

Mathematics Appreciation Courses: The Report of a CUPM Panel

Bibliography and Reference List

A report called "Mathematics Appreciation Courses" appears in the Teaching of Mathematics section of this issue of the Monthly. This report in its original form contained an extensive list of references (films, supplies, books) for teachers of such courses. The following pages contain this list of references.

Films

- A Non-Euclidean Universe. (1978; 25 Min; Color). University Media.
- A Time for Change--The Calculus. (1975; 25 Min; Color) University Media.
- Accidental Nuclear War. (1976; 8 Min; Color) Pictura Film.
- Adventures in Perception. (1973; 22 Min; Color) BFA Educational Media. (Reviews: Amer. Math. Monthly 84 (1977) 582.)
- An Historical Introduction to Algebra. Modern Film Rentals.
- An Introduction to Feedback. (1960; 11 Min; Color) Encyclopedia Britannica Educational Corporation.
- Anatomy of Analogy. (25 Min; BW) Open University.
- Area and Pi. (1969; 10 Min; Color) Modern Film Rentals.
- Auto Insurance. (1976; 8 Min; Color) Pictura Film.
- Caroms. (1971; 9 1/2 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 82 (1975) 417; Math Teacher 66 (1973) 51.)
- Central Perspectives. (1971; 13 1/2 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 82 (1975) 419; Math. Teacher (1972) 733.)
- Central Similarities. (1966; 10 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 82 (1975) 418; Math. Teacher (1972) 643-644.)
- Challenge in the Classroom. (1966; 55 Min; Color) Modern Film Rentals.
- Circle Circus. (1979; 7 Min; Color) International Film Bureau.
- Common Generation of Conics. (4 Min; Color). Educational Solutions.
- Complex Numbers. (1978; 25 Min; Color). University Media.
- Computer Perspective. (1972; 8 Min; Color) Pyramid Films.
- Congruent Triangles. (1978; 7 Min; Color). International Film Bureau.
- Conic Sections. (1968; 11 Min; Color) BFA Educational Media.
- Conics. (1979; 10 Min; Color) Wards Modern Learning Aids.
- Conics. (1978; 25 Min; Color). University Media.
- Constructing an Algorithm. (25 Min; BW) Open University.
- Cosmic Zoom. McGraw-Hill Films.
- Curves. (1968; 17 Min; Color) A.I.M.S. (Reviews: Amer. Math. Monthly 83 (1976) 71-72; Math. Teacher 64 (1971) 525.)
- Curves of Constant Width. (1971; 16 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 78 (1971) 539; Math. Teacher 65 (1972) 234.)
- Cycloidal Curves or Tales From the Wanklenberg Woods. (1974; 22 Min; Color) Modern Film Rentals.
- Dance Squared. (1963; 4 Min; Color) International Film Bureau. Review: Math. Teacher 64 (1971) 627.)
- Dihedral Kaleidoscopes. (1966; 13 Min; Color) International Film Bureau. (Review: Math. Teacher 66 (1973) 51.)
- Dimension. (1970; 13 Min; Color) A.I.M.S. (Reviews: Amer. Math. Monthly 83 (1976) 71-72; Math. Teacher 64 (1971) 525.)
- Donald in Mathmagicland. (1960; 26 Min; Color) Walt Disney Educational Media Company.
- Dr. Posin's Giants: Isaac Newton. Indiana University Audiovisual Library.
- Dragon Fold...And Other Ways to Fill Space. (1979; 7 1/2 Min; Color) International Film Bureau.
- Equidecomposable Polygons. (10 1/2 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 82 (1975) 687-688; Math. Teacher 65 (1972) 734.)
- Errors That Die. (25 Min; BW) Open University.
- Flatland. (1965; 12 Min; Color) McGraw-Hill Films. (Review: Math. Teacher 64 (1971) 44-45.)
- Functions and Graphs. (1978; 25 Min; Color) University Media.
- Geodesic Domes: Math Raises the Roof. (1979; 20 Min; Color) David Nulsen Enterprises.
- Geometric Vectors--Addition. (1971; 17 Min; Color) International Film Bureau. (Review: Amer. Math. Monthly 82 (1975) 420.)
- Geometry: Inductive and Deductive Reasoning. (1962; 12 1/2 Min; Color) Coronet Films.
- Good for What? (25 Min; BW) Open University.
- Göttingen and New York. (1966; 43 Min; Color) Modern Film Rentals.
- How Far is Around? (1979; 7 1/2 Min; Color) International Film Bureau.
- Inferential Statistics, Part I: Sampling and Estimation. (1977; 19 Min; Color) Media Guild.
- Inferential Statistics, Part II: Hypothesis Testing. (1977; 25 Min; Color). Media Guild.
- Infinity. (1972; 17 Min; Color) A.I.M.S. (Review: Amer. Math. Monthly 83 (1976) 71-72.)

Inversion. (12 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 83 (1976) 71; Math. Teacher (1972) 644.)

Isaac Newton. (1959; 13 1/2 Min; Color) Coronet Films.

Isn't That the Limit! (1980; 17 Min; Color) David Nulsen Enterprises.

Isometries. (1967; 26 Min; Color) International Film Bureau. (Review: Math. Teacher 66 (1973) 51-52.)

Iteration and Convergence. (1978; 25 Min; Color) University Media.

John von Neumann, A Documentary. (1966; 63 Min; BW) Modern Film Rentals. (Review: Amer. Math. Monthly 75 (1968) 435.)

Journey to the Center of a Triangle. (1977; 8 1/2 Min; Color) International Film Bureau.

Let Us Teach Guessing. (1966; 61 Min; Color) Modern Film Rentals. (Review: Amer. Math. Monthly 75 (1968) 219.)

Limit Curves and Curves of Infinite Length. (1979; 14 Min; Silent; Color) International Film Bureau.

Limit Surfaces and Space Filling Curves. (1979; 10 1/2 Min; Silent; Color) International Film Bureau.

Limits. (25 Min; BW) Open University.

Linear Programming. (1969; 9 Min; Color) Macmillan Films.

Look Again. (1970; 15 Min; Color) A.I.M.S. (Reviews: Amer. Math. Monthly 83 (1976) 71-72; Math. Teacher 64 (1971) 525.)

Love Song. (1976; 11 Min; Color) Pictura Film.

Mathematical Curves. (1977; 10 Min; Color) Churchill Films.

Mathematical Induction. (1960; 62 Min; Color) Modern Film Rentals.

Mathematical Induction. (1978; 25 Min; Color) University Media.

