# NEWS AND NOTICES

## Personal Items

Mir M. Ali, having completed his doctorate in statistics at the University of Toronto, has accepted the post of Assistant Professor of Mathematics at the University of Western Ontario.

Dr. Chooichiro Asano has been appointed Research Associate in the Statistical Laboratory, Department of Mathematics, Catholic University of America.

Dr. A. E. Brandt has been named head of the newly created Department of Statistics in the University of Florida College of Agriculture. He will continue as head of the Statistical Section, Agricultural Experiment Stations.

Dr. Harald Cramér, recently retired Chancellor of all the Swedish Universities, has joined the Research Triangle Institute, where he is currently involved in developing probabilistic model techniques for complex systems.

R. Gnanadesikan has accepted a teaching position as Adjunct Associate Professor in the Institute of Mathematical Sciences at New York University.

Dr. Bruce M. Hill has been appointed Assistant Professor of Mathematics and Biostatistics at the University of Michigan.

Edwin L. Hughes, associate in statistics, has been honored as the most outstanding doctoral candidate in Statistics at Iowa State University this year as conferee of the George W. Snedecor Award for 1962.

Donald L. Iglehart recently completed his doctorate in statistics at Stanford and was awarded a National Academy of Sciences Postdoctoral Research Fellowship at the Mathematical Institute, Oxford, England.

Robert Riffenbaugh, on leave from the University of Hawaii Mathematics Department, is currently engaged in detection probability studies and general consulting at the Monterey, California laboratory, Laboratory For Electronics, Inc.

Jaques St.-Pierre has been appointed Vice Dean and Director of Studies of the Université de Montreal's Faculty of Pure Sciences. He continues as Director of the Statistics Centre as well as teaching mathematical statistics.

Dr. Sidney Siegel died last November 29th after a heart attack. He was a National Science Foundation Research Fellow at the Ford Center For Advanced Study in the Behavioral Sciences, Stanford, while on leave from Pennsylvania State University.

Miss Ester Samuel has completed her Ph.D. at Columbia University and has joined the faculty in the Statistics Department of the Hebrew University, Jerusalem, Israel.

Dr. Ernest M. Scheuer has joined the RAND Corporation, Santa Monica, California.

Arthur Stein's appointment as head of Operations Research has been announced by Cornell Aeronautical Laboratory.

Dr. William J. Youden was awarded the Department of Commerce Exceptional Service Gold Medal for his "highly significant research in mathematical statistics and for creative leadership. . . ."

Alexis Zinger is spending the current academic year at the University of Oxford's Biometry Unit as a recipient of a NATO Science Fellowship.

## New Members

*The following persons have been elected to membership in the Institute.*

**Anderson, Captain Edith R.,** B.S., (Texas Woman's University); U. S. Air Force Officer and Graduate Student, *Department of Statistics, Stanford University.*

**Arnold, Barry C.,** B.Sc., (Mc Master University); Teaching Assistant, Department of Statistics, Stanford University; *420 Crothers Hall, Stanford.*

**Babbar, Madan M.,** Ph.D., (Iowa State University); Agricultural Economist and Statistician, FAO of the United Nations, Rome, Italy; *Post Office Box 4526, San Jose, Costa Rica.*

**Baranchik, Alvin J.,** B.S., (Case Institute of Technology); Research Assistant, *Department of Statistics, Stanford University.*

**Bercos, James,** M.S., (University of Georgia); Operations Research Scientist, System Development Corporation, 567 Winters Avenue, Paramus, New Jersey; *263 Franklin Avenue, Ridgewood, New Jersey.*

**Bhargava, Raghu N.,** M.Sc., (Allahabad University, India); Research Assistant, *Department of Statistics, Stanford University.*

**Brown, Richard C.,** Student, Stanford University; *Box 3828, Stanford, California.*

**Caldwell, J. George,** Student, Carnegie Institute of Technology; *5089 Forbes Avenue, Apt. B-1, Pittsburgh 13, Pennsylvania.*

**Chmura, Helen A.,** B.A. (Smith College); Graduate Student, Stanford University; *627 Bryant, Apt. 4, Palo Alto, California.*

