROV (on the occasion of his seventieth birthday). Russ Math Surveys 28(5), 1-17
AWARDS (ORDER OF LENIN). BIOGRAPHY. BIBLIOGRAPHY. PORTRAIT.
ANALYSIS. TOPOLOGY. PROBABILITY AND STATISTICS. SET THEORY.
APPLIED MATHEMATICS. MATHEMATICS EDUCATION. (D E Kullman)

GOODSTEIN, R L 1971 Development of Mathematical Logic.
London (Logos Press) 150 p £3.50 LOGIC. XX. T SKOLEM.
K GÖDEL. G GENTZEN. Concentrates on last 40 years. TRUTH
FUNCTIONS. SENTENCE LOGIC. MODEL THEORY. PREDICATE LOGIC.
RECURSIVE FUNCTIONS. FORMALISED ARITHMETIC. TEXTS WITH HISTORICAL
NOTES. FREE-VARIABLE ARITHMETICS and AXIOMATIC SET THEORY.
Bibliography of 8 pages.

GRÖLL, REINHARDT 1975 Der Unmöglichkeitssatz von K. Arrow
(The ARROW IMPOSSIBILITY THEOREM). Jb. Überblicke Math 1975
(Bib. Inst. Mannheim) 9-29 WELFARE ECONOMICS. CHOICE. AGGREGATION

- * GROSSWALD, EMIL 1974 Collected Papers of Hans Rademacher. Cambridge, Mass (MIT Press) Two volumes, 1370 p (In the series Mathematicians of Our Time, edited by Gian-Carlo Rota.) A COLLECTED WORKS of HANS RADEMACHER including all papers published alone or jointly, published abstracts of his papers, some papers here first formally published, and several problems posed and/or solved by him. The editor supplies a biographical sketch, notes and commentaries, PORTRAIT, list of writing not included (e.g. books and reviews) and list of dissertations supervised.
- GRÖTZSCH, H 1974 Wissenschaftliche Instrumente des 16. Jahrhunderts aus den Sammlungen des Staatl. mathematisch-physikalischen Salons (SCIENTIFIC INSTRUMENTS of the XVI century from the city mathematical-physical museums) Proc XIII Int Con Hist Sci 1971 Sect VI, 251-256
- GUERLAC, HENRY 1973 Newton and the method of analysis. Dictionary of the History of Ideas 3, 378-391 SCIENTIFIC METHOD. ANALYSIS AND SYNTHESIS. APPLIED MATHEMATICS.
- GULUBOV, KONSTANTIN 1974 Spomeni za matematitsi (Reminiscences about mathematicians). Physico-Mathematical J. Bulgarian Acad. Sci. 17, 125-131 L CHAKALOV. D HILBERT. N OBRESHKOV. A EINSTEIN. REMINISCENCES of a nonmathematician about mathematicians. (B Penkov)
- GUPTA, R C 1974 Mahāvīrācārya on the perimeter and area of an ellipse. (Glimpses of Ancient Indian Math No 9) The Mathematics Education 8 (1), 17-19 A A MAHAVIRACARYA. IX. INDIAN MATHEMATICS. ARC LENGTH. Approximate formulas for the PERIMETER and AREA of an ELLIPSE.
- GUPTA, R C 1974 Some trigonometrical identities from the Vateśvara Siddhānta. Ranchi Univ Math Jour 4, 27-29 TRIGONOMETRY. VERSED SINE. COVERSED SINE. ARYABHATA I. TRIGONOMETRIC IDENTITIES. V.
- GUPTA, R C 1974 Brahmagupta's formulas for the area and diagonals of a cyclic quadrilateral. (Glimpses of Ancient Indian Math No 10) The Mathematics Education (B) 8(2), 33-36 BRAHMAGUPTA. VII. CYCLIC QUADRILATERALS. AREAS QUADRILATERALS.