Mathematical Peep Show. (1961; 11 Min; Color) Encyclopedia Britannica Educational Corporation. (Review: Math. Teacher 64 (1971) 625.)

Mathematician and the River. (1959; 19 Min; Color) No distributor.

Mathematics of the Honeycomb. (1964; 13 Min; Color) Moody Institute of Science. (Review: Math. Teacher 64 (1971) 334.)

Matrices. (9 Min; Color) Macmillan Films.

Matrioska. Indiana University Audiovisual Library.

Maurits Escher, Painter of Fantasies. (1970; 26 1/2 Min; Color) Coronet Films. (Review: Amer. Math. Monthly 83 (1976) 495.)

Mean, Median, Mode. McGraw-Hill Films.

Modelling Drug Therapy. (1978; 25 Min; Color) University Media.

Modelling Pollution. (1978; 25 Min; Color) University Media.

Modelling Surveys. (1978; 25 Min; Color) University Media.

Modmath. (14 1/2 Min; Color) International Film Bureau.

Mr. Simplex Saves the Aspidistra. (1966; 33 Min; Color) Modern Film Rentals.

Networks and Matrices. (1978; 25 Min; Color) University Media.

New Worlds From Old. (1975; 25 Min; Color) University Media.

Newton's Equal Areas. (1968; 8 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 79 (1972) 1054; Math. Teacher 63 (1970) 449.)

Nim and Other Oriented Graph Games. (1966; 63 Min; BW) Modern Film Rentals.

Notes on a Triangle. International Film Bureau. (Review: Math. Teacher 63 (1970) 363.)

Numbers Now and Then. (1975; 25 Min; Color) University Media.

Orthogonal Projection. (1965; 13 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 82 (1975) 419-420; Math. Teacher (1972) 643.)

Paradox Box. Scientific American.

Pits, Peaks, and Passes (Part 1). (1966; 48 Min; Color) Modern Film Rentals.

Plateau's Problem. A Film by Sr. Rita Ehrmann.

Points of View: Perspective and Projection. (1975; 25 Min; Color) University Media.

Possibly So, Pythagoras. (1973; 14 Min; Color) International Film Bureau. (Review: Math. Teacher 64 (1971) 626.)

Powers of Ten. (1978; 9 Min; Color) Pyramid Films. (Review: Math. Teacher (1979) 388.)

Predicting at Random. (1966; 43 Min; Color) Modern Film Rentals.

Probability. (12 Min; Color) McGraw-Hill Films.

Professor George Pólya and Students, Parts I and II. (1972; 60 Min; Color) University Media.

Professor George Pólya Talks to Professor Maxim Bruckheimer. (1972; 60 Min; Color) University Media.

Projective Generation of Conics. (16 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 82 (1975) 538-539; Math. Teacher 66 (1973) 51.)

Quaternions: A Herald of Modern Algebra. (1975; 25 Min; Color) University Media.

Rational Numbers and the Square Root of 2. (1978; 25 Min; Color) University Media.

Regular Homotopies in the Plane: Part I: (1975; 14 Min; Color); Part II: (1975; 18 1/2 Min; Color) International Film Bureau. (Review: Amer. Math. Monthly 85 (1978) 212.)

Root Two: Geometry or Arithmetic? (1975; 25 Min; Color) University Media.

Sampling. (25 Min; BW) Open University.

Sets, Crows, and Infinity. (12 Min; Color) BFA Educational Media.

Shaking the Foundations. (1975; 25 Min; Color) University Media.

Shapes of the Future: Some Unsolved Problems in Geometry: Part I: Two Dimensions (1975; 22 Min; Color); Part II: Three Dimensions (1970; 21 Min; Color) Modern Film Rentals. (Review: Amer.

- Math. Monthly 79 (1972) 1052-1053.)
- Sierpinski's Curve Fills Space. (1979; 4 1/2 Min; Color) International Film Bureau.
- Similar Triangles. (1976; 7 1/2 Min; Color) International Film Bureau.
- Space Filling Curves. (1975; 25 1/2 Min; Color) International Film Bureau. (Review: Math. Teacher 69 (1976) 164-165.)
- Sphere Eversions. (1979; 7 1/2 Min; Silent; Color) International Film Bureau.
- Spheres. International Film Bureau.
- Statistics At A Glance. (1972; 28 Min; Color) Media Guild. (Review: Amer. Math. Monthly 82 (1975) 312.)
- Statistics and Probability I. (15 Min; BW) Open University.
- Statistics and Probability II. (25 Min; BW) Open University.
- Statistics and Probability III. (25 Min; BW) Open University.
- Symbols, Equations and the Computer. (1978; 25 Min; Color) University Media.
- Symmetries of the Cube. (1971; 13 1/2 Min; Color) International Film Bureau. (Review: Math. Teacher 65 (1972) 733.)
- The Algebra of the Unknown. (1975; 25 Min; Color) University Media.
- The Binomial Theorem. (1978; 25 Min; BW) University Media.
- The Butterfly Catastrophe. (1979; 4 1/2 Min; Silent; Color) International Film Bureau.
- The Delian Problem. (1975; 25 Min; Color) University Media.
- The Dot and the Line. Indiana University Audiovisual Library.
- The Geometry Euclid Didn't Know. (1979; 16 Min; Color) David Nulsen Enterprises. (Reviews: Amer. Math. Monthly 86 (1979) 600; Math. Teacher (1979) 300.)
- The Great Art--Solving Equations. (1975; 25 Min; Color) University Media.
- The Hypercube: Projections and Slicing. (1978; 12 Min; Color) Banchoff-Strauss Productions.
- The Kakeya Problem. (1962; 60 Min; Color) Modern Film Rentals.
- The Majestic Clockwork. (1974; 52 Min; Color) Time Life Multimedia.
- The Marriage Theorem, Parts I & II. (1974; 46 Min. and 47 Min; BW) Modern Film Rentals.
- The Music of the Spheres. (1974; 52 Min; Color) Time Life Multimedia.
- The Nature of Digital Computing. (25 Min; BW) University Media.
- The Perfection of Matter. McGraw-Hill Films.
- The Search for Solid Ground. (1963; 62 Min; BW) Modern Film Rentals.
- The Seven Bridges of Königsberg. (1965; 4 Min; Color) International Film Bureau.
- The Structure of a Computer. (25 Min; BW) Open University.
- Topology. (1972; 9 Min; Color) Macmillan Films.
- Topology. (1966; 30 Min; BW) Modern Film Rentals. (Review: Amer. Math. Monthly 75 (1968) 790.)
- Topology: Some Historical Concepts. (21 3/4 Min; Color) Richard Cline Film Productions.
- Trio for Three Angles. (8 Min; Color) International Film Bureau.
- Turning a Sphere Inside Out. (1976; 23 Min; Color) International Film Bureau. (Reviews: Amer. Math. Monthly 86 (1979) 511-512; Math. Teacher 70 (1977) 55.)
- View From the People Wall. (1964; 14 Min; Color) Encyclopedia Britannica Educational Corporation.
- Weather by the Numbers. University of Indiana Audiovisual Library.
- What is a Limit? (25 Min; BW) Open University.
- What is a Set? Part I & II. (1967; 15 Min; Color) Modern Film Rentals. (Review: Amer. Math. Monthly 75 (1968) 324.)
- What is Mathematics and How Do We Teach it? (1966; 60 Min; BW) Modern Film Rentals.
- Zooms on Self-Similar Figures. (1979; 8 Min; Color) International Film Bureau.
- Addresses of Distributors:
- A.I.M.S., 626 Justin Avenue, Glendale, CA 91201.
- International Film Bureau, 332 South Michigan Avenue, Chicago, IL 60604.
- McGraw-Hill Films, McGraw-Hill Book Company, 330 West 42nd Street, New York, NY 10036.
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- Coronet Films, 65 East South Water Street, Chicago, IL 60601.
- Pictura Film Co., 111 8th Avenue, New York, NY 10011.
- BFA Educational Media, 2211 Michigan Avenue, P.O. Box 1795, Santa Monica, CA 90406.
- Time-Life Multimedia, Time and Life Building, New

