the construction of a rational fraction that is to be as large as possible over certain intervals and as small as possible over certain others. These papers are all in French.

The printing is not of the best, and in at least two places lines of type are missing.

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29[Z].—DANIEL D. McCRACKEN, *A Guide to IBM 1401 Programming*, John Wiley & Sons, Inc., New York & London, 1962, viii + 199 p., 28 cm. Price $5.75.

This book on programming is addressed to the beginner in the field. The style is clear; the book is easily readable. The concepts treated are developed in an effective, pedagogical manner. An individual, desirous of learning how to program for the 1401, would do well to read this book before working with the IBM manual, which, like most manufacturers' manuals, is more a reference document than a learner's text. Though there is much to learn after Dr. McCracken's book is mastered, the reader is, by this time, off to a good start.

Dr. McCracken progresses from first principles about punched cards through the processes required to deal with some standard business data-handling problems. The use of cards, tapes, and disk storage is exemplified. Adequate examples are provided, in simplified form, but with the essential elements highlighted.

A useful feature is contained in the exercises at the end of most chapters. For selected exercises, solutions are provided in an appendix.

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30[Z].—RHEINISCH-WESTFÄLISCHES INSTITUT FÜR INSTRUMENTELLE MATHEMATIK, *International Series of Numerical Mathematics*, Vol. 3, Birkhäuser Verlag, Basel, Switzerland, 1961, 198 p., 24.5 cm. Price sFr. 20,00.

This book consists of ten papers presented at the Colloquium on Combinational and Sequential Switching Circuits, held at Bonn in October 1960. The colloquium was organized by the Rheinisch-Westfälische Institut für Instrumentelle Mathematik together with the Institut für Angewandte Mathematik der Universität Bonn. Their goal was to acquaint more German scientists with the basic ideas of switching theory and to help establish contacts among the various German researchers in the field, with the hope of stimulating more German work in this area. Thus, about half the papers are primarily tutorial and cover work done principally by Americans. The remaining papers cover original work by the authors. According to the forward, all the material is, or will be, available in more expanded form in other publications. The book, though, gives a fairly complete survey of the field and should help to further the goal of the colloquium. The brevity of some of the articles, however, plus a fair number of printing errors, may limit its usefulness to those with no prior knowledge of the field.

The titles, translated into English, and descriptive comments follow.

1. H. Rohleder, "On the synthesis of series-parallel switching circuits from

incompletely given work conditions," is a very brief sketch of a new minimization algorithm.

2. G. Häuslein, "J. P. Roth's method of cubical complexes for the minimization of switching functions," provides a good, concise outline of Roth's extraction algorithm.

3. G. Hotz, "On the reduction of systems of switching polynomials," describes original work on the synthesis of circuits, such as adders, by means of Boolean algebra; this is one of the few papers I have seen that employs the algebraic properties of Boolean algebra.

4. C. Hackel, "On the logic of NOR and NAND switching circuits," surveys the application of the Karnaugh map to NOR and NAND circuits.

5. J. Neander, "Fundamental ideas of Theodor Fromme's equivalence-calculus," outlines in some detail the basic ideas of the calculus developed by the late Theodor Fromme for the representation of combinational and sequential switching circuits.

6. K. H. Böhling, "On the reduction of sequential switching circuits," presents a survey of sequential switching circuit theory, with emphasis on state diagrams and Ginsburg's state reduction method.

7. P. Deussen, "On the synthesis of automata," is a survey of sequential circuit theory, with emphasis on feedback, Huffman's method, and transition matrices.

8. W. Zoberbier, "The practical application of minimization algorithms in the systems planning of combinational and sequential switching circuits," provides a discussion, by means of a completely worked out example, of the problems involved in applying minimization algorithms to real problems.

9. W. H. Rein, "A calculus for combinational and sequential switching circuits with many-valued signals," gives a formal and pictorial calculus for the description of switching circuits employing multi-level (many-valued) components.

10. W. Händler, "On the use of graphs in combinational and sequential switching theory," is a survey of graphical methods, such as Karnaugh maps, for circuit minimization; it includes the author's own work (M^n-graphs).

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31[Z].—R. VICHNEVETSKY, Editor, *Analogue Computation Applied to the Study of Chemical Processes*, Gordon & Breach, New York, 1962, 170 p., 30 cm. Price $10.50.

This book contains articles presented at a seminar in Brussels, Belgium sponsored by the International Association for Analog Computation. The articles, with the discussion they evoked, survey the state of the art of analog computation in the Western European chemical industry at the time of the seminar in late 1960. To describe the book, we shall devote one sentence to each of the twenty-two contributions.

J. F. Coales (Computers in the design and control of chemical plants) suggests that "the most urgent requirement, if computers and self-optimising or learning systems are to be applied successfully to the control of complex plants, is for some workers in this field to acquire an understanding of the behavior of multivariable systems with random inputs and to develop reasonably simple methods for optimising them." B. Messikommer (Die Optimierung eines Halbkontinuierlichen