

## REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

The numbers in brackets are assigned according to the indexing system printed in Volume 22, Number 101, January 1968, page 212.

13[1].—CONSTANCE REID, *Hilbert*, Springer-Verlag, New York, 1970, xii + 290 pp., 24 cm. Price \$8.80.

No better review could serve for this eloquently written book than to quote Richard Courant's foreword to the book:

"David Hilbert was one of the truly great mathematicians of his time. His work and his inspiring scientific personality have profoundly influenced the development of the mathematical sciences up to the present time. His vision, his productive power and independent originality as a mathematical thinker, his versatility and breadth of interest made him a pioneer in many different mathematical fields. He was a unique personality, profoundly immersed in his work and totally dedicated to his science, a teacher and leader of the very highest order, inspiring and most generous, tireless and persistent in all of his efforts.

"To me, one of the few survivors of Hilbert's inner circle, it always has appeared most desirable that his biography should be published. Considering, however, the enormous scientific scope of Hilbert's work, it seemed to me humanly impossible that a single biographer could do justice to all the aspects of Hilbert as a productive scientist and to the impact of his radiant personality. Thus, when I learned of Mrs. Reid's plan for the present book I was at first skeptical whether somebody not thoroughly familiar with mathematics could possibly write an acceptable book. Yet, when I saw the manuscript my skepticism faded, and I became more and more enthusiastic about the author's achievement. I trust that the book will fascinate not only mathematicians but everybody who is interested in the mystery of the origin of great scientists in our society."

E. I.

14[2, 3, 4, 5, 6, 7, 8, 11].—KAREL REKTORYS, Editor, *Survey of Applicable Mathematics*, translated from Czech by R. Vyborny, MIT Press, Cambridge, Mass., 1969, 1369 pp., 25 cm. Price \$16.95.

As mathematical activities proliferate, and mathematical sciences increasingly interact with applied sciences, it is important that the line of communication between mathematicians and all those who wish to use mathematics be kept open. The volume under review is a notable contribution to this effort. It presents to the applied scientist, in a language which he can easily understand, a variety of mathematical subjects likely to be relevant to his work. The material is consistently presented in a format of definitions and theorems. Instead of proofs, there are explanatory remarks and illustrative examples. The reader, therefore, can quickly get a survey of any particular subject and learn what concepts are in use and what results are available. For a

deeper study, he is referred to appropriate books and journal articles. The subjects treated range from college mathematics through calculus to advanced topics in analysis. Approximate methods are emphasized throughout; their treatment, however, reflects the state of knowledge in the early sixties. (The original work was published in 1963.) A listing of chapter headings and respective authors follows.

1. Arithmetic and algebra (V. Vilhelm), 2. Trigonometric and inverse trigonometric functions. Hyperbolic and inverse hyperbolic functions (V. Vilhelm), 3. Some formulae (V. Vilhelm), 4. Plane curves and constructions (K. Drábek), 5. Plane analytic geometry (M. Zelenka), 6. Solid analytic geometry (F. Kejla), 7. Vector calculus (F. Kejla and K. Rektorys), 8. Tensor calculus (V. Vilhelm), 9. Differential geometry (B. Kepr), 10. Sequences and series of constant terms. Infinite products (K. Rektorys), 11. Differential calculus of functions of a real variable (K. Rektorys), 12. Functions of two or more variables (K. Rektorys), 13. Integral calculus of functions of one variable (K. Rektorys), 14. Integral calculus of functions of two or more variables (K. Rektorys), 15. Sequences and series with variable terms (K. Rektorys), 16. Orthogonal systems. Fourier series. Some special functions (K. Rektorys), 17. Ordinary differential equations (K. Rektorys), 18. Partial differential equations (K. Rektorys), 19. Integral equations (K. Rektorys), 20. Functions of a complex variable (K. Rektorys), 21. Conformal mapping (J. Fuka), 22. Some fundamental concepts from the theory of sets and functional analysis (K. Rektorys), 23. Calculus of variations (F. Nožička), 24. Variational methods for solving boundary value problems of differential equations (M. Prager), 25. Approximate solution of ordinary differential equations (O. Vejvoda and K. Rektorys), 26. Solution of partial differential equations by infinite series (K. Rektorys), 27. Solution of partial differential equations by the finite-difference method (E. Vitásek), 28. Integral transforms (J. Nečas), 29. Approximate solution of Fredholm integral equations (K. Rektorys), 30. Numerical methods in linear algebra (O. Pokorná and K. Korvasová), 31. Numerical solution of algebraic and transcendental equations (M. Fiedler), 32. Nomography and graphical analysis. Interpolation. Differences (V. Pleskot), 33. Probability theory (J. Hájek), 34. Mathematical statistics (J. Hájek), 35. Method of least squares. Fitting curves to empirical data. Elements of the calculus of observations (O. Fischer).

W. G.

15[2, 4, 5, 6, 13.05, 13, 15].—R. SAUER & I. SZABÓ, *Mathematische Hilfsmittel des Ingenieurs*, Teil II, Springer-Verlag, Berlin, 1969, xx + 684 pp., 24 cm. Price \$37.40.

[For reviews of Volumes I and III of this four-volume sequence, see *Math. Comp.*, v. 23, 1969, pp. 208–209 and *Math. Comp.*, v. 24, 1970, pp. 475–476.]

Volume II of this encyclopedic work is devoted to the theory and practical solution of differential equations, and thus takes up a topic which is of vital concern not only to the engineer, but also to the scientist in general. Accordingly, the subject is treated in considerable depth and on the advanced mathematical level which it demands. While the style of presentation is necessarily concise, numerous examples are included throughout for clarification and illustration.

The material is organized into two large sections, D and E, of which the first