York, NY 10020.

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Offprints of Scientific American articles.

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Santa Monica, CA 90405.

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purchase.

Popular Science Audio-Visuals, Inc., 5235
Ravenswood Avenue, Chicago, IL 60640.

Filmstrips and overhead transparencies,
principally in high school mathematics
(geometry, algebra, elementary functions).

Time Life Films, 43 West 16th Street, New York, N
10011. (212-691-2930).

Numerous BBC-produced 20-minute 16mm B & W
films on topics ranging from inequalities to
matrices.

Edmund Scientific Company, 1985 Edscorp Building,
Barrington, NJ 08007. (609-547-3488).

References

Survey Monographs

Boehm, George A.W. The New World of Mathematics.
The Dial Press, New York, 1959.

Courant, Richard and Robbins, Herbert. What is
Mathematics? Oxford University Press, New York,
1941.

Dantzig, Tobias. Number, the Language of Science
4th ed. Free Press, New York, 1967.

Garding, Lars. Encounter with Mathematics.
Springer-Verlag, New York, 1977.

Herstein, I.N. and Kaplansky, I. Matters
Mathematical. Harper and Row, New York, 1974.

Khurgin, Ya. Did You Say Mathematics? MIR
Publishers, Moscow, Russia, 1974.

Kline, Morris. Mathematics: The Loss of
Certainty. Oxford University Press, New York,
1980.

Pedoe, Daniel. The Gentle Art of Mathematics.
Macmillan, Riverside, New Jersey, 1958, 1963.

Rademacher, Hans and Toeplitz, Otto. The
Enjoyment of Mathematics. Princeton University
Press, Princeton, New Jersey, 1957.

Sawyer, W.W. Introducing Mathematics, 4 vols.
Penguin Books, New York, 1964-70.

Singh, Jagjit. Great Ideas of Modern Mathematics:
Their Nature and Use. Dover, New York, 1959;
Hutchinson and Company, London, England, 1972.

Stein, Sherman K. Mathematics, The Man-made
Universe: An Introduction to the Spirit of
Mathematics, Third Edition. W.H. Freeman, San
Francisco, California, 1976.

Steinhaus, Hugo. Mathematical Snapshots, 2nd ed.
Oxford University Press, New York, 1969.

Stewart, Ian. Concepts of Modern Mathematics.
Penguin Books, New York, 1975.

Whitehead, Alfred North. An Introduction to

Mathematics. Oxford University Press, New York, 1958.

Collections of Essays

LeLionnais, F., ed. Great Currents of Mathematical Thought, 2 vols. Dover, New York, 1971.

Kline, Morris, ed. Mathematics in the Modern World. W.H. Freeman, San Francisco, California, 1968.

Kline, Morris, ed. Mathematics: An Introduction to Its Spirit and Use. W.H. Freeman, San Francisco, California, 1979.

Messick, David M., ed. Mathematical Thinking in Behavioral Sciences. W.H. Freeman, San Francisco, California, 1968.

National Research Committee on Support of Research in the Mathematical Sciences (COSRIMS). The Mathematical Sciences-- A Collection of Essays. MIT Press, Cambridge, Massachusetts, 1969.

Newman, James R., ed. The World of Mathematics, 4 vols. Simon and Schuster, New York, 1956-60.

Saaty, Thomas L. and Weyl, F. Joachim, eds. The Spirit and Uses of the Mathematical Sciences. McGraw-Hill, New York, 1969.

Schaaf, William L., ed. Our Mathematical Heritage, New, Revised Edition. Collier Books, New York, 1963.

Steen, Lynn Arthur, ed. Mathematics Today: Twelve Informal Essays. Springer-Verlag, New York, 1978.

Nature of Mathematics

Adler, Alfred. "Reflections--mathematics and creativity." New Yorker 47 (February 19, 1972) 39-45.

Bronowski, Jacob. "The music of the spheres." in J. Bronowski, The Ascent of Man. Little, Brown, and Company, Boston, Massachusetts, 1973, pp. 154-187.

Bronowski, Jacob. "The logic of the mind." Amer. Scientist 54 (1966) 1-14.

Bruter, C.P. Sur la nature des mathématiques. Gauthier-Villars, Paris, France, 1973.

Cartwright, Mary L. "The mathematical mind." Math. Spectrum 2 (1969-70) 37-45.

Cartwright, Mary L. "Mathematics and thinking mathematically." Amer. Math. Monthly 77 (1970) 20-28.

Davis, Philip J. and Hersh, Reuben. The Mathematical Experience. Birkhäuser, Cambridge, Massachusetts, 1981.

Fisher, Charles S. "Some social characteristics of mathematicians and their work." Amer. J. Sociology 78 (1973) 1094-1118.

Grabner, Judith V. "Is mathematical truth time-dependent?" Amer. Math. Monthly 81 (1974) 354-365.

Hadamard, Jacques. Psychology of Invention in the Mathematical Field. Dover, New York, 1945.

Halmos, Paul R. "Mathematics as a creative art." Amer. Scientist 56 (1968) 375-389.