**Clark, James A.,** M.S., (Michigan State University); Graduate Student, Michigan State University; *2700 East Grand River, East Lansing, Michigan.*

**Daoust, Norman G.,** B.S., (Wayne State University); Design Engineer, *Burroughs Corporation, 14300 Tireman Avenue, Detroit, Michigan.*

**Dixon, Janet,** B.S., (Stanford University); Graduate Student, Stanford University; *Box 5687, Stanford, California.*

**Donio, Jean I.,** B.S., (l'Ecole Polytechnique, Paris); Graduate Student, Stanford University; *439 Del MEdio Avenue, Apt. 39, Mountain View, California.*

**Fey, Curt F.,** Ph.D., (University of Pennsylvania); Mathematician, IBM Corporation, 7220 Wisconsin Avenue, Washington 14, D. C.; *4740 Bradley Boulevard, Apt. 103, Washington 15, D. C.*

**Fine, Terrence L.,** S.M., (Harvard University); Graduate Student, Harvard University; *36 Conant Hall, Harvard Graduate Center, Cambridge 38, Massachusetts.*

**Fleischer, Jack,** M.S., (North Carolina State College); Senior Mathematician, *The B. F. Goodrich Company, 500 South Main Street, Akron 18, Ohio.*

**Fortier, Jean J.,** B.Sc., (Université de Montréal); Research Assistant, *Stanford University Applied Mathematics and Statistics Laboratories, Stanford.*

**Garcia, Raymond Arnold,** M.A., (University of Hawaii); Graduate Student, University of Wisconsin; *1212 West Dayton Street, Madison, Wisconsin.*

**Gladwin, Harmon T.,** M.B.A., (University of Washington); Associate Research Engineer, The Boeing Company, Post Office Box 707, Renton, Washington; *6300 South Hazel Street, Seattle 88, Washington.*

**Grant, Wendy R.,** B.Sc., (University of London); Graduate Student, Stanford University; *650 Waverly Street, Palo Alto, California.*

**Hamilton, Martin A.,** B.S., (University of Wyoming); Graduate Research Assistant, Department of Statistics, University of Wyoming; *2334 East C Street, Torrington, Wyoming.*

Hansen, LeRoy C., M.A., (University of Washington); Graduate Student, Stanford University; *2355 Sutter Street, Apt. 5, Santa Clara, California.*

Higley, Henry G., M.S., (University of Nuevo Leon, Mexico); Director of Research, National Chiropractic Association, Webster City, Iowa and Los Angeles College of Chiropractic; *201 Palatine Drive, Alhambra, California.*

Hodgson, Vincent, Ph.D., (University of London); Assistant Professor of Statistics, Florida State University, Tallahassee.

Hollander, Myles, B.S., (Carnegie Institute of Technology); Research Assistant, Department of Stastics, Stanford University; *1125 University Avenue, Palo Alto, California.*

Hosley, William N., S.B., (Massachusetts Institute of Technology); Research Supervisor, Production Planning, *Eastman Kodak Company, Rochester 4, New York.*

Hsi, Bartholomew P., M.A., (University of Minnesota); Graduate Teaching Assistant, University of Minnesota; *321 Ontario Street S. E., Minneapolis 14, Minnesota.*

Kadakia, Pravinchandra L., M.A., (University of Illinois); Statistician/Programmer, *Smithsonian Astrophysical Observatory, 60 Garden Street, Bldg. B., Cambridge 38, Massachusetts.*

Kanal, Laveen N., Ph.D., (University of Pennsylvania); Manager, Information Systems Laboratory, *General Dynamics/Electronics, 1400 North Goodman Street, Rochester 1, New York.*

Kapadia, C. H., Ph.D., (Oklahoma State University); Assistant Professor, Institute of Statistics, *University of Georgia, Athens, Georgia.*

Kemp, Bertram, B.S., (University of Wyoming); Student, Air Force Institute of Technology, Stanford University; *1730 Calgary Drive, Sunnyvale, California.*

Kettenring, Jon R., B.S., (Stanford University); Graduate Student, Stanford University; *Box 8344, Stanford, California.*

