mathématiques à mieux se préparer, et d'autre part, de fournir un certain nombre d'exemples aux professeurs du Secondaire comme à tous ceux qui ont reçu une formation scientifique.

Histoire

Anita BURDMAN FEFERMAN. — **From Trotsky to Gödel: the life of Jean van Heijenoort.** — Un vol. broché, 14,5×22,5, de xv, 415 p. — ISBN 1-56881-148-9. — Prix: US$24.95. — A.K. Peters, Natick, Mass., 1993.

This biography relates the story of Jean van Heijenoort who, as a promising French student, delayed his studies to become a follower of and companion to Leon Trotsky in the 1930s. After acting as an involved player in the theatre of world politics during Trotsky's life, van Heijenoort returned to a scholarly life several years after Trotsky's assassination. Throwing himself whole-heartedly into the world of mathematics, he became a professor, first at NYU and then at Columbia and Brandeis universities, and achieved world renown as a historian of mathematical logic.

Jeremy J. GRAY. — **The Hilbert challenge.** — Un vol. relié, 14,5×22,5, de xii, 315 p. — ISBN 0-19-850651-1. — Prix: £20.00. — Oxford University Press, Oxford, 2000.

In 1900, David Hilbert posed a set of 23 unsolved mathematical problems, thus setting an agenda for mathematics that lasted throughout the 20th Century. Some, like Fermat's last theorem, have now been solved; others, such as the Riemann hypothesis, continue to challenge the best mathematical brains of our time. This book addresses the nature of Hilbert and his problems, and their significance for the progress of mathematics in our time. A hundred years on, it is timely to take a fresh look at the problems, the man who set them, and the reasons for their lasting impact on mathematics. The book is written in a clear and lively manner and will appeal both to the general reader with an interest in mathematics and to mathematicians themselves.

A.N. KOLMOGOROV, A.P. YUSHKEVICH, (Editors). — **Mathematics of the 19th century: mathematical logic, algebra, number theory, probability theory.** — Second revised edition. — Un vol. broché, 17×24, de xiv, 308 p. — ISBN 3-7643-6442-4. — Prix: SFr. 58.00. — Birkhäuser, Basel, 2001.

This is the second revised edition of the first volume of the outstanding collection of historical studies of mathematics in the nineteenth century compiled in three volumes by A.N. Kolmogorov and A.P. Yushkevich. Beginning in the second quarter of the nineteenth century mathematics underwent a revolution as crucial and profound in its consequences for the general world outlook as the mathematical revolution in the beginning of the modern area. The main changes included a new statement of the problem of the existence of mathematical objects, particularly in the calculus, and soon thereafter the formation of non-standard structures in geometry, arithmetic and algebra.

George M. PHILLIPS. — **Two millennia of mathematics: from Archimedes to Gauss.** — CMS books in mathematics = Ouvrages de mathématiques de la SMC. — Un vol. relié, 16,5×24, de xii, 223 p. — ISBN 0-387-95022-2. — Prix: DM 98.00. — Springer, New York, 2000.

This book is a collection of interconnected topics in areas of mathematics that particularly interest the author ranging over the two millennia from the work of Archimedes, who died in the year 212 B.C., to the "Werke" of Gauss, who was born in 1777. The book is intended for those who love mathematics, including undergraduate students of mathematics, more experienced

students, and the vast unseen host of amateur mathematicians. It will be a useful source of material for those who teach mathematics. — *Contents:* From Archimedes to Gauss. — Logarithms. — Interpolation. — Continued fractions. — More number theory.

Laurent SCHWARTZ. — **A mathematician grappling with his century**. — Un vol. broché, 17×24, de VIII, 490 p. — ISBN 3-7643-6052-6. — Prix: SFr. 58.00. — Birkhäuser, Basel, 2001.

Laurent Schwartz is one of the most remarkable intellects of the 20th century. His discovery of distributions, one of the most beautiful theories in mathematics, earned him a 1950 Fields Medal. Beyond this formidable achievement, his love for science and for teaching led him to think deeply and lecture broadly to the general public on the significance of science and mathematics to the well-being of the world. At the same time, his commitment to the social good, even at the expense of his beloved research, proved a moral compass throughout his life. The fight for human rights and his major role in the battle against the wars in Algeria and Vietnam were typical of matters close to his heart. The story of his life in the context of his century provides for future generations an inspiring testimonial from an extraordinary mathematician and thinker.

Erhard SCHOLZ, (Editor). — **Hermann Weyl's *Raum - Zeit - Materie* and a general introduction to his scientific work.** — With contributions by Robert Coleman and Herbert Korté, Hubert Goenner, Erhard Scholz, Skúli Sigurdsson, Norbert Straumann. — DMV Seminar, Band 30. — Un vol. broché, 17×24, de VI, 403 p. — ISBN 3-7643-6476-9. — Prix: SFr. 68.00. — Birkhäuser, Basel, 2001.