Hahn, Hans. "Geometry and intuition," Scientific American 190 (April 1954) 84-91, 108; also in M. Kline, Mathematics in the Modern World. W.H. Freeman, San Francisco, California, 1968, pp. 184-188, 399.

Hardy, G.H. A Mathematician's Apology. Cambridge University Press, Cambridge, Massachusetts, 1940; 1967; excerpted in J.R. Newman, The World of Mathematics, V. 4, Simon and Schuster, New York, 1956, pp. 2027-2038.

Helitzer, Florence. "A conversation with three mathematicians." University: A Princeton Quarterly 59 (Winter 1974) 1-5, 28-30.

Henkin, Leon. "Are logic and mathematics identical?" Science 138 (1962) 788-794.

Hilton, Peter J. "The art of mathematics." Univ. of Birmingham, 1960.

Iliev, L. "Mathematics as the science of models." Russian Math. Surveys 27:2 (1972) 181-189.

Jones, Landon Y., Jr. "Mathematicians: They're special." Think 40:4 (1974) 32-35.

Kapur, J.N. Thoughts on the Nature of Mathematics. Atma Ram, Delhi, India, 1973.

Lefschetz, Solomon. "The structure of mathematics." Amer. Scientist 38 (1950) 105-111.

Newman, M.H.A. "What is mathematics? New answers to an old question." Math. Gazette 43 (1959) 161-171.

Otte, Michael. Mathematiker Über die Mathematik. Springer-Verlag, New York, 1974.

Poincaré, Henri. "Mathematical creation." Scientific American 179 (August 1948) 54-57; also in M. Kline, Mathematics in the Modern World. W.H. Freeman, San Francisco, California, 1968, pp. 14-17; and in J.R. Newman, The World of Mathematics, V. 4, Simon and Schuster, New York, 1956, pp. 2041-2050.

Rényi, Alfred. "A Socratic dialogue on mathematics." Canad. Math. Bull. 7 (1964) 441-462; also in A. Rényi, Dialogues on Mathematics. Holden-Day, San Francisco, California, 1967, pp. 3-25.

Stein, Sherman K. "The mathematician as an explorer." Scientific American 204 (May 1961) 148-158, 206.

Stone, Marshall H. "The revolution in mathematics." Liberal Education, 47 (1961) 304-327; also in Amer. Math. Monthly 68 (1961) 715-734.

Weidman, Donald R. "Emotional perils of mathematics." Science 149 (1965) 1048.

Weissinger, Johannes. "The characteristic features of mathematical thought." in T.L. Saaty and F.J. Weyl, The Spirit and Uses of the Mathematical Sciences. McGraw-Hill, New York, 1969, pp. 9-27.

Weyl, Hermann. "The mathematical way of thinking." Science 92 (1940) 437-446; also in Studies in the History of Science. University of Pennsylvania Press, 1941, pp. 103-123.

Weyl, Hermann. "Insight and reflection." in T.L. Saaty and F.J. Weyl, The Spirit and Uses of the Mathematical Sciences. McGraw-Hill, New York, 1969, pp. 281-301.

Wilder, Raymond L. "The role of the axiomatic method." Amer. Math. Monthly 74 (1967) 115-127; also in Math. Teaching 41 (1967) 32-40.

von Neumann, John. "The mathematician." in R.B. Heywood, The Works of the Mind. University of Chicago Press, Chicago, Illinois, 1947, pp. 180-196; also in J.R. Newman, The World of

Mathematics, V. 4, Simon and Schuster, New York, 1956, pp. 2053-2063.

Survey Papers

Bochner, Salomon. "Mathematics." McGraw-Hill Encyclopedia of Science and Technology 8 (1960) 175-180.

Dieudonné, Jean A. "Recent developments in mathematics." Amer. Math. Monthly 71 (1964) 239-248.

Eves, Howard W. "Mathematics." Encyclopedia Americana 18 (1976) 431-434.

Ficken, F.A. "Mathematics and the layman." Amer. Scientist 52 (1964) 419-430.

MacLane, Saunders. "Mathematical models of space." Amer. Scientist 53 (1980) 252.

Meserve, Bruce E. "New mathematics." Encyclopedia Americana 20 (1976) 202-205.

Meserve, Bruce E. "Number systems and notation." Encyclopedia Americana 20 (1976) 536f-536j.

Murray, Francis J. and Ford, Lester R. "Mathematics as a calculatory science." Encyclopaedia Britannica, 15th ed., 1974, Macropaedia V. 11, pp. 671-696.

Richards, Ian. "Impossibility." Math. Magazine 48 (1975) 249-262.

Stone, Marshall H. "The future of mathematics." J. Math. Soc. Jap. 9 (1957) 493-507.

Temple, G. "The growth of mathematics." Math. Gazette 41 (1957) 161-168.

Weil, André. "The future of mathematics." Amer. Math. Monthly 57 (1950) 295-306; also in F. Le Lionnais. Great Currents of Mathematical Thought, V. 1. Dover, New York, 1971, pp. 321-336.

Advanced Exposition

Abbott, J.C. The Chauvenet Papers: A Collection of Prize-Winning Expository Papers in Mathematics, 2 vols. Mathematical Association of America, Washington, D.C., 1978.

Aleksandrov, A.D., Kolmogorov, A.N., Lavrent'ev, M.A. Mathematics, Its Content, Methods, and Meaning, 3 vols. MIT Press, Cambridge, Massachusetts, 1969.

Behnke, H., et al. Fundamentals of Mathematics, 3 vols. MIT Press, Cambridge, Massachusetts, 1974.

Saaty, Thomas L. Lectures on Modern Mathematics, 3 vols. John Wiley, New York, 1963-1965.

Biography and Autobiography

Bell, Eric Temple. Men of Mathematics. Simon and Schuster, New York, 1937.

Box, Joan Fisher. R.A. Fisher, The Life of a Scientist. Wiley, New York, 1978.

Dauben, Joseph Warren. Georg Cantor: His Mathematics and Philosophy of the Infinite. Harvard University Press, Cambridge, Massachusetts, 1979.

Grattan-Guinness, Ivor. Joseph Fourier, 1768-1830. MIT Press, Cambridge, Massachusetts, 1972.

Halmos, Paul R. "Nicolas Bourbaki." Scientific American 196 (May 1957) 88-99, 174.

Halmos, Paul R. "The legend of John von Neumann."

Amer. Math. Monthly 80 (1973) 382-394.

Hardy, G.H. Ramanujan. Chelsea Publishing, New York, 1968.

Hoffman, Banesh. Albert Einstein, Creator and Rebel. Viking Press, New York, 1972.