HABICHT, WALTER 1974 Leonhardi Euleri Opera Omnia. Commentatione Machanicae et Astronomicae ad Scientiam Navaliam Pertinentes. Volumen prius. Basel (Orell Füssli Turici) 317 p Volume 20 of Series 2 of COLLECTED WORKS of L EULER, the first of two planned volumes on works related to NAVAL SCIENCE, especially NAVAL ARCHITECTURE. Forty page introduction by the editor. Eight works in Latin and French.

HAHN, ROGER 1974 Determinism and probability in Laplace's philosophy. Proc XIII Int Con Hist Sci 1971 Sect I, 170-175
LAPLACE. PROBABILITY.

- * HALL, A RUPERT & MARIE BOAS HALL 1975 The Correspondence of Henry Oldenburg, Volume 10: Letters number 2241 - 2489 from June 1673 to April 1674. London (Mansell) (Exclusive distributors in North America: Intl. Scholarly Book Service, 10300 S. W. Allen Blvd., Beaverton, Ore. 97005) 623 p A detailed index makes it possible to recover many references to mathematics and mathematicians, including the following correspondents of HENRY OLDENBURG. W BROUNCKER. G D CASSINI. CHRISTIAN HUYGENS. I NEWTON. R F W de SLUSE. J WALLIS. C WREN.

HEIDEL, WILLIAM ARTHUR 1976 The Frame of the Ancient Greek Maps. With a Discussion of the Discovery of the Sphericity of the Earth. New York (Arno Press, A New York Times Company) 151 p REPRINT of the 1937 original published by the American Geographical Society. GEOGRAPHY. CARTOGRAPHY. GREEK MATHEMATICS. GEODESY. ERATOSTHENES is credited with the first map recognizing the earth as a SPHERE. Claims of previous ideas on the sphericity are examined critically. A volume in the series History of Ideas in Ancient Greece, edited by Gregory Vlastos.

HENKIN, LEON; J DONALD MONK; ALFRED TARSKI Cylindric algebras. Part I. With an introductory chapter: General theory of algebras. Studies in Logic and the Foundations of Mathematics, Vol. 64. North-Holland Publishing Co., Amsterdam-London 1971. vi + 508 pp. Dfl 105.00; \$29.00 Part I of an authoritative monograph which is to be published in two volumes and which contains a comprehensive BIBLIOGRAPHY (225 items, pp. 469-480) of CYLINDRIC ALGEBRAS, ALGEBRAIC LOGIC, RELATION ALGEBRAS and POLYADIC ALGEBRAS. (MR 47 #3171). (D Rosenblatt)

HENSTOCK, R 1973 Integration by Parts Aequationes Mathematicae 9, 1-18 INTEGRATION THEORY. Brief historical sketch, includes a 54-item BIBLIOGRAPHY. (H S Tropp)

HINTIKKA, JAAKKO, editor 1975 Rudolph Carnap, Logical Empiricist Materials and Perspectives. Dordrecht and Boston (D Reidel) 448 p CARNAP, RUDOLF. LOGIC. FOUNDATIONS. REPRINTS of the "homage to Carnap" statements at the 1970 meeting of the Philosophy of Science Association and Carnap's "Notes on probability and induction." TRANSLATION of his 1959 paper on observation language and theoretical language. A paper with the book's title by Carl G Hempel, one on Carnap's LOGICISM by Herbert G Bohnert, and one on his SEMANTICS by Hintikka. PORTRAIT.

HINTIKKA, JAAKKO 1973 Logic, Language-Games and Information. Kantian Themes in the Philosophy of Logic Oxford (Oxford Univ Press) 301 p PHILOSOPHY OF LOGIC. PHILOSOPHY OF LANGUAGE. I KANT. R CARNAP. W V QUINE. L WITTGENSTEIN.

