BIBLIOGRAPHIC NOTICES

by

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Norbert BRUNNER, *75 years of independence proofs by Fraenkel-Mostowski permutation models*, Mathematica Japonica **43** (1996), 177–199. A survey of the technique, application, and history of independence proofs using permutation models, prefaced by a sketch of the history of the Axiom of Choice and Fraenkel's original method of proving its independence. The focus is on **ZFA** (**ZF** without the Axiom of Foundation) and various choice principles in **ZFA**. Many of the examples considered are taken from point-set topology.

Michael BYRD, *Parts III–IV of 'The Principles of Mathematics'*, Russell (n.s.) **16** (1996), 145–168. A detailed account of the writing of parts III–IV of *The Principles of Mathematics*, based upon an examination of the variations between the manuscript and the finished text and collating the various drafts of the manuscript.

Roger COOKE, *Uniqueness of trigonometric series and descriptive set theory, 1870-1985*, Archive for History of Exact Sciences **45** (1993), 281–334. The problem of the uniqueness of trigonometric series expansions is one of apparently narrow scope which led to fundamental changes across the entire world of mathematical research. Heine's invitation to Cantor to collaborate on this question led Cantor to invent a new language that changed forever the way mathematicians thought about their subject.

Richard COURANT and Herbert ROBBINS, *What is Mathematics? An Elementary Approach to Ideas and Methods*, second edition, revised by Ian STEWART, New York/Oxford, Oxford University Press, 1996. Ian Stewart brings this well-known and much-beloved text up-to-date by making minor corrections and adding a new chapter on "Recent Developments," in which he notes, for example, that the four color problem and Fermat's Last Theorem have been solved, that infinitesimals and infinite quantities have regained renewed respectability through nonstandard analysis. The new chapter includes a section (§4) on the continuum hypothesis and another (§5) on set-theoretic notation. The bibliography has also been updated.

Nigel J. CUTLAND, Vítor NEVES, Franco OLIVEIRA & José SOUSA-PINTO, *Abraham Robinson— a biographical note*, in Nigel J. Cutland, Victor Neves, Franco Oliveira & José Sousa-Pinto (editors), *Developments in nonstandard analysis* (Harlow, Longmans, 1995), iv–vi.

John W. DAWSON, Jr., *Logical Dilemmas: The Life and Work of Kurt Gödel*, Wellesley, MA, A K Peters, 1997. This is the first full-scale definitive biography of Kurt Gödel, integrating the account of personal aspects of his life and his work, with careful attention to his intellectual biography. The biographer, a