or in mathematics. Thus, except for some elementary propositions of Boolean algebra, the book is essentially nonmathematical. Rather, the book is oriented toward the design of combinational and sequential circuits by simple hand methods. The reader is introduced both to the basic types of relay and electronic circuits, plus means for putting them together. Special subjects, such as tree circuits, symmetric functions, reiterative circuits, and error-correcting and error-detecting codes, are also surveyed.

The book covers a great many subjects, and the material is presented in a clear manner. The treatment, however, is rarely very deep. In particular, many of the given synthesis methods are quite unsophisticated, and the reader is not informed of the existence of more sophisticated ones. In the simplification of two-level AND-OR circuits, for example, the author starts his procedure from the expanded-sum-of-products form, and no mention is made of the numerous methods for getting from the prime implicants to a single minimal solution (say, in terms of number of literals) without first producing all irredundant forms. Thus, although the book will prepare the reader to solve simple practical problems, it will not serve to introduce him to the more mathematical portion of the literature, nor will it give him means to tackle complex problems either by hand or by machine.

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28[X].—CENTRE BELGE DE RECHERCHES MATHÉMATIQUES, *Colloque sur l'Analyse Numérique*, Gauthier-Villars, Paris, 1961, 214 p., 25 cm.

These are papers presented at a colloquium organized by the Centre Belge de Recherches Mathématiques and held at Mons in March 1961. In a foreword it is explained that "The object of the Centre is to pass in review the different chapters of mathematics in a manner to place at the disposition of our young research workers a precise documentation". Consequently, the papers are aimed more at exposition than at the reporting of new results. However, each paper treats a rather special subject, with one or two exceptions, and most of them presuppose a fair degree of sophistication on the part of the audience. The principal exception referred to is a paper by Forbat, entitled "Variational methods of determination of proper values" (in French), and a partial exception is a paper by Collatz (in German), describing various applications of the theory of monotonic operators. One of the more interesting papers is the one by Bauer (in French) on Romberg's method of numerical quadrature. This method was published by Romberg in 1955, and recently rediscovered; it is of special interest in that at this late date an important new development is possible in an area that has been worked so long and by so many of the masters.

Other papers that might be mentioned are one by Sauer, reporting work by Stetter in applying to certain hyperbolic systems Dahlquist's method of studying convergence for ordinary differential equations; a paper by Lanczos, dealing with the study of stability in solving systems of ordinary differential equations; and a paper by Stiefel on a problem arising in the design of electrical filters, which requires

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