

NEWS AND NOTICES

Readers are invited to submit to the Secretary of the Institute news items of interest

Personal Items

The following IMS members were awarded travel grants from the National Science Foundation to enable them to attend the Congress of the International Union for the Scientific Study of Population and the 30th Session of the International Statistical Institute to be held concurrently in Stockholm, Sweden, August 8 to 15, 1957: Joseph Berkson, Mayo Clinic; Albert H. Bowker, Stanford University; Jerome Cornfield, National Institutes of Health; Philip M. Hauser, University of Chicago; and Eugene Lukacs, Catholic University.

Allan G. Anderson has resigned his position as Mathematician in the Glass Division Research Laboratory of the Pittsburgh Plate Glass Company and is now employed as Chief Statistician at the General Tire and Rubber Company in Akron, Ohio.

Fred C. Andrews has resigned his position at the University of Nebraska and is now an Associate Professor of Mathematics at the University of Oregon.

Abdur Rahman Ansari is now a Research Assistant in the Department of Statistics at Virginia Polytechnic Institute.

John H. Bailey received an M.S. in Prob. and Stat. at the University of Utah on June 10, 1957. He is continuing graduate studies toward a Ph.D. in the Department of Statistics at the University of North Carolina.

Robert Bechhofer of the Department of Industrial and Engineering Administration and of the Statistics Center at Cornell University has recently been promoted from Associate Professor to Professor.

Patrick Billingsley has left the U. S. Navy to accept a National Science Foundation Postdoctoral Fellowship at Princeton University.

Bradley D. Bucher was awarded a Ph.D. degree in mathematical statistics at Princeton University in June, 1957. He has accepted employment at the Institute for Defense Analyses at the Pentagon in Washington, D. C.

Elliot Cramer, who received his M.A. degree from The Johns Hopkins University in June, has been commissioned in the U. S. Public Health Service and is currently working in the Biometrics Branch of the National Institutes of Health.

Paul Dorweiler, Actuary of the Aetna Casualty and Surety Company, retired in May after serving 38 years in the company.

Dr. Alvin V. Fend, of New Mexico, has joined the staff of Technical Operations, Incorporated. Originally from Chicago, Dr. Fend is a graduate of the University of Illinois, where he received his B.S. and M.S. in pure mathematics and his M.A. and Ph.D. in mathematical statistics. Most recently he has been a member of the academic faculty of the New Mexico College of Agriculture and Mechanical Arts and has engaged in statistical consulting.

Dr. G. Ronald Herd resigned his position as Consultant with Aeronautical

Radio, Inc., in Washington, D. C., and joined the Washington staff of Applied Research, Inc., a subsidiary of Booz, Allen and Hamilton, and is engaged in Operations Research.

Wayne H. Jones, formerly at the National Security Agency, Washington, D. C., is now working for the System Development Corporation, Santa Monica, California.

Dr. Edward L. Kaplan is on leave of absence from the Mathematical Research Department, Bell Telephone Laboratories, Murray Hill, N. J., until January. Currently he has a part-time position as mathematician in the Theoretical Division, University of California Radiation Laboratory, Livermore, California.

Robert M. Kozelka has accepted a position with Williams College in the Mathematics Dept. He spent the summer at Stanford University attending the Institute in Social Sciences for College Teachers of Mathematics sponsored by the Social Science Research Council.

William G. Madow of the University of Illinois has accepted a position as senior research mathematical statistician at Stanford Research Institute and consulting professor of statistics at Stanford University.

Jack Moshman has left the Bell Telephone Laboratories, Inc., where he was a consulting statistician, to assume the post of Director of the Division of Mathematical and Statistical Services of the Council for Economic and Industry Research, Inc.

Gottfried E. Noether is on leave of absence from Boston University. He spent the summer at the Mathematical Center in Amsterdam. During 1957-58 he will serve as Fulbright lecturer in mathematical statistics at the University of Tuebingen, Germany.

Jack I. Northam, formerly Assistant Professor of Mathematics, Kansas State College, is now with The Upjohn Company, Kalamazoo, Michigan, as a consulting statistician for chemical and biological applications.

Carl R. Ohman has been appointed Assistant Professor in the Department of Mathematics at Knox College, Galesburg, Illinois, for the 1957-58 session.

Roy Radner has taken a joint appointment in the Departments of Economics and Statistics at the University of California, Berkeley.

Lila Knudsen Randolph has recently moved from Collingswood, New Jersey, to Bethesda, Maryland. She is employed as a statistician at the National Cancer Institute.

Dr. I. Richard Savage has accepted an appointment as Associate Professor in the School of Business Administration and the School of Public Health at the University of Minnesota.

Dr. D. E. W. Schumann, Head, Department of Statistics, University of Stellenbosch, Stellenbosch, South Africa, and Dr. R. A. Bradley, Professor of Statistics, Department of Statistics, Virginia Polytechnic Institute, Blacksburg, Virginia, were co-authors of a paper entitled "The Comparison of the Sensitivities of Similar Experiments", which won the 1957 J. Shelton Horseley Research Award of the Virginia Academy of Science at the May meeting at Old

Point Comfort, Virginia. The J. Shelton Horseley Research Award is awarded annually to the best paper submitted in the competition in Virginia.

Franklin Sheehan of San Francisco has joined the staff of Technical Operations, Incorporated in Monterey. Mr. Sheehan received his Bachelor of Science degree from Stanford University, and has done work towards his doctorate at Stanford University. Sheehan has been an instructor in Mathematics at Menlo College, and an instructor in Mathematics and Statistics at San Francisco State College. He will be an Operations Analyst for the Monterey research and development firm.

Paul N. Somerville has accepted a position with A. M. Mood and the General Analysis Corporation at Fort Huachuca, Arizona.

Dr. Roebert L. Stearman has resigned his position as Biometrician of the National Institute of Arthritis and Metabolic Diseases to accept a position with a biological operations research team of Applied Research, Inc.

Ray B. Stiver, Jr., has recently accepted a position as a Statistician with Health Research, Inc., Roswell Park Memorial Institute Division, Buffalo, New York. He was formerly employed by the Bell Aircraft Corporation, Niagara Falls, New York, as a Reliability Engineer. In his new position he will be working as a statistician on various cancer chemotherapy programs.

David van Tijn has accepted a position with the Washington office of Applied Research, Inc.

Lionel Weiss, formerly at the University of Oregon, has accepted an appointment as Associate Professor in the Department of Industrial and Engineering Administration and in the Statistics Center at Cornell University. During the academic year 1957-58 he will be offering several courses in the Department of Mathematics as a replacement for Jack Wolfowitz who will be on leave.

William Wolman, formerly with the Quality Control Division of the Bureau of Ordnance, is now a consultant statistician with the Bureau of Yards and Docks, Department of the Navy, Washington, D. C.