HINTIKKA, JAAKO & UNTO REMES 1974 The Method of Analysis. Its Geometrical Origin and Its General Significance (D Reidel Boston Studies in the Philosophy of Science 25. Synthese Library 75) 162 p A philosophical and historical study of the ANALYTIC METHOD, especially its HEURISTIC role in GREEK GEOMETRY (relying largely on the work of PAPPUS), its role in early modern science (GALILEO, DESCARTES, NEWTON), and its relation to modern LOGIC, especially NATURAL DEDUCTION. An introduction by John E Murdock explains that it is an extension of a paper prepared for the first international conference on history and philosophy of science at Jyväskylä, Finland in 1973. Appended are a comment by A K Szabo and reply by the authors.

HODSON, F R; KENDALL, D G; TÁUTU, P, editors 1971 Mathematics in the Archaeological and Historical Sciences. Proceedings of the 1970 Anglo-Romanian Conference organized by the Royal Society of London and the Academy of the Socialist Republic of Romania (Edinburgh Univ Press) 565 p HISTORIOGRAPHY. QUANTITATIVE METHODS IN HISTORY. TAXONOMY. CLUSTER ANALYSIS. SCALING. SERIATION. EVOLUTIONARY TREE STRUCTURES. HISTORICAL MODELS. First sentence of the cover blurb: "Mathematics, writes a contributor, is a branch of natural philosophy which tries to coordinate the findings of the sciences and to help in the interpretation of data."

HORADAM, A F 1974 ORESME NUMBERS. Fibonacci Quart. 12, 267-271
The sum of the sequence $1/2, 2/4, 3/8, 4/16, 5/32, \dots$ was found
by N. ORESME in the 14th century. A brief BIOGRAPHY of Oresme
is included. (D E Kullman)

HOUSEHOLDER, ALSTON S 1974 "The Gatlinburgs." SIAM Review 16,
340-343 INTERNATIONAL SYMPOSIA. NUMERICAL MATHEMATICS. The
origin, motivation, and underlying structure of the irregularly
held GATLINBURG SYMPOSIA, the first of which was held in Gatlinburg,
Tenn. in 1961. Originally presented at the Joint Fall SIGNUM-SIAM
Meeting, Austin, Texas, 16-18 October 1972. (H S Tropp)

HOYER, ULRICH 1974 Über den Zusammenhang der Carnotschen Theorie
mit der Thermodynamik (On the connection of Carnot's theory with
THERMODYNAMICS). Arch History Exact Sci 13(4), 359-375 SADI
CARNOT. HEAT.

HUGONNARD-ROCHE, HENRI 1974 Themon de Nicole Oresme (THÉMON
and NICOLE ORESME). Proc XIII Int Con Hist Sci 1971, Sect IV
146-151 METEOROLOGY. MECHANICS. XIV. PROPORTION.

ILIEV, L & D V PREVEL 1974 Grigore Konstantin Moisil (1906-1973).
Bulgarian Academy of Sciences Physico-Mathematical Journal 17(50)
(1), 62-68 Scientific biography with a PORTRAIT of the Rumanian
mathematician G K MOISIL at the blackboard.

ILIEV, LYUBOMIR 1974 Edinen tsentur za nauka i podgotovka na
kadri po matematika i mekhanika (ETsNPKMM) (The Research and
Training Center for Mathematics and Mechanics). Bulgarian
Academy of Sciences Physico-Mathematical Journal 17(50)(1), 16-28
BULGARIA. EDUCATION. RESEARCH. MATHEMATICS POLICY. Includes
a list of staff, a chart of the "mathematical complex" within
the Science Council, and a chart of the curriculum.

ILLY, JOZSEF 1974 On the birth of MINKOWSKI'S four-dimensional
world. Proc XIII Int Con Hist Sci 1971, Sect VI 67-72 GEOMETRY.
FOUR-DIMENSIONAL GEOMETRY. RELATIVITY.

IONESCU-PALLAS, NOCOLAE & SOFONEA LIVIU 1975 The genesis of
mathematical entities. A historico-modelling example NOESIS 3,
275-289 PHILOSOPHY OF MATHEMATICS. HISTORICAL THEORY. INDIAN
MATHEMATICS.

