

THE ANNALS *of* MATHEMATICAL STATISTICS

(FOUNDED BY H. C. CARVER)

THE OFFICIAL JOURNAL OF THE INSTITUTE
OF MATHEMATICAL STATISTICS

Contents

	PAGE
On the Theory of Systematic Sampling, I. WILLIAM G. MADOW AND LILLIAN MADOW.....	1
On the Probability Theory of Linkage in Mendelian Heredity. HILDA GEIRINGER.....	25
The Covariance Matrix of Runs Up and Down. II. LEVENE AND J. WOLFOWITZ.....	58
On the Measure of a Random Set. II. E. ROBBINS.....	70
On the Distribution of the Radial Standard Deviation. FRANK E. GRUBBS.....	75
A Matrix Presentation of Least Squares and Correlation Theory with Matrix Justification of Improved Methods of Solution. PAUL S. DWYER.....	82
On the Statistics of Sensitivity Data. BENJAMIN EPSTEIN AND C. WEST CHURCHMAN.....	90
NOTES:	
Note on Runs of Consecutive Elements. J. WOLFOWITZ.....	97
Note on Consistency of a Proposed Test for the Problem of Two Samples. ALBERT H. BOWKER.....	98
Henry Lewis Rietz—In Memoriam. A. R. CRATHORNE.....	102
News and Notices.....	109
Annual Report of the President of the Institute.....	111
Annual Report of the Secretary-Treasurer of the Institute.....	113
Constitution and By-Laws of the Institute.....	114

Vol. XV, No. 1 — March, 1944



THE ANNALS OF MATHEMATICAL STATISTICS

EDITED BY

S. S. WILKS, *Editor*

A. T. CRAIG
W. E. DEMING
T. C. FRY

H. HOTELLING
J. NEYMAN
W. A. SHEWHART

WITH THE COÖPERATION OF

W. G. COCHRAN
J. H. CURTISS
H. F. DODGE
P. S. DWYER

C. EISENHART
W. K. FELLER
P. G. HOEL
W. G. MADOW

A. M. MOOD
H. SCHEFFÉ
A. WALD
J. WOLFOWITZ

The ANNALS OF MATHEMATICAL STATISTICS is published quarterly by the Institute of Mathematical Statistics, Mt. Royal & Guilford Aves., Baltimore 2, Md. Subscriptions, renewals, orders for back numbers and other business communications should be sent to the ANNALS OF MATHEMATICAL STATISTICS, Mt. Royal & Guilford Aves., Baltimore 2, Md., or to the Secretary of the Institute of Mathematical Statistics, P. S. Dwyer, 116 Rackham Hall, University of Michigan, Ann Arbor, Mich.

Changes in mailing address which are to become effective for a given issue should be reported to the Secretary on or before the 15th of the month preceding the month of that issue. The months of issue are March, June, September and December. Because of war-time difficulties of publication, issues may often be from two to four weeks late in appearing. *Subscribers are therefore requested to wait at least 30 days after month of issue before making inquiries concerning non-delivery.*

Manuscripts for publication in the ANNALS OF MATHEMATICAL STATISTICS should be sent to S. S. Wilks, Fine Hall, Princeton, New Jersey. Manuscripts should be typewritten double-spaced with wide margins, and the original copy should be submitted. 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 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.

The subscription price for the ANNALS is \$5.00 per year. Single copies \$1.50. Back numbers are available at \$5.00 per volume, or \$1.50 per single issue.

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