New Members

The following persons have been elected to membership in the Institute

May 2, 1957, to August 7, 1957

- Ang, Hian Liang**, M.Sc. (Univ. of Indonesia, Bandung), Graduate Student, University of California; *2523 Ridge Road, Apt. 315, Berkeley 9, Calif.*
- Balakrishnan, A. V.**, Ph.D. (Univ. of California, Los Angeles), Assistant Professor, University of California, Los Angeles; *7609 W. 91st Place, Los Angeles 45, Calif.*
- Bartsch, Glenn E.**, Sc.D. (The Johns Hopkins Univ.), Research Associate, *School of Hygiene and Public Health, The Johns Hopkins University, 615 North Wolfe Street, Baltimore 5, Maryland.*
- Blumstein, Alfred**, M.A. (Univ. of Buffalo), Graduate Student, *Dept. of Industrial and Engineering Administration, Cornell University, Ithaca, New York.*
- Celis, Julis**, Lic. en Cuncias Estadisticas (la Universidad Central de Venezuela), *Chief,*

- Section of Demography and Territory, Director General of Statistics and Census, Caracas, Venezuela.*
- Clunies-Ross, Charles W.**, Diploma in Mathematical Statistics (Trinity College, Cambridge Univ.), Associate Professor of Statistics, Virginia Polytechnic Inst., Blacksburg, Virginia.
- Diederichs, John K.**, B.A. (Univ. of Chicago), Manager, Engineering Economics Research Department, Armour Research Foundation, Chicago, Illinois; 329 Callan Avenue, Evanston, Illinois.
- Dor, Leopold**, Docteur en Sciences Mathematiques (Univ. de Liege), Chef du Service d'Organisation, S.A. COCKERILL-UGREE, Seraing S/M, Belgium.
- Eid, M. M.**, Diploma of Inst. of Statistics (Cairo Univ.), Student, Institute of Statistics, University of North Carolina, Chapel Hill, N. C.
- Glaze, Walter, Jr.**, B.A. (Univ. of Denver), Captain, U. S. Air Force, Headquarters, A. F. Institute of Technology, Wright-Patterson AFB, Ohio; 55 Callie Lane, Menlo Park, Calif.
- Glenn, William A.**, B.A. (Univ. of New Brunswick), Graduate Student, Virginia Polytechnic Institute, Box 454, Blacksburg, Virginia.
- Goldman, Thomas A.**, M.A. (George Washington Univ.), Economist, The RAND Corp., 1700 Main St., Santa Monica, Calif.
- Harrington, Edwin C., Jr.**, M.Chem. (Cornell Univ.), Scientist, Monsanto Chemical Co., Springfield, Mass.; 428 Mountain Road, Wilbraham, Mass.
- Heaney, Marian T.**, M.A. (Columbia Univ.), Student on Government Fellowship, National Security Agency, Washington 25, D. C.; 8658 Piney Branch Road, c/o Maki, Silver Spring, Maryland.
- Hexter, Alfred C.**, B.A. (Univ. of Calif., Berkeley), Student, University of California, Department of Statistics, Berkeley, California.
- Hopkins, Earl E.**, Ph.D. (Harvard Univ.), Associate Professor, University of Oregon Medical School, 3181 Sam Jackson Park, Portland 1, Oregon.
- Howard, William J.**, B.S. (Stanford Univ.), Statistical Analyst, North American Aviation, Inc., Rocketdyne Division, 6633 Canoga Avenue, Canoga Park, Calif.; 20462 Vose Street, Canoga Park, Calif.
- Jackson, Benjamin A.**, Ph.D. (New York Univ.), Research Biologist, American Cyanamid Co., Lederle Laboratories Div., Pearl River, New York.
- Kamat, A. R.**, Ph.D. (London Univ.), Head, Dept. of Mathematics and Statistics, Fergusson College, Poona 4, India; 2, Fergusson College, Poona 4, India.
- Kimura, Kiyo**, Diploma in Aeronautics (Nagoya Technical College), Assistant of Mathematics, c/o Department of Mathematics, Mie Prefectural University, Otanicho, Tsu, Mie-Ken, Japan.
- Lordan, Joseph D.**, B.S. (Mass. Inst. of Technology), Mathematician, Lincoln Laboratory, P. O. Box 73, Lexington 73, Mass.
- Monzon, J. N. Acosta**, Licencia de Ciencias Estadisticas (Universidad Central de Venezuela), Compania Shell de Venezuela, Division de Contrololia, Refineria Cordon, Punto Fijo, Edv. Folcon, Venezuela.
- Mote, Vasant L.**, M.Sc. (Univ. of Bombay), Student, Box 5457, N. C. State College, Raleigh, North Carolina.
- Moustafa, Madany Disouky**, Ph.D. (Univ. of London), Lecturer, Institute of Statistics, Cairo University, Cairo, Egypt.
- Nylander, John E.**, M.A. (Univ. of Illinois), Graduate Fellow, Math. Dept., Wayne State University, Detroit, Mich.; 14370 Burgess, Detroit 23, Mich.
- Owen, Joel**, M.A. (Boston Univ.), Engineer, Sylvania Electric Products, Inc., Analysis Dept., Waltham 54, Mass.; 38 Lawrence Ave., Roxbury 21, Mass.
- Peller, Sigismund**, M.D. (Univ. of Vienna), Physician in private practice, 164 East 81st St., New York 28, N. Y.

- Polaneczky, Aloysius J.**, B.S. in Chem. Eng. (Drexel Institute of Tech.), Senior Res. Engr., The Franklin Institute of the State of Pennsylvania, Philadelphia 3, Pennsylvania; *307 Lyster Rd., Oreland, Pa.*
- Radner, Roy**, Ph.D. (Univ. of Chicago), Assistant Professor, Cowles Foundation for Research in Economics, Department of Economics, Yale University, New Haven, Connecticut; *Box 2125, Yale Station, New Haven, Connecticut.*
- Rothman, David**, M.A. (Univ. of Wisconsin), Research Engineer, *North American Aviation, Inc., Rocketdyne Div., 6633 Canoga Ave., Canoga Park, Calif.*
- Shiue, Cherng-jiann**, Ph.D. (Univ. of Minnesota), Assistant Professor, *School of Forestry, Univ. of Minnesota, St. Paul 1, Minnesota.*
- Stansbrey, John J.**, Ph.D. (Washington Univ., St. Louis, Mo.), Research Chemist, Fundamental Research Dept., National Cash Register Co., Dayton 9, Ohio; *1808 Shroyer Road, Dayton 9, Ohio.*
- Starks, T. H.**, M.S. (Purdue Univ.), Graduate Student, *Statistics Dept., Virginia Polytechnic Inst., Blacksburg, Virginia.*
- Taylor, John**, M.A. (Cambridge Univ.), Statistician, *Food Research Dept., Unilever, Ltd., Colworth House, Sharnbrook, Bedford, England.*
- Varady, John Carl, Jr.**, B.S. (Calif. Inst. of Tech.), Teaching Assistant, *University of Washington, Department of Mathematics, Seattle, Washington.*
- Vartak, Monohar Narhar**, M.Sc. (Univ. of Bombay), Temporary Lecturer in Statistics, *Dept. of Statistics, Univ. of Bombay, University Bldgs., East Wing, Mahatma Gandhi Road, Bombay 1, India.*
- Walker, James W.**, Ph.D. (Univ. of N. C.), Assistant Professor, *School of Mathematics, Georgia Institute of Technology, Atlanta, Georgia.*
- Wallech, Henry**, B.A. (Univ. of Calif., Los Angeles), Research Analyst, *North American Aviation, Inc., Rocketdyne Div., 6633 Canoga Ave., Canoga Park, Calif.*
- Wylie, Jack E.**, B.A. (Univ. of California, Los Angeles), Head of Reliability and Consultant, *Lear, Inc., General Analysis Corp., 11753 Wilshire Blvd., W. Los Angeles, Calif.*

Survey of Research Potential and Training in the Mathematical Sciences

The Committee on the Survey announces the completion of the Survey of Research Potential and Training in the Mathematical Sciences. The Survey began in January 1955, and nearly thirty mathematicians have served on its Committee and four Subcommittees during the past two and one-half years.

The Survey has produced three documents. One of these is the Report on a Conference on Undergraduate Mathematics Curricula. The Conference was held at Hunter College on October 12-13, 1956 and was attended by 25 representatives of various colleges and universities. There were formal reports by various speakers covering many aspects of, and subjects related to, undergraduate education in mathematics, and these formal reports have been incorporated into the conference report. This document has been circulated widely. A small number of copies have been deposited with the National Science Foundation and are available on request.