Infeld, Leopold. Whom the Gods Love. Whittlesey House, 1948; NCTM, Reston, Virginia, 1978.

Kovalevskaya, Sofya. Sofya Kovalevskaya: A Russian Childhood. Springer-Verlag, New York, 1978.

Mahoney, Michael S. The Mathematical Career of Pierre de Fermat. Princeton University Press, Princeton, New Jersey, 1973.

Meschkowski, Herbert. Ways of Thought of Great Mathematicians. Holden-Day, San Francisco, California, 1964.

Morgan, Bryan. Men and Discoveries in Mathematics. Transatlantic Arts, Inc., Levittown, New York, 1972.

Morse, Philip M. In at the Beginnings: A Physicist's Life. MIT Press, Cambridge, Massachusetts, 1977.

Ore, Oystein. Niels Henrik Abel, Mathematician Extraordinary. University of Minnesota Press, Minneapolis, Minnesota, 1957; Chelsea Press, New York, 1974.

Osen, Lynn M. Women in Mathematics. MIT Press, Cambridge, Massachusetts, 1974.

Perl, Teri. Math Equals: Biographies of Women Mathematicians and Related Activities. Addison-Wesley, Reading, Massachusetts, 1978.

Reid, Constance. Courant in Göttingen and New York. Springer-Verlag, New York, 1976.

Reid, Constance. Hilbert. Springer-Verlag, New York, 1970.

Ulam, S.M. Adventures of a Mathematician. Charles Scribner's Sons, New York, 1976.

Wiener, Norbert. Ex-Prodigy. Simon and Schuster, New York, 1953; MIT Press, Cambridge, Massachusetts, 1964.

Wiener, Norbert. I Am a Mathematician. Doubleday, New York, 1956; MIT Press, Cambridge, Massachusetts, 1964.

History

Al-Daffa, Ali Abdullah. The Muslim Contribution to Mathematics. Humanities Press, Atlantic Highlands, New Jersey, 1977.

Bell, Eric Temple. The Development of Mathematics. McGraw-Hill, New York, 1945.

Boyer, Carl B. A History of Mathematics. John Wiley, New York, 1968.

Chace, Arnold Buffum. The Rhind Mathematical Papyrus. NCTM, Reston, Virginia, 1979.

Goldstine, H. The Computer from Pascal to von Neumann. Princeton University Press, Princeton, New Jersey, 1972.

Kline, Morris. Mathematical Thought from Ancient to Modern Times. Oxford University Press, New York, 1972.

Kline, Morris. Mathematics in Western Culture. Oxford University Press, New York, 1953; 1964.

Kramer, Edna E. The Nature and Growth of Modern

Mathematics. Hawthorn, New York, 1970; Fawcett, New York, 1973.

Lambert, Joseph B., et al. "Maya arithmetic." Amer. Scientist 68 (May-June 1980) 249-255.

LeVeque, William J., et al. "History of mathematics." Encyclopaedia Britannica, 15th ed., 1974, Macropaedia, V. 11, pp. 639-670.

Menninger, Karl. Number Words and Number Symbols, A Cultural History of Numbers. MIT Press, Cambridge, Massachusetts, 1977.

Resnikoff, H.L. and Wells, R.O., Jr. Mathematics in Civilization: Geometry and Calculation as keystones of Culture. Holt, Rinehart and Winston, New York, 1973.

Weyl, Hermann. "A half-century of mathematics." Amer. Math. Monthly 58 (1951) 523-553.

Wilder, Raymond L. "The origin and growth of mathematical concepts." Bull. Amer. Math. Soc. 59 (1963) 423-448.

Wilder, Raymond L. Evolution of Mathematical Concepts. Halsted Press, New York, 1974.

Wilder, Raymond L. "History in the mathematics curriculum: Its status, quality, and function." Amer. Math. Monthly 79 (1972) 479-495.

Zaslavsky, Claudia. Africa Counts: Number and Pattern in African Culture. Prindle, Weber and Schmidt, Boston, Massachusetts, 1973.

Mathematics and Science

Birkhoff, George D. "The mathematical nature of physical theories." Amer. Scientist 31 (1943) 281-310.

Browder, Felix E. "Is mathematics relevant? And if so, to what?" University of Chicago Magazine 67:3 (Spring 1975) 11-16; also appears as "The relevance of mathematics." Amer. Math. Monthly 83 (1976) 249-254.

Calder, Nigel. Einstein's Universe. Viking Press, New York, 1979.

Courant, Richard. "Mathematics in the modern world." Scientific American 211 (September 1964) 40-49, 269; also in M. Kline, Mathematics in the Modern World. W.H. Freeman, San Francisco, California, 1968, pp. 19-27, 394.

De Broglie, Louis. "The role of mathematics in the development of contemporary theoretical physics." in F. LeLionnais, Great Currents on Mathematical Thought, V. 2, Dover, New York, 1971, pp. 78-93.

Gardner, Martin. The Ambidextrous Universe: Mirror Asymmetry and Time-Reversed Worlds, Second Revised, Updated Edition. Scribner's, New York, 1979.

Penrose, Roger. "Einstein's vision and the mathematics of the natural world." The Sciences 19 (March 1979) 6-9.

Pólya, George. Mathematical Methods in Science. Mathematical Association of America, Washington, D.C., 1977.

Schwartz, Jacob T. "The pernicious influence of mathematics on science." in E. Nagel, P. Suppes and A. Tarski, Logic, Methodology and Philosophy of Science. Stanford University Press, Stanford, California, 1962, pp. 356-360.

Stone, Marshall H. "Mathematics and the future of science." Bull. Amer. Math. Soc. 63 (1957) 61-76.

Suppes, P. "A comparison of the meaning and uses of models in mathematics and the empirical sciences." Synthese 12 (1960) 287-301.

Wigner, Eugene P. "The unreasonable effectiveness of mathematics in the natural sciences." Comm. Pure Appl. Math. 13 (1960) 1-14; also in T.L. Saaty and F.J. Weyl, The Spirit and Uses of the Mathematical Sciences. McGraw-Hill, New York, 1969, pp. 123-140; in Studies in Mathematics, V. 16, SMSC, Stanford, California, 1967, pp. 31-44; and in E.P. Wigner, Symmetries and Reflections: Scientific Essays of Eugene P. Wigner, Indiana University Press, Bloomington, Indiana, 1967, pp. 222-237.

Zukav, Gary. The Dancing Wu Li Masters: An Overview of the New Physics. William Morrow, New York, 1979.

Mathematics and Society

Booss, Bernhelm and Niss, Mogens (eds.). Mathematics and the Real World. Birkhäuser, Boston, Massachusetts, 1979.

