Reference and Book List

*The **Reference** section of the* Notices *is intended to provide the reader with frequently sought information in an easily accessible manner. New information is printed as it becomes available and is referenced after the first printing. As soon as information is updated or otherwise changed, it will be noted in this section.*

Contacting the *Notices*

The preferred method for contacting the *Notices* is electronic mail. The editor is the person to whom to send articles and letters for consideration. Articles include feature articles, memorial articles, communications, opinion pieces, and book reviews. The editor is also the person to whom to send news of unusual interest about other people's mathematics research.

The managing editor is the person to whom to send items for "Mathematics People", "Mathematics Opportunities", "For Your Information", "Reference and Book List", and "Mathematics Calendar". Requests for permissions, as well as all other inquiries, go to the managing editor.

The electronic-mail addresses are `notices@math.tamu.edu` in the case of the editor and `notices@ams.org` in the case of the managing editor. The fax numbers are 979-845-6028 for the editor and 401-331-3842 for the managing editor. Postal addresses may be found in the masthead.

Information for *Notices* Authors

The *Notices* welcomes unsolicited articles for consideration for publication, as well as proposals for such articles. The following provides general guidelines for writing *Notices* articles and preparing them for submission.

***Notices* readership.** The *Notices* goes to about 30,000 subscribers worldwide, of whom about 20,000 are in North America. Approximately 8,000 of the 20,000 in North America are graduate students who have completed at least one year of graduate school. All readers may be assumed to be interested in mathematics research, but they are not all active researchers.

***Notices* feature articles.** Feature articles may address mathematics, mathematical news and developments, mathematics history, issues affecting the profession, mathematics education at any level, the AMS and its activities, and other such topics of interest to *Notices* readers. Each

Where to Find It

A brief index to information that appears in this and previous issues.

article is expected to have a large target audience of readers, perhaps 5,000 of the 30,000 subscribers. Authors must therefore write their articles for nonexperts rather than for experts or would-be experts. In particular, the mathematics articles in the *Notices* are expository. The language of the *Notices* is English.

Most feature articles, including those on mathematics, are expected to be of long-term value and should be written as such. Ideally each article should put its topic in a context, providing some history and other orientation for the reader and, as necessary, relating the subject matter to things that readers are likely to understand. In most cases, articles should progress to dealing with contemporary matters, not giving only historical material. The articles that are received the best by readers tend to relate different areas of mathematics to each other.

By design the *Notices* is partly magazine and partly journal, and authors' expository styles should take this into account. For example, many readers want to understand the mathematics articles without undue effort and without consulting other sources.

Mathematics feature articles in the *Notices* are normally six to nine pages, sometimes a little longer. Shorter articles are more likely to be read fully than are longer articles. The first page is 400 or 500 words, and subsequent pages are about 800 words. From this one should subtract an allowance for figures, photos, and other illustrations, and an appropriate allowance for any displayed equations and any bibliography.

Form of articles. Except with very short articles, authors are encouraged to use section headings and subsection headings to help orient readers. Normally there is no section heading at the beginning of an article. Despite the encouraged use of internal headings, the assigning of numbers to sections and subsections is not permitted in any article.

The bibliography should be kept short. In the case of mathematics articles, bibliographies are normally limited to about ten items and should consist primarily of entries like books in which one may do further reading. To help readers who might want lists of recent literature, an author might include a small number of recent publications with good bibliographies.

Editing process. Most articles that are destined to be accepted undergo an intensive editing process. The purposes of this process are to ensure that the target audience is as large as practicable, that the content of the article is clear and unambiguous, and that the article is relatively easy to read. Usually it is the members of the editorial board who are involved in this process. Sometimes outside referees are consulted.

Preparation of articles for submission. The preferred form for submitted articles is as electronic files. Authors who cannot send articles electronically may send the articles by fax or by postal mail.

Articles with a significant number of mathematical symbols are best prepared in TEX, LATEX, or AMS-TEX. There are no special style files for the *Notices*, because TEX code gets converted to something else during the production process. Since the *Notices* is set in narrow columns, keeping displayed formulas relatively short helps to minimize adjustments during the production process; avoiding nonstandard supplementary files and complex sequences of TEX definitions also helps. For the handling of figures and other illustrations, please consult the editor.