ISAACS, RUFUS 1975 Two mathematical papers without words. Math. Magazine 48, 198 Sketches of (i) a linkage for ANGLE TRISECTION and (ii) a decomposition proof of the PYTHAGOREAN THEOREM. (D E Kullman)

ITO, SHUNTARO 1974 On the medieval Latin translation of the data of EUCLID. Proc XIII Int Con Hist Sci 1971, Sect IV 94-99 MEDIEVAL MATHEMATICS.

JAIN, L C 1973 Mathematical foundations of Karma quantum system theory. Anusandhana Patrika (Oct-Dec), 1-20 INDIAN MATHEMATICS. JAINIST MATHEMATICS.

JAIN, L C 1975 Role of mathematics in Jainology. Prachya Pratibha 3(1), 50-52 INDIAN MATHEMATICS. JAINIST MATHEMATICS.

JAIN, L C 1975 KINEMATICS of the sun and moon in TILOYAPANNATTI. Tulsi Prajñā (1) (Jan-Mar), 60-67 INDIAN MATHEMATICS. INDIAN ASTRONOMY.

JAKUBÍK, JAN & MILAN KOLIBAR 1974 Sixtieth anniversary of the birthday of the academician STEFAN SCHWARZ. Czechoslovak Math. J. 24(99), 331-340 SEMIGROUPS. THEORY OF NUMBERS. Brief biography and BIBLIOGRAPHY. (David E Zitarelli)

JEON, SANG-WOON 1974 Science and Technology in KOREA. Traditional Instruments and Techniques. Cambridge, Mass (MIT Press) 405 p Only a few references to mathematics (ARITHMETIC. TABLES), but many epimathematical topics such as ASTRONOMY, CHRONOMETRY, METROLOGY, METEOROLOGY, SCIENTIFIC INSTRUMENTS, CARTOGRAPHY, CALENDARS.

JOJA, CRIZANTEMA 1975 Classique et moderne dans la théorie des entités abstraites. NOESIS 3, 261-273 PHILOSOPHY OF MATHEMATICS

JONES, PHILLIP S 1976 BIBHUTIBHUSAN DATTA. HM 3, 77-78 Some biographical data and a facsimile of a letter.

JORDAN, W F, Jr. 1971 Main memory: past, present and future Honeywell Computer Journal 5(2), 52-57 COMPUTER. CORE MEMORY.

J FORRESTER. SEMICONDUCTOR. MEMORIES Brief discussion of technical evolution in computer memories beginning with the introduction of coincident core memories in the early 1950's, followed by a discussion of emerging semiconductor memories.

KABULOV, V K & FAIZULLAEV, A F 1974 Al-Korezmi, algoritmy i razvitie kibernetiki (Al-Khwarizmi, ALGORITHMS and the development of CYBERNETICS) Proc XIII Int Con Hist Sci 1971, Sect IV, 122-125 ALGEBRA. IX. XX.

KAGAN, V F 1974 Lobatchevski Moscow (Mir) 411 p A French translation of one of several biographical studies by the redoubtable author, who wrote on N LOBACHEVSKII as early as early 1894 and as late as 1956! 114-item BIBLIOGRAPHY

KARPOVA, P M 1974 Traktat Sabita ibn Korry o secheniyakh tsilindra i o ego poverkhnosti [The treatise of THABIT IBN QURRA on cylindrical sections and area] Proc XIII Int Con Hist Sci 1971, Sect IV, 103-105 IX. CYLINDER AREA. CYLINDER SECTIONS

KELSEN, HANS 1973 Essays in Legal and Moral Philosophy. Selected and introduced by Ota Weinberger. Translated by Peter Heath. (D Reidel) 328 p SELECTED WORKS. Of interest because of HANS KELSEN's efforts to relate JURISPRUDENCE to LOGIC and to construct a deductive theory

KHAIRETDINOVA, N G 1974 Istochniki trigonometricheskikh traktatov al-Biruni i isfakhanskogo anonima (Sources of the trigonometric tracts of AL-BIRUNI and an anonymous tract from Isfahan) Proc XIII Int Con Hist Sci 1971, Sect IV, 108-111 SPHERICAL TRIGONOMETRY ARABIC MATHEMATICS. THABIT IBN QURRA. AL-TUSI.