Laws, Leonard S., Ed.D., (Michigan State University); Chairman, Division of Natural Science, Professor of Mathematics, Southwestern College, Winfield, Kansas; *51-B Escondido Village, Stanford, California.*

Love, Donald N., M.B.A., (Lehigh University); Student, Air Force Institute of Technology, Stanford, University; *Post Office Box 2889, Stanford, California.*

Malik, Henrik John, M.S., (Western Reserve University, Cleveland, Ohio); Instructor, *Department of Mathematics, Western Reserve University.*

Maritz, Johannes S., M.Sc., (University of Witwatersrand, Johannesburg, South Africa); Senior Lecturer, *University of Melbourne, Victoria, Australia.*

Metzner, John R., B.S., (Bethany College, Kansas); Graduate Assistant, Department of Mathematics, *Pennsylvania State University, McAllister Hall, University Park, Pennsylvania.*

Meyer, Donald L., Ph.D., (University of Minnesota); Assistant Professor, Syracuse University, Syracuse, New York; *124 Buckingham Avenue, Syracuse, New York.*

Milton, Roy C., B.A., (University of Minnesota); Research Assistant, Department of Statistics, University of Minnesota; *1156 Delaware Avenue, West St. Paul 18, Minnesota.*

Murphey, Murray G., Ph.D., (Yale University); Associate Professor, University of Pennsylvania, 34th and Walnut, Philadelphia, Pennsylvania; *601 University Avenue, Palo Alto, California.*

Murphy, James T., Jr., M.S.E., (University of Florida); Design Specialist, The Martin Company, Orlando, Florida; *2205 Falmouth Road, Maitland, Florida.*

Norman, M. Frank, B.A., (Dartmouth College); Graduate Student, Stanford University; *424 College Avenue, Apt. E., Palo Alto, California.*

Orr, Martin. M.A., (Columbia University); Mathematician, Vitro Laboratories, 200 Pleasant Valley Way, West Orange, New Jersey; *117 Vose Avenue, South Orange, New Jersey.*

Piniarski, Harry, B.B.A., (St. Bonaventure University, New York); Quality Control Statistician, *Spaulding Fibre Company, 310 Whleeer Street, Tonawanda, New York.*

**Samuels, Stephen M.,** M.S., (Stanford University); Graduate Student, *Stanford University, Stanford, California.*

**Shapiro, Saul,** M.S., (Columbia University); Staff Engineer, IBM Corporation, *Advanced Systems Development, Post Office Box 344, Yorktown Heights, New York.*

**Shipplett, Carroll M.,** B.A., (Knox College, Illinois); Dynamicist, Lockheed Missiles and Space Company, Sunnyvale, California; *2027 San Rafael Court, Santa Clara, California.*

**Simon, LeRoy J.,** M.A., (University of Minnesota); Associate Actuary, *Insurance Company of North America, 1600 Arch Street, Philadelphia, Pennsylvania.*

**Slee, Vergil N.,** M.D., (Washington University School of Medicine, St. Louis); Director, *Commission on Professional and Hospital Activities, Inc., First National Building, Ann Arbor, Michigan.*

**Smith, Edward J.,** M.S., (Stanford University); Graduate Student, Stanford University; *275 Ventura Avenue, Apt. 21, Palo Alto, California.*

**Stander, Herbert,** M.S., (Rutgers University); Biometrician, *Schering Corporation, Orange Street, Bloomfield, New Jersey.*

**Stephens, Michael A.,** A.M., (Harvard University); Student and Lecturer, *University of Toronto, Toronto, Ontario, Canada.*

**Sucheston, Louis,** Ph.D., (Wayne State University); Assistant Professor, *University of Wisconsin, Milwaukee 11.*

**Taylor, Howard M.,** M.I.E., (Cornell University); Graduate Student, Stanford University; *P. O. Box 2506, Stanford, California.*

**van Zwet, Willem R.,** Ph.D., (University of Leiden, The Netherlands); Department of Mathematical Statistics, *Mathematical Centre, Amsterdam, 49 2e Boerhaavestraat, Amsterdam, the Netherlands.*