Articles without a significant number of mathematical symbols may be prepared as text files or in Microsoft Word. In the case of files prepared in Microsoft Word, it is advisable to send both the file and a fax of a printout.

Instructions for Authors of "WHAT IS…?" Columns

The purpose of the "WHAT IS…?" column is to provide brief, nontechnical descriptions of mathematical objects in use in current research. The target audience for the columns is first-year graduate students.

Each "WHAT IS…?" column provides an expository description of a single mathematical object being used in contemporary research. Thus "WHAT IS M-Theory?" would be too broad, but "WHAT IS a Brane?" would be appropriate; ideally, "WHAT IS a Brane?" would give a flavor of what M-theory is.

The writing should be nontechnical and informal. The level should be a little higher than the level of popular articles about mathematical developments that one finds in such magazines as *Science*.

There is a strict limit of two *Notices* pages (1,400 words with no picture, or 1,200 words with one picture). A list of "Further Reading" should contain no more than three references.

Inquiries and comments about the "WHAT IS…?" column are welcome and may be sent to notices-whatis@ams.org.

Upcoming Deadlines

June 30, 2003: Nominations for the Fermat Prize for Mathematics Research. See http://www.ups-tlse.fr/ACTUALITES/Sciences/Prix_Fermat_2003/Areglement.html.

June 30, 2003: Nominations for the National Medal of Science. See "Mathematics Opportunities" in this issue.

July 15, 2003: Applications for Women's International Science Collaboration (WISC) Program. See http://www.aaas.org/international/wiscnew.shtml, or contact WISC Travel Grant, American Association for the Advancement of Science, Directorate for International Programs, 1200 New York Avenue, NW, Washington, DC 20005.

July 24, 2003: Proposals for NSF CAREER Program. See "Mathematics Opportunities" in this issue.

July 28, 2003: Proposals for VIGRE grants. See http://www.nsf.gov/pubs/2002/nsf02120/nsf02120.txt.

August 1, 2003: Applications for 2004-2005 Fulbright traditional lecturing and research grants. See "Mathematics Opportunities" in this issue.

August 15, 2003: Applications for National Research Council Research Associateship Program. See http://www4.nationalacademies.org/pga/rap.nsf, or contact the National Research Council, Associateship Programs (TJ 2114), 2101 Constitution Avenue, NW, Washington, DC 20418;

telephone 202-334-2760; fax 202-334-2759; email: rap@nas.edu.

September 15, 2003: Nominations for Sloan Research Fellowships. See "Mathematics Opportunities" in this issue.

October 1, 2003: Nominations for AWM Hay Award and Schafer Prize. See "Mathematics Opportunities" in this issue.

October 15, 2003: Applications for spring semester of Math in Moscow and for AMS scholarships. See http://www.mccme.ru/mathinmoscow, or contact Math in Moscow, P.O. Box 524, Wynnewood, PA 19096; fax +7095-291-65-01; email: mim@mccme.ru. For information about and application forms for the AMS scholarships, see http://www.ams.org/careers-edu/mimoscow.html, or contact Math in Moscow Program, Membership and Programs Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904; email: prof-serv@ams.org.

October 17, 2003: Applications for NSF Postdoctoral Research Fellowships. See http://www.fastlane.nsf.gov/d11/D11Menu.htm.

November 1, 2003: Applications for 2004-2005 Fulbright spring/summer seminars in Germany, Korea, and Japan and for summer German Studies Seminar. See "Mathematics Opportunities" in this issue.

December 31, 2003: Entries for *Cryptologia* paper competitions. See http://www.dean.usma.edu/math/pubs/cryptologia/, or contact *Cryptologia*, Department of Mathematical Sciences, United States Military Academy, West Point, NY 10996; email: Cryptologia@usma.edu.

January 2, 2004: Applications for Fields Institute postdoctoral fellowships. See "Mathematics Opportunities" in this issue.

New Journals for 2002

Below is a list of mathematical journals appearing for the first time in 2002, as compiled by *Mathematical Reviews*. This list, as well as the listings for new journals for other years, can be found on the Web at http://www.ams.org/mathweb/mi-newjs.html.

African Diaspora Journal of Mathematics, ISSN: 1539-854X, announced for late 2002.