KIRO, S N 1972 Nauchnoe nasledie P. L. Chebysheva i voprosy optimizatsii vychislenii (The scientific heritage of P L CHEBYSHEV and questions of OPTIMIZATION of COMPUTATIONS). Matematicheskoe obespechenie ETsVM (Kiev) 209-220. (B M Shein)

KLEIN, H ARTHUR 1974 The World of Measurements. New York (Simon & Schuster) 736 p This POPULARIZATION on METROLOGY is not the reference work suggested on the dust jacket, though it does

contain a good deal of information, most of which can be recovered via the index. Deals anecdotally with the history of the METRIC SYSTEM, UNITS of ANGLES, TIME, HEAT, ELECTRICITY, and in APPLIED MATHEMATICS.

KNELMAN, FRED H, editor 1972 1984 and All That: Modern Science, Social Change, and Human Values. Belmont, Calif. (Wadsworth Publishing Company, Inc.) A "reader" to be used as a "general text in the SOCIOLOGY OF SCIENCE." A collection of 40 essays divided into 7 sections: the technological order, technology, and the environmental crisis, biology and society, the chemical revolution, the nuclear threat, the electronic galaxy, and the crisis in values. Mathematics is ignored.

KNORR, K D; STRASSER, HERMANN; ZILIAN, HANS GEORG, editors 1975 Determinants and Controls of Scientific Development. (Reidel) 474 p Papers on HISTORICAL THEORY, SOCIOLOGY OF SCIENCE, etc. growing out of a conference at Graz, Austria in June 1974. The only mention of mathematics (indexed under geometry) is a brief (and historically misleading) description of Euclidean geometry as one model for scientific theory.

KNUTH, DONALD E 1973 The Art of Computer Programming. Vol. I. Fundamental ALGORITHMS. Second Edition (Addison-Wesley) 634 p The first of seven projected volumes on COMPUTER PROGRAMMING and related mathematics, with sections on history and bibliography In this second edition Knuth offers a \$2 reward to the first finder of "every remaining error" including historical errors.

KOCHINA-POLUBARINOVA, P Ya 1974 Pisma Karla Veiershtrassa k Sofe Kovalevskoi 1871-1891 (LETTERS from KARL WEIERSTRASS to SOFYA KOVALEVSKAYA). Moscow (Nauka) 311 p Foreword and 99 letters (all of those in the Mittag-Leffler Institute) in German and Russian translation, 21-page editor's commentary, brief bibliography, name index, and photographs.

KOLATA, G B 1975 Applied Math: Too Many Dehydrated Elephants? Science 190, 773 Report on a series of lectures by MARC KAC on the theme that APPLIED MATHEMATICS is not keeping as close to problems of the real world as is necessary to retain its vitality.
(H S Tropp)

KÖRBER, HANS-GÜNTHER 1974 Die berliner Instrumentenmacher im 18 Jahrhundert (The Berlin instrument makers of the XVIII century) Proc XIII Int Con Hist Sci 1971, Sect VI, 271-276 INSTRUMENTS

KRAFFT, FRITZ 1974 Nikolai Nikolajewitsch Stuloff sechzig Jahre alt (Sixtieth ANNIVERSARY of STULOFF, N N) Nachrichtenbl. der Deu. Ges. f. Gesch. der Med., Nat. u. Tech. 24(2), 3 p
Mentions talks at a Festkolloquium by VAN DER WAERDEN, B L on ALGEBRA and by ROHRBACH, H on ANALYSIS in the XX century, and gives brief biography.

