

The mathematical presentation of the books stays on the indicated level, except in the first half of the book where it is decidedly lower. The exposition is clear and the style lucid, and, all in all, the book appears to satisfy the particular aims set for it by the author.

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44[Z].—N. G. BRUYEVICH, Editor, *Problems of the Design and Accuracy of Complex Continuous Action Devices and Computer Mechanisms*, Pergamon Press, Inc., New York, 1964, xi + 264 pp., 24 cm. Price \$10.00.

This collection of papers by Russian experts in the design of precision mechanisms is probably the most thorough treatment to be found in textbook form. The art has received its greatest development in military analogue computers and, therefore, the knowledge of the techniques and methods has been confined, until recently, to classified documents. The most complete exposition of these techniques appeared in the *Proceedings of the Seminar on the Theory of Machines and Mechanisms* sponsored by the USSR Academy of Sciences (1950–1955). This book is, essentially, a selection of material from these *Proceedings*.

Several of the papers deal with the mathematical analysis of the reduction of errors in making the computation from the continuous inputs to the continuous outputs. This includes the design of automatic-control devices (servos). Other papers deal with detailed studies of errors in special mechanisms like universal joints, toothed gearing, three-dimensional cams, variable-speed mechanisms and friction drives (like mechanical integrators). Many of these studies are based on experimental testing of actual mechanisms.

There are extensive references, mostly to Russian papers and books.

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45[Z].—MARTIN DAVIS, Editor, *The Undecidable: Basic Papers on Undecidable Propositions, Unsolvability Problems and Computable Functions*, Raven Press, Hewlett, New York, 1965, 440 pp., 24 cm. Price \$8.95.

This book is an anthology of fundamental papers in the area of undecidability, unsolvability and computability. It is much more than a mere collection of papers, however. By means of well-chosen editorial remarks which precede most papers, the editor facilitates the correlation of these early papers with modern work in the area. For example, he calls attention to changes in terminology, points of view, and errors in technical detail (without pinpointing them). Some important papers of Gödel originally published in German have been rendered into English for this volume. In addition, Gödel has made available to the editor, a Postscriptum of his 1934 lecture notes on “Undecidable Propositions . . .” as well as corrections and emendations. These notes are published here for the first time. Another interesting paper appearing here for the first time is one by E. L. Post, “Absolutely Unsolvability

Problems. . .". The reviewer believes that this volume is a valuable addition to the literature. The contents follow:

KURT GÖDEL

- On Formally Undecidable Propositions of the Principia Mathematica
and Related Systems. I (1931)
On Undecidable Propositions of Formal Mathematical Systems (1934)
On Intuitionistic Arithmetic and Number Theory (1933)
On the Length of Proofs (1936)
Remarks Before the Princeton Bicentennial Conference on Problems on
Mathematics (1946)

ALONZO CHURCH

- An Unsolvability Problem of Elementary Number Theory (1936)
A Note on the Entscheidungsproblem (1936)

ALAN M. TURING

- On Computable Numbers, with an Application to the Entscheidungs-
problem (1936–1937)
Systems of Logic Based on Ordinals (1939)

J. B. ROSSER

- An Informal Exposition of Proofs of Gödel's Theorem and Church's
Theorem (1939)
Extensions of Some Theorems of Gödel and Church (1936)

STEPHEN C. KLEENE

- General Recursive Functions of Natural Numbers (1936)
Recursive Predicates and Quantifiers (1943)

EMIL POST

- Finite Combinatory Processes, Formulation I (1936)
Recursive Unsolvability of a Problem of Thue (1947)
Recursively Enumerable Sets of Positive Integers and Their Decision
Problems (1944)
Absolutely Unsolvability Problems and Relatively Undecidable Proposi-
tions—Account of an Anticipation

INDEX

CALVIN C. ELGOT

Thomas J. Watson Research Center
International Business Machines Corp.
Yorktown Heights, New York

46[Z].—S. C. PLUMB, *Introduction to FORTRAN*, McGraw-Hill Book Company,
New York, 1964, vii + 203 pp., 23 cm. Price \$3.50 (paperback).

This is a self-instructional manual for FORTRAN II as designed for the IBM
700 series of computers. The material is presented at a very elementary level (high-