International Journal of Computational and Numerical Analysis and Applications, 1311-6789, Academic Publications, $120/4 issues/yr.

International Mathematical Journal, 1311-6797, International Scientific Publications, Chiba, price not listed, frequency unknown.

Journal of Algebra and Its Applications, 0219-4988, World Scientific, $240/4 issues/yr., announced.

Journal of Symplectic Geometry, International Press, announced.

Book List

The Book List highlights books that have mathematical themes and are aimed at a broad audience potentially including mathematicians, students, and the general public. When a book has been reviewed in the Notices*, a reference is given to the review. Generally the list will contain only books published within the last two years, though exceptions may be made in cases where current events (e.g., the death of a prominent mathematician, coverage of a certain piece of mathematics in the news) warrant drawing readers' attention to older books. Suggestions for books to include on the list may be sent to* notices-booklist@ams.org.

*Added to "Book List" since the list's last appearance.

1089 and All That: A Journey into Mathematics, by David Acheson. Oxford University Press, July 2002. ISBN 0-19-851623-1.

* *Abel's Proof: An Essay on the Sources and Meaning of Mathematical Unsolvability*, by Peter Pesic. MIT Press, May 2003. ISBN 0-262-16216-4.

* *All the Mathematics You Missed (But Need to Know for Graduate School)*, by Thomas A. Garrity. Cambridge University Press, December 2001. ISBN 0-521-79707-1.

The Annotated Flatland: A Romance of Many Dimensions, Edwin A. Abbott; introduction and notes by Ian Stewart. Perseus Publishing, November 2001. ISBN 0-7382-0541-9. (Reviewed November 2002.)

The Art of the Infinite: The Pleasures of Mathematics, by Robert Kaplan and Ellen Kaplan. Oxford University Press, March 2003. ISBN 0-195-14743-X.

Behind Deep Blue: Building the Computer That Defeated the World Chess Champion, by Feng-hsiung Hsu. Princeton University Press, November 2002. ISBN 0-691-09065-3.

* *Beyond the Limit: The Dream of Sofya Kovalevskaya*, by Joan Spicci. Forge, August 2002. ISBN 0-765-30233-0.

The Bit and the Pendulum: How the New Physics of Information Is Revolutionizing Science, by Tom Siegfried. John Wiley & Sons, February 2000. ISBN 0-47132-174-5. (Reviewed August 2002.)

Codebreakers: Arne Beurling and the Swedish Crypto Program during World War II, by Bengt Beckman. Translated by Kjell-Ove Widman. AMS, February 2003. ISBN 0-8218-2889-4.

The Colossal Book of Mathematics: Classic Puzzles, Paradoxes, and Problems, by Martin Gardner. W. W. Norton & Company, August 2001. ISBN 0-393-02023-1. (Reviewed October 2002.)

Conned Again, Watson! Cautionary Tales of Logic, Math, and Probability, by Colin Bruce. Perseus Publishing, January 2001. ISBN 0-7382-0345-9. (Reviewed November 2002.)

The Constants of Nature: From Alpha to Omega—The Numbers That Encode the Deepest Secrets of the Universe, by John D. Barrow. Jonathan Cape, September 2002. Pantheon Books, January 2003. ISBN 0-375-42221-8.

Correspondance Grothendieck-Serre, Pierre Colmez and Jean-Pierre Serre, editors. Société Mathematique de France, 2001. ISBN 2-85629-104-X.

Damned Lies and Statistics: Untangling Numbers from the Media, Politicians, and Activists, by Joel Best. University of California Press, May 2001. ISBN 0-520-21978-3. (Reviewed February 2003.)

Does God Play Dice? The New Mathematics of Chaos, by Ian Stewart. Blackwell, revised second edition, January 2002. ISBN 0-631-23251-6. (Reviewed December 2002.)

* *Doing Mathematics: Convention, Subject, Calculation, Analogy*, by Martin H. Krieger. World Scientific, April 2003. ISBN 9-812-38200-3.

* *Emergence of the Theory of Lie Groups. An Essay in the History of Mathematics, 1869–1926*, by Thomas Hawkins. Springer-Verlag, 2000. ISBN 0-387-98963-3. (Reviewed in this issue.)