KRAFFT, FRITZ 1973 Physikalische Realität oder mathematische Hypothese? Andreas Osiander und die physikalische Erneuerung der antiken Astronomie durch Nicolaus Copernicus (Physical reality or mathematical hypothesis? Andreas Osiander and the renewal of ancient astronomy through Nicolaus Copernicus) Philosophia Naturalis 14(3/4), 243-275 MODELS IN PHYSICS. MATHEMATICAL ASTRONOMY. COPERNICUS. J KEPLER. ANCIENT ASTRONOMY. ASTRONOMY VERSUS PHYSICS. A OSIANDER. XVI. XVII. SCIENTIFIC HYPOTHESES. SCIENTIFIC METHOD. PTOLEMY. An analysis of ancient and medieval astronomy in order to answer the question of the title with respect to the Copernican system.

KUBESOV, A 1974 Matematicheskoe nasledie al-Farabi (The mathematical heritage of AL-FARABI) Alma-Ata (Nauka) 246 p
Analyzes the work of the great ARAB encyclopedist and philosopher (870-950), reflected in published and unpublished sources, on PHILOSOPHY OF MATHEMATICS, FOUNDATIONS, ARITHMETIC, GEOMETRY, ALGEBRA, COMBINATORICS, PROBABILITY, INFINITESIMALS, REAL NUMBERS, TRIGONOMETRY, CLASSIFICATION, MUSIC, ASTRONOMY. He considered APPLIED MATHEMATICS ("the science of skillful methods") as a separate discipline. The name index reflects the effort to consider predecessors and successors--there are sections on his relation to Roger Bacon and to Leonardo da Vinci. Bibliography of 106 items, regrettably in order of first citation.

KUDINOV, A F, et. al. 1973 KIRILL ANDREEVICH RODOSSKII (on his sixtieth birthday) Russian Math. Surveys 28(6), 101-104
BIOGRAPHY. BIBLIOGRAPHY. NUMBER THEORY. (D E Kullman)

KUDRYAVTSEV, L D, et. al. 1972 VLADIMIR IOSIFOVICH KONDRASHOV Russian Math. Surveys 27(2), 83-90 CALCULUS OF VARIATIONS. DIFFERENTIAL EQUATIONS. DIFFERENTIABLE MANIFOLDS. OBITUARY. BIBLIOGRAPHY. (D E Kullman)

KURDIMOVA, A I 1975 Razvitie teorii gamma-funktsii posle Eilera (The development of the theory of the GAMMA FUNCTION after Euler). Autoabstract of thesis for the candidate degree supervised by G L Lunts. Moscow (Inst. for the Hist. of Science and Tech.) 17 p Deals with the last half of the XVIII and first half of XIX centuries. Bibliography refers to the author's publication of the essentials of the thesis in the Trudy of the Moscow Inst. of Chemical Machine Construction 45 (1972), 50 (1973), 56 (1974).

KURZWEIL, Jaroslav 1975 In memoriam Professor VLADIMIR KNICHAL. Czechoslovak Mathematical Journal 25(100), 503-509 METRIC NUMBER THEORY. GEOMETRY OF NUMBERS. PORTRAIT. BIBLIOGRAPHY. (David E Zitarelli)

KUTATELADZE, S S & A M RUBINOV 1972 Minkowski duality and its applications. Russ. Math. Surveys 27(3), 137-191 BIBLIOGRAPHY. CONVEX ANALYSIS. DUALITY THEORY. EXTREMAL PROBLEMS IN GEOMETRY. FUNCTIONAL ANALYSIS. H-CONVEXITY. A broad account of MINKOWSKI DUALITY and applications in analysis, with some historical notes. (D E Kullman)

LAUGWITZ, Detlef 1975 Zur Entwicklung der Mathematik des Infinitesimalen und Infiniten (On the development of the mathematics of INFINITESIMALS and INFINITE NUMBERS). Jb. Uberblicke Math (Bib. Inst. Mannheim) 45-50 NONSTANDARD NUMBER SYSTEMS. CALCULUS.