**Wanger, Murray L.,** B.S., (Brooklyn College); Research Physicist, Operations Research, Inc., 8605 Cameron Street, Silver Spring, Maryland; *160 Talbott Street, Rockville, Maryland.*

**Weesakul, Boonserm,** M.A., (Columbia University); Lecturer, *Department of Mathematics, University of Western Australia, Nedlands, Australia.*

**Williamson, Stanley G.,** B.S., (California Institute of Technology); Graduate Student, Stanford University; *Department of Mathematics, Stanford, California.*

**Winbigler, D. Myles,** Student, Stanford University; *25550 West Fremont Road, Los Altos, California.*

**Wittenberg, Joel A.,** B.S., (New York University); Staff Statistician, Columbia Record Club Division of Columbia Records, 165 West 46th Street, New York 35, New York; *340 Webster Avenue, Brooklyn 30, New York.*

**Zweig, Hans J.,** A.M., (Brown University); Graduate Student, Stanford University; *430 Sherman Avenue, Palo Alto, California.*

## BOOK REVIEWS

The Editorial Board of the *Annals* has decided to begin again the publication of reviews of selected books in the fields of statistics and probability. The Book Review Section will be edited by Associate Editor William Kruskal, Department of Statistics, University of Chicago.

## INSTRUCTIONAL CONFERENCE AT DURHAM

An Instructional Conference on Mathematical Probability is to be held during the fortnight 28th March to 11th April, 1963, in the Department of Mathematics,

Durham Colleges, University of Durham, under the auspices of The London Mathematical Society.

While it is hoped that there will be much in the program to interest specialists, the main purpose of the Conference is to meet the needs of mathematicians and statisticians who would like a thorough introduction to this field.

The Conference will begin with two series of Introductory Lectures on the applications of probability theory and on the mathematical prerequisites for the subsequent courses. The Introductory Lectures will be followed by a course of Basic Lectures on the fundamentals of the subject; these will be supplemented by classes for informal discussion. The second part of the Conference will be devoted to three series of Advanced Lectures.

Those wishing to be kept informed of the arrangements are encouraged to register now. The Registration Fee of two guineas (which covers participation in all the scientific activities of the Conference) should be sent to the Secretary, Science Laboratories, South Road, Durham, England, and the envelope should be marked "Probability Conference"; remittances should be made payable to "The London Mathematical Society".

## INTERNATIONAL SCIENCE SUMMER SESSION

The Netherlands Universities Foundation for International Cooperation will hold its 1962 International Summer Session in Science on the topic Asymptotic Distribution, Modulo 1, at Nyenrode Castle, Breukelen, the Netherlands, from August 1–11. Inquiries should be directed to the Registrar, Netherlands Universities Foundation for International Cooperation, 27 Molenstraat, the Hague, the Netherlands.

## INVITATION TO ANNALS AUTHORS TO
## PREPARE ABSTRACTS FOR *IJA*

In order to facilitate prompt and thorough coverage of the literature, the Editors of the *International Journal of Abstracts: Statistical Theory and Method* (*IJA*) have decided to begin the use of abstracts written by the author of the abstracted article. Authors of *Annals* articles are invited by the Editors of *IJA* to prepare abstracts of their papers. They should be submitted to Professor D. G. Chapman, Department of Mathematics, University of Washington, Seattle 5, Washington, preferably as soon as possible after the paper has been accepted. Abstracts and correspondence about them should not be sent to the *Annals* Editor.

The Editors of *IJA* ask that authors keep in mind that the primary purpose of *IJA* is to serve the user of statistical theory and methods. Mathematical formulae should be kept to a minimum. Abstracts should be of the long type, up to about 400 words. Because of the publication format of *IJA*, if an article cannot be adequately dealt with in 400 words or so, the abstract may as well go up to about 800 words.

Substantive changes in the abstract will not be made without the author's approval. However, the Editors of *IJA* reserve the right to arrange for a new abstract to be written by someone else.

