

# THE ANNALS of MATHEMATICAL STATISTICS

FOUNDED AND EDITED BY H. C. CARVER, 1930-1938

EDITED BY S. S. WILKS, 1938-1949

THE OFFICIAL JOURNAL OF THE INSTITUTE  
OF MATHEMATICAL STATISTICS

## Contents

	PAGE
The Cramér-Smirnov Test in the Parametric Case. D. A. DARLING.....	1
Characterizations of Complete Classes of Tests of Some Multiparametric Hypotheses, with Applications to Likelihood Ratio Tests. ALLAN BIRNBAUM.....	21
Asymptotic Solutions of the Compound Decision Problem for Two Completely Specified Distributions. JAMES HANNAN AND HERBERT ROBBINS.....	37
The Efficiency of Tests. WASSILY HOEFFDING AND JOAN RAUP ROSENBLATT.....	52
On a Theorem of Pitman. GOTTFRIED E. NOETHER.....	64
An Extension of Wald's Theory of Statistical Decision Functions. L. LECAM.....	69
Sequential Life Tests in the Exponential Case. BENJAMIN EPSTEIN AND MILTON SOBEL.....	82
Rank Sum Tests of Fit. CHIA KUEI TSAO.....	94
Random Functions Satisfying Certain Linear Relations, II. S. G. GHURYE.....	105
On the Distribution of the Sample Median. JOHN T. CHU.....	112
Some New Test Criteria in Multivariate Analysis. K. C. S. PILLAI.....	117
Distribution of Definite and of Indefinite Quadratic Forms. JOHN GURLAND.....	122
Note on the Distribution of a Definite Quadratic Form. JAMES PACHARES.....	128
On the Maximum Number of Constraints of an Orthogonal Array. ESTHER SEIDEN.....	132
Notes:	
On a Sequential Test for the General Linear Hypothesis. PAUL G. HOEL.....	136
Two Comments on "Sufficiency and Statistical Decision Functions". R. R. BAHADUR AND E. L. LEHMANN.....	139
A Note on Confidence Sets for Random Variables. LIONEL WEISS.....	142
An Inconsistency of the Method of Maximum Likelihood. D. BASU.....	144
A Note on Simultaneous Confidence Intervals. MEYER DWASS.....	146
An Inequality on Poisson Probabilities. HENRY TEICHER.....	147
Note on Linear Hypotheses with Prescribed Matrix of Normal Equations. JOHN E. MAXFIELD AND ROBERT S. GARDNER.....	149
Abstracts of Papers.....	150
News and Notices.....	163
Report of the Iowa City Meeting.....	169
Report of the Berkeley Meeting.....	170
Report of the Annual Membership Meeting, December 27, 1954.....	178
Report of the President of the Institute.....	179
Report of the Secretary-Treasurer of the Institute.....	186
Report of the Editor of the Annals.....	187
Publications Received.....	188

Vol. 26, No. 1 — March, 1955

# THE ANNALS OF MATHEMATICAL STATISTICS

EDITOR

E. L. LEHMANN

ASSOCIATE EDITORS

DAVID BLACKWELL  
H. E. DANIELS

J. L. HODGES, JR.  
WASSILY Hoeffding

WILLIAM G. MADOW  
J. WOLFOWITZ

WITH THE COOPERATION OF

Z. W. BIRNBAUM  
R. C. BOSE  
G. E. P. BOX  
HERMAN CHERNOFF  
KAI LAI CHUNG  
D. R. COX  
J. F. DALY

D. A. DARLING  
J. L. DOOB  
T. E. HARRIS  
PAUL G. HOEL  
J. KIEFER  
WILLIAM H. KRUSKAL  
SOLOMON KULLBACK

G. E. NOETHER  
M. PEISAKOFF  
H. E. ROBBINS  
L. J. SAVAGE  
CHARLES M. STEIN  
LIONEL WEISS  
MAX A. WOODBURY

Published quarterly by the Institute of Mathematical Statistics in March,  
June, September and December at Baltimore, Maryland.

## INSTITUTE OF MATHEMATICAL STATISTICS

*To June 30, 1955*

**Treasurer's Office** Department of Mathematics, Michigan State College, East Lansing, Mich.  
K. J. Arnold, Treasurer

*From July 1, 1955*

Department of Statistics, Stanford University, Stanford, Cal.  
A. H. Bowker, Treasurer.

These addresses should be used for communications concerning subscriptions, back numbers, payment of dues, etc.

*To June 30, 1955*

**Secretary's Office** Department of Mathematics, Michigan State College, East Lansing, Mich.  
K. J. Arnold, Secretary

*From July 1, 1955*

Department of Statistics, University of North Carolina, Chapel Hill, N. C.

George E. Nicholson, Jr., Secretary

These addresses should be used for communications concerning membership, changes of address, etc. Changes of address which are to become effective for a given issue of the *Annals* should be reported to the Secretary on or before the 10th of the month preceding the month of issue.

**Editorial Office** Statistical Laboratory, University of California, Berkeley 4, Cal.  
E. L. Lehmann, Editor

Manuscripts should be submitted to this address; each manuscript should be typewritten, double-spaced with wide margins, and the original copy should be submitted (preferably with one additional copy). Dittoed and mimeographed papers are acceptable if they are completely legible and printed on paper that will take corrections. Footnotes should be reduced to a minimum and whenever possible replaced by a bibliography at the end of the paper; formulae in footnotes should be avoided. Figures, charts, and diagrams should be professionally drawn on plain white paper or tracing cloth in black India ink twice the size they are to be printed. Authors are requested to keep in mind typographical difficulties of complicated mathematical formulae. Authors will ordinarily receive only galley proofs. Fifty reprints without covers will be furnished free. Additional reprints and covers furnished at cost.

**Subscription Prices** Current issues are \$12 per volume (four issues of one calendar year) in the U. S. and Canada, \$10 per volume elsewhere. Single issues are \$3.50. Back numbers are \$12 per volume, \$3.50 per issue, \$200 for the first 25 volumes, \$10 per additional volume purchased at the same time as Volume I through XXV.

COMPOSED AND PRINTED AT THE  
WAVERLY PRESS, INC., BALTIMORE, MARYLAND, U. S. A.