LECAM, L & E L LEHMANN 1974 J. Neyman on the occasion of his 80th. Annals of Statistics 2(3), v-xiii Concise summary of some of JERZY NEYMAN'S major contributions to the development of the field of mathematical STATISTICS. Selected BIBLIOGRAPHY (1928-1973). PORTRAIT. (H S Tropp)

LEE, Elwin J & Joseph S MADACHY 1972 The History and Discovery of Amicable Numbers. Journal of Recreational Mathematics 5, 77-93, 153-173, 231-259 O. ORE. FRIENDLY NUMBERS. Part 1: chronology of discovery and re-discovery of pairs of amicable numbers, bibliography. Parts 2 and 3: table of the 1107 known (in 1972) AMICABLE PAIRS, a classification and a table of the number of pairs listed by discoverer and type. (H S Tropp)

LEHMER, D H 1974 HARRY SCHULTZ VANDIVER, 1882-1973. Bull Amer Math Soc 80(1974), 817-818 BIOGRAPHY. OBITUARY. ALGEBRA. FERMAT PROBLEM. NUMBER THEORY. (D E Kullman)

LEIGHTON, Albert C 1974 Co-ordinated historical cryptanalysis-codebreaking as a historical resource. Proc XIII Int Con Hist Sci 1971 Sect I, 102-108 CRYPTOLOGY. MATHEMATICAL METHODS IN HISTORY.

LENZEN, Victor F 1975 CHARLES S. PEIRCE as mathematical physicist. Trans Charles S Peirce Soc 11(3), 159-166 A GEODESY, especially GRAVITY and PENDULUMS. METROLOGY. OPERATIONS RESEARCH. (C V Jones)

* LEOPOLDT, H W & P ROQUETTE, editors 1975 Helmut Hasses Mathematische Abhandlungen (COLLECTED WORKS OF HASSE H). Berlin & New York (Walter de Gruyter) 3 volumes 1540 p PORTRAITS. FACSIMILES. Preface by Hasse. BIBLIOGRAPHY of 165 papers and 15 books by Hasse. QUADRATIC FORMS. CLASS FIELD THEORY. RECIPROCITY. ALGEBRAS. COMPLEX MULTIPLICATION. MODULAR ARITHMETIC. FUNCTION FIELDS. GAUSS SUMS. EMBEDDING PROBLEM. NUMBER THEORY FOUNDATIONS.

LEWIS, Albert C 1973 Halsted's translation of Lobachevskii's Theory of Parallels: An historical introduction. The Texas Quarterly 16(3), 85-98 NON-EUCLIDEAN GEOMETRY. BRUCE HALSTED. N LOBACHEVSKII. Biographical commentary on G B Halsted with a reprint of the preface, introduction, and appendix to the first edition of Halsted's translation of 1891.

LINN, Charles F 1974 The Golden Mean. Mathematics and the Fine Arts. (Doubleday and Co) 148 p A POPULARIZATION of familiar secondary sources on the relations of mathematics and the ARTS, with numerous quotations and illustrations.

