

persion of means, and one example is given of such application to the analysis of dispersion of regressions.

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1. S. S. WILKS, "Certain generalizations in the analysis of variance," *Biometrika*, v. 24, 1932, p. 471-494.
2. E. S. PEARSON & S. S. WILKS, "Methods of statistical analysis appropriate for k samples of two variables," *Biometrika*, v. 25, 1933, p. 353-378.
3. STATISTICAL RESEARCH GROUP, COLUMBIA UNIVERSITY, *Selected Techniques of Statistical Analysis*, McGraw-Hill Book Co., New York, 1947, chap. 3, p. 111-184.
4. J. NEYMAN, Editor, *Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability*, Univ. California Press, Berkeley & Los Angeles, 1951, p. 23-41.
5. F. G. FOSTER & D. H. REES, "Upper percentage points of the generalized beta distribution, I," *Biometrika*, v. 44, 1957, p. 237-247. [*MTAC*, Rev. 165, v. 12, 1958, p. 302]
6. F. G. FOSTER, "Upper percentage points of the generalized beta distribution. II," *Biometrika*, v. 44, 1957, p. 441-453 [*MTAC*, Rev. 167, v. 12, 1958, p. 302]
7. F. G. FOSTER, "Upper percentage points of the generalized beta distribution, III," *Biometrika*, v. 45, 1958, p. 492-503. [*Math. Comp.*, Rev. 77, v. 14, 1960, p. 386]
8. K. C. S. PILLAI, *Concise Tables for Statisticians*, Statistical Center, Univ. of the Philippines, Manila, 1957.
9. K. C. S. PILLAI & C. G. BANTEGUI, "On the distribution of the largest of six roots of a matrix in multivariate analysis," *Biometrika*, v. 46, 1959, p. 237-240.

43[K].—TOSIO KITAGAWA & MICHIO MITOME, *Tables for the Design of Factorial Experiments*, Dover Publications, Inc., New York, 1955 (printed in Japan; originally published by the Baifukan Company of Japan as part 3 of the work with the same title), vii + 253 p., 26 cm. Price \$8.00.

These tables consist of the actual tables that appeared in the original 1953 publication in Japanese. An introduction to design principles and an explanation of the mathematical principles, parts 1 and 2 of the first publication, have been omitted. Readers are now referred to Kitagawa's *Lectures on the Design of Experiments* for this information and presumably for some help in the use of these tables.

The American publisher's jacket states that "this book contains tables for the design of factorial experiments and covers Latin squares and cubes, factorial design, fractional replication in factorial design, factorial designs with split-plot confounding, factorial designs confounded in quasi-Latin squares, lattice designs, balanced incomplete block designs, and Youden's squares." The table of contents gives more detail under each of the eight main headings just listed, except for the last two. For example, orthogonal squares and cubes are listed, the 2^n series of factorial arrangements goes up through 2^9 , mixtures of factorials such as $a^n b^m$ mostly for $m = 1$ are listed, and the factorial replicates cover the 2^n for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, and $\frac{1}{16}$ replicates plus the $\frac{1}{3}$ replicate for 3^n . Perhaps it should be noted that tables such as these are not really "for the design of experiments"; the function of the tables is to help select a layout or make easy the randomization of the layout after the design has been selected.

An examination of these tables shows that four Japanese pages have been cut out with scissors, and four English pages pasted in their place. The jacket further describes these tables as a "New revised edition. Explanatory notes." The author's preface does not describe what this reviewer would call a 'revised edition' and the explanatory notes consist of only one page. Since Kitagawa's *Lectures on Design of Experiments* may not be readily available to some users of these tables, other

references might have been cited, e.g., O. Kempthorne, *Design and Analysis of Experiments*, W. G. Cochran and G. M. Cox, *Experimental Designs*, and O. L. Davies, *Design and Analysis of Industrial Experiments*.

These tables are excellently and clearly printed. After one becomes acquainted with their structure and arrangement the tables should prove useful on many occasions to those persons engaged in the design of experiments in any field. One unique feature of these tables deserves notice. A complete listing of all 576 configurations of the 4x4 Latin square is given. Continuation of this procedure for larger squares would have produced a bulky volume. One wonders about the special utility of 4x4 Latin squares which merited this complete listing.

There are two comments that must be made about these tables. The first comment is a criticism on the failure to include a table of random numbers within the volume. This reviewer's first act in using these tables will be to insert a small table of random numbers in both the front and rear of the volume. A table of experimental designs cannot be used without a random number table. As a consultant, when I pick up 'my tables,' I want to be sure that both items are with me.

The second comment follows from the first. A preliminary section on randomization procedures and choice of specific layout for each design should have been included. If omitted, specific references to such instructions in the Fisher & Yates tables or in O. Kempthorne's book should have been given. In this reviewer's experience both minor and major errors in designs have occurred because of a lack of clear understanding of proper randomization procedures.

Finally, one may remark that these tables would have been much improved by the inclusion of some explanatory materials, and references for each design included. For statisticians, R. A. Fisher & F. Yates, *Statistical Tables for Biological Agricultural and Medical Research*, Oliver & Boyd Ltd., Edinburgh (Fifth edition 1957), and E. S. Pearson & H. O. Hartley, *Biometrika Tables for Statisticians*, Vol. I, Cambridge, published for the Biometrika Trustees of the University Press (2nd printing, 1956) have set a high standard in this respect. The continued rapid development in the field of experimental design makes it difficult to keep tables of this type up to date. It is hoped that a really revised edition will soon appear. Designs for response surface investigation and new fractional factorial arrangements need to be readily available.

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44[K].—INGRAM OLKIN, SUDHISH G. GHURYE, WASSILY HOFFEDING, WILLIAM G. MADOW, & HENRY B. MANN, Editors, *Contributions to Probability and Statistics, Essays in Honor of Harold Hotelling*, Stanford University Press, 1960, x + 517 p., 24 cm. Price \$6.50.

This volume contains a collection of forty-two essays on probability and mathematical statistics in honor of Professor Harold Hotelling on his sixty-fifth birthday. The list of contributors, limited to those who have been closely associated with