

REPORT ON THE NEW BRUNSWICK MEETING OF THE INSTITUTE

The Sixth Summer Meeting of the Institute of Mathematical Statistics was held at The New Jersey College for Women, Rutgers University, Sunday and Monday, September 12 and 13, 1943, in conjunction with the meetings of the American Mathematical Society and the Mathematical Association of America. The following fifty-two members of the Institute attended the meeting:

T. W. Anderson, H. E. Arnold, K. J. Arnold, L. A. Aroian, B. M. Bennett, E. E. Blanche, C. I. Bliss, A. H. Bowker, Hobart Bushey, W. G. Cochran, T. F. Cope, C. C. Craig, H. B. Curry, J. H. Curtiss, J. F. Daly, Mary Elveback, W. Feller, R. M. Foster, J. A. Greenwood, J. I. Griffin, C. C. Grove, F. E. Grubbs, E. J. Gumbel, Harold Hotelling, Tjalling Koopmans, H. G. Landau, Howard Levene, Simon Lopata, P. J. McCarthy, W. G. Madow, Margaret Martin, J. W. Mauchly, E. B. Mode, L. F. Nanni, C. O. Oakley, P. S. Olmstead, F. E. Satterthwaite, Bernice Scherl, H. M. Schwartz, L. W. Shaw, J. Shohat, Blanche Skalak, Mortimer Spiegelman, Arthur Stein, H. W. Steinhaus, A. W. Tucker, J. W. Tukey, D. F. Votaw, Abraham Wald, S. S. Wilks, Jacob Wolfowitz, Bertram Yood.

Professor S. S. Wilks of Princeton University acted as chairman for the Sunday morning session. The following papers were presented:

1. *Some New Statistical Applications of Partitioned Matrices and Iterative Methods.*
Harold Hotelling, Columbia University
2. *On the Construction of Orthogonal Latin Squares.*
Henry B. Mann, Columbia University

Dr. Jacob Wolfowitz, Columbia University, presided at the session on Sunday afternoon. At this session the following papers were presented:

1. *Recent Developments in the Statistical Analysis of Problems Requiring the Use of Vector Variates.*
W. G. Madow, Office of Price Administration.
2. *Statistical Inference when the Form of the Distribution Function is Unknown.*
Henry Scheffé, Princeton University.

The session on Monday morning was held jointly with the American Mathematical Society. Professor C. C. Craig, University of Michigan, acted as chairman, and the following contributed papers were read:

1. *Asymptotic Distributions of Ascending and Descending Runs.*
Jacob Wolfowitz, Columbia University.
2. *On the Plotting of Statistical Observations.*
E. J. Gumbel, New School for Social Research.
3. *On a Measure-Theoretic Problem Arising in the Theory of Non-Parametric Tests.*
(Read by title.)
Henry Scheffé, Princeton University.
4. *On a General Class of "Contagious" Distributions.*
Will Feller, Brown University.
5. *On the Statistical Treatment of Linear Stochastic Difference Equations.*
H. B. Mann and Abraham Wald, Columbia University.
6. *An Exact Test for Randomness in the Non-Parametric Case Based on Serial Correlation.*
Abraham Wald and Jacob Wolfowitz, Columbia University.

On Saturday afternoon the members of the three societies were the guests of Miss Margaret Trumbull Corwin, Dean of the College, New Jersey College for Women, at an informal reception at the Dean's House. On Sunday evening an informal buffet supper for the mathematical organizations was served at Wood Lawn, the Alumnae House of the New Jersey College for Women. Later the same evening the Department of Music presented a *Musicale* in the Music Building.

EDWIN G. OLDS,
Secretary

**REPORT ON THE SECOND MEETING OF THE PITTSBURGH
CHAPTER OF THE INSTITUTE**

The second meeting of the Pittsburgh Chapter of the Institute of Mathematical Statistics was held at Carnegie Union, Carnegie Institute of Technology, on Saturday, October 9, 1943. Thirty-four persons attended the meeting, including the following eight members of the Institute:

W. O. Clinedinst, G. G. Eldredge, K. L. Fetters, H. J. Hand, G. E. Niver, F. G. Norris, E. G. Olds, E. M. Schrock.

At the morning session Mr. Charles E. Young, Westinghouse Electric and Manufacturing Company, presented a paper entitled "Analysis of Cyclical Fluctuations." The program for the afternoon session consisted of a paper entitled "Use of orthogonal coordinates in linear regression," presented by Mr. W. O. Clinedinst, National Tube Company. Mr. F. G. Norris, President of the Pittsburgh Chapter, acted as chairman for both sessions.

HOWARD HAND,
Secretary of the Pittsburgh Chapter

ABSTRACTS OF PAPERS

(Presented Monday, September 13, 1943, at the New Brunswick Meeting
of the Institute)

Asymptotic Distributions of Ascending and Descending Runs. JACOB WOLFO-
WITZ, Columbia University.

Let a_1, a_2, \dots, a_N be any permutation of N unequal numbers. Let there be assigned to each permutation the same probability. An element a_i ($1 < i < N$) is called a turning point if a_i is greater than or less than both a_{i-1} and a_{i+1} . Let a_j and a_{j+k} be consecutive turning points; they are said to determine a "run" of length k . The author obtains the asymptotic distributions of a large class of functions of these runs. An example of his results is the following: It is proved that the following are asymptotically normally distributed: (a) the total number of runs; (b) $R(p)$, the number of runs of length p ; (c) $R(p)$ and $R(q)$ jointly. Similar results are obtained for runs defined by any of a large set of criteria, of which the one given above is of value in statistical applications.