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## TABLES OF THE DISTRIBUTION OF A PRODUCT

Dr. Leo A. Aroian has available some copies of *Tables and Percentage Points of the Distribution of a Product*. The tables include both the distribution function and percentage points of the product of two independent normally distributed variables with means $(m_1, m_2)$, and variances $(\sigma_1^2, \sigma_2^2)$. The tables run to ninety-nine pages and include an introduction of nine pages. There is no charge for the tables, but those desiring the tables will be billed for the exact amount of the postage. Inquiries may be addressed to L. A. Aroian, Space Technology Laboratories Inc., 1 Space Park, Redondo Beach, California.

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## GUIDE FOR STATISTICAL TABLES

A *Guide for the Preparation, Publication, and Distribution of Statistical Tables* has recently been compiled by Paul C. Cox for the I.M.S. Committee on Tables. This guide contains: (i) Information about the policies concerning the publishing of statistical tables and the proper procedures for preparing and submitting such tables for publication for twenty-three scientific journals. (ii) Information about nine foundations and Government agencies with regard to their policies on giving financial support for the preparation of new statistical tables. (iii) Information regarding seven depositaries and their policies for preparing, collecting, and distributing statistical tables. A copy of the guide may be obtained at no charge from Mr. Cox, 1904 Idaho Avenue, Las Cruces, New Mexico.

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## REPORT OF THE NEW YORK CITY MEETING OF THE INSTITUTE OF MATHEMATICAL STATISTICS

The eighty-ninth meeting of the Institute of Mathematical Statistics was held at the Roosevelt Hotel, New York City, December 27–30, 1961, in conjunction with the annual meetings of the American Statistical Association and the Biometric Society (East North American Region).

There were 479 members of the IMS present at the meetings.

A meeting of the IMS Council was held on Wednesday, December 27, at 7:00 p.m.

### Program

Some sessions were held under joint sponsorship with other societies; where this is indicated, the session was arranged by the society listed first.

## WEDNESDAY, DECEMBER 27.

**10:30 a.m.—Contributed Papers I**

Chairman: HENRY TEICHER, Purdue University

1. *A Normal Approximation to the Beta and Gamma Distributions*, R. R. BAHADUR, University of Chicago.
2. *On a Characterization of the Gamma Distribution* (Preliminary Report), THOMAS S. FERGUSON, University of California, Los Angeles.
3. *The First Two Moments of the Reciprocal of a Positive Hypergeometric Variable*, ZAKKULA GOVINDARAJULU, Case Institute of Technology.
4. *On the Order of an Entire Characteristic Function*, B. RAMACHANDRAN, Catholic University.
5. *Some Sample Function Properties of a Process with Stationary Independent Increments*, S. S. MITRA, University of Idaho.
6. *Extensions of the Arc Sine Law*, SIMEON M. BERMAN, Columbia University.
7. *The Auto-Covariance of Discrete Pulse Trains*, RALPH H. BACON, General Precision, Inc.
8. *Asymptotic Bounds for the Zero-Crossing Probability Distribution of Stationary Gaussian Processes*, M. ROSENBLATT, Brown University.
9. *Theory of Queues with a Single Server*, TATSUO KAWATA, Catholic University.

**2:00 p.m.—Bayesian Inference I (IMS, ASA)**

Chairman: M. E. MULLER, International Business Machines

1. *A Further Look at Robustness via Bayes' Theorem*, G. E. P. BOX AND GEORGE TIAO, University of Wisconsin.
2. *Contributions to the Two Arm Bandit Problem*, DORIAN FELDMAN, Michigan State University.

Discussants: F. J. ANSCOMBE, Princeton University; L. J. SAVAGE, University of Michigan.

**4:00 p.m.—Reliability Analysis (IMS, ASA)**

Chairman: MARVIN ZELEN, University of Wisconsin

1. *Hazard Analysis*, G. S. WATSON, University of Toronto.
2. *Probability Distributions with the Monotone Hazard Rate*, R. E. BARLOW, General Telephone and Electronics Laboratories and San Jose State College, AND ALBERT W. MARSHALL, Boeing Scientific Research Labs.
3. *Marginal Testing, System Reliability and Maintenance Costs*, BETTY FLEHINGER, International Business Machines.