The other two documents constitute the Final Report. Part I is a 163 page report on the organization of the Survey and the results of two large scale data gathering activities of the Committee. The first activity consisted of interviews

of the principal Ph.D. granting institutions. Fifty-nine departments of mathematics were visited, and three others completed the interview schedule without a visit. The data presented as obtained by these interviews are concerned with such matters as facilities, libraries, promotion and leave policies, administration, and salaries. The remainder of the report presents a set of tables giving the composite life story of 1851 mathematicians who received the Ph.D. from 1915 to 1954, as derived from their replies to a very penetrating questionnaire.

Part II of the Final Report consists of the reports of the four Subcommittees, and the 28 resulting recommendations of the Committee. We note that the Subcommittee on Undergraduate Colleges recommended the extended support of prize competitions in mathematics, urged that an attempt be made to call to the attention of industry the need for support of mathematics in undergraduate colleges, and requested that the National Science Foundation publish annually an up-to-date record of the mathematics faculties of all colleges and universities with the degrees held, and the date and place these degrees were conferred.

The report of the Subcommittee on Research Environment discussed such matters as facilities, salaries, leaves and fellowships, and made a number of recommendations of these matters.

The Subcommittee on Non-Teaching Opportunities recommended the exploration of further methods for establishing understanding among academic mathematicians of the nature of non-academic mathematics and made recommendations on various other related matters. The report also called attention to the recent action of the American Mathematical Society in adding the SIAM Journal to the group of journals receiving a subsidy from the American Mathematical Society, and suggested the possibility that the Journal may provide another desirable publication outlet for some of the research results of non-academic mathematicians.

The final report, from the Subcommittee on Publications, recommended the establishment of a journal for expository articles, and the establishment of prizes for mathematical books, recommended the subsidization of mathematical publications by the National Science Foundation on a permanent basis, and recommended that the volume of translations published by the American Mathematical Society be at least doubled.

The Final Report has been distributed to the chairmen of about 110 departments of mathematics, to Committee and Subcommittee members, and to the officers of various mathematical organizations. A limited number of additional copies are available, and can be obtained by writing to the Program Director for Mathematics, National Science Foundation, 1520 H Street, Washington 25, D. C.

A. A. ALBERT

Chairman, Committee on the Survey
June 10, 1957.

Catholic University Program

At The Catholic University of America a program of late afternoon and evening courses leading to the master and doctoral degrees in mathematics will be offered in the fields of analysis, algebra, theory of probability, mathematical statistics, and numerical analysis. The program of public lectures in the field of Mathematical Statistics which were given monthly during the past year under the sponsorship of the National Science Foundation will be resumed under the same sponsorship in late September.

Preliminary Actuarial Examinations Prize Awards

The winners of the prize awards offered by the Society of Actuaries to the nine undergraduates ranking highest on the score of Part 2 of the 1957 Preliminary Actuarial Examination are as follows:

First Prize of \$200: Robert Solovay, Harvard University.

Additional Prizes of \$100 each:

Flittie, John H.	Drake University
Gardner, John R.	University of Toronto
Kandall, Geoffrey A.	Princeton University
Lakser, Harry	University of Manitoba
Lichtenbaum, Stephen	Harvard University
Posner, Paul	Princeton University
Sadowsky, George	Harvard University
Zvengrowski, Peter D.	Rensselaer Polytechnic Institute

The Society of Actuaries has authorized a similar set of nine prizes for the 1958 examinations on Part 2.

The Preliminary Actuarial Examinations consist of the following three examinations:

- Part 1. Language Aptitude Examination. (Reading comprehension, meaning of words and word relationships, antonyms, and verbal reasoning.)
- Part 2. General Mathematics Examination. (Algebra, trigonometry, coordinate geometry, differential and integral calculus.)
- Part 3. Special Mathematics Examination. (Finite differences, probability and statistics.)

The 1958 Preliminary Actuarial Examinations will be prepared by the Educational Testing Service under the direction of a committee of actuaries and mathematicians and will be administered by the Society of Actuaries at centers throughout the United States and Canada on May 14, 1958. The closing date for applications is April 1, 1958.

**National Academy of Sciences-National Research Council Division of
Mathematics**

Fellowship and Research Opportunities

The Division of Mathematics wishes to call attention to the fact that several foundations and offices will offer financial support for research in mathematics during the year 1958-59. A number of fellowships will be made available, as well as opportunities for mathematicians to engage in basic research. A partial list, with comments, is given below.

1. *National Science Foundation.* The National Science Foundation sponsors various fellowship programs in the sciences, including mathematics.

Predoctoral fellowships are awarded annually at the First Year, Intermediate, and Terminal Year levels of graduate study. Applications for 1958-1959 will be available in October 1957 from the National Academy of Sciences—National Research Council until the closing date in early January 1958; Award date—March 15, 1958.

Science Faculty fellowships for college science teachers (including mathematics) who plan to continue teaching and wish to increase their competence as teachers are at the present time offered semi-annually. Eligibility requirements include a baccalaureate degree and three (3) years of full-time experience in teaching natural science subjects at the collegiate level. The program will be opened to application in October 1957; and closed early in January 1958. Awards will be made on March 20, 1958. The program will also be reopened the following summer. Address all inquiries for information and applications to National Science Foundation, Division of Scientific Personnel and Education, Washington 25, D. C.

Postdoctoral fellowships (in making inquiry about postdoctoral awards specify program).

(1) *Regular* postdoctoral fellowships—primarily for recent recipients of the doctoral degree; awarded semi-annually. Program for 1958-1959 concurrent with predoctoral program (see above) except that program closes in December. Information and applications will be available from NAS-NRC. The program will also be open from July to early September 1958. Awards are announced in March and October.

(2) *Senior* postdoctoral fellowships—are open to persons who have held a doctoral degree in one of the basic fields of science for a minimum of five (5) years at time of application, or who have had equivalent training and experience. Awarded semi-annually. Applications are available from the National Science Foundation, Division of Scientific Personnel and Education, Washington 25, D. C. The program will be opened from October 1957 until January 1958. Awards will be announced on March 18, 1958. The program will be reopened in the summer of 1958.

Research Grants. The National Science Foundation also supports basic research in the mathematical sciences by means of grants. While proposals for such support are accepted at any time, individuals desiring support to begin in the summer or at the beginning of a fall semester should preferably submit their proposals in the mathematical sciences by November 1; persons desiring support to begin in the spring semester should preferably submit their proposals by May 1. Instructions for the preparation of proposals, contained in a booklet entitled Grants for Scientific Research, may be obtained upon request from the Program Director for Mathematical Sciences, National Science Foundation, 1520 H Street, N. W., Washington 25, D. C.

2. *Office of Naval Research.* The Office of Naval Research, through contracts with universities and other organizations, supports basic research in broadly selected fields of mathematics. Proposals should be directed to the Mathematics Branch, Office of Naval Research, Washington 25, D. C. In addition, postdoctoral research associateships in pure mathematics

are being established under contracts with the ONR at selected universities. For details and application forms write to the above address.

3. *Air Force Office of Scientific Research*. The Air Force Office of Scientific Research supports research in mathematics directly through contracts with colleges, universities, foundations and industrial laboratories. Such organizations are encouraged to submit proposals for research in mathematical fields in which they specialize. Proposals should be mailed to the Commander, Air Force Office of Scientific Research, Attn: Mathematics Division, Washington 25, D. C.

4. *Office of Ordnance Research, U. S. Army*. Among the functions of the Office of Ordnance Research is the support of basic research in mathematics. Proposals for projects are ordinarily made by individual scientists or groups of scientists in a form which leads to a contract between the Office of Ordnance Research and a university or research laboratory. For further information write to Commanding Officer, Office of Ordnance Research, Box CM, Duke Station, Durham, North Carolina.