Fehr, Howard F. "Value and the study of mathematics." Scripta Math. 21 (1955) 49-53.

Morse, Marston. "Mathematics in our culture." in T.L. Saaty and F.J. Weyl, The Spirit and Uses of the Mathematical Sciences. McGraw-Hill, New York, 1969, pp. 105-120.

Whitehead, Alfred North. "Mathematics and liberal education." in A.N. Whitehead, Essays in Science and Philosophy. Philosophical Library, New York, 1947, pp. 175-188.

Whitehead, Alfred North. "Mathematics as an element in the history of thought." in J.R. Newman, The World of Mathematics, V. 1. Simon and Schuster, New York, 1956, pp. 402-416.

Wilder, Raymond L. "Trends and social implications of research." Bull. Amer. Math. Soc. 75 (1969) 891-906.

Philosophy and Logic

Baum, Robert J. Philosophy and Mathematics: From Plato to the Present. Freeman, Cooper and Company, San Francisco, California, 1974.

Benacerraf, Paul and Putnam, Hilary. Philosophy of Mathematics: Selected Readings. Prentice-Hall, Englewood Cliffs, New Jersey, 1964.

Crossley, J.N., et al. What is Mathematical Logic? Oxford University Press, New York, 1972.

Hofstadter, Douglas R. Gödel, Escher, Bach: An Eternal Golden Braid. Basic Books, New York, 1979.

Lakatos, Imre. "Proofs and refutations." Brit. J. Phil. Science 14 (1963-64) 1-25, 120-139, 221-245, 296-342. Also available as: Proofs and Refutations: The Logic of Mathematical Discovery. Cambridge University Press, New York, 1976.

Nagel, Ernest and Newman, James R. Gödel's Proof. New York University Press, New York, 1958.

Wilder, Raymond L. "The nature of mathematical proof." Amer. Math. Monthly 51 (1944) 309-323.

Wilder, Raymond L. Introduction to the Foundations of Mathematics, 2nd ed. John Wiley, New York, 1965.

Symmetry, Art, Aesthetics

- Baker, Lillian F.; Schattschneider, Doris J. The Perspective Eye: Art and Math. Allentown Art Museum, Allentown, Pennsylvania, 1979.
- Bezuszka, Stanley; Kenney, Margaret; and Silvey, Linda. Tessellations: The Geometry of Patterns. Creative Publications, California, 1977.
- Birkhoff, George D. Aesthetic Measure. Harvard University Press, Cambridge, Massachusetts, 1933.
- deFinetti, Bruno. Die Kunst des Sehens in der Mathematik. Birkhäuser, Basel, Switzerland, 1974.
- Holden, Alan. Shapes, Space, and Symmetry. Columbia University Press, New York, 1971.
- Huntley, H.E. The Divine Proportion: A Study in Mathematical Beauty. Dover, New York, 1970.
- Lanczos, Cornelius. Space Through the Ages. Academic Press, New York, 1970.
- Linn, Charles F. The Golden Mean: Mathematics and the Fine Arts. Doubleday and Company, New York, 1974.
- Lockwood, E.H. and Macmillan, R.H. Geometric Symmetry. Cambridge University Press, New York, 1978.
- Loeb, Arthur L. Space Structures, Their Harmony and Counterpoint. Addison-Wesley, Reading, Massachusetts, 1976.
- Malina, Frank J., ed. Visual Art, Mathematics, and Computers: Selections from the Journal Leonardo. Pergamon, Elmsford, New York, 1979.
- Mandelbrot, Benoit. Fractals: Form, Chance, and Dimension. W.H. Freeman, San Francisco, California, 1977.
- Moineau, J.-C. Mathématique de l'esthétique. Dunod, Paris, France, 1969.
- Ouchi, Hajime. Japanese Optical and Geometrical Art. Dover, New York, 1977.
- Pearce, Peter. Structure in Nature as a Strategy for Design. MIT Press, Cambridge, Massachusetts, 1978.
- Pearce, Peter and Pearce, Susan. Polyhedra Primer. D. Van Nostrand, New York, 1978.
- Pedoe, Dan. Geometry and the Liberal Arts. St. Martin's Press, New York, 1978.
- Pugh, Anthony. Polyhedra, A Visual Approach. University of California Press, California, 1976.
- Robson, Ernest and Wimp, Jet, eds. Against Infinity: An Anthology of Contemporary Mathematical Poetry. Primary Press, Pennsylvania, 1979.
- Rosen, Joe. Symmetry Discovered: Concepts and Applications in Nature and Science. Cambridge University Press, New York, 1975.
- Senechal, Marjorie and Fleck, George. Patterns of Symmetry. University of Massachusetts Press, Amherst, Massachusetts, 1977.
- Shubnikov, A.V. and Koptsik, V.A. Symmetry in Science and Art. Plenum Press, New York, 1974.
- Stevens, Peter S. Patterns in Nature. Little, Brown and Company, Boston, Massachusetts, 1974.
- Wechsler, Judith, ed. On Aesthetics in Science. MIT Press, Massachusetts, 1978.
- Weyl, Hermann. Symmetry. Princeton University Press, Princeton, New Jersey, 1952; excerpted in
- J.R. Newman. The World of Mathematics, V. 1. Simon and Schuster, New York, 1956, pp. 671-724.

Computing

- Feldman, Jerome A. "Programming languages." Scientific American 241 (December 1979) 94-116.
- Hamming, Richard W. "Intellectual implications of the computer revolution." Amer. Math. Monthly 70 (1963) 4-11; also in T.L. Saaty and F.J. Weyl. The Spirit and Uses of the Mathematical Sciences, McGraw-Hill, 1969, pp. 188-199; in Studies in Mathematics, V. 16, School Mathematics Study Group, Stanford, California, 1967, pp. 45-52; and in Z.W. Pylyshyn. Perspectives on the Computer Revolution. Prentice-Hall, Englewood Cliffs, New Jersey, 1970, pp. 370-377.
- McCorduck, Pamela. Machines Who Think: A Personal Inquiry into the History of Prospects of Artificial Intelligence. Freeman, San Francisco, California, 1979.
- Weizenbaum, Joseph. Computer Power and Human Reason: From Judgment to Calculation. W.H. Freeman, San Francisco, California, 1976.

