tingency table

	With Attribute	Without Attribute	Total
Series I	a	$A - a$	A
Series II	b	$B - b$	B
Total	r	$N - r$	N

with fixed marginal totals $A \geqq B$, and $a/A \geqq b/B$, Finney (1948, *Biometrika* 35, 145) supplied the exact probabilities and the significant values of b at levels .05, .025, .01, .005, respectively for $A = 3(1)\ 15$. An extension of the same table for $A = 16(1)\ 20$ was prepared by Latscha (1953, *Biometrika*, 40, 74). The present tables further extend the exact probabilities (4 decimal places) to the case: $A = 21(1)\ 25$ and the significant b values at the four levels of the Finney-Latscha tables.

AUTHORS' SUMMARY

10[K].—MORDECAI EZEKIEL & KARL A. FOX, *Methods of Correlation and Regression Analysis*, 3rd edition, John Wiley & Sons, Inc., New York, 1959, xv + 548 p., 24 cm. Price $10.95.

It is very pleasing to see that Dr. Ezekiel's well-known text, *Methods of Correlation Analysis*, has been modernized. The older excellent book, which for many years stood alone in the desert of statistical literature, has now been joined by a growing array of fine statistical text material. Professor Fox was clearly a wise choice for Dr. Ezekiel to make for the co-author of the present edition.

This book is aimed mainly at the non-mathematical reader, in that algebraic and computational methods are stressed. There is also a wealth of practical material drawn from applied research. However, the mathematical statistician will also find much of great value; for example, the use of digital computers for data analysis is something which not all statisticians are yet well aware of.

In general, the treatment of regression and correlation is quite comprehensive, and results from the recent theoretical literature have been utilized throughout the book. As an example of this point, mention may be made of the inclusion of material dealing with regression and the analysis of variance, time series and errors, and the fitting of simultaneous relations.

The book is divided into seven main sections, with twenty-six chapters in all. The main sections are:

1. Introductory Concepts
2. Simple Regression, Linear and Curvilinear
3. Multiple Linear Regressions
4. Multiple Curvilinear Regressions
5. Significance of Correlation and Regression Results
6. Miscellaneous Special Regression Methods
7. Uses and Philosophy of Correlation and Regression Analysis

There are also three appendices, providing a glossary and important equations, methods of computation, and some technical notes. The inclusion of an author index is also a commendable feature.

Those working in the field of economics, agriculture, and business statistics will find this text of much value, since a good deal of the material is slanted toward

those areas. For teachers, statisticians in general, and members of operations research teams, this revised edition will be found to fill a real need. For applied work in fields like engineering, medicine, sociology, and psychology, the full treatment of the basic concepts of regression and correlation will be of immense value, and some slight reconsideration of the illustrative examples given will often provide insight into the real problems in these other fields.

Thanks are due to both the authors and publishers for making this material available. It is a text that should be in the library of every technical organization.

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11[K].—E. FIX, J. L. HODGES & E. L. LEHMANN, "The restricted chi-square test," included in *Probability and Statistics*, edited by U. GRENANDER, Almqvist & Wiksell, Stockholm; John Wiley and Sons, New York, 1959, pages 92–108 [See the following review].

This paper contains some new tables of the power function of chi-square tests, i.e., of the non-central chi-square distribution, for small degrees of freedom. As is well-known, the power function $\beta = \beta(\alpha, f, \lambda)$ of a chi-square test depends on three parameters: α, the "level of significance" at which the test of the null hypothesis H_0 is conducted, i.e., the probability of the test falsely rejecting H_0 when it is true; f, the "degrees of freedom" of the test; and λ, the "non-centrality parameter," which measures the "distance" of the alternative $H = H(\lambda)$ under consideration, from the null hypothesis H_0. The tables of this article give λ to 3D as a function of $\beta = 0.5(0.1)0.9, 0.95$, for $f = 1(1)6$ and $\alpha = 0.001, 0.005, 0.01, 0.05(0.05)0.3, 0.4, 0.5$. The quantity tabulated is that value of the parameter λ which satisfied the equation

$$e^{-(\lambda/2)} \sum_{k=0}^{\infty} \frac{1}{k!\, 2^{(1/2)f+2k-1}\Gamma(f/2)} \int_{\chi_f(\alpha)}^{\infty} x^{f+2k-1} e^{-(1/2)x^2}\, dx = \beta$$

where f = number of degrees of freedom and $\chi_f(\alpha)$ is such that

$$\frac{1}{2^{(1/2)f-1}\Gamma(f/2)} \int_{\chi_f(\alpha)}^{\infty} x^{f-1} e^{-(1/2)x^2}\, dx = \alpha.$$

These tables thus supplement those of E. Fix (1949), reviewed in *MTAC*, v. 4, 1950, p. 206–207.

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12[K].—ULF GRENANDER, Editor, *Probability and Statistics*, Almqvist & Wiksell, Stockholm; John Wiley & Sons, New York, 1959, 434 p., 24 cm. Price, $12.50.

"Once it had been suggested that a book of studies in probability and statistics should be presented to Harald Cramér in honor of his 65th birthday, the authors