Entanglement: The Greatest Mystery in Physics, by Amir D. Aczel. Four Walls Eight Windows, October 2002. ISBN 1-56858-232-3.

Four Colors Suffice: How the Map Problem Was Solved, by Robin Wilson. Princeton University Press, March 2003. ISBN 0-691-11533-8.

The Fractal Murders, by Mark Cohen. Muddy Gap Press, May 2002. 0-9718986-0-X.

Fragments of Infinity: A Kaleidoscope of Math and Art, by Ivars Peterson. John Wiley & Sons, October 2001. ISBN 0-471-16558-1. (Reviewed October 2002.)

* *Gamma: Exploring Euler's Constant*, by Julian Havil. Princeton University Press, May 2003. ISBN 0-691-09983-9.

Geometry: Our Cultural History, by Audun Holme. Springer, April 2002. ISBN 3-540-41949-7.

The Glass Wall: Why Mathematics Can Seem Difficult, by Frank Smith. Teachers College Press, July 2002. ISBN 0-807-74241-4 (paperback), 0-807-74242-2 (cloth).

God in the Equation: How Einstein Became the Prophet of the New Religious Era, by Corey S. Powell. Free Press, August 2002. ISBN 0-684-86348-0.

Gödel's Proof, by Ernest Nagel and James R. Newman. New York University Press, revised edition, February 2002. ISBN 0-8147-5816-9.

The Golden Ratio: The Story of Phi, the World's Most Astonishing Number, by Mario Livio. Broadway Books, October 2002. ISBN 0-767-90815-5.

The Hilbert Challenge, by Jeremy J. Gray. Oxford University Press, December 2000. ISBN 0-198-50651-1. (Reviewed September 2002.)

Hinged Dissections: Swinging and Twisting, by Greg N. Frederickson. Cambridge University Press, September 2002. ISBN 0-521-81192-9.

The Honors Class, by Benjamin Yandell. A K Peters, December 2001. ISBN 1-568-81141-1. (Reviewed September 2002.)

How the Other Half Thinks: Adventures in Mathematical Reasoning, by Sherman Stein. McGraw-Hill, July 2001. ISBN 0-071-37339-X. (Reviewed September 2002.)

How the Universe Got Its Spots, by Janna Levin. Princeton University Press, April 2002. ISBN 0-691-09657-0.

Imagining Numbers (Particularly the Square Root of Minus Fifteen), by Barry Mazur. Farrar, Straus and Giroux, February 2003. ISBN 0-374-17469-5.

In Code: A Mathematical Journey, by Sarah Flannery and David Flannery. Workman Publishing, May 2001. ISBN 0-761-12384-9. (Reviewed April 2003.)

Indra's Pearls: The Vision of Felix Klein, by David Mumford, Caroline Series, and David J. Wright. Cambridge University Press, January 2002. ISBN 0-521-35253-3. (Reviewed January 2003.)

It Must Be Beautiful: Great Equations of Modern Science, Graham Farmelo, editor. Granta Books, February 2002. ISBN 1-862-07479-8. (Reviewed March 2003.)

* *Janos Bolyai, Euclid, and the Nature of Space*, by Jeremy J. Gray. MIT Press, May 2003. ISBN 0-262-57174-9.

Linked: The New Science of Networks, by Albert-Lásló Barabási. Perseus Publishing, May 2002. ISBN 0-738-20667-9.

Mathematical Apocrypha: Stories and Anecdotes of Mathematicians and the Mathematical, by Steven G. Krantz. Mathematical Association of America, July 2002. ISBN 0-883-85539-9.

Mathematical Reflections, by Peter Hilton, Derek Holton, and Jean Pedersen. Springer, December 1996. ISBN 0-387-94770-1. (Reviewed February 2003.)

Mathematical Vistas, by Peter Hilton, Derek Holton, and Jean Pedersen. Springer-Verlag, January 2002. ISBN 0-387-95064-8. (Reviewed February 2003.)

A Mathematician Grappling with His Century: The Autobiography of Laurent Schwartz. Translated from the French by L. Schneps. Birkhäuser, 2001. ISBN 3-7643-6052-6.

* *Mathematics: A Very Short Introduction*, by Timothy Gowers. Oxford University Press, October 2002. ISBN 0-192-85361-9.

