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e-mail, and as a consequence the encryption of communications to ensure security has become a matter of public interest and importance. This book describes and analyses many cipher systems ranging from the earliest and most elementary to the most recent and sophisticated, such as RSA and DES, as well as wartime machines such as the Enigma and Hagelin, and ciphers used by spies. Security issues and possible methods of attack are discussed and illustrated by examples. The design of many systems involves advanced mathematical concepts and these are explained in detail in a major appendix.

C. C. HEYDE, S. E. FIENBERG, J. GANI, (Editors). — **Statisticians of the centuries.** — Un vol. broché, 15,5×23,5, de XII, 500 p. — ISBN 0-387-95283-7. — Prix: € 44.95. — Springer, New York, 2001.

This work aims to demonstrate the achievements of statistics to a broad audience, and to commemorate the work of celebrated statisticians. This is done through short bibliographies that put the statistical work in its historical and sociological context, emphasizing contributions to science and society in the broadest terms rather than narrow technical achievements. The discipline is treated from its earliest times, and only individuals born prior to the 20th century are included.

Jens HØYRUP. — **Lengths, widths, surfaces: a portrait of old Babylonian algebra and its kin.** — Sources and studies in the history of mathematics and physical sciences. — Un vol. relié, 24×16, de XIV, 459 p. — ISBN 0-387-95303-5. — Prix: € 99.95. — Springer, New York, 2002.

In this new examination of the texts of Babylonian cuneiform tablets, the author proposes an interpretation, based on a detailed investigation of the terminology and discursive organization of the texts. The texts turn out to speak not of pure numbers, but of the dimensions and areas of rectangles and other measurable geometrical magnitudes, often serving as representatives of other magnitudes (prices, workdays, etc...), much as pure numbers represent concrete magnitudes in modern applied algebra. The texts show why the procedures are correct, but do not aim at creating theory, nor are their second-degree "equations" of any practical use. Høyrup argues that we should focus on the function of the texts within the schools and within Babylonian culture at large. The book provides a detailed reading of many tablets and a careful examination of the context in which they were produced.

Benjamin H. YANDELL. — **The Honors Class: Hilbert's problems and their solvers.** — Un vol. relié, 16×24, de IX, 486 p. — ISBN 1-56881-141-1. — Prix: US$39.00. — A. K. Peters, Natick, Mass., 2002.

This very readable book focuses on the people of mathematics and draws the reader into their fascinating world. Hilbert's problems have become a guiding inspiration to many mathematicians. Those who have succeeded in solving these problems or advancing their solutions form an *Honors Class* among research mathematicians of this century. Yandell presents vivid portraits of the people who devoted their lives to meet Hilbert's challenge. This book connects mathematicians to their history. It is a wonderful opportunity to acquaint others with the culture of mathematics and its people.

Logique et fondements

Egon BÖRGER, Erich GRÄDEL, Yuri GUREVICH. — **The classical decision problem.** — Universitext. — Un vol. broché, 16×24, de X, 482 p. — ISBN 3-540-42324-9. — Prix: € 44.95. — Springer, Berlin, 2001.

This is the most comprehensive treatment available in book form of the classical decision problem of mathematical logic and of the role of the classical decision problem in modern com-

puter science. A revealing analysis of the natural order of decidable and undecidable cases is given. The complete classification of the solvable and unsolvable standard cases of the classical decision problem will be of particular interest to the reader. The classification comes complete with the complexity analysis of the solvable cases, with the comprehensive treatment of the reduction method, and with the model-theoretical analysis of solvable cases. Many cases are treated here for the first time, and a great number of simple proofs and exercises have been included.

Rod DOWNEY, Denis HIRSCHFELDT, (Editors). — **Aspects of complexity: minicourses in algorithmics, complexity and computational algebra.** — Mathematics Workshop, Kaikoura, January 7-15, 2000. — De Gruyter series in logic and its applications, vol. 4. — Un vol. relié, 18×25, de VI, 172 p. — ISBN 3-11-016810-3. — Prix: € 98.00. — Walter de Gruyter, Berlin, 2001.

The book contains eight detailed expositions of the lectures given at the Kaikoura 2000 Workshop on Computability, Complexity, and Computational Algebra. Topics covered include basic models and questions of complexity theory, the Blum–Shub–Smale model of computation, probability theory applied to algorithmics (randomized algorithms), parametric complexity, Kolmogorov complexity of finite strings, computational group theory, counting problems, and canonical models of ZFC providing a solution to the continuum hypothesis. The text addresses students in computer science or mathematics, and professionals in these areas who seek a complete, but gentle introduction to a wide range of techniques, concepts, and research horizons in the area of computational complexity in a broad sense.

Martin ZEMAN. — **Inner models and large cardinals.** — De Gruyter series in logic and its applications, vol. 5. — Un vol. relié, 18×25, de XI, 369 p. — ISBN 3-11-016368-3. — Prix: € 138.00. — Walter de Gruyter, Berlin, 2002.

This volume is an introduction to inner model theory, an area of set theory which is concerned with fine structural inner models reflecting large cardinal properties of the set theoretic universe. The monograph contains a detailed presentation of general fine structure theory as well as a modern approach to the construction of small core models, namely those models containing at most one strong cardinal, together with some of their applications. The final part of the book is devoted to a new approach encompassing large inner models which admit many Woodin cardinals. The exposition is self-contained and does not assume any special prerequisites, which should make the text comprehensible not only to specialists but also to advanced students in mathematical logic and set theory.

Analyse combinatoire

Louis FRÉCON. — **Éléments de mathématiques discrètes.** — Informatique INSA Lyon 2e cycle. — Collection des sciences appliquées de l'INSA de Lyon. — Un vol. broché, 16×24, de XIV, 378 p. — ISBN 2-88074-479-2. — Prix: SFr. 71.00. — Presses polytechniques et universitaires romandes, Lausanne, 2002.

Indissociables du monde des ordinateurs et indispensables à tout processus de modélisation informatique, les mathématiques discrètes fédèrent diverses disciplines ardues telles que l'algèbre, la logique et la théorie des langages. C'est cependant de manière simple et didactique que l'auteur de cet ouvrage traite de cet univers mathématique. Organisé en trois parties (fondements, graphes et algèbre), exposé sous la forme de deux niveaux de lecture et complété de nombreux exercices, problèmes et thèmes de réflexion, l'ouvrage se pose en synthèse exhaustive des mathématiques discrètes, à la convergence entre théorie et applications. Un ouvrage clair, précis, rigoureux et pédagogique, et une nouvelle référence en la matière.