Pedagogy

- Dieudonné, Jean A. "Should we teach modern mathematics?" Amer. Scientist 61 (1973) 16-19.
- Engel, Arthur. "The relevance of modern fields of applied mathematics for mathematical education." Educ. Studies Math. 2 (1969-70) 257-269.
- Henrici, Peter. "Reflections of a teacher of applied mathematics." Quarterly of Applied Math. 30 (1972) 31-39.
- Hilton, Peter J. "The survival of education." Educ. Tech. 13:11 (November 1973) 12-16.
- Kline, Morris. Why the Professor Can't Teach: Mathematics and the Dilemma of University Education. St. Martin's Press, New York, 1977.
- Kline, Morris. "Logic versus pedagogy." Amer. Math. Monthly 77 (1970) 264-282.
- Klamkin, Murray S. "The teaching of mathematics so as to be useful." Educ. Studies Math. 1 (1968-69) 126-160.
- Kemeny, John G. "Teaching the new mathematics." Atlantic Monthly 210 (October 1962) 90-91; also in J.G. Kemeny. Random Essays on Mathematics, Education and Computers. Prentice-Hall, Englewood Cliffs, New Jersey, 1964, pp. 27-34.
- Lazarus, Mitchell. "Mathophobia: Some personal speculations." Nat. Elem. Principal 53:2 (Jan.-Feb. 1974) 16-22.
- Lighthill, M.J. "The art of teaching the art of applying mathematics." Math. Gazette 55 (1971) 249-270.
- Ordman, Edward T. "One and one is nothing: Liberating mathematics." Soundings 56 (1973) 164-181.
- Pollak, Henry O. "How can we teach applications of math?" Educ. Studies Math. 2 (1969-70) 393-404.
- Pollak, Henry O. "On some of the problems of teaching applications of mathematics." Educ. Studies Math. 1 (1968-69) 24-30.
- Pólya, George. How to Solve It. Princeton University Press, Princeton, New Jersey, 1945; excerpted in J.R. Newman. The World of

Mathematics, V. 3. Simon and Schuster, New York, 1956, pp. 1980-1992.

Pólya, George. Mathematical Discovery, 2 vols. John Wiley, New York, 1962 and 1965.

Pólya, George. Mathematics and Plausible Reasoning, Vols. I and II. Princeton University Press, Princeton, New Jersey. Vol. I, 1954; Vol. II, rev. ed., 1969.

Puzzles & Recreations

Ball, W.W. Rouse and Coxeter, H.S. MacDonald. Mathematical Recreations and Essays, Twelfth Edition. University of Toronto Press, Toronto, Canada, 1974.

Dudeney, Henry Ernest. The Canterbury Puzzles and Other Curious Problems, Fourth Edition. Dover, New York, 1958.

Duffin, R.J. Puzzles, Games, and Paradoxes. Carnegie-Mellon University, Pittsburgh, Pennsylvania, 1979.

Fixx, James E. Solve It! A Perplexing Profusion of Puzzles. Doubleday, New York, 1978.

Fujimura, Kobon. The Tokyo Puzzles. Charles Scribner's Sons, New York, 1978.

Gardner, Martin. Martin Gardner's Sixth Book of Mathematical Games from Scientific American. W.H. Freeman, San Francisco, California, 1971.

Gardner, Martin. Mathematical Carnival. Alfred A. Knopf, Inc., New York, 1975.

Gardner, Martin. Mathematical Circus. Alfred A. Knopf, Inc., New York, 1979.

Gardner, Martin. Mathematical Magic Show. Alfred A. Knopf, New York, 1977.

Gardner, Martin. Mathematics, Magic and Mystery. Dover, New York, 1956.

Gardner, Martin. New Mathematical Diversions from Scientific American. Simon and Schuster, New York, 1966.

Gardner, Martin. The Numerology of Dr. Matrix. Simon and Schuster, New York, 1967.

Gardner, Martin. The Scientific American Book of Mathematical Puzzles and Diversions. Simon and Schuster, New York, 1959.

Gardner, Martin. The Second Scientific American Book of Mathematical Puzzles and Diversions. Simon and Schuster, New York, 1961.

Gardner, Martin. The Unexpected Hanging, and Other Mathematical Diversions. Simon and Schuster, New York, 1969.

Hunter, J.A.H. Mathematical Brain-Teasers. Dover, New York, 1976.

Hunter, J.A.H. and Madachy, Joseph S. Mathematical Diversions. Dover, New York, 1975.

Kraitchik, Maurice. Mathematical Recreations, 2nd ed. Dover, New York, 1953.

Mott-Smith, Geoffrey. Mathematical Puzzles for Beginners and Enthusiasts, Second Revised Edition. Dover, New York, 1954.

Ogilvy, C. Stanley. Tomorrow's Math: Unsolved Problems for the Amateur, Second Edition. Oxford University Press, New York, 1972.

Schwartz, Benjamin L., ed. Mathematical Solitaires & Games. Baywood Publishers, Farmingdale, New York, 1980.

Singmaster, David. Notes on Rubik's Magic Cube, Fifth Edition, Preliminary Version. Polytechnic of the South Bank, London, 1980.

Smullyan, Raymond. The Chess Mysteries of Sherlock Holmes. Alfred A. Knopf, New York, 1979.

Smullyan, Raymond M. What is the Name of This Book? Prentice-Hall, Englewood Cliffs, New Jersey, 1978.

Tietze, Heinrich. Famous Problems of Mathematics. Graylock Press, Baltimore, Maryland, 1965.

Reference

Gaffney, Matthew P. and Steen, Lynn Arthur. Annotated Bibliography of Expository Writing in the Mathematical Sciences. Mathematical Association of America, Washington, D.C., 1976.

Hoyrup, Else. Books About Mathematics: History, Philosophy, Education, Models, System Theory, and Works of Reference, etc.: A Bibliography. Roskilde University Center, Denmark, 1979.

Hoyrup, Else. Women and Mathematics, Science and Engineering. Roskilde University Center, Denmark, 1978.

A Basic Library List for Four-Year Colleges, Second Edition. Mathematical Association of America, Washington, D.C., 1976.

A Basic Library List for Two-Year Colleges, Second Edition. Mathematical Association of America, Washington, D.C., 1980.

May, Kenneth O. Bibliography and Research Manual of the History of Mathematics. University of Toronto Press, Toronto, Canada, 1973.

May, Kenneth O. Index of the American Mathematical Monthly, V. 1-80. (1894-1973). Mathematical Association of America, Washington, D.C., 1977.

Schaaf, William L. A Bibliography of Recreational Mathematics, V. 1-4. National Council of Teachers of Mathematics, Reston, Virginia, 1954, 1970, 1973, 1978..

Schaaf, William L. Mathematics and Science: An Adventure in Postage Stamps. National Council of Teachers of Mathematics, Reston, Virginia, 1978.