5. *Fulbright Awards—Public Law 584 (79th Congress)*. Approximately 400 awards are offered annually for university lecturing and postdoctoral research in all academic fields in Australia, Burma, Chile, Colombia, Ecuador, India, New Zealand, Pakistan, Paraguay, Peru, the Philippines, Thailand (competition for the preceding countries closes April 15, 1958); Austria, Belgium-Luxembourg, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, the Netherlands, Norway, Turkey, and the United Kingdom including colonial dependencies (competition for the latter countries closes October 1, 1958). In both cases awards are for the academic year 1959-60 (the 1958-59 competition for Europe closes October 1, 1957), but in the former group of countries the academic year begins in the spring or summer instead of the autumn. Awards are payable in foreign currency and usually include travel for the grantee, but not for members of his family, and a maintenance allowance, which may be adjusted in relation to the number of accompanying dependents up to four. Requests for information should be addressed to the Committee on International Exchange of Persons, Conference Board of Associated Research Councils, 2101 Constitution Avenue, Washington 25, D. C.

6. *National Bureau of Standards. Naval Research Laboratory. Oak Ridge National Laboratory*. Postdoctoral resident research associateships are available in a variety of sciences including mathematics and are tenable at the Washington, D. C. and Boulder, Colorado laboratories of the National Bureau of Standards; at the Naval Research Laboratory in Washington, D. C.; and at the Oak Ridge National Laboratory in Oak Ridge, Tennessee. Necessary facilities and equipment incident to the research of the associate will be provided. For further information write to Fellowship Office, National Academy of Sciences—National Research Council, 2101 Constitution Avenue, Washington 25, D. C. Applications for the 1958-59 program must be filed on or before January 13, 1958.

7. *Atomic Energy Commission*. The Division of Research of the Atomic Energy Commission through contracts with universities and other organizations supports research in the fields of numerical analysis, digital computer design, programming research, and related topics. Proposals should be submitted to the Division of Research, Atomic Energy Commission, 1901 Constitution Avenue, Washington 25, D. C.

Brookhaven National Laboratory. Brookhaven National Laboratory, operated by Associated Universities, Inc. under contract with the Atomic Energy Commission offers postdoctoral research appointments in mathematics. Appointments are for one year, and may be renewed for one additional year. U. S. citizenship is not required, although Atomic Energy Commission approval is a prerequisite. The appointee may work in numerical analysis, digital computing, mathematical physics, differential equations, probability and statistics, and various specialized branches including reactor theory, hydrodynamics, and orbit theory. Computational facilities are available. Letters from candidates should give details of personal history, scientific background, and qualifications; two letters of recommendation, one from the applicant's research professor, are required. Applications for the academic year 1958-59 must be received by August 15, 1958 and should be directed to M. E.

Rose, Head, Applied Mathematics Division, Brookhaven National Laboratory, Upton, Long Island, New York.

PAUL A. SMITH, *Chairman*

Division of Mathematics

HAROLD W. KUHN, *Executive Secretary*

Division of Mathematics

September 1, 1957

NRC-NBS Research Associateships

Research associateships, supported by the National Bureau of Standards and awarded on recommendations of the National Academy of Sciences—National Research Council, are offered to provide young investigators of unusual promise and ability the opportunity for basic research in various branches of the physical and mathematical sciences. These associateships are open only to citizens of the United States and are tenable at the National Bureau of Standards in Washington, D. C. Applicants must have the Ph.D. or Sc.D. degree, or their equivalent. The term of the appointment is for one calendar year. It is expected that approximately 10 awards may be made in a total of fourteen fields, of which the following are of particular interest to mathematical statisticians: Applied Mathematical Statistics and Numerical Analysis. Awards will be made about April 1, 1958. Appointments will be for one year. The annual gross stipend will be \$7035 and will be subject to income tax. Requests for application forms and for additional information about requirements for applications should be addressed to the Fellowship Office, National Academy of Sciences—National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D. C. Applications for the academic year 1958–1959 must be received in the Fellowship Office no later than January 13, 1958.

Postdoctoral Study in Statistics

Awards for study in statistics by persons whose primary field is not statistics but one of the physical, biological, or social sciences to which statistics can be applied are offered by the Department of Statistics of the University of Chicago. The awards range from \$3,600 to \$5,000 on the basis of an eleven month residence. The closing date for application for the academic year 1958–9 is February 15, 1958. Further information may be obtained from the Department of Statistics, Eckhart Hall, University of Chicago, Chicago 37, Illinois.

REPORT OF THE ATLANTIC CITY, N. J. MEETING OF THE INSTITUTE

The seventy-fourth meeting of the Institute of Mathematical Statistics and the twentieth annual meeting was held in Atlantic City, New Jersey, on Sep-

tember 10–13, 1957 in conjunction with the meetings of the American Statistical Association, the Biometric Society (ENAR) and the Econometric Society. The list of persons attending the meeting was not available when this report went to the printer.

The program was as follows:

Tuesday, September 10, 1957

10:00–11:30 a.m. Session of Mixed Topics

Chairman: Meyer Dwass, Northwestern University

- Papers:
1. *Some Remarks on Statistical Inference*, HERBERT ROBBINS, Columbia University
 2. *How to Gamble If You Must*, LESTER E. DUBINS, Carnegie Institute of Technology, and LEONARD J. SAVAGE, University of Chicago

11:30–12:30 p.m. Wald Lecture I

Chairman: T. E. Harris, The RAND Corporation

- Paper:
1. *Pólya-Type Theory*, SAMUEL KARLIN, Stanford University

2:00–3:30 p.m. Rietz Lecture

Chairman: Jerzy Neyman, University of California, Berkeley

- Paper:
1. *The Coding of Messages Subject to Chance Errors*, J. WOLFOWITZ, Cornell University

3:30–6:00 p.m. Multiple Decision Selection Procedures

Chairman: William G. Cochran, The Johns Hopkins University

- Papers:
1. *A Sequential Multiple Decision Procedure for Selecting the Best One of Several Normal Populations with a Common Unknown Variance, and Its Use with Various Experimental Designs*, ROBERT E. BECHHOFFER, Cornell University
 2. *Multiple Decision Procedures for Selecting that Multinomial Event Which Has the Largest Probability*, SALAH ELMAGHRABY and NORMAN MORSE, Cornell University
 3. *A Parametric Approach to the Problem of Selecting a Subset Containing the Best Population*, MILTON SOBEL, Bell Telephone Laboratories

4:00–6:00 p.m. Use of Stochastic Processes in Biology (With the Biometrics Section (ASA) and the Biometrics Society (ENAR))

Chairman: Paul Meier, The Johns Hopkins University

- Papers:
1. *The Role of Variable Generation Time in Tissue Cell Multiplication*, JOSEPH G. HOFFMAN, Rosewell Park Memorial Institute
 2. *Application of a Stochastic Model of Contagion to Data from a Foundling Home*, EVELYN FIX, University of California, Berkeley
 3. *On the Probability of Survival of Bacteria in Sea Water*, EUGENE K. HARRIS, Public Health Service

8:00 p.m. 1957 Council Meeting

President: A. M. Mood, General Analysis Corporation

Wednesday, September 11, 1957**8:30-10:30 a.m. Application of Statistical Theory to Computers (With the American Statistical Association in General Session)**

Chairman: John W. Mauchly, Sperry Rand Corp.

- Papers: 1. *Some Probability Considerations in the Estimation of Computer Running Time*, ELI S. MARKS and BENJAMIN J. TEPPIG, National Analysts, Inc.
 2. *A Model for UNIVAC Operations*, LEON GILFORD, Bureau of the Census
 3. *Statistical Strategies in Data Handling*, J. T. CHU, A. W. HOLT, and WILLIAM TURANSKI, Sperry Rand Corp.
 4. *A Decision Model for Computer Utilization*, by MORRIS J. SOLOMON, American Greetings Corp.

