the approach inevitably results in its taking more space to present the material than a typical textbook designed for classroom instruction. I feel that more material should have been covered—for example, application of transforms to solve partial differential equations and the integral representation for the inverse transform.

Y. L. L.

31 [8].—WILLARD H. CLATWORTHY, JOSEPH M. CAMERON & JANACE A. SPECKMAN, *Tables of Two-Associate-Class Partially Balanced Designs*, NBS Applied Mathematics Series 63, U.S. Government Printing Office, Washington, D.C., 327 pp., 26 cm. Price $3.45 (paperbound).

An extremely important problem in the design of experiments is the development of the capability of evaluating the significance of large numbers of variables and of estimating their effects, while maintaining control of the experimental error. To accomplish these purposes two broad classes of designs have been developed, known respectively as the Balanced Incomplete Block (BIB) and lattice designs. A major drawback to these designs consists of the constraints placed on the design configuration in terms of variables, blocks, and replicates. Owing to the resulting limitation on the number of ready-made designs of the BIB and lattice types, interest has developed in a broader class of designs that would remove these rather severe restrictions, to a large extent, while retaining most of the desirable features of the earlier designs. The underlying theory of the more general class of designs was developed by Bose & Nair [1]. These designs are called partially balanced incomplete block designs with m associate classes, and are designated as PBIB(m) designs.

The tables under review are new PBIBD(2) designs, representing the culmination of intensive research into combinatorial problems associated with experimental-design configurations studied since the publication of PBIBD(2) designs by Bose, Clatworthy and Shrikhande [2]. The present tables include more than 800 experimental designs of type $D(2)$ for which $2 \leqslant k \leqslant 10$ and $2 \leqslant r \leqslant 10$, where k is the number of experimental units in a block and r is the number of blocks in which each treatment appears.

Detailed explanations are given of the various means of accessing experimental designs to fit experimental situations. In Chapter III the reader is made fully aware of the models underlying the designs in the PBIBD(2) class. This chapter includes details of the computation required to develop the analysis of variance summaries, even to identifying the most appropriate schemes for the type of computer available.

However, this reviewer would have liked to see some sections directed at those not versed in the theory of statistical design, outlining in nontechnical terms the need for the new designs in preference to the customary ones.

This publication can be recommended as a necessary addition to the library of anyone fully qualified in the design of experiments.

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1. R. C. BOSE & K. R. NAIR, "Partially balanced incomplete block designs," *Sankhyā*, v. 4, 1939, pp. 337–372.

2. R. C. BOSE, W. H. CLATWORTHY & S. S. SHRIKHANDE, *Tables of Partially Balanced Designs with Two Associate Classes*, North Carolina Agricultural Experiment Station Technical Bulletin No. 107, Raleigh, North Carolina, 1954.