LeLIONNAIS, F editor 1971 Great Currents of Mathematical Thought. Two volumes
 I: Mathematics: Concepts and Development. Translated by R A Hall and H G Bergmann.
 II: Mathematics in the Arts and Sciences. Translated by C Pinter and H Kline.
 (Dover Publications) xvi + 342 p; vi + 266 p US \$5 per volume (paper)
 COLLECTIONS OF ESSAYS. POPULARIZATIONS. DEFINITIONS. MATHEMATICAL STRUCTURE.
 ANALOGY. SYMMETRY. PHILOSOPHY OF MATHEMATICS. NUMBER CONCEPT. FERMAT'S LAST THEOREM.
 KUMMER'S IDEAL NUMBERS. PI. TRANSFINITE NUMBERS. CARDINAL NUMBERS. ORDINAL NUMBERS.
 ABSTRACT SPACES. FOURTH DIMENSION. CURVATURE OF SPACE. ANALYTIC FUNCTIONS. MISTAKES
 IN MATHEMATICS. CLASSIFICATION OF FUNCTIONS. REAL ANALYSIS. COMPLEX ANALYSIS.
 INFINITY. GROUPS. PROBABILITY. ISAAC NEWTON. SOPHUS LIE. WOMEN MATHEMATICIANS.
 XX. HENRI LEBESGUE. DAVID HILBERT. INTERNATIONAL CONGRESSES. FORECAST (HISTORICAL).
 BLAISE PASCAL. RESEARCH METHODS. EDUCATION. LOGIC. MARXISM. RENÉ DESCARTES.
 IDEALISM. CLASSIFICATION OF THE SCIENCES. PHYSICS. RELATIVITY. QUANTUM PHYSICS.
 HILBERT SPACE. INTEGRAL EQUATIONS. AESTHETICS. ARCHITECTURE. MUSIC. ART. ENGI-
 NEERING. INDUSTRIAL APPLICATIONS. AXIOMATICS. This collection of essays prepared
 during the years of German occupation and first published after World War II, was
 enlarged slightly in its second edition of 1962, upon which this translation is based.
 It includes the essays by distinguished French mathematicians including Emil Borel,
 Nicholas Bourbaki, Maurice Fréchet, Paul Montel, Arnoud Denjoy, Elie Cartan, Jean
 Dieudonné, André Weil, and several by non-mathematicians with strong links to mathe-
 matics, such as Le Corbusier.

LIST, Martha & Volker BIALAS editors 1973 Die Coss von Jost Bürgi in der Redaktion
von Johannes Kepler. Ein Beitrag zur frühen Algebra (The COSS of J BÜRGI in the
 edition of J KEPLER. A contribution to early ALGEBRA) Munich (Bayerischen Ak. der
 Wiss.) (Nova Kepleriana (NS)5 = Abh. Bay. Ak. d. Wiss. Math-Nat. Kl. (NS)154)
 First complete publication of this Kepler-Bürgi MANUSCRIPT, two essays (on mathematics
 in the XVI and the circle of Wilhelm IV of Hessen and TYCHO BRAHE; and on the ms), a
 chronology of Bürgi, and English summary.

LITTLEWOOD, J E 1971 Adventures in ballistics 1915-1918. I, II Mathematical Spec-
trum 4, 31-38, 80-86 J E LITTLEWOOD. EXTERIOR. BALLISTICS. Brief reminiscences
 of the author's army service in World War I and an account of his contributions to
 the theory of artillery range tables. (Underwood Dudley)

LIVANOVA, A M 1975 Tri sudby. Povest o velikom otkrytii (Three fates. A story
 about great discovery). Moscow (Znanie) 223 p Third edition of a romantic POPULARI-
 ZATION of the history of NONEUCLIDEAN GEOMETRY from W BOLYAI, J BOLYAI,
 N I LOBRACHEVSKII, C F GAUSS through B RIEMANN, to A EINSTEIN, A A FRIDMAN, RELATIVI-
 TY and modern COSMOLOGY.

DE LONGO CAMPO, Radulphus 1972 In anticlaudianum alani commentum. Edited by Jan
 Sulowski. (Polish Academy of Sciences) 340 p The first printing of this XII century
 educator's compendium, representing the content of UNIVERSITY EDUCATION of the time,
 including some mathematics and logic, as well as his well-known CLASSIFICATION of the
 sciences. Text in Latin, introduction (57 p) in French. Facsimiles, notes, BIBLIO-
 GRAPHY of his works and secondary sources, indexes, vocabulary.

LORCH, Lee 1976 On W L G WILLIAMS. Can Math Con Notes 8(8), 3 Supplementing an
 earlier OBITUARY by O'Connor, Lorch points to his progressive social and political
 role. For example, Williams supervised the first Black American, E COX, to receive
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