9:00-11:30 a.m. Stochastic Processes

Chairman: H. B. Mann, Ohio State University

- Papers: 1. *The Identifiability Problem for Functions of Finite Markov Chains*, DAVID BLACKWELL, University of California, Berkeley
 2. *Cosmic Ray Cascade Processes*, T. E. HARRIS, The RAND Corporation
 3. *Some Problems in Applied Stochastic Processes from the Point of View of Semi-group Theory*, A. T. BHARUCHA-REID, University of Oregon
 4. *On Testing the Markov Property*, P. BILLINGSLEY, Princeton University

11:30-12:30 p.m. Wald Lecture II

Chairman: William G. Madow, Stanford Research Institute

- Paper: 1. *Pólya-type Theory*, SAMUEL KARLIN, Stanford University

2:00-3:30 p.m. Special Invited Paper

Chairman: Leo Katz, Michigan State University

- Paper: 1. *Asymptotic Approximations to Distributions*, DAVID L. WALLACE, University of Chicago

2:00-4:00 p.m. Some Classification Problems in Sociology and Psychology (With the American Statistical Association)

Chairman: Herbert Solomon, Columbia University

- Papers: 1. *Classification by Configuration and Level*, E. I. BURDOCK, New York Department of Mental Hygiene
 2. *Application of Analysis of Variance Techniques to Profile Analysis*, S. W. GREENHOUSE and S. GEISSER, National Institute of Mental Health
 3. *Classification by Response Vectors Based on n Dichotomous Items*, ROSEDDITH SITGREAVES, Columbia University

3:30-5:30 p.m. Regression Models and Multifactor Designs

Chairman: Churchill Eisenhart, National Bureau of Standards

- Papers: 1. *Some Mathematical Problems Arising in the Construction of Fractionally Replicated Design and Designs for the Study of Response Surfaces*, R. C. BOSE, University of North Carolina
 2. *Reduced Regression Models*, M. B. WILK, Bell Telephone Laboratories

5:30 p.m. Business Meeting

President: A. M. Mood, General Analysis Corporation

8:00 p.m. Karl Pearson—An Appreciation on the 100th Anniversary of His Birth (With the American Statistical Association in General Session)

Chairman: Burton H. Camp, Wesleyan University

Speakers: HELEN M. WALKER, Columbia University

SAMUEL STOUFFER, Harvard University

CHURCHILL EISENHART, National Bureau of Standards

JERZY NEYMAN, University of California, Berkeley

9:00 p.m. 1958 Council Meeting

President: Leonard J. Savage, University of Chicago

THURSDAY, SEPTEMBER 12, 1957**8:30–10:30 a.m. Distinctive Characteristics of Psychometric Statistics (With the Biometric Section (ASA) and Biometric Society (ENAR).)**

Chairman: George E. Nicholson, Jr., University of North Carolina

Papers: 1. *Problems of Metric*, HAROLD GULLIKSEN, Educational Testing Service and Princeton University

2. *Problems Arising from Errors of Measurement*, FREDERIC M. LORD, Educational Testing Service

Discussants: HERBERT SOLOMON, Columbia University

JOHN W. TUKEY, Princeton University

9:00–11:30 a.m. Contributed Papers I

Chairman: Robert Hooke, Westinghouse Research Laboratories

Papers: 1. *On an Optimal Property of Variance-components Estimates*, WERNER GAUTSCHI, Indiana University

2. *Quantization for Least Mean Squares Error*, STUART P. LLOYD, Bell Telephone Laboratories, Inc.

3. *On the Equality of the Variances of Several Univariate Normal Populations and Some Multivariate Extensions*, R. GNANADESIKAN, University of North Carolina

4. *Further Contributions to Confidence Bounds on Multivariate Variance Components*, S. N. ROY and R. GNANADESIKAN, University of North Carolina

5. *Effects and the Classical Analysis of Variance Mixed Model*, MARY D. LUM, Wright Air Development Center (By Title)

6. *On the Distribution of the Latent Roots of Real Symmetric Random Matrices with Multinormally Distributed Elements*, H. ROBERT VAN DER VAART, University of North Carolina and Leiden University, The Netherlands

7. *Mathematical Developments in the Theory of Human Lethal Dose* (Preliminary Report), CLIFFORD J. MALONEY, Fort Detrick

8. *An Extension of Box's Results on the Use of the F Distribution in Multivariate Analysis*, SEYMOUR GEISSER and SAMUEL W. GREENHOUSE, National Institute of Mental Health

9. *On the Decomposition of Certain Chi-Square Variables*, ROBERT V. HOGG and ALLEN T. CRAIG, University of Iowa (By Title)

10. *On the Non-optimality of Symmetrical Designs Among Randomized Designs*, J. C. KIEFER, Cornell University (By Title)
11. *On the (Nonrandomized) Optimality of Symmetrical Designs*, J. C. KIEFER, Cornell University (By Title)
12. *A Generalization of the Discriminant Function Analysis* (Preliminary Report), M. M. RAO, University of Minnesota (By Title)
13. *Asymptotic Independence of Tests of Parametric Forms of Cell Probabilities in the Analysis of Categorical Data*, EARL L. DIAMOND, University of North Carolina (By Title)
14. *Tests of Parametric Forms of Cell Probabilities and Their Asymptotic Power in the Analysis of Categorical Data*, EARL L. DIAMOND, University of North Carolina (By Title)
15. *Bias in Certain Current Procedures of Response Surface Estimation*, H. ROBERT VAN DER VAART, University of North Carolina and Leiden University, The Netherlands (By Title)
16. *Statistical Estimate and Control of the Costs Caused by Accident in a Factory*, HANS BÜHLMANN, University of California, Berkeley

9:00–11:30 a.m. Contributed Papers II

Chairman: Julius Lieblein, Navy Department

- Papers:
1. *Conditions that a Stochastic Process Be Ergodic*, EMANUAL PARZEN, Stanford University
 2. *Some Renewal Processes Related to Types I and II Counter Models*, RONALD PYKE, Stanford University
 3. *Contributions to the Theory of Random Mappings*, BERNARD HARRIS, Stanford University
 4. *Exact Probabilities and Asymptotic Relationships for Some Statistics from m -th Order Markov Chains*, LEO A. GOODMAN, University of Chicago
 5. *The Telephone Trunking Problem* (Preliminary Report), HERBERT SCARF, The RAND Corporation
 6. *Birth and Death Random Walk Process in s Dimensions*, J. NEYMAN and ELIZABETH L. SCOTT, University of California
 7. *Random Walks in the Plane with General Absorbing Barriers*, M. V. JOHNS, JR., Stanford University
 8. *Distinguishability of Sets of Distributions (The Case of Independent and Identically Distributed Chance Variables)*, W. HOEFFDING, University of North Carolina and J. WOLFOWITZ, Cornell University
 9. *On Aggregation and Consolidation in Finite Substochastic Systems, I*, DAVID ROSENBLATT, American University (By Title)
 10. *On Aggregation and Consolidation in Finite Substochastic Systems, II*, DAVID ROSENBLATT, American University (By Title)
 11. *On Aggregation and Consolidation in Finite Substochastic Systems, III*, DAVID ROSENBLATT, American University (By Title)
 12. *On Aggregation and Consolidation in Finite Substochastic Systems, IV*, DAVID ROSENBLATT, American University (By Title)
 13. *Age-dependent Branching Stochastic Processes in Cascade Theory, II. Case of Transformation Probabilities as Functions of Absorber Depth*, W. MAX WOODS, Stanford University, and A. T. BHARUCHA-REID, University of Oregon (By Title)
 14. *Asymptotic Distributions of Some Goodness of Fit Criteria for m -th Order Markov Chains*, LEO A. GOODMAN, University of Chicago (By Title)

15. *Runs Tests and Likelihood Ratio Tests for Markov Chains*, LEO A. GOODMAN, University of Chicago (By Title)

11:30–12:30 p.m. Wald Lecture III

Chairman: David Blackwell, University of California, Berkeley

Paper: 1. *Pólya-Type Theory*, SAMUEL KARLIN, Stanford University

2:00–3:30 p.m. Special Invited Paper

Chairman: Harold Hotelling, University of North Carolina

Paper: 1. *Estimation of Economic Relations*, CLIFFORD HILDRETH, Michigan State University

2:00–4:00 p.m. Applications of Computers to Statistical Problems (with the American Statistical Association in General Session).