## THURSDAY, DECEMBER 28

**8:30 a.m.—Industrial Design of Experiments (ASA, IMS)**

Chairman: CUTHBERT DANIEL, Cousultant

1. *Supersaturated Fractions*, J. STUART HUNTER, Princeton University.
2. *Fractional Replicate Plans for Symmetrical and Asymmetrical Factorial Experiments*, SIDNEY ADDELMAN, Research Triangle Institute.

Discussant: W. S. CONNOR, Research Triangle Institute.

**10:30 a.m.—Bayesian Inference II**

Chairman: F. J. ANSCOMBE, Princeton University

1. *An Objective Bayesian Calculus*, JEROME CORNFIELD, National Institutes of Health.
2. *Testing Statistical Hypotheses—The "Compound" Approach*, HERBERT ROBBINS AND ESTER SAMUEL, Columbia University.

Discussants: J. NEYMAN, University of California; L. J. SAVAGE, University of Michigan.

**2:00 p.m.—Experimental Design (ASA, BS, IMS)**

Chairman: GEORGE ZYSKIND, Iowa State University
1. *Structure Diagrams and Their Uses in Experimental Design*, T. N. THROCKMORTON, Aero-Jet General Corp.
2. *Symmetrical Complementation Designs*, W. H. BEYER, University of Akron, AND R. E. BARGMANN, International Business Machines.
3. *A Calculus for Factorial Arrangements*, M. ZELEN, U. S. Army Mathematics Research Center, AND B. M. KURKJIAN, Diamond Ordnance Fuze Laboratories.

**4:00 p.m.—Contributed Papers II**

Chairman: S. W. GREENHOUSE, National Institutes of Health
1. *A Sequential Procedure for Selecting the Population with the Largest Mean from k Normal Populations with a Common Known Variance* (Preliminary Report), EDWARD PAULSON, Queens College.
2. *Variance Components in Two-Way Classification Models with Interaction*, CHANDRAKANT H. KAPADIA, University of Georgia, AND DAVID L. WEEKS, Oklahoma State University.
3. *A Comparison of Minimum Variance Regression Coefficients with Weighted Least Squares Regression Coefficients*, GENE H. GOLUB, Space Technology Laboratories (Introduced by Ernest M. Scheuer).
4. *Applications of Simultaneous Confidence Intervals to Two Regression Problems* (Preliminary Report), ARTHUR COHEN, Columbia University.
5. *Applicability of the Extended Method of Parabolic Curves in the Analysis of Agricultural Data*, REGINA C. ELANDT, Case Institute of Technology (Introduced by Fred C. Leone).
6. *On the Axioms of Sample Formation and Their Bearing on the Construction of Linear Estimators in Sampling Theory for Finite Populations*, J. C. KOOP, North Carolina State College.
7. *On Sampling With Replacement: An Axiomatic Approach* (Preliminary Report), RICHARD C. TAEUBER, C-E-I-R, Inc., AND J. C. KOOP, North Carolina State College.
8. *The Choice of the Degree of a Polynomial Regression as a Multiple Decision Problem*, T. W. ANDERSON, Columbia University.
9. *Shorter Confidence Intervals for the Mean of a Normal Distribution with Known Variance* (Preliminary Report), JOHN W. PRATT, Harvard University.
10. *General Limit Theorems for Spacings*, FRANK PROSCHAN, Boeing Scientific Research Laboratories, AND RONALD PYKE, University of Washington.

**4:00 p.m.—Decision Theory in Basic Statistical Training for Engineering and the Physical Sciences (ASA, IMS)**

Chairman: ROBERT E. BECHHOFER, Cornell University
Speakers: LIONEL WEISS, Cornell University; GERALD LIEBERMAN, Stanford University; PAUL RANDOLPH, Purdue University

**FRIDAY, DECEMBER 29**

**8:30 a.m.—Contributed Papers III**

Chairman: CARL F. KOSSACK, International Business Machines
1. *Fiducial Method: Its Consistency and a Suggested Modification*, D. A. S. FRASER, Stanford University.
2. *On the Estimation of the Probability Density*, M. R. LEADBETTER AND G. S. WATSON, Research Triangle Institute.
3. *Averages of Correlated Observations*, RAY H. LEE AND ARTHUR YASPAN, Autometric Company.