The contributions in the first part of this volume discuss Weyl's deep involvement in relativity, cosmology and matter theories between the classical unified field theories and quantum physics from the perspective of a creative mind struggling against theories of nature restricted by the view of classical determinism. In the second part of this volume, a broad and detailed introduction is given to Weyl's work in the mathematical and physical interests: real analysis, complex function theory and Riemann surfaces, elementary ergodic theory, foundations of mathematics, differential geometry, general relativity, Lie groups, quantum mechanics, and number theory.

Alain SCHÄRLIG. — **Compter avec des cailloux: le calcul élémentaire sur l'abaque chez les anciens Grecs.** — Un vol. broché, 16×24, de 339 p. — ISBN 2-88074-453-9. — Prix: SFr. 58.00. — Presses polytechniques et universitaires romandes, Lausanne, 2001.

Lorsqu'on n'aime pas calculer par écrit, de nos jours, on utilise une calculette électronique. Les anciens Grecs pouvaient calculer par écrit – l'auteur le montre – mais c'était bien plus ardu que pour nous. Ils avaient donc eux aussi inventé une machine, l'ancêtre de nos calculettes: l'abaque, sur lequel ils représentaient les nombres par des cailloux. Certains de ces abaques étaient en marbre. On en a retrouvé une trentaine. Après avoir ajouté les témoignages littéraires aux indices matériels, et conduit sur ces pièces à conviction une enquête minutieuse, l'auteur signe ici la première étude exhaustive sur la question, et montre comment on peut imaginer que les anciens Grecs s'y prenaient pour compter avec des cailloux.

Reinhard SIEGMUND-SCHULTZE. — **Rockefeller and the internationalization of mathematics between the two World Wars: documents and studies for the social history of mathematics in the 20th century.** — Science networks - Historical studies, vol. 25. — Un vol. relié, 17,5×24, de XIII, 341 p. — ISBN 3-7643-6468-8. — Prix: SFr. 128.00. — Birkhäuser, Basel, 2001.

Philantropies funded by the Rockefeller family have been prominent in the social history of the twentieth century for their involvement in medicine and applied science. This book provides

the first detailed study of their relatively brief but nonetheless influential foray into the field of mathematics. The careers of a generation of pathbreakers in modern mathematics, such as S. Banach, B.L. van der Waerden and André Weil, were decisively affected by their becoming fellows of the Rockefeller-funded International Education Board in the 1920s. To help promote cooperation between physics and mathematics Rockefeller funds supported the erection of the new Mathematical Institute in Göttingen between 1926 and 1929, while the rise of probability and mathematical statistics owes much to the creation of the Institut Henri Poincaré in Paris by American philanthropy at about the same time.

Logique et fondements

John H. CONWAY. — **On numbers and games.** — Second edition. — Un vol. relié, 16×23,5 de XI, 242 p. — ISBN 1-56881-127-6. — Prix: US$39.00. — Natick, Massachusetts, 2001.

ONAG, as the book is known, is one of those rare publications that sprang to life in a moment of creative energy and has remained influential for over a quarter of a century. Originally written to define the relation between the theories of transfinite numbers and mathematical games. By defining numbers as the strengths of positions in certain games, the author arrives at a new class, the surreal numbers, that includes both real numbers and ordinal numbers. These surreal numbers are applied in the author's mathematical analysis of game strategies. The additions to the second edition present recent developments in the area of mathematical game theory, with a concentration on surreal numbers and the additive theory of partizan games.

René CORI and Daniel LASCAR. — **Mathematical logic: a course with exercises, Part 1: propositional calculus, Boolean algebras, predicate calculus.** — Translated by Donald H. Pelletier. — Un vol. broché, 15,5×23,5, de XIX, 338 p. — ISBN 0-19-850048-3. — Prix: £25.00. — Oxford University Press, Oxford, 2000.

This text is based on a course to undergraduates and gives a clear and accessible introduction to mathematical logic. The concept of model provides the underlying theme, giving the text a theoretical coherence whilst still covering a wide area of logic. The first chapter considers propositional calculus; then Boolean algebras follow; Chapter 3 covers predicate calculus and this is followed by completeness theorems. Large numbers of examples appear throughout the text and each chapter concludes with a selection of exercises to reinforce the student's understanding. Answers to the exercises are given in an appendix.

J.P. MAYBERRY. — **The foundations of mathematics in the theory of sets.** — Encyclopedia of mathematics and its applications, vol. 82. — Un vol. relié, 16,5×24, de XX, 424 p. — ISBN 0-521-77034-3. — Prix: £55.00. — Cambridge University Press, Cambridge, 2000.

This book presents a unified approach to the foundations of mathematics in the theory of sets, covering both conventional and finitary (constructive) mathematics. It is based on a philosophical, historical, and mathematical analysis of the relation between the concepts of "natural number" and "set". This leads to an investigation of the logic of quantification over the universe of sets and a discussion of its role in second order logic, as well as in the analysis of proof by induction and definition by recursion. The subject matter of the book falls on the borderline between philosophy and mathematics, and should appeal to both philosophers and mathematicians with an interest in the foundations of mathematics.