

4. *On the Deviation of Extreme Values.*
W. J. Dixon, University of Oregon.
5. *The Optimum Size of Interval for Making Measurements of a Rocket's Angular Velocity.*
Edward A. Fay, University of California.
6. *Stationary Time Series Analysis and Common Stock Price Forecasting.*
Zenon Sztatrowski, University of Oregon.

At the morning session of November 27, with Professor W. F. Thompson of the University of Washington as chairman, the program consisted of the following papers:

1. Invited paper:
On the Place of Statistics in Fishery Biology.
Willis S. Rich, Stanford University and U. S. Fish and Wildlife Service.
Contributed papers:
 2. *Distribution of the Number of Schools of Fish Caught per Boat.*
J. Neyman, University of California.
 3. *Some Problems in Fishery Research to which Statistical Methods are Applicable.*
Ralph Silliman, U. S. Fish and Wildlife Service, Seattle, Washington.
 4. *The Application of the Hypergeometric Distribution to Problems of Estimating and Comparing Zoological Population Sizes.*
Douglas Chapman, University of California.
 5. *Extension to Multivariate Case of Neyman's Smooth Test.*
Elizabeth L. Scott, University of California.
 6. *A Mathematical Theory of Vitamin A Metabolism in Fish.*
Norman E. Cooke, Pacific Fisheries Experimental Station, Vancouver, B.C.

The afternoon session of November 27 was held under the chairmanship of Professor F. W. Weymouth of Stanford University, with the following program:

1. Invited paper:
Statistical Problem of Enumeration of Fish Eggs in the Sea.
Oscar E. Sette, U. S. Fish and Wildlife Service, San Francisco.
Contributed papers:
 2. *The Interactance Hypothesis.*
Stuart C. Dodd, University of Washington.
 3. *The Employment of Marked Members in Estimation of Animal Populations.*
Milner E. Schaefer, Stanford University.
 4. *Non-Response and Repeated Call-Backs in Opinion Polls.*
Z. W. Birnbaum, University of Washington.
 5. *Statistical Problems Relating to Fisheries.*
J. L. Hart, Pacific Biological Station, Nanaimo, B. C.

On November 26, at 6:30 o'clock there was a dinner for members and guests at the Edmond Meany Hotel.

Z. W. BIRNBAUM

REPORT ON THE CLEVELAND MEETING OF THE INSTITUTE

The Eleventh Annual Meeting of the Institute of Mathematical Statistics was held at the Statler Hotel, Cleveland, Ohio, on December 27-30, 1948. The

meeting was held in conjunction with the Annual Meeting of the American Statistical Association. The following 176 members of the Institute were in attendance:

P. H. Anderson, R. L. Anderson, L. W. Anderson, Max Astrachan, G. J. Auner, T. A. Bancroft, B. Geoffrey, Z. W. Birnbaum, Archie Blake, E. E. Blanche, C. I. Bliss, Dorothy S. Brady, A. E. Brandt, G. W. Brown, T. H. Brown, M. A. Brumbaugh, P. T. Bruybre, R. W. Burgess, I. W. Burr, J. M. Cameron, A. G. Carlton, Harry Carver, F. R. Cella, Uttam Chand, R. A. Chapman, Edmund Churchill, Herman Chernoff, W. G. Cochran, Jerome Cornfield, J. H. Cover, Gertrude M. Cox, C. C. Craig, S. L. Crump, J. H. Curtiss, D. A. Darling, W. L. Deemer, D. B. DeLury, W. E. Deming, Philip Desind, H. F. Dorn, C. W. Dunnnett, P. S. Dwyer, Churchill Eisenhart, Benjamin Epstein, C. D. Ferris, Leon Festinger, C. H. Fischer, J. C. Flanagan, M. M. Flood, L. R. Frankel, D. A. S. Fraser, H. A. Freeman, Milton Friedman, H. C. Fryer, E. F. Gardner, R. S. Gardner, H. H. Germond, William Gomberg, E. L. Green, S. W. Greenhouse, J. Gurland, R. J. Hader, K. W. Halbert, H. J. Hand, M. H. Hansen, T. E. Harris, Boyd Harshbarger, P. M. Houser, J. F. Hofmann, Harold Hotelling, A. S. Householder, E. E. Houseman, Helen M. Humes, C. C. Hurd, C. M. Jaeger, R. J. Jessen, H. L. Jones, Irving Katz, Leo Katz, Harriet J. Kelly, O. Kempthorne, A. W. Kimball, Jr., A. J. King, Leslie Kish, L. A. Knowler, Lila F. Knudsen, C. F. Kossack, O. E. Lancaster, Marvin Lavin, S. B. Littauer, Irving Lorge, F. W. Lott, Jr., Eugene Lukacs, P. J. McCarthy, C. J. Maloney, John Mandel, Nathan Mantel, H. B. Mann, E. S. Marks, Margaret Merrell, Helen Michaels, E. B. Mode, A. M. Mood, Nathan Morrison, Dorothy J. Morrow, J. W. Morse, J. E. Morton, Jack Moshman, Frederick Mosteller, B. D. Mudgett, Hugo Muench, M. R. Neifeld, R. H. Noel, G. E. Noether, J. I. Northam, H. W. Norton, J. A. Norton, Jr., E. G. Olds, P. S. Olmstead, Bernard Ostle, A. E. Paull, Paul Peach, M. P. Peisakoff, E. W. Pike, E. J. G. Pitman, R. A. Porter, J. A. Rafferty, L. J. Reed, Olav Reiersol, William Reitz, F. D. Rigby, A. C. Rosander, Herman Rubin, Erik Ruist, P. J. Rulon, Max Sasuly, F. E. Satterthwaite, L. J. Savage, Mary Ann Savas, Marvin Schniederman, Elizabeth Scott, G. R. Seth, Jack Sherman, S. S. Shrikhande, C. R. Simms, J. H. Smith, G. W. Snedecor, Mortimer Spiegelman, B. R. Stauber, F. F. Stephan, Joseph Steinberg, J. V. Sturtevant, B. J. Tepping, W. R. Thompson, J. W. Tukey, Jan Vchytal, W. R. Van Voorhis, D. F. Votaw, Jr., F. M. Wadley, Helen M. Walker, D. L. Wallace, W. A. Wallis, G. S. Watson, Leonel Weiss, Samuel Weiss, E. L. Welker, M. E. Wescott, Phillips Whidder, D. R. Whitney, S. S. Wilks, C. P. Winsor, Gerald Winston, M. A. Woodbury, T. D. Woolsey, Holbrook Working, W. J. Youden.