4. *Maximum Likelihood Estimates for Certain Contagious Distributions Using Speed Computers*, DONALD C. MARTIN AND S. K. KATTI, Florida State University.
5. *An Approximation to the Distribution of Q (A Variate Related to the Non-Central t)*, D. HOGBEN, R. S. PINKHAM, AND M. B. WILK, Rutgers—The State University.
6. *On the Set of Distributions Induced by a Ratio Statistic*, KENZO SEO, Colorado State University.
7. *Tests Based on the Movements In and the Comovements Between m-Dependent Time Series*, LEO A. GOODMAN, University of Chicago.
8. *Application of the Tandem Test to a Problem of Two Populations* (Preliminary Report), LEE R. ABRAMSON, Columbia University.
9. *On Solving a Markovian Decision Problem by Linear Programming*, MARSHALL FREMIER, Institute for Defense Analyses.

**10:30 a.m.—Multivariate Analysis (Place: Terrace Room)**

Chairman: L. H. HERBACH, New York University
1. *Some Confidence Bounds for Determinantal Roots*, T. W. ANDERSON, Columbia University.
2. *Analysis of Multi-Response Experiments*, R. GNANADESIKAN, Bell Telephone Laboratories, AND M. B. WILK, Rutgers—The State University.
3. *Multivariate Approach to Screening Test Data*, R. V. LAUE, Bell Telephone Laboratories.

**2:00 p.m.—Non-Linear Regression (ASA, BS, IMS)**

Chairman: RICHARD CORNELL, Florida State University
1. *A Non-Linear Demand Model*, D. C. HURST, Virginia Polytechnic Institute.
2. *Efficient Non-Linear Least Squares Estimation Without Absolute Minima*, H. O. HARTLEY AND AARON BOOKER, Iowa State University.
Discussant: MARTIN B. WILK, Bell Telephone Laboratories.

**4:00 p.m.—Spectral Analysis in Geophysical Problems (ASA, IMS)**

Chairman: LEO J. TICK, New York University
1. *A New Random Model for Ocean Waves*, WILLARD J. PIERSON, JR., New York University.
2. *Statistical Methods in Geophysics*, JOHN W. TUKEY, Princeton University and Bell Telephone Laboratories.

### SATURDAY, DECEMBER 30

**8:30 a.m.—Computer Applications (ASA, IMS)**

Chairman: FRED C. LEONE, Case Institute of Technology
1. *A Program for Sampling*, MERVIN E. MULLER, International Business Machines Corporation.
2. *Analysis of Variance on a Large Computer*, M. E. TERRY, Bell Telephone Laboratories.
3. *The Monte Carlo Estimation of Critical Percolation Probabilities*, H. L. FRISCH AND V. A. VYSSOTSKY, Bell Telephone Laboratories, AND J. M. HAMMERSLEY, Oxford University.

**8:30 a.m. —Contributed Papers IV**

Chairman: JOAN RAUP ROSENBLATT, National Bureau of Standards
1. *Exact Power of Some Tests Based on the Mann-Whitney-Wilcoxon U Statistic*, GEORGE E. HAYNAM, F. C. LEONE, AND I. M. CHAKRAVARTI, Case Institute of Technology.
2. *Nonparametric Life Test Sampling Plans*, SHANTI S. GUPTA, Stanford University and Bell Telephone Laboratories.
3. *Some Statistical and Operational Techniques in Reliability Studies* (Preliminary Report), A. S. QUREISHI, IBM Service Bureau Corporation.

4. *Statistical Methods in Reliability Demonstration*, ALEXANDER STERNBERG, JOHN S. YOUTCHEFF, AND SIDNEY DEMSKEY, General Electric Company.

5. *A Sequential Selection Procedure for the Best Population* (Preliminary report), IRWIN GUTTMAN, McGill University.