Mathematics and the Roots of Postmodern Thought, by Vladimir Tasić. Oxford University Press, 2001. ISBN 0-195-13967-4.

Mathematics Elsewhere: An Exploration of Ideas across Cultures, by Marcia Ascher. Princeton University Press, September 2002. ISBN 0-691-07020-2. (Reviewed May 2003.)

Mathematics Galore: Masterclasses, Workshops, and Team Projects in Mathematics and Its Applications, by C. J. Budd and C. J. Sangwin. Oxford University Press, June 2001. ISBN 0-198-50769-0 (hardcover), 0-198-50770-4 (paperback). (Reviewed September 2002.)

* *The Mathematics of Juggling*, by Burkard Polster. Springer, November 2002. ISBN 0-387-95513-5.

The Mathematics of Oz: Mental Gymnastics from beyond the Edge, by Clifford Pickover. Cambridge University Press, October 2002. ISBN 0-521-01678-9.

M. C. Escher's Legacy: A Centennial Celebration, edited by Doris Schattschneider and Michele Emmer. Springer, January 2003. ISBN 3-540-42458-X. (Reviewed April 2003.)

The Millennium Problems: The Seven Greatest Unsolved Mathematical Puzzles of Our Time, by Keith J. Devlin. Basic Books, October 2002. ISBN 0-465-01729-0.

More Mathematical Astronomy Morsels, by Jean Meeus. Willmann-Bell Inc., 2002. ISBN 0-943396-743.

The Music of the Primes: Searching to Solve the Greatest Mystery in Mathematics, by Marcus Du Sautoy. HarperCollins, April 2003. ISBN 0-066-21070-4.

A New Kind of Science, by Stephen Wolfram. Wolfram Media, Inc., May 2002. ISBN 1-579-55008-8. (Reviewed February 2003.)

Nexus: Small Worlds and the Groundbreaking Science of Networks, by Mark Buchanan. W. W. Norton & Company, May 2002. ISBN 0-393-04153-0.

Niels Hendrik Abel and His Times: Called Too Soon by Flames Afar, by Arild Stubhaug; translated by R. Daly.

Springer, May 2000. ISBN 3-540-66834-9. (Reviewed August 2002.)

* *Origami³*, edited by Thomas Hull. A K Peters, July 2002. ISBN 1-56881-181-0.

Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem, by John Derbyshire. Joseph Henry Press, March 2003. ISBN 0-309-08549-7.

The Rainbow Bridge: Rainbows in Art, Myth, and Science, by Raymond L. Lee Jr. and Alistair B. Fraser. Pennsylvania State University Press and SPIE Press, 2001. ISBN 0-271-01977-8. (Reviewed December 2002.)

Remarkable Mathematicians, by Ioan James. Cambridge University Press, February 2003. ISBN 0-521-52094-0.

The Riemann Hypothesis: The Greatest Unsolved Problem in Mathematics, by Karl Sabbagh. Farrar, Straus and Giroux, April 2003. ISBN 0-374-25007-3.

Six Degrees: The Science of a Connected Age, by Duncan J. Watts. W. W. Norton & Company, February 2003. ISBN 0-393-04142-5.

Spaceland, by Rudy Rucker. Tor Books, June 2002. ISBN 0-765-30366-3.

* *Sync: The Emerging Science of Spontaneous Order*, by Steven Strogatz. Hyperion, February 2003. ISBN 0-786-86844-9.

Wavelets through a Looking Glass: The World of the Spectrum, by Ola Bratteli and Palle Jorgensen. Birkhäuser/Springer, 2002. ISBN 0-8176-4280-3.

What Are the Odds? The Chances of Extraordinary Events in Everyday Life, by Jefferson Hane Weaver. Prometheus Books, February 2002. ISBN 1-573-92933-6.

What Shape Is a Snowflake?, by Ian Stewart. W. H. Freeman & Co., November 2001. ISBN 0-716-74794-4. (Reviewed December 2002.)

The Zen of Magic Squares, Circles, and Stars: An Exhibition of Surprising Structures across Dimensions, by Clifford A. Pickover. Princeton University Press, January 2001. ISBN 0-691-07041-5. (Reviewed March 2003.)