Chairman: Joseph F. Daly, Bureau of the Census

- Papers:
1. *Some Experience with Electronic Computers in Processing Economic Census Data*, MAXWELL R. CONKLIN and OWEN C. GRETTON, Bureau of the Census
 2. *Getting Mass Statistical Data into Computers—A Progress Report on FOSDIC*, M. L. GRENNOUGH, National Bureau of Standards
 3. *On the Use of Electronic Computers for Standard Statistical Calculations*, MILTON E. TERRY, Bell Telephone Laboratories, Inc.

4:00–6:00 p.m. Effect of High Speed Computing on Statistics (With the American Statistical Association)

Chairman: R. L. Anderson, North Carolina State College

- Papers:
1. *Some Examples of Computer Applications in Mathematical Statistics*, GEORGE W. BROWN, University of California at Los Angeles and General Analysis Corporation, and A. M. MOOD, General Analysis Corporation
 2. *Making the Computer Cry, "Enough"!*, JACK MOSHMAN, Council for Economic and Industry Research
 3. *Machine Generation of Normal Deviates and Their Application to Power Functions of Statistical Tests*, MERVIN E. MULLER, Princeton University and International Business Machines Corporation

Discussant: H. O. HARTLEY, Iowa State College

10:00 p.m. Informal Party

FRIDAY, SEPTEMBER 13, 1957

9:00–11:30 a.m. Contributed Papers III

Chairman: R. A. Bradley, Virginia Polytechnic Institute

- Papers:
1. *Graphic Methods Based Upon Properties of Advancing Centroids*, S. I. ASKOVITZ, University of Pennsylvania and Albert Einstein Medical Center
 2. *Nonparametric Mean and Variance Estimation from Truncated Data*, JOHN E. WALSH, Lockheed Aircraft Corporation (By Title)
 3. *A Table of the Expected Value of the Quasi-Range*, H. LEON HARTER, Wright Air Development Center
 4. *On the Bivariate Sign Test*, ISADORE BLUMEN, Cornell University (By Title)
 5. *Tests of Functional Forms of Cell Probabilities and Their Asymptotic Power*

- in the Analysis of Categorical Data*, EARL L. DIAMOND, University of North Carolina
6. *Asymptotic Normality and Efficiency of Certain Nonparametric Test Statistics*, HERMAN CHERNOFF, Stanford University, and I. RICHARD SAVAGE, Stanford University and The Center for Advanced Study in the Behavioral Sciences
 7. *Extension of the Mann-Whitney "U" Test to Samples Censored at the Same Fixed Point*, MAX HALPERIN, National Institutes of Health
 8. *Generalisation of Steinhaus' Results on Fair Division*, PETER NEWMAN, University College of the West Indies (By Title)
 9. *Distribution of a Serial Correlation Coefficient Near the Ends of the Range*, M. M. SIDDIQUI, University of North Carolina (By Title)
 10. *An Extension of the Theory of Cumulative Frequency Functions*, DR. BERNARD J. DERWORT, North American Aircraft Corp., and DR. WALDO A. VEZEAU, St. Louis University (By Title)
 11. *On Some Distribution-free Bias Properties of the Latent Roots of Real Symmetric Random Matrices*, H. ROBERT VAN DER VAART, University of North Carolina and Leiden University, The Netherlands (By Title)
 12. *On Convergence of Distribution Functions and of Moments of Order Statistics*, M. ROHATGI, University of California, Berkeley (By Title)
 13. *The Significance Probability of the Smirnov Two-sample Test*, J. L. HODGES, JR., University of California, Berkeley (By Title)
 14. *On Ranking Parameters of Location and Scale in Continuous Populations*, K. C. SEAL, Calcutta University (By Title)
 15. *Estimation of Regression Coefficients in Certain Classes of Continuous Parameter, Stationary Time Series* (Preliminary Report), G. E. ALBERT, University of Tennessee (By Title)

9:00-11:30 a.m. Contributed Papers IV

Chairman: John Gurland, Iowa State College

- Papers:
1. *Tests for Significance in Bivariate Harmonic Analysis*, HAROLD HOTELLING, University of North Carolina, and DONALD F. MORRISON, National Institute of Mental Health
 2. *Testing Homogeneity of Means in the Presence of Heterogeneity of Variance*, JOHN GURLAND, Iowa State College, and LLOYD ROSENBERG
 3. *The Limiting Distribution of a Likelihood Ratio Test for the Serial Correlation Coefficient*, JOHN S. WHITE, Minneapolis-Honeywell Regulator Company (By Title)
 4. *Tests of Multiple Independence and the Associated Confidence Bounds*, S. N. ROY and R. E. BARGMANN, University of North Carolina
 5. *Confidence Bounds on the "Ratio of Means" and "Ratio of Variances" for Correlated Variates*, S. N. ROY and R. F. POTTHOFF, University of North Carolina
 6. *Bayes Acceptance Sampling Procedures for Large Lots*, DONALD GUTHRIE, JR., and M. V. JOHNS, JR., Stanford University
 7. *Best Unbiased Tests of Composite Hypotheses with s Constraints*, M. ROHATGI, University of California, Berkeley
 8. *On Tests of a Certain Hypothesis Based Upon Selected Sample Quantiles*, JUNJIRO OGAWA, University of North Carolina
 9. *Jacobi Polynomials and Distribution of Some Serial Correlation Coefficients*, M. M. SIDDIQUI, University of North Carolina (By Title)

10. *Tabulation of the Trivariate Normal Integral* (Preliminary Report), GEORGE P. STECK, Sandia Corporation (By Title)
11. *Equally Spaced Levels for Multi-level Continuous Sampling Plans* (Preliminary Report), DONALD GUTHRIE, JR., and M. V. JOHNS, JR., Stanford University (By Title)
12. *On the Numerical Computation of Certain Multivariate Normal Integrals*, H. ROBERT VAN DER VAART, University of North Carolina and Leiden University, The Netherlands (By Title)
13. *On the Asymptotic Distribution of the Likelihood-ratio in Some Mixed Variates Populations*, JUNJIRO OGAWA, University of North Carolina (By Title)
14. *Further Results in Testing of Hypotheses on a Multivariate Population, Some of the Variates Being Continuous and the Rest Categorical*, M. D. MOUSTAFA, University of North Carolina (By Title)
15. *A Matrix Definition of the Correlation Between Two Sets of Variables*, ANDRE G. LAURENT, Michigan State University and Wayne State University (By Title)

**10:30-12:30 p.m. Demand and Supply of Statisticians Now and in the Future
(With the Section on Training (ASA).)**

Chairman: Virgil Anderson, Purdue University

- Papers:
1. *From the Standpoint of Government*, DAVID L. FUTRANSKY, Bureau of the Census
 2. *From the Standpoint of Colleges*, T. A. BANCROFT, Iowa State College
 3. *From the Standpoint of Industry*, CUTHBERT DANIEL, Private Consultant
 4. *From the Survey of Both Industry and Colleges*, BOYD HARSHBARGER, Virginia Polytechnic Institute

11:30 a.m.-12:30 p.m. Wald Lecture IV

Chairman: Herman Chernoff, Stanford University

- Paper:
1. *Pólya-Type Theory*, SAMUEL KARLIN, Stanford University

2:00-3:30 p.m. Special Invited Paper

Chairman: Wassily Hoeffding, University of North Carolina

- Paper:
1. *Distribution-free Methods in Statistics*, E. J. G. PITMAN, University of Tasmania and Stanford University

3:30-5:30 p.m. Statistical Spectral Analysis of Stationary Time Series

Chairman: Julius R. Blum, Indiana University

- Papers:
1. *On Asymptotically Efficient Consistent Estimates of the Spectral Density Function of a Stationary Time Series*, EMANUEL PARZEN, Stanford University
 2. *The Prediction Problem and the Structure of a Class of Stationary Processes*, MURRAY ROSENBLATT, Indiana University
 3. *On the Joint Estimation of the Spectra, Cospectrum and Quadrature Spectrum of a Two-Dimensional Stationary Gaussian Process*, N. R. GOODMAN, American Cyanamid Company and New York University

Discussant: JOHN W. TUKEY, Princeton University and Bell Telephone Laboratories

REPORT OF THE PRESIDENT FOR 1957

The Institute continued to grow and to prosper and to increase its influence in statistical affairs during the past year. Our journal has published more and a greater variety of papers than ever before; our meetings have attracted more participants than ever before. Our membership has increased as has the number of institutional members. The programs of our meetings are more extensive and have a greater density of invited lectures.