The first session, a joint session with the American Statistical Association, was held at 2:00 P.M. on Monday, December 27, at which time a paper entitled *Statistical Concepts in an Infinite Number of Dimensions* was presented by Professor David H. Blackwell of Howard University. Professor E. J. G. Pitman of the University of Tasmania was chairman.

The second session of the opening day was devoted to contributed papers in mathematical statistics, and was held at 4:00 P.M. in conjunction with the American Statistical Association. Professor W. R. Van Voorhis of Fenn College was chairman. The following papers were presented:

1. *A Necessary Condition for a Certain Class of Characteristic Functions*. Preliminary report. Eugene Lukacs, NOTS, Inyokern, California and Our Lady of Cincinnati College, Cincinnati, Ohio.
2. *Precision of Estimates from Samples Selected under Marginal Restrictions*. Preliminary report. Clifford J. Maloney, Research and Development Department, Camp Detrick, Frederick, Maryland.

3. *Properties of Maximum and Quasi-Maximum Likelihood Estimates of Parameters of a System of Linear Stochastic Difference Equations with Serially Correlated Disturbances.* Preliminary report. Herman Rubin, Cowles Commission, University of Chicago.
4. *The Computation of Maximum Likelihood Estimates of Parameters of a System of Linear Stochastic Difference Equations with Serially Correlated Disturbances.* Herman Chernoff, Cowles Commission, University of Chicago.
5. *Test Criteria for Hypotheses of Symmetry and Definiteness of a Regression Matrix for Demand Functions.* Uttam Chand, University of North Carolina.
6. *The Distribution of Extreme Values in Samples whose Members are Stochastically Dependent.* Benjamin Epstein, Wayne University.

A session on *Teaching Statistical Quality Control* was held on Monday evening, December 27, jointly with the Ohio Section of the American Society for Quality Control and Section on Training of Statisticians of the American Statistical Association. Professor Samuel S. Wilks of Princeton University presided at the session. The following two papers were presented.:

1. *Teaching Statistical Quality Control for Town and Gown.* Lloyd A. Knowler, State University of Iowa.
2. *Instructional Aids for Statistical Quality Control.* Edwin G. Olds, Carnegie Institute of Technology.

The session concluded with discussion by Professor Irving W. Burr of Purdue University, and Professor Theodore H. Brown of Harvard University.

A session on *Review of Statistical Methodology* was held jointly with the American Statistical Association at 2:00 P.M., December 28. Professor Frederick Mosteller of Harvard University presided. The following papers were presented:

1. *Surveys and Sampling.* Philip J. McCarthy, Cornell University.
2. *Industrial Applications.* Paul S. Olmstead, Bell Telephone Laboratories.
3. *Biology, Physical Sciences and Experimental Design.* W. J. Youden, National Bureau of Standards.

At 4:00 P.M. on Tuesday, December 28, Professor H. C. Fryer of Kansas State College presided at a joint session with the Biometric Society and Biometrics Section of the American Statistical Association. Papers presented were:

1. *Evaluation of Field Insecticides from Count of Survivors.* C. I. Bliss and Neely Turner, Connecticut Agricultural Experiment Station.
2. *Curved Dosage-Response Curves.* Oscar Kempthorne, Iowa State College.
3. *Statistical Variations in Contents of Dry-Filled Ampuls in Current Pharmaceutical Practice.* M. W. Green, American Pharmaceutical Association, and Lila F. Knudsen, Food and Drug Administration.
4. *A Practical Method for Determining the Mean and Standard Deviation of Truncated Normal Distributions.* J. Ipsen, Yale University.