6. *A Generalized Queueing Model*, VINCENT HODGSON, Florida State University (Introduced by Ralph A. Bradley).

7. *Asymptotic Bias and Variance of Ratio Estimates in Generalized Power Series Distributions and Certain Applications*, G. P. PATIL, McGill University.

8. *Bivariate Limiting Distributions of Maxima*, HENRY TEICHER, Purdue University.

9. *Comparing Distances Between Multivariate Normal Populations II* (Preliminary Report), THEOPHILOS CACOULLOS, Stanford University.

10. *Estimation of the Spectrum II*, V. K. MURTHY, Stanford University.

11. *Asymptotic Relative Efficiency of Massey's Test for c Samples, $c \geqq 2$*, Y. S. SATHE, University of North Carolina.

12. *Multivariate Hierarchical Designs*, S. N. ROY AND J. N. SRIVASTAVA, University of North Carolina.

**10:30 a.m.—Decision Theory in Basic Statistical Training For Business, Economics, and the Social Sciences (ASA, IMS)**

Chairman: R. CLAY SPROWLS, University of California (Los Angeles)
Speakers: HOWARD RAIFFA, Harvard University; HARRY V. ROBERTS, University of Chicago

### Contributed Papers Presented by Title

1. *Some Basic Theorems of Distribution-Free Statistics I*, C. B. BELL, San Diego State College.

2. *Some Basic Theorems of Distribution-Free Statistics II*, C. B. BELL, San Diego State College.

3. *Zero Crossings of the Gaussian Process*, SIMEON M. BERMAN, Columbia University.

4. *On the Distribution of Bilinear Forms in Normal Variables*, THEOPHILOS CACOULLOS, Stanford University.

5. *Statistical Method for the Mover-Stayer Model*, LEO A. GOODMAN, University of Chicago.

6. *The Moments of a Variate Related to the Non-Central t*, D. HOGBEN, R. S. PINKHAM, AND M. B. WILK, Rutgers—The State University.

7. *Partially Duplicated Fractional Factorial Designs*, M. S. PATEL, Research Triangle Institute and Purdue University.

8. *Asymptotic Efficiency of a Class of c-Sample Tests*, M. L. PURI, University of California, Berkeley.

9. *On the Time of First Birth*, S. N. SINGH, Pennsylvania State University.

10. *Percentile Points of Order Statistics from a Uniform Distribution*, JOHN S. WHITE, General Motors Research Laboratories.

JOAN RAUP ROSENBLATT
*Associate Secretary*

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## PUBLICATIONS RECEIVED

ALFANDARY-ALEXANDER, MARK (1962). *An Inquiry into Some Models of Inventory Systems*. Univ. of Pittsburgh Press. 108 pp. $4.00 paper, $7.00 cloth.

BRADLEY, JAMES V. (1960). *Distribution-Free Statistical Tests*. Department of Commerce, Washington. 378 pp. $5.00.

JANSSEN, L. H. (1961). *Free Trade, Protection and Customs Union*. H. E. Stenfert Kroese N. V., Leiden. 157 pp. 20 guilders.

LEPPINK, G. J. (1961). *On the Estimation of the Spectral Density Function by the Periodogram Truncated at an Estimated Point.* Statistics Department of the Central Organization for Applied Scientific Research in the Netherlands. 67 pp.

SELDEN, RICHARD T. (1962). *The Postwar Rise in the Velocity of Money: A Sectoral Analysis.* Occasional Paper No. 78, National Bureau of Economic Research, New York. 67 pp. $1.00.

YOUDEN, W. J. (1962). *Experimentation and Measurement.* Bureau of Standards, Washington. 127 pp. 50¢.

*Annuario Estadistico de España,* **36** (1961). Presidencia del Gobierno, Instituto Nacional de Estadistica, Ferraz 41, Madrid, Spain.

*Directory of Statisticians and Others in Allied Professions* (1961). American Statistical Association, Washington. 191 pp. $10.00.

*Sampling Procedures and Tables for Inspection by Attributes (Military Standard 105C)* (1961). U.S. Government Printing Office, Washington. 71 pp. 65¢.