Schaefer, Barbara Kirsch. Using the Mathematical Literature, A Practical Guide. Dekker, New York, 1979.

Schneider, David. Annotated Bibliography of Films and Videotapes for College Mathematics. Mathematical Association of America, Washington, D.C., 1980.

Seebach, J. Arthur and Steen, Lynn Arthur. Mathematics Magazine: 50 Year Index (1926-1977). Mathematical Association of America, Washington, D. C., 1979.

Singmaster, David. List of 16mm Films on Mathematical Subjects. Open University, England.

Fiction, Fables and Anecdotes

Abbott, Edwin A. Flatland--A Romance of Many Dimensions. Little, Brown, Boston, Massachusetts, 1928; Dover, New York, 1952.

Eves, Howard W. In Mathematical Circles. Prindle, Weber and Schmidt, Boston, Massachusetts, 1969.

Eves, Howard W. Mathematical Circles Revisited. Prindle, Weber and Schmidt, Boston, Massachusetts,

1971.

Eves, Howard W. Mathematical Circles Squared. Prindle, Weber and Schmidt, Boston, Massachusetts, 1971.

Eves, Howard W. Mathematical Circles Adieu. Prindle, Weber and Schmidt, Boston, Massachusetts, 1977.

Fadiman, Clifton. Fantasia Mathematica. Simon and Schuster, New York, 1961.

Fadiman, Clifton. The Mathematical Magpie. Simon and Schuster, New York, 1962.

Moritz, Robert Edouard. On Mathematics: A Collection of Witty, Profound, Amusing Passages About Mathematics and Mathematicians. Dover, New York, 1942.

Probability and Statistics

David, F.N. Games, Gods and Gambling. Hafner Press, New York, 1962.

Huff, Darrel and Geis, Irving. How to Lie with Statistics. W.W. Norton, New York, 1954.

Kimble, Gregory A. How to Use (and Misuse) Statistics. Prentice-Hall, New Jersey, 1978.

Levinson, Horace C. Chance, Luck, and Statistics. Second Edition. Dover, New York, 1963.

Moore, David S. Statistics: Concepts and Controversies. Freeman, San Francisco, California, 1979.

Tanur, Judith M., ed. Statistics: A Guide to the Unknown, Second Edition. Holden-Day, California, 1978.

Williams, Bill. A Sampler on Sampling. Wiley, New York, 1978.

Topology and Geometry

Barr, Stephen. Experiments in Topology. Thomas Y. Crowell, New York, 1972.

Engel, Kenneth. "Shadows of the 4th dimension." Science 80 (July/August 1980) 68-73.

Flegg, H. Graham. From Geometry to Topology. English University Press (Crane Rusak, New York, distributor), 1974.

Gray, Jeremy. Ideas of Space: Euclidean, Non-Euclidean, and Relativistic. Clarendon Press, New York, 1979.

Griffiths, H.B. Surfaces. Cambridge University Press, New York, 1976.

Pedoe, D. Circles, A Mathematical View. Dover, New York, 1979.

Wenninger, Magnus J. Polyhedron Models. Cambridge University Press, New York, 1971.

Wenninger, Magnus J. Spherical Models. Cambridge University Press, New York, 1979.

Miscellaneous Books

Asimov, Isaac. Asimov on Numbers. Doubleday and Company, New York, 1977.

Brams, Steven J. Spatial Models of Election Competition. EDC/UMAP, Newton, Massachusetts, 1979.

Brams, Steven J. Biblical Games: A Strategic Analysis of Stories in the Old Testament. MIT Press, Cambridge, Massachusetts, 1980.

Beck, Anatole, Bleicher, Michael N. and Crowe, Donald W. Excursions Into Mathematics. Worth Publishers, New York, 1969.

De Morgan, Augustus. A Budget of Paradoxes. Open Court, LaSalle, Illinois, 1872; 1915; excerpted in J.R. Newman. The World of Mathematics, V. 4. Simon and Schuster, New York, 1956, pp. 2369-2382.

Honsberger, Ross. Mathematical Gems from Elementary Combinatorics, Number Theory, and Geometry. Mathematical Association of America, Washington, D.C., 1973.

Honsberger, Ross. Ingenuity in Mathematics. Mathematical Association of America, Washington, D.C., 1975.

Honsberger, Ross. Mathematical Gems II. Mathematical Association of America, Washington, D.C., 1976.

Honsberger, Ross. Mathematical Morsels. Mathematical Association of America, Washington, D.C., 1979.

Honsberger, Ross, ed. Mathematical Plums. Mathematical Association of America, Washington, D.C., 1979.

Kac, Mark and Ulam, Stanislaw M. Mathematics and Logic: Retrospect and Prospects. Frederick A. Praeger, New York, 1969.

Knuth, D.E. Surreal Numbers. Addison-Wesley, Reading, Massachusetts, 1974.

Kogelman, Stanley; Warren, Joseph. Mind over Math. Dial Press, New York, 1978. See also: Hilton, Peter and Pedersen, Jean. "Review of 'Overcoming Math Anxiety' and 'Mind over Math'." Amer. Math. Monthly 87 (1980) 143-148.

Lieber, Lillian R. Human Values and Science, Art and Mathematics. W.W. Norton and Company, New York, 1961.

Lieber, Lillian R. Mits, Wits, and Logic. W.W. Norton, New York, 1947; 1954; 1960.

Lieber, Lillian R. Take a Number. Ronald Press, New York, 1946.

Lieber, Lillian R. The Education of T.C. Mits. W.W. Norton, New York, 1942.

Melzak, Z.A. Companion to Concrete Mathematics, 2 vols. Wiley, New York, 1973, 1976.

Paulos, John Allen. Mathematics and Humor. University of Chicago Press, Chicago, Illinois, 1980.

Roberts, Fred S. Discrete Mathematical Models with Applications to Social, Biological, and Environmental Problems. Prentice-Hall, Englewood Cliffs, New Jersey, 1976.

Rubinstein, Moshe F. Patterns of Problem Solving. Prentice-Hall, Englewood Cliffs, New Jersey, 1975.

Tobias, Sheila. Overcoming Math Anxiety. Norton, New York, 1978. See also: Hilton, Peter and Pedersen, Jean. "Review of 'Overcoming Math Anxiety' and 'Mind over Math'." Amer. Math. Monthly 87 (1980) 143-148.

Waisman, Friedrich. Introduction to Mathematical Thinking: The Formation of Concepts in Modern Mathematics. Harper & Brothers, New York, 1959.

Woodcock, Alexander and Davis, Monte. Catastrophe Theory. E.P. Dutton and Company, New York, 1978.