The session was concluded with discussion by D. B. DeLury, Ontario Research Foundation; Lloyd Miller, Sterling-Winthrop Research Institute; C. Eisenhart, National Bureau of Standards; J. L. Northam, Kansas State College.

On Wednesday, December 29, at 2:00 P.M., Dr. W. Edwards Deming presided at a session on *Effects of Error in the Independent Variate in Regression Problems*. This meeting was held in conjunction with the Biometric Society and Biometric Section of the American Statistical Association. Papers presented were:

1. *Are There Two Regressions?*
Joseph Berkson, Mayo Clinic.
2. *Present Status of the Theory.*
Jerzy Neyman, University of California.
3. *The Identifiability of a Linear Relationship Between Variables which are Subject to Error.*
Olav Reiersol, Purdue University.

These papers were followed by discussion by Professor Churchill Eisenhart, National Bureau of Standards, Elizabeth L. Scott, University of California, and C. P. Winsor, Johns Hopkins University.

Professor Boyd Harshbarger, of the Virginia Polytechnic Institute, presided at the Wednesday afternoon session on contributed papers in mathematical statistics. Papers presented were:

1. *On Age-Dependent Stochastic Branching Processes.*
Richard Bellman and Theodore E. Harris, Stanford University, Palo Alto, California and the Rand Corporation, Santa Monica, California.
2. *Cuboidal Lattices.*
G. S. Watson, Institute of Statistics, University of North Carolina.
3. *Transformations Induced by Series Approximation of Prior Probability Amplitude.*
Archie Blake, Office of the Surgeon General, U. S. Army.
4. *On the Utilization of Market Specimens in Estimating Populations of Flying Insects.*
Cecil C. Craig, University of Michigan.
5. *On a Probability Distribution.*
Max A. Woodbury, University of Michigan.
6. *Distribution-Free Tests of Data from Factorial Experiments.*
G. W. Brown and A. M. Mood, Iowa State College.
7. *On Sums of Symmetrically Truncated Normal Random Variables.*
Fred C. Andrews and Z. W. Birnbaum, University of Washington.
8. *On the Foundation of Statistics.*
(By title). Max A. Woodbury, University of Michigan.
9. *Finitely Additive Probability Functions.*
(By title). Max A. Woodbury, University of Michigan.
10. *On Inverting a Matrix via the Gram-Schmidt Orthogonalization Process.*
(By title). Max A. Woodbury, University of Michigan.
11. *Certain Properties of the Multiparameter Unbiased Estimates.* Preliminary report.
(By title). Gobind R. Seth, Iowa State College.
12. *A Class of Lower Bounds for the Variance of Point Estimates.*
(By title). Douglas Chapman, University of California.
13. *Standard Errors and Tests of Significance for Interpolated Medians.*
(By title). Churchill Eisenhart and Miriam L. Yevick, National Bureau of Standards.

A symposium on *Randomness and its Testing* occupied the 4:00 P.M. session on Wednesday. Dr. Walter A. Shewhart of the Bell Telephone Laboratories presided and the following papers were presented:

1. *Survey of Available Tests for Randomness.*
W. Allen Wallis, University of Chicago.
2. *Power Functions of Tests for Randomness.*
H. B. Mann, Ohio State University.
3. *Power Functions of Non-Parametric Tests.*
Ransom Whitney, Ohio State University.

Discussion was led by Bernice Brown, The Rand Corporation; Paul S. Olmstead, Bell Telephone Laboratories; E. J. G. Pitman, University of Tasmania.

The morning session on Thursday, December 30, was a joint session with the American Statistical Association, with Professor Jerzy Neyman of the University of California presiding. The following two papers were presented upon invitation of the Institute:

1. *Estimating Linear Restrictions on Regression Coefficients for Multivariate Normal Distributions.*
T. W. Anderson, Columbia University.
2. *Some Aspects of the Theory of Testing Composite Hypotheses.*
E. L. Lehmann, University of California.

The Business Meeting was held at 10:00 A.M. on Tuesday, December 28. Dr. Churchill Eisenhart presided. A report of this meeting is found elsewhere in this issue.

W. R. VAN VOORHIS
Assistant Secretary

REPORT OF THE PRESIDENT OF THE INSTITUTE FOR 1948

The last few years have seen a considerable growth of the Institute. The upward trend has continued throughout 1948. The Institute has acquired 126 new members during the year, but this gain is to be balanced against losses due to resignation and suspension for non-payment of dues. The Institute starts the year 1949 with a membership of about 1,100 as against the membership of 1,037 at the beginning of 1948. While the net gain is still substantial, it is not quite as much as hoped for, and this may serve as an incentive for an increased membership drive in 1949. The constantly increasing interest and research activities in statistical theory and methodology are well reflected in our meetings and the publications appearing in the *Annals*.

Meetings. The growth of the Institute in the past few years has brought about a considerable increase in its various activities. This manifested itself particularly in the extensive and rich programs of the meetings held during the year 1948. In addition to the usual invited addresses and contributed papers, the programs included a considerable number of symposia on various important