Besides this fine annual meeting we have had a very successful regional meeting in Washington, D. C. attended by 145 members. The program for the Washington meeting was arranged by a committee under the chairmanship of M. Zelen. The present Eastern Regional Program Committee chaired by Herbert A. Meyer is organizing a meeting in Tennessee for next spring.

The excellent program for this annual meeting was arranged by a committee named below chaired by W. H. Clatworthy. Large contributions were made to it by the Special Invited Papers Committee and the Program Coordinator, Martin Wilk.

The Western Regional Program Committee chaired by David Stoller has arranged a program for a Los Angeles meeting in December. The Central Regional Program Committee chaired by Jack Silber is planning a meeting for next spring or summer possibly at Ames, Iowa.

The Institute receives financial support from the National Science Foundation to sponsor a Summer Statistical Institute. Last summer we received \$11,600 to cover expenses of a six weeks seminar on Analysis of Variance. It was held at the University of Colorado under the chairmanship of Oscar Kempthorne. Some twenty members of the Institute participated. A committee headed by Herman Chernoff selected Nonparametric Statistical Inference as the subject of the 1958 Summer Statistical Institute. A committee of statisticians especially interested in nonparametric methods headed by I. R. Savage has prepared a proposal for the NSF and is organizing that seminar.

The Special Invited Paper Committee under the chairmanship of Gerald Lieberman had an unusually big job this year in that it had the responsibility for both the Rietz and the Wald lectures in addition to the hour speakers. We are hearing at this Annual Meeting the excellent series of Wald lectures by Samuel Karlin; of the three special invited papers we are hearing, the two by D. L. Wallace and Clifford Hildreth were arranged by last year's committee and the one by E. J. G. Pittman by this year's committee, which has also arranged several papers for future meetings.

Walter Bartky and L. J. Savage as delegates of the IMS attended a meeting of representatives of several mathematical societies to explore the possibility of forming a super organization which would perform certain functions in the area common to all of them, thus putting the Policy Committee for Mathematics on a more formal basis. The organization will doubtless be created in due course and

will probably include some ten or so societies primarily concerned with pure and applied mathematics.

The affairs of the Institute are carried out by a large number of members who unselfishly devote a part of their time to the many tasks necessary to operating a society of this kind. Our members are extremely cooperative and responsive to their professional duties in this connection. During the year I have had occasion to ask over one hundred people to do something for the Institute; of those only three declined. That is a remarkably high response and I am most grateful to all for making my job so easy.

The names of all these people who ran the Institute last year are listed below in their various capacities, but let me mention especially three people who are primarily responsible for seeing that all goes well and who devote a substantial proportion of their time to the Institute. They are G. E. Nicholson, Secretary, A. H. Bowker, Treasurer and T. E. Harris, Editor. They stay with their jobs for several years in succession thus providing continuity and stable management for the whole organization.

The last of the many Committees which it is my duty to appoint is the Nominating Committee for next year; it consists of David Blackwell (Chairman), R. L. Anderson, Leo Goodman, H. O. Hartley, Lincoln Moses, and Herbert Solomon.

In closing let me congratulate the new Fellows of the Institute who are:

Oskar Anderson	J. M. Hammersley
Douglas Chapman	G. B. Kallianpur
Will Dixon	Eugene Lukacs
I. J. Good	G. R. Rao

ALEXANDER M. MOOD

President

IMS OFFICERS, COMMITTEES, AND REPRESENTATIVES FOR 1957 COUNCIL:

Terms Expire 1957

R. L. Anderson
Leo Goodman
P. G. Hoel
L. J. Savage
Herbert Solomon

Terms Expire 1958

R. C. Bose
Churchill Eisenhart
Oscar Kempthorne
W. J. Youden

Terms Expire 1959

T. W. Anderson
M. S. Bartlett
J. Berkson
E. L. Lehmann

President	A. M. Mood
President-Elect	L. J. Savage
Secretary	G. E. Nicholson
Treasurer	A. H. Bowker
Editor	T. E. Harris

PROGRAM COORDINATOR: M. B. Wilk

ASSISTANT AND ASSOCIATE SECRETARIES: Jerome Cornfield, Evelyn Fix, Dorothy Gilford, William Kruskal.

ASSOCIATE TREASURER: E. S. Pearson.

ASSOCIATE EDITORS: Z. W. Birnbaum, David Blackwell, Herman Chernoff, W. J. Dixon, J. M. Hammersley, J. Wolfowitz.

COMMITTEE ON FELLOWS:

*Terms Expire 1957*L. J. Savage
Chairman

M. S. Bartlett

Terms Expire 1958

F. J. Anscombe

Leo Goodman

Terms Expire 1959

Z. W. Birnbaum

Elizabeth Scott

APPOINTED COMMITTEES

PROGRAM COMMITTEE FOR ANNUAL MEETING: W. H. Clatworthy (Chairman), R. R. Bahadur, Grace Bates, J. R. Blum, R. E. Greenwood, F. E. Grubbs, J. C. Kiefer, Paul Meier, Herbert Robbins, Elizabeth Scott.

PROGRAM COMMITTEE FOR EASTERN REGION: H. A. Meyer (Chairman), Ralph Bradley, R. E. Beckhofer, Cuthbert Daniel, Sylvain Ehrenfeld, B. G. Greenberg, D. G. Horvitz, E. L. Kaplan.

PROGRAM COMMITTEE FOR CENTRAL REGION: Jack Silber (Chairman), Virgil Anderson, F. C. Andrews, Charles Bell, H. T. David, F. A. Graybill, E. R. Immel, Bernard Ostle.

PROGRAM COMMITTEE FOR WESTERN REGION: David Stoller (Chairman), John Hofmann, Richard Link, Frank Massey, Emanuel Parzen, Marion Sandomire, Lionel Weiss, Robert Wijsman.

COMMITTEE ON LECTURES AND INVITED PAPERS: Gerald Lieberman (Chairman), W. S. Connor, Lucien LeCam, G. E. Noether, D. L. Wallace, T. E. Harris (ex officio), M. B. Wilk (ex officio).

COMMITTEE ON INDIVIDUAL MEMBERSHIP: Meyer Dwass (Chairman), David Duncan, Donald Fraser, M. N. Ghosh, Shanti Gupta, David Kendall, James Pachares, Henry Teicher, Louis Wegner.

COMMITTEE ON ACADEMIC INSTITUTIONAL MEMBERS: R. G. D. Steel (Chairman), Donald Darling, Rudolph Freund, Palmer Johnson, A. L. Comrey, Howard Tucker.

COMMITTEE ON NON-ACADEMIC INSTITUTIONAL MEMBERS: Stanley Rothman (Chairman), S. L. Anderson, Stanley Isaacson, Daniel Teichroew, Benjamin Tepping, John E. Walsh.

COMMITTEE ON SUBSCRIPTIONS TO THE ANNALS: Lila Elveback (Chairman), Joe Adams, K. A. Bush, Edward Coleman, Harry Harman, T. A. Jeeves.

NOMINATING COMMITTEE (APPOINTED BY DAVID BLACKWELL, PAST-PRESIDENT): Charles Stein (Chairman), Joseph Berkson, Kai Lai Chung, John Curtiss, David Kendall.

FINANCE COMMITTEE: Melvin Peisakoff (Chairman), A. H. Bowker, Cuthbert Hurd, Theodore Yntema.

COMMITTEE ON PRINTING THE ANNALS: Kenneth Arnold, Chairman, A. H. Bowker, J. H. Curtiss, T. E. Harris, William Kruskal, Sigeiti Moriguti, D. van Dantzig.

COMMITTEE TO ORGANIZE 1957 SUMMER STATISTICAL INSTITUTE: Oscar Kempthorne, Chairman, T. W. Anderson, J. Cornfield, J. W. Tukey, Henry Scheffé.

COMMITTEE TO PLAN 1958 SUMMER STATISTICAL INSTITUTE: Herman Chernoff, Chairman, Leo Hurwicz, L. J. Savage, Lionel Weiss.

COMMITTEE TO ORGANIZE 1958 SUMMER STATISTICAL INSTITUTE: I. R. Savage, Chairman, J. L. Hodges, W. Hoeffding, William Kruskal, Frank Wilcoxon.

COMMITTEE ON PROFESSIONAL STANDARDS OF STATISTICIANS IN GOVERNMENT SERVICE: B. F. Kimball, Chairman, Robert W. Burgess, Churchill Eisenhart, G. M. Harrington, A. S. Householder, Joseph Lev, Herbert Marshall, Robert E. Patton, John E. Walsh.

COMMITTEE ON MATHEMATICAL TABLES: J. W. Tukey, Chairman, R. L. Anderson, A. H. Bowker, E. E. Cureton, W. J. Dixon, C. W. Dunnett, Churchill Eisenhart, J. A. Greenwood, H. O. Hartley, William Kruskal, D. B. Owen, Daniel Teichroew, M. A. Woodbury.

COMMITTEE ON EXCHANGES: P. S. Dwyer, A. H. Bowker, T. E. Harris, G. E. Nicholson.

AD HOC COMMITTEE ON HIGH SPEED MACHINES: R. L. Anderson, Chairman, F. S. Acton, K. J. Arnold, J. Moshman, H. W. Norton, G. J. Resnikoff, C. F. Cossack, W. H. Kruskal, W. J. Merrill, H. A. Meyer, R. Slimak, Z. Szatrowski, D. Teichroew.

REPRESENTATIVES TO OTHER ORGANIZATIONS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE: Harold Hoteling

NATIONAL RESEARCH COUNCIL, DIVISION OF MATHEMATICS: S. S. Wilks (until 1 July 1957), W. Allen Wallis (beginning 1 July 1957).

POLICY COMMITTEE FOR MATHEMATICS: Joseph F. Daly

ADVISORY COMMITTEE OF AMERICAN STANDARDS ASSOCIATION ON ISO/TC69, STATISTICAL TREATMENT OF OBSERVATIONS: Howard Raiffa

COUNCIL OF U. S. CENSUS USERS: W. E. Deming

REPORT OF THE SECRETARY FOR 1957

During 1957 to date The Institute has held its 73rd through 74th meetings. A business meeting was held during 74th (20th Annual) meeting. The Program Committees are to be congratulated on the excellent programs which have been arranged under the immediate direction of Marvin Zelen and W. H. Clatworthy with the overall guidance of our Program Coordinator, M. B. Wilk. The Assistant Secretaries, Eugene Lukas and Jerome Cornfield, are to be congratulated on the physical arrangements, and the Associate Secretary, Dorothy M. Gilford, on her performance of the duties of the Secretary with respect to the meetings.

GEORGE E. NICHOLSON, JR.
Secretary

MINUTES OF THE ANNUAL BUSINESS MEETING SEPTEMBER 11, 1957

The annual business meeting of The Institute of Mathematical Statistics was called to order at 5:30 p.m. September 11, 1957, in the Surf Room of the Ambassador Hotel in Atlantic City, New Jersey, by President Alexander M. Mood. Approximately 60 members were present.

Minutes of the August 22, 1956, business meeting held in Seattle, Washington, were approved.

Reports of the Secretary, Treasurer, Editor, and Program Coordinator were presented and approved. The work of the Associate Secretary, Dorothy M. Gilford, Assistant Secretary Jerome Cornfield, and Program Coordinator Martin Wilk in organizing the meeting was commended by the Secretary. President Mood called special attention to the work done by Program Committee Chairman William Clatworthy and extended his personal thanks together with that of The Institute. This action was applauded by the members.

The tellers distributed ballots to those members who had not voted by mail.

President Mood presented his report and turned the chair over to the new President L. J. Savage.

Herman Rubin objected to the time of scheduling the business meeting, to the timing of the annual meeting in relation to the time of the American Mathematical Society meeting, and to the fact that contributed papers sessions had been scheduled so that there were conflicts. David Stoller moved that these objections be referred to the Program Committee. This motion passed. Doctor Rubin moved that the Program Committee be instructed to avoid conflicts of contributed papers sessions. This motion did not pass.

Ingram Olkin was appointed Chairman of an ad hoc committee to investigate possibilities for making translations of papers published in Russian which are of interest to members of The Institute more readily available, and Eugene Lukacs was appointed a member of this committee. Irving Burr was appointed Chairman of an ad hoc committee to consider how to overcome the lack of adequate blackboards in hotels. Herbert Robbins and Martin Wilk were asked to serve on this committee. There was a discussion of the objection that too many invited papers had been scheduled for the annual meeting.

A new policy for abstracts was announced. In the future abstracts should be in the hands of the Editor of THE ANNALS fifty days prior to the meeting instead of 47 days as had been the previous policy. Julius Blum suggested that notices of hotels to be used for annual meetings be sent out as soon as possible so members can get less expensive rooms. Irving Burr and Harold Hotelling spoke of the advantages of universities over hotels as meeting places.

Next year is the last year of the three-year trial of having no annual Christmas meeting. Members should express opinions about this to Council members.

The tellers announced the election of the following officers: J. Wolfowitz, President-Elect, David Blackwell, Council Member, 1958-1960, H. Hotelling, Council Member, 1958-1960, J. Neyman, Council Member, 1958-1960, I. R. Savage, Council Member, 1958-1960.

The meeting was adjourned about 7:00 p.m.

PUBLICATIONS RECEIVED

- ROY, RENE, *Cahiers du Seminaire D'Econometrie: No. 4—Programme lineaire—Agregation et nombres indices*. Editions du Centre National de la Recherche Scientifique 13, Quai Anatole-France Paris-7, 146 pp.
- MANN, HENRY B., *Introduction to the Theory of Stochastic Processes Depending on a Continuous Parameter*, Ohio State University Press, Columbus 10, Ohio, \$0.35.
- OWEN, D. B., *Tables of the Normal Probability Integral*, Technical Memorandum 64-57-51, Sandia Corporation, Albuquerque, New Mexico.
- WALD, ABRAHAM, *Selected Papers in Statistics and Probability*, Stanford University Press, Stanford, California, 1957, ix + 702 pp., \$10.00.
- VARNER, WALTER W., *Computing with Desk Calculators*, Rinehart and Company, Inc., New York, 1957, viii + 108 pp., \$2.00.
- TUTTLE, ALVA M., *Elementary Business and Economic Statistics*, McGraw-Hill Book Company, New York, 1957, xiii